Transylvania County Community Health Assessment

2012

TRANSYLVANIA REGIONAL HOSPITAL

Public Health
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Transylvania County
Department of Public Health

TRANSYLVANIA COUNTY COMMUNITY HEALTH ASSESSMENT

ACKNOWLEDGEMENTS

This document was developed by Transylvania County Department of Public Health, Transylvania Regional Hospital, and Land of Waterfalls Partnership for Health 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:

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The Free Clinic of Transylvania County Board of Directors	*Prioritization*
Land of Waterfalls Partnership for Health	*Prioritization*
Project TRAIN Roundtable Committee	*Prioritization*
Transylvania County Board of Commissioners	*Prioritization*
Transylvania County Board of Education	*Prioritization*
Transylvania County Board of Health	*Prioritization*
Transylvania County Council on Aging	*Prioritization*

Transylvania County Department Directors	*Prioritization*
Transylvania County Department of Public Health	*Prioritization*
Transylvania County Mental Health Stakeholders group	*Prioritization*
Transylvania County School Health Advisory Council (SHAC)	*Prioritization*
Transylvania Regional Hospital Board of Trustees	*Prioritization*
Transylvania Regional Hospital Leadership Team	*Prioritization*
Transylvania Regional Hospital Medical Providers	*Prioritization*
United Way of Transylvania County Board of Directors	*Prioritization*
United Way of Transylvania County Executive Board	*Prioritization*

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

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EXECUTIVE SUMMARY

Overview of CHA Purpose and Process

Community health assessment (CHA) is the foundation for improving and promoting the health of county residents. Community-health assessment is a key step in the continuous community health improvement process and is one of the three core functions of public health (assessment, policy development, and assurance). The objective of any CHA is to identify factors that affect the health of a population and determine the availability of resources within the county to adequately address these factors in order to improve health outcomes.

A community health assessment (CHA), 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, health, environment, and primary data such as personal self-reports and public opinion collected by surveys, 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 planning to meet those needs.

In North Carolina, local health departments are required to conduct a comprehensive community health assessment at least every four years as part of a consolidated agreement with the NC Division of Public Health for local public health department accreditation. As part of the Affordable Care Act, non-profit hospitals are also now required to conduct a community health (needs) assessment at least every three years. In Transylvania County, the most recent CHA was completed in 2009; however, in order to align with the new hospital requirements, the decision was made to transition the Transylvania County CHA timeline. For this reason, our local CHA process was advanced a year to integrate and synchronize the mutual obligations for Transylvania Regional Hospital and the Transylvania County Department of Public Health.

Transylvania County Department of Public Health and Transylvania Regional Hospital are also part of a larger partnership in Western North Carolina (WNC). 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. WNC Healthy Impact continues to support the local and regional CHA effort through consultation, data collection, and technical assistance. See www.WNCHealthyImpact.com for more details about the purpose and participants of this region-wide effort.

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Transylvania County Dept of Public Health
Transylvania County Dept of Social Services
Transylvania County Mental Health Group
Transylvania County Schools
Transylvania Regional Hospital
United Way of Transylvania
Western Carolina Community Action
WNC Healthy Impact

List of Health Priorities

The 2009 Community Health Assessment resulted in the following priorities:

- Access to Care
  - Mental health, substance abuse, chronic illness, dental health
- Healthy Lifestyles/Wellness
  - Mental health, substance abuse, chronic illness, dental health
- Basic Needs
  - Education, housing, employment, food security

The Transylvania County 2012 Community Health Assessment Priority Areas are:

1. **Obesity**
2. **Dental Health**
3. **Mental Health/Substance Abuse**

General Review of Data and Trends

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

1. Obesity

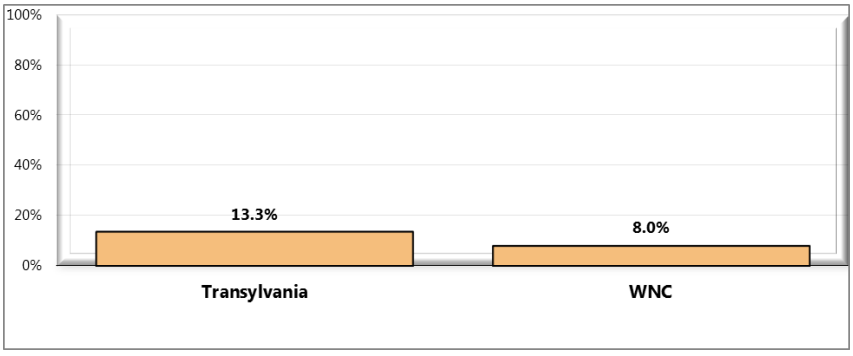
Overweight and obesity pose significant health concerns for both children and adults. Excess weight increases an individual's risk of developing type 2 diabetes, high blood pressure, heart disease, certain cancers, and stroke. Because weight is influenced by energy (calories) consumed and expended, interventions to improve weight can support changes in diet or physical activity. Body Mass Index (BMI), which describes relative weight for height, is significantly correlated with total body fat content. (NC Institute of Medicine – Healthy NC 2020: Physical Activity and Nutrition http://www.publichealth.nc.gov/hnc2020/)

Based on self-reported heights and weights, the data below displays 2012 estimates for the prevalence of healthy weight, overweight, and obesity in adults. Transylvania County self-reported rates mirror regional, state, and national estimates that roughly 1 in 3 children and 2 in 3 adults are overweight or obese. While Transylvania County is less obese than the region, state, and country; the majority (65%) of our adult population has a BMI of greater than 25.

Self-Reported Height and Weight (WNC Healthy Impact Survey)

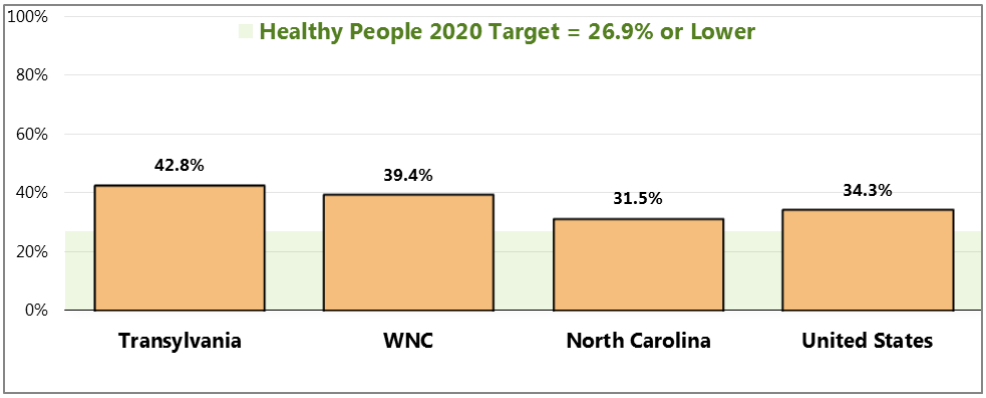
	Healthy Weight	Prevalence of Total Overweight	Prevalence of Obesity (subset of Overweight)
	Percent of Adults With a Body Mass Index Between 18.5 and 24.9	Percent of Overweight or/Obese Adults; Body Mass Index of 25.0 or Higher	Percent of Obese Adults; Body Mass Index of 30.0 or Higher
Transylvania	**31.1%**	**65%**	**23.9%**
WNC	**33.7%**	**65%**	**29.2%**
NC	**----**	**65.3%**	**28.6%**
US	**31.7%**	**66.9%**	**28.5%**

Only 13.3% of Transylvania County residents are eating the recommended minimum fruit and vegetable servings per day.



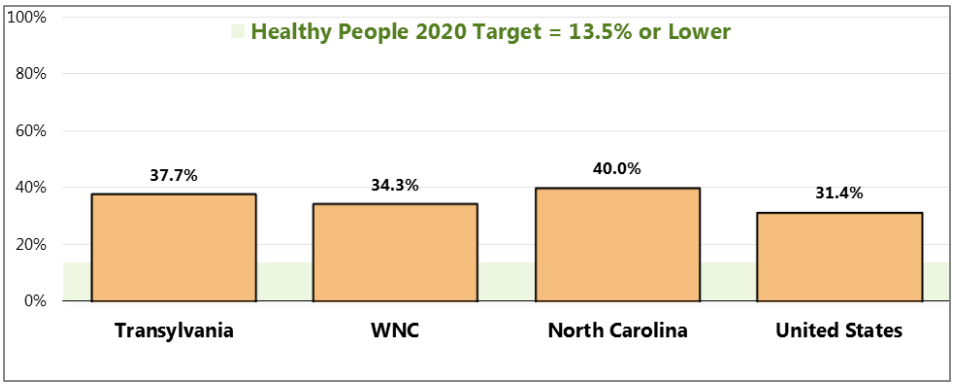
Had an Average of Five or More Servings of Fruits/Vegetables per Day in the Past Week
(WNC Healthy Impact Survey)

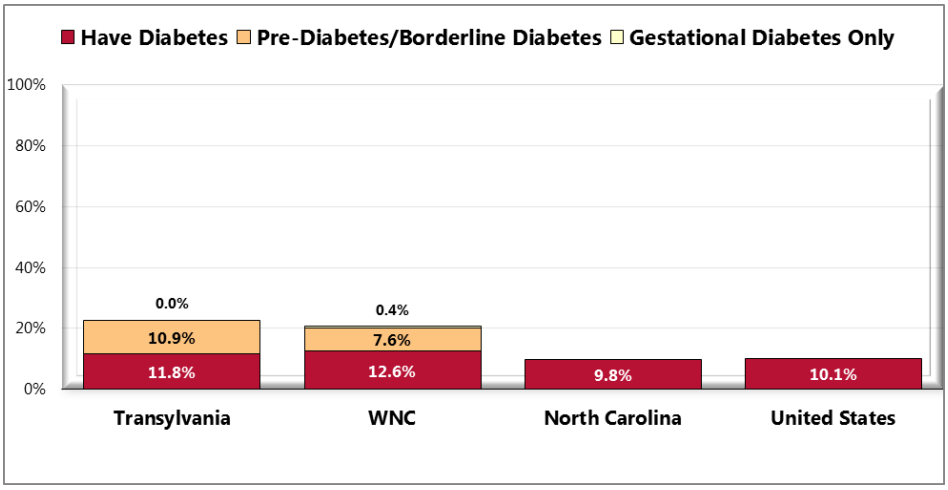
Transylvania County is far from meeting the Healthy People 2020 (www.healthypeople.gov) goals for both high blood pressure and elevated cholesterol.



Prevalence of High Blood Pressure
(WNC Healthy Impact Survey)

Prevalence of High Blood Cholesterol
(WNC Healthy Impact Survey)





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

Despite these findings, residents in Transylvania County want to see our county become a healthier place to live by improving access to fresh produce and increasing physical activity opportunities. Of those residents that completed the *WNC Healthy Impact* survey, the majority think it is important for our communities to make the following changes:

- Make it easier for residents to access farmer's markets and tailgate markets (75.7%)
- Improve the public's access to physical activity spaces during after-hours (65%)
- Improve access to trails, parks, and greenways (64.9%)
- Need more indoor physical activity spaces such as gyms, recreation centers, or indoor pools (70.7% agree/strongly agree)

2. Dental Health

An individual's oral health plays a very important role in their overall health. Studies have shown direct links between oral infections and other conditions, such as diabetes, heart disease, stroke, and poor pregnancy outcomes. In addition, untreated oral health problems in children and adults can cause severe pain and suffering.

The Cecil G. Sheps Center for Health Services lists 9 active dentists and 20 dental hygienists in Transylvania County during 2010. This number equates to 2.7 dentists per 10,000 population during that same year; a decline from 3.5 dentists per 10,000 population in 2008 and 2009. As indicated in the table below, Transylvania County rates of utilization for dental services in Medicaid populations are lower than regional and state totals in each age group. Generally, access to dental care is more challenging for Medicaid recipients in the far western parts of the state because of the lack of dentists and enrolled Medicaid providers in those areas.

Medicaid Recipients Utilizing Dental Services (by Ages Group)

	Children (aged 1-5) Enrolled in Medicaid Who Received Any Dental Service In the Previous 12 Months			**< 21 years old**			**21 + years old**		
	# Eligible For Services	# Receiving Services	% Receiving Services	# Eligible For Services	# Receiving Services	% Receiving Services	# Eligible For Services	# Receiving Services	% Receiving Services
Transylvania	1014	522	51.5%	3446	1581	45.9%	2268	603	26.6%
WNC Total			53.7%			49.2%			29.5%
State Total			51.7%			48.6%			31.6%

Dental decay in children can be measured by the number of teeth affected by decay, the number of teeth that have been extracted (removed), or the number of teeth successfully filled. In 2009, the dental screening results which count the average number of decayed, missing, or filled teeth in kindergarteners was 1.75 per child in Transylvania County. According to data from the NC Oral Health Section, untreated decay rates for kindergarten aged children in the county (from 2000-2010) now exceed the average untreated decay rate for NC kindergarten children for the first time in 10 years (17% for Transylvania County compared to 15% for NC).

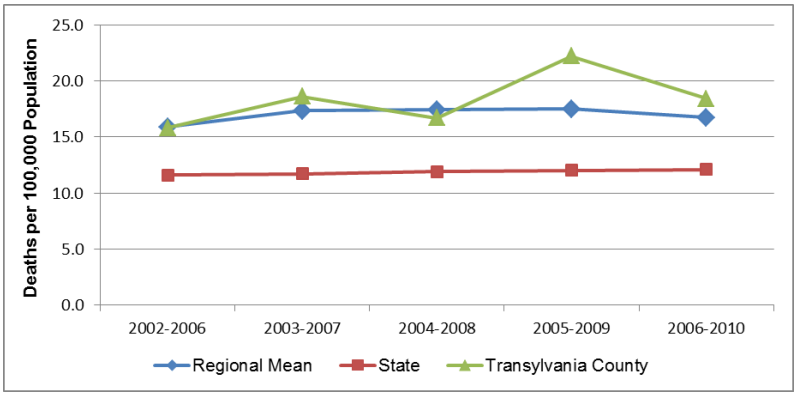
The prevalence of decayed, missing, or filled teeth in young children is higher in low-income populations and in rural communities without fluoridated water. Dental caries (tooth decay) is the most common chronic infectious disease among children; if untreated, dental caries can result in problems with speaking, playing, learning, and receiving proper nutrition. (NC Institute of Medicine – Healthy NC 2020: Oral Health http://www.publichealth.nc.gov/hnc2020/)

3. **Mental Health/Substance Abuse**

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 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. (NC Institute of Medicine – Healthy NC 2020: Mental Health http://www.publichealth.nc.gov/hnc2020/)

Mental disorders contribute to a host of problems that may include disability, pain, or death. Suicide is the 8th leading cause of death in Transylvania County; exceeding the region and state mean.

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

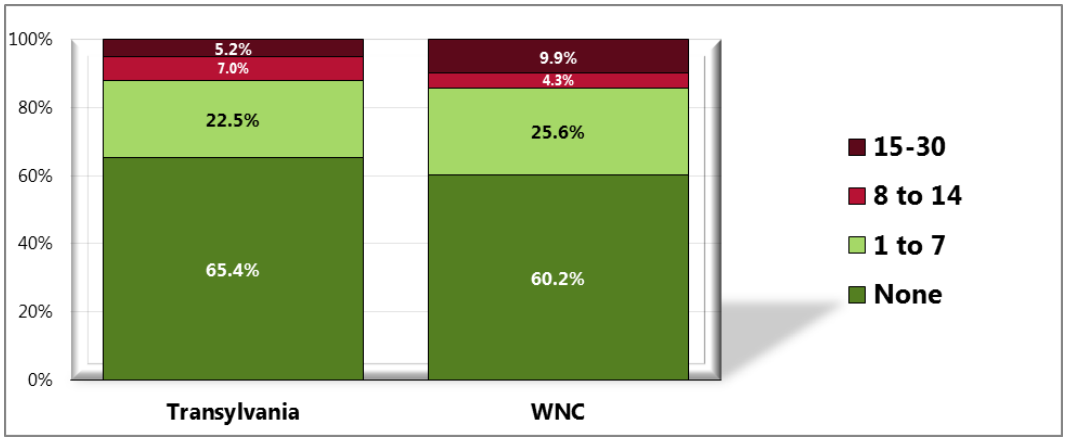


Suicide mortality in Transylvania County demonstrates a very pronounced gender disparity. From data shown below it is apparent that the suicide mortality rate for men is several times higher than the rate for women over the span of years cited.

Gender Disparities in Suicide Mortality, Transylvania County (Five-Year Aggregates, 2002-2006 through 2006-2010)

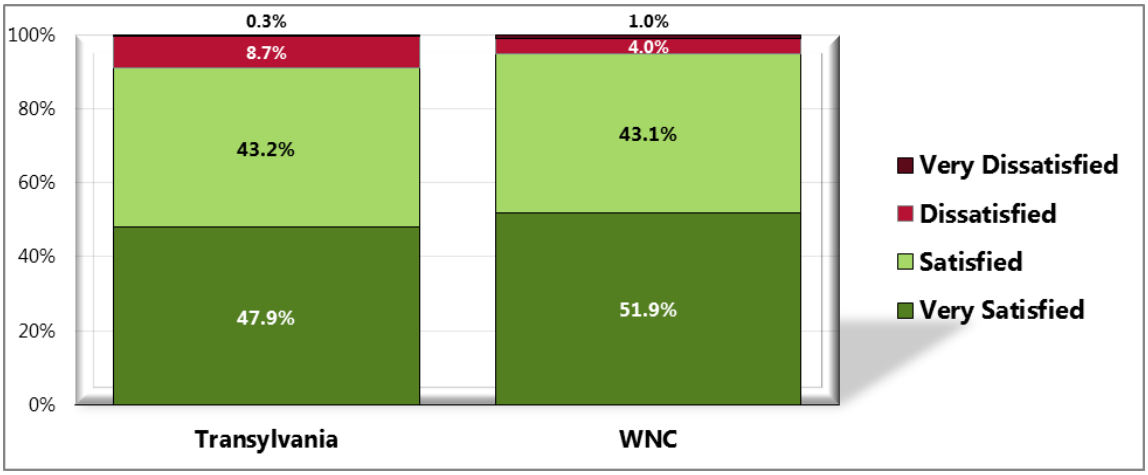
The majority (65.4%) of survey respondents in Transylvania County did not have any days in the past month that their mental health was not good. However, 12.2% of respondents did experience between 8 and 30 days of poor mental health in the last month.

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



Most Transylvania County residents (91.1%) report being "satisfied" or "very satisfied" with their lives. On the other hand, 8.9% of respondents are "dissatisfied/very dissatisfied with their lives; the highest percentage by county in the region. Population segments more likely to be dissatisfied with their lives in Western North Carolina include women, adults age 40 to 64, and those living in lower income categories.

Satisfaction with Life (WNC Healthy Impact Survey)



Substance use and abuse are major contributors to death and disability in North Carolina. Addiction to illegal and prescription drugs or alcohol is a chronic health problem, and people who suffer from abuse or dependence are at risk for premature death, injuries, and disability. Substance abuse has a major impact on individuals, families, and communities and contributes to social, physical, mental, and public health problems such as motor vehicle crashes, crime rates, and suicide. WNC Healthy Impact survey respondents were asked what they perceive as the top three county issues having the most negative impact on the quality of life. The top three issues identified were (1) Economy/Unemployment (2) Nothing and (3) Substance Abuse.

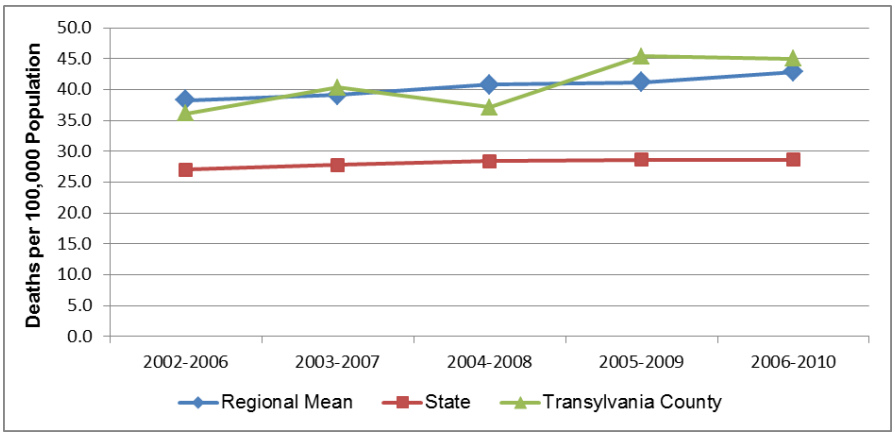
The Highway Safety Research Center at the University of North Carolina at Chapel Hill tracks information about vehicle crashes across the state on an annual basis, including detail on the fraction of crashes that are alcohol-related. The table below presents trend data on vehicle crashes for the period from 2006 through 2010. The percentage of alcohol-related traffic crashes in the county was above the comparable NC rate in every year cited in the table.

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
Transylvania County	513	7.2	532	5.8	536	7.8	509	5.7	480	6.5
Regional Total	15,004	6.2	15,216	6.5	13,997	7.1	14,075	6.6	14,763	5.8
State Total	220,307	5.1	224,307	5.3	214,358	5.6	209,695	5.4	213,573	5.0

The third leading cause of death in Transylvania County is death due to injuries *not* involving motor vehicles – *all other unintentional injuries*. The county ranking for unintentional injuries is higher than the WNC (#5) and NC (#5) rank. This category includes death without purposeful intent due to poisoning (overdoses included), falls, burns, choking, animal bites, drowning, and

occupational or recreational injuries. This leading cause of death in Transylvania County demonstrates a strong gender disparity; rates for males has increased significantly over the five-year aggregates and are 1.5 to 2.4 times the comparable rate among females.



All Other Unintentional Injury Mortality Rate, Deaths per 100,000 Population

Transylvania County Schools administered the *Communities that Care Youth Survey* to students in 2008 to measure the incidence and prevalence of substance use, delinquency, and related problem behaviors and the risks that predict those problems in the community. Results showed that 51.9% of 6th-12th graders had used alcohol in their lifetime. Additionally, life-time use for tobacco was 65%, 22% for marijuana, 13% for inhalants, and 4.8% for ecstasy. Those numbers dropped by half when asked about use in the past 30 days. Overall, 8.4% reported the use of any illicit drug other than marijuana in the past 30 days.

The Juvenile Risk Assessment instrument is administered by Juvenile Court Counselors after juveniles are referred with a complaint alleging that a delinquent act has occurred and prior to adjudication of the juvenile. The Assessment is an instrument used to predict the likelihood of the juvenile being involved in future delinquent behavior. According to the Transylvania County Risk Factor Observations for 2011-2012, 38% of assessed youth have illegal substance abuse assessment or treatment needs; a 2 year increase trend & higher than state rate for past 3 years. An additional tool, the Juvenile Needs Assessment instrument, is administered by Juvenile Court Counselors prior to court disposition of a juvenile to examine a youth's needs in various domains of life. The Needs Assessment found 46% of assessed youth have substance abuse/use issue. However, this is most likely under-reported and the figure should be interpreted as a measure of the minimum level of occurrence. Additionally, 46% of assessed youth need more mental health assessment, while 38% of assessed youth have mental health needs that are currently being addressed. (Transylvania County Juvenile Crime Prevention Council (JCPC))

All outpatient dispensers of controlled substances are required to report subscriber and provider information to the NC Controlled Substances Reporting System (NC-CSRS) http://www.ncdhhs.gov/mhddsas/controlledsubstance/index.htm. In 2008, Transylvania County ranked #27 in the state for controlled substance prescriptions to residents (21,907 prescriptions per 10,000 residents; 67,381 in total). The rate rose in 2009 to 22,867 per 10,000 residents, but

our rank dropped to 28th (70,868 total prescriptions). In 2011, the number of outpatient dispensed prescriptions for opiods alone in Transylvania County was 8114.

According to the North Carolina Disease Event Tracking and Epidemiologic Collection Tool (NC Detect) http://ncdetect.org/, the number of drug-related Emergency Department (ED) visits to Transylvania Regional Hospital in 2011 was 219. The number of ED visits from 2010 with Substance Abuse/Dependence or Alcohol Intoxicational Withdrawal diagnosis codes in Transylvania County was 406 with a rate of 12.27 per 1,000 persons. In 2010, the number of ED visits with psychiatric disorder diagnosis codes was 1008 in Transylvania County with a rate of 60.46 per 1,000 persons.

The Emergency Department at Transylvania Regional Hospital has been tracking the number of overdose cases in ED visits over the last few years. In 2008 the ED reported 122 overdoses, 117 in 2009, 120 in 2010, and 131 in 2011. The leading substances contributing to the overdoses were benzodiazepines, followed by opiates, and sedatives/tranquilizers.

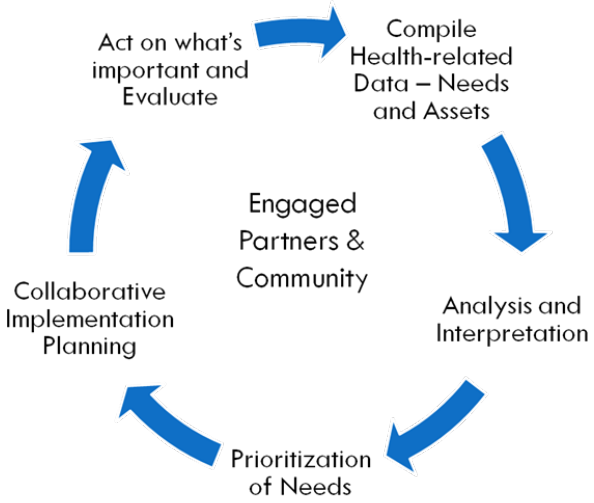
Next Steps

Data collection and prioritization are just the beginning steps in understanding and addressing priority health needs in a community. A community health improvement planning process uses CHA data to develop and implement strategies for action and establishes accountability to ensure measurable health improvement. Transylvania County, along with our partners in WNC Healthy Impact, will move forward with information in this CHA to collaborative action planning and determining how we can most effectively impact health in our community. This process will include the possibility of creating a Community Health Improvement Plan (CHIP) to coordinate action and target resources in order to inform our action planning process. Action Plans will be submitted by the Transylvania County Department of Public Health to the NC Division of Public Health in June 2013. Dissemination of this CHA report will include making all reports publicly available on the Transylvania County Department of Public Health and the WNC Healthy Impact website as well as presented to the Transylvania County Board of Health.

CHAPTER 1 - INTRODUCTION

Purpose of Community Health Assessment (CHA)

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



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

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

Definition of Community

Community is defined as "county" for the purposes of the North Carolina Community Health Assessment Process. In western North Carolina, hospitals define their community as one or more counties for this process. . Transylvania County is included in Transylvania Regional Hospital's community for the purposes of community health improvement and investment, and as such Transylvania Regional Hospital was a key partner in this local level assessment process.

WNC Healthy Impact

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

Data Collection Process

Core Dataset Collection

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

Criteria for selecting "highlights"

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

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

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

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

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

Additional Local Data

Data specific to substance abuse and mental health in Transylvania County was somewhat limited in the WNC Healthy Impact Secondary Data Workbook. For this reason, the CHA Team incorporated data and assessments from local partner organizations in order to gain a more comprehensive outlook on mental health and substance abuse for county residents. The following local data sources are referenced within the CHA document:

- The Transylvania County School System 2008 *Communities that Care Youth Survey*
- Transylvania County Juvenile Crime Prevention Council (JCPC) Risk & Needs Assessment
- Transylvania Regional Hospital Emergency Department overdose case assessment
- Land-of-Sky Regional Council Need Assessment

A listing of available health and human services resources was obtained via United Way's WNC 2-1-1 http://www.211wnc.org/ which serves Buncombe, Henderson, Madison, and Transylvania Counties in Western NC. 2-1-1 is an information and referral service that links people to community health and human services. United Way's 2-1-1 service is free, confidential and available 24/7 to speakers of all languages. Resources are available through phone and the web.

WNC Healthy Impact requested information on health-specific resources currently listed in the 2-1-1 database for Transylvania County, as 2-1-1 maintains a comprehensive database of community resources. Please note that the obtained list is a point-in-time summary list, and greater details on available services can be accessed by calling 2-1-1 to speak to a trained staff person or visiting www.211wnc.org . Additionally, staff updated the existing Health Resource Inventory included in the 2009 Community Health Assessment. By documenting resources available via 2-1-1 and updating the 2009 Health Resource Inventory, a fairly comprehensive inventory of services is included in this report. Please reference Appendix C - Health Resource Inventory for a complete listing of the health resources available to residents in Transylvania County.

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 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, community members were involved in:

- The Transylvania County Community Health Assessment (CHA) team consists of a group of community residents from strategic organizations who represent the community as a whole. The composition of this team includes representatives from health and human services, local non-profits, education, government, and community volunteers.
- The Community Health Assessment Presentation of data findings and highlights was held on December 11, 2012 at the Transylvania County Library for interested citizens and strategic partners to have the opportunity to analyze and interpret primary and secondary data findings. The event was advertised in the local Transylvania Times. Participants provided input on health issues in the county through a "dotmocracy" priority-setting activity. Through this process, participants were encouraged to determine their level of support for 6 broad health issues that were identified through the primary and secondary data findings as potentially high priority issues.
- Health Department and Hospital staff provided the opportunity for local boards and committees to participate in data interpretation and priority–setting through a wide-range of outlets. CHA presentations and group discussions were added to agendas during regular meetings with a variety of local groups to garner input from a broad community body. In total, over 16 committees and boards received information on the CHA process, analyzed data highlights, and participated in determining our local priorities. These committees represent grassroots coalitions, non-profit organizations, government agencies, city and county government officials, school system and youth organizations, higher education staff, senior citizen councils, and local medical providers.

Priority Setting

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

CHAPTER 2 – DEMOGRAPHIC AND SOCIOECONOMIC PARAMETERS

Location and Geography

Transylvania County is located in the Appalachian Mountain range in the western part of North Carolina covering 379 square miles. Positioned along the South Carolina border, the county is located 30 miles southwest of Asheville, NC and 60 miles north of Greenville, SC. This small, rural county is nicknamed "the Land of Waterfalls" as it is home to over 250 waterfalls. The county is occupied by 136 square miles of National Forest Land; more than 50% of the county is covered by three parklands – Dupont State Forest, Gorges State Park, and Pisgah National Forest. Elevation ranges from 1,265 feet to 6,045 feet at its peak, creating a diverse landscape. Transylvania County has the highest rainfall of any county east of the Rocky Mountains with an average annual rainfall of 80 inches. Brevard is the county seat with a 2010 US Census population estimate of 7,630. With a population of 33,090 Transylvania County consists of 8 townships with zip codes – Balsam Grove, Brevard, Cedar Mountain, Lake Toxaway, Penrose, Pisgah Forest, Rosman, and Sapphire. Additionally, other communities within the county include Cathey's Crek, Connestee Falls, Dunn's Rock, East Fork, Estatoe, Gloucester, Little River, Quebec, Silversteen, Whitewater, and Williamson Creek.

History

2011 brought a year of celebration to Transylvania County as residents joined together to commemorate a history that continues to weave a tapestry of community 150 years in the making. Most of this region was claimed by the Cherokee, but as immigrant wagons moved westward, settlers reached the Blue Ridge and Davidson River with families settling the upper part of the French Broad Valley. These early arrivals, some of whom were passing through and others who remained, battled mountains, mud and swamp lands. By the 1830s, the first generation of settlers had either moved on or was deceased. The new generation consisted of true settlers, dedicated to improving the landscape and making sacrifices. Roads were slow in coming due to mountainous terrain and soggy, marshy land and most traveled by canoes and flatboats on the French Broad River than on wagons and ox carts.

Voters, represented by 26 subscribers living on the east side of the newly created Jackson County, sought partitioning and wanted to join Henderson County. At about the same time there was a petition circulating among residents of western Henderson County. There was no coordination, or even assumed contact, between these two groups due to the sparse population and geographical isolation. However, Transylvania County was created and history books record a social and legal event on May 20, 1861. The county seat consisted of 50 acres of donated land and was named Brevard, honoring Colonel Ephraim Brevard, a famous Revolutionary War physician. The county name is derived from the Transylvania Company and has Latin origin: trans ("across") and silva or sylva ("woods"). Brevard and Rosman were the only population centers in the new sparsely populated county which in 1880 had a total population of only 5,339 of whom 4,822 were white.

Since the early days of settlement, the sylvan beauty, calm lakes, gushing waterfalls and temperate weather had attracted visitors from the south and north. They came as tourists, seasonal residents and people set on recreation. If the beauty and serenity of these mountains attracted settlers and tourists, they also were a prime choice for summer camps. Such summer camps have been present for most of the past century. One such summer camp was established by a young music professor at Davidson College in 1936. The Brevard Music Center is located on 200 acres of beautiful grounds and comprises 140 buildings with a full-time staff. Outstanding performers participate and gifted students are attracted from around the world.

As the presence and influence of Native Americans faded there emerged a new presence, namely the African Americans. The first who came were slaves. In 1862 there were 447 slaves and three free Negroes in the new county. President Lincoln's Emancipation Proclamation took effect in North Carolina (a "state in rebellion") two years after the establishment of Transylvania County. Gradually those freed and other free Negroes had to acquire land where they could establish homes, develop gardens and earn an income. On the streets and in stores segregation was subtle, but it was quite dominant in regard to institutions of learning. Over the past decade there has been a slow but steady influx of Latinos, mostly from Mexico, Colombia and Central America. Currently they number about one thousand. Their presence can be seen in landscaping, construction, restaurant work, housekeeping, agriculture, and the hotel industry.

The high mountain peaks and rich filtering forest have always produced cool clear water flowing eastward down the French Broad River and the Davidson River. During the 1920s a young German immigrant named Hans Straus, living in New York, changed his name to "Harry" Hans Straus and embarked on establishing a rich array of business ventures. The most important was the Champagne Paper Corporation in 1930. At this date the depression was affecting almost every household in North Carolina and conditions were even more depressing in rural Transylvania County. Harry Straus was experimenting with flax and fiber and searching for the best location to establish a paper mill. He settled on the dependable pure water of the Davidson River and in the late thirties started construction of the plant for the Ecusta Paper Corporation. Following the attack on Pearl Harbor many workers were drafted or joined the forces. For those who remained here, the "Victory Gardens" gained central attention. In addition to 95 workers tending 50 acres adjacent to the plant, it was estimated that another 1,000 gardens were maintained at the homes of employees. In fact, the local paper estimated that in 1943 there were 2,597 Victory Gardens in the county.

The beginning of the new millennium came with disastrous developments for Transylvania County. Within the span of one year all three major industries closed. In August 2002, RFS Ecusta ceased production (laying off 600 employees), followed in the same month by AGFA (laying off 270 workers), and finally Coats American on September 30, 2003 (laying off its 228 employees). Representing families, school children and taxpayers, many of those laid off were forced to take early retirement or relocate elsewhere to find employment.

Population

Understanding the growth patterns and age, gender and racial/ethnic distribution of the population in Transylvania 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 Transylvania County is 33,090. In Transylvania County, as region-wide and statewide, there is a slightly higher proportion of femalesthan males (51.7% vs. 48.3%).

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

Geography	Total Population (2010)	# Males	% Males	# Females	% Females
Transylvania County	33,090	15,973	48.3	17,117	51.7
Regional Total	759,727	368,826	48.5	390,901	51.5
State Total	9,535,483	4,645,492	48.7	4,889,991	51.3

In Transylvania County 25.8% of the population is in the 65-and-older age group, compared to 19.0% region-wide and 12.9% statewide (Table 2).This percentage is the highest among the 16 counties in the WNC region. The median age inTransylvania County is 48.8, while the regional mean median age is 44.7 years and the state median age is 37.4 years.

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

Geography	Median Age	# Under 5 Years Old	% Under 5 Years Old	# 5-19 Years Old	% 5-19 Years Old	# 20 - 64 Years Old	% 20 - 64 Years Old	# 65 Years and Older	% 65 Years and Older
Transylvania County	48.8	1,377	5.0	1,517	4.6	17,767	53.7	8,539	25.8
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, Transylvania County is less diverse than either WNC or NC as a whole. In Transylvania County the population is 92.4% white/Caucasian and 7.6% non-white. Region-wide, the population is 89.3% white/Caucasian and 11.7% non-white. Statewide, the comparable figures are 68.5% white and 31.5% non-white (Table 3). The proportion of the population that self-identifies as Hispanic or Latino of any race is 2.9% in Transylvania County, 5.4% region-wide, and 8.4% statewide (Table 3).

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

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

Geography	White	Black or African American	American Indian, Alaskan Native	Asian	Native Hawaiian, Other Pacific Islander	Some Other Race	Two or More Races	Hispanic or Latino (of any race)
Transylvania County	92.4	3.9	0.3	0.4	0.0	1.3	1.7	2.9
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 Transylvania Count grew by11.4%and the population of WNC grew by 13.0% (Table 4).The rate of growth in the county is projected to slow dramatically over the next 10 years as well as in the decade following that. These future county decadal growth rates of approximately 6.5% are smaller than the double-digit (or near double-digit) figures projected for WNC and for NC as a whole over the same period.

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

Geography	% Total Population Growth			
	2000 to 2010	2010 to 2020	2020 to 2030	2000 to 2030
Transylvania County	11.4	6.7	6.3	28.0
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 Transylvania County, lower than the comparable mean WNC and NC rates to begin with, increased slightly from 9.5 to 9.7 births per 1,000 persons over the aggregate periods between 2002-2006 and 2006-2010 (Table 5).Region-wide the birth rate was stable at around 10.8 for several years before falling recently to 10.5. Statewide, the birth rate, stable for several years around 14.2, fell recently to 13.8.

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

Geography	2002-2006	2003-2007	2004-2008	2005-2009	2006-2010
Transylvania County	9.5	9.5	9.6	9.9	9.7
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 Transylvania 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 Transylvania County between 2010 and 2030 is 6.4% for the 65-74 age group, 41.9% for the 75-84 age group, and 100% for the 85+ age group. In WNC as a whole, the 65-74 age group is projected to grow by 24.0%, the 75-84 age group by 52.5%, and the 85+ age group by 40.0% over the same period of time.

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

Geography	2010 Census Data				2020 (Projected)				2030 (Projected)			
	Total % Age 65 and Older	*% Age 65-74**	*% Age 75-84*	*% Age 85+*	% Age 65 and Older	% Age 65-74	% Age 75-84	% Age 85+	% Age 65 and Older	% Age 65-74	% Age 75-84	% Age 85+ *
Transylvania County	25.8	14.0	8.6	3.2	31.4	15.5	11.0	4.9	33.5	14.9	12.2	6.4
Regional Total	19.0	10.4	6.1	2.5	23.5	13.2	7.4	2.9	25.7	12.9	9.3	3.5
State Total	12.9	7.3	4.1	1.5	16.6	9.9	4.9	1.8	19.3	10.6	61.8	2.2

Composition of Families with Children

Data in Table 7 illustrates that the percentage of households with children headed by a married couple is smaller in Transylvania County than in WNC (13.8% vs. 17.2%) and smaller than the comparable figure for NC as a whole (13.8% 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. #	%
Transylvania County	13,847	1,917	13.8	152	1.1	487	3.5
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 Transylvania County, 34.5% 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. #	%
Transylvania County	362	125	34.5
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 15.2% of the civilian population in Transylvania County, compared to a12.4% in the WNC region, 10.8%

statewide, and 9.9% nationally. In Transylvania County, approximately 59% 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
Transylvania County	26,936	4,083	22,853	4.4	13.9	34.9	23.5	23.4
Regional Total	593,603	73,783	519,820	n/a	n/a	n/a	n/a	n/a
Regional Arithmetic Mean	n/a	n/a	n/a	3.6	19.3	28.1	24.1	24.9
State Total	6,947,547	747,052	6,200,495	8.7	30.0	25.7	17.9	17.8
National Total	228,808,831	22,652,496	206,156,335	7.8	26.3	25.4	19.0	21.4

Education

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

Educational Attainment

Table 10 provides data on the proportion of the population age 25 and older with one of three levels of educational attainment: high school or equivalent, some college, and a bachelor's degree or higher. In these terms, in 2006-2010, Transylvania County had the same proportion as WNC as a whole of residents age 25 or older possessing a high school diploma or its equivalent (32.1%), but an approximately 14% higher proportion than NC as a whole (28.2%). On the other hand, the overall proportion of the Transylvania County population with *more* than a high school diploma or equivalency is larger than the WNC mean or the total for NC as a whole. Although the county has a similar proportion of persons age 25 and older with some college as the region (20.6% vs. 20.5%) and the state (20.6% vs. 20.9%), at the bachelor's and greater level the proportion of attainment in the county (27.0%) is 34% greater than the comparable mean regional figure (20.2%) and 3% greater than statewide figure (26.1%).

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

Geography	2005-2009				2006-2010			
	Total Population Age 25 Years and Older	% High School Graduation Rate (Includes equivalency)	% Some College	% Bachelor's Degree or Higher	Total Population Age 25 Years and Older	% High School Graduation Rate (Includes equivalency)	% Some College	% Bachelor's Degree or Higher
Transylvania County	21,669	27.6	20.1	28.9	24,182	32.1	20.6	27.0
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 the five school-year period cited in Table 11, the high school drop-out rate for Transylvania County public schools fell every year since SY2007-2008. The local county drop-out rate was lower than or the same as the comparable mean rate for the 17 school districts in WNC (one per county plus Asheville City Schools) in all of the years cited, and lower than the rate for all NC public schools in four of the five years 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
Transylvania County	62	4.76	65	5.04	52	4.19	44	3.62	35	2.92
Regional Total	1,756	n/a	1,651	n/a	1,385	n/a	1,129	n/a	1,019	n/a
Regional Arithmetic Mean	n/a	5.66	n/a	5.58	n/a	4.51	n/a	3.61	n/a	3.36
State Total	23,550	5.27	22,434	4.97	19,184	4.27	16,804	3.75	15,342	3.43

Current High School Graduation Rate

The four-year cohort graduation rates for subpopulations of 9th graders entering high school in SY2007-2008 and graduating in SY2010-2011 are presented in Table 12. In Transylvania County the graduation rate for females exceeded the mean graduation rate for females in the 17 school districts in WNC, as well as the comparable rate for girls in NC as a whole. The other county rates, for all students, males, and the economically disadvantaged, were below the comparable regional rates. The graduation rate for the population of economically disadvantaged students in Transylvania County is 9.1pointslower than the county's overall graduation rate. At the region- and state-level the graduation rate for economically disadvantaged students is approximately 6.7 points lower than the comparable overall graduation rates.

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

Geography	Total Number of Students	% Students Graduating				
		All Students	Males	Females	Economically Disadvantaged	Limited English Proficiency
Transylvania County	296	78.0	70.0	86.3	68.9	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 Transylvania County was $39,408 compared to a mean WNC median household income of $37,815, a difference of $1,593*more* in Transylvania County. The median household income in Transylvania County was over $6,100 lower than the comparable state average for both the periods cited in Table 13, and the gap narrowed by only $65from 2005-2009 to 2006-2010.

As calculated from the most recent estimate (2006-2010), the median *family* income in Transylvania County was $52,674, compared to a mean WNC median family income of $47,608, a difference of $5,066*more* in Transylvania County. The median family income in Transylvania County was more than $2,700 *lower* than the comparable state average for both periods cited in Table 13, and the gap grew by $691 between 2005-2009 and 2006-2010.

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

Geography	2005-2009				2006-2010			
	Median Household Income*		Median Family Income**		Median Household Income		Median Family Income	
	$	$ Difference from State	$	$ Difference from State	$	$ Difference from State	$	$ Difference from State
Transylvania County	38,446	-6,623	52,741	-2,788	39,408	-6,162	52,674	-3,479
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 Transylvania County was 15.6% in the 2005-2009 period, but fell to 14.0% in the 2006-2010 period; this change represents a decrease of 10.3% in the percent of persons living in poverty. In the earlier of the two periods cited, the poverty rate in Transylvania County was higher than the comparable rates in both WNC and NC; in the later of the two periods it was below the rates in both WNC and NC. As calculated from figures in Table 14, the 200%-level poverty rate in Transylvania County was 36.7% in the 2005-2009 period and fell to 33.3% in the 2006-2010 period, a decrease of 9.3%. In WNC the 200% poverty rate was 36.6% in the 2005-2009 period and rose to 37.3% in the 2006-2010 period, an increase of 1.9%. Statewide, the 100%-level poverty rate rose from 15.1% to 15.5% (an increase of 2.6%) and the 200%-level poverty rate rose from 35.0% to 35.6% (an increase of 1.7%) over the same time frame.

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

Geography	2005-2009				2006-2010			
	Population Estimate	# Below Poverty Level	% Below Poverty Level	# Below 200% Federal Poverty Level	Population Estimate	# Below Poverty Level	% Below Poverty Level	# Below 200% Federal Poverty Level
Transylvania County	29,707	4,626	15.6	10,908	31,423	4,401	14.0	10,462
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 Transylvania County the 2005-2009poverty rate for young persons (28.3%) was 81.4% higher than the overall rate (15.6%), and the 2006-2010 poverty rate for young people (23.4%) was67.1% higher than the overall rate (14.0%). 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 Transylvania County *decreased* 17.3%, from 28.3% to 23.4%.

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

Geography	2005-2009			2006-2010		
	Population Estimate	# Below Poverty Level	% Below Poverty Level	Population Estimate	# Below Poverty Level	% Below Poverty Level
Transylvania County	5,748	1,627	28.3	5,427	1,272	23.4
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

Free or Reduced Lunch

The National School Lunch Program is a federally assisted meal program operating in public schools to provide nutritionally balanced, low-cost or free lunches to children each school day. Any child at a participating school may purchase a meal through the National School Lunch Program and the school system receives a cash reimbursement for each meal served. Children from families with incomes at or below 130% of the poverty level ($29,965 for a family of four) are eligible for free meals. Those with incomes between 130% and 185% of the poverty level ($42,643 for a family of four) are eligible for reduced-price meals, for which students can be charged no more than 40 cents. Transylvania County Schools has seen a steady increase in the number of students receiving Free or Reduced Lunch each year. During the 2005-2006 school year, the district rate was 43% and for the most recent 2011-2012 school year those numbers reached 59%.

The Sharing House

Sharing House, a local nonprofit formed 30 years ago, continues to act as Transylvania County's safety net where people in financial trouble can go when all other options are exhausted. A program of Transylvania Christian Ministries, Sharing House serves the cause of families who cannot meet their basic needs such as food, housing, utilities, and clothing. In 2011, Sharing House spent more than $1 million on client services, twice as much as in 2008. Currently Sharing House is serving 19% of the county's citizens at least one time per year, a 90% increase over 2008. Each month, Sharing House responds to as many as 1,000 client requests for aid. Sharing House is no longer seeing clients dealing strictly with emergencies, but instead Sharing House is sustaining people who do not have enough money to simply cover their basic needs.

The Haven

The mission of The Haven of Transylvania County is to assist homeless families and individuals in crisis by providing safe, temporary refuge in a clean, comfortable shelter. The only homeless shelter in Transylvania County, The Haven operates as an 18-bed overnight shelter and welcomes temporary housing to homeless men, women, and children. The Haven opened its doors in October 2011 as a local nonprofit with services that include a safe and secure shelter, shower and laundry facilities, evening and morning meal, counseling and case management, and mail and telephone message service.

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 Transylvania County, the percentage of *rental* housing units costing more than 30% of household income was 45.6% in the 2005-2009 period and 48.2% in the 2006-2010 period, an increase of 5.7%. 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 Transylvania County costing more than 30% of household income was 32.4% in 2005-2009 and 31.5% in 2006-2010, a decrease of 2.8%. 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 Transylvania 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%
Transylvania County	2,993	45.6	3,239	48.2	4,671	32.4	4,929	31.5
Regional Total	82,441	38.9	86,022	40.5	122,383	33.0	132,668	32.6
State Total	1,131,480	43.0	1,157,690	44.0	1,634,410	31.4	1,688,790	31.7

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

Employment and Unemployment

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

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

Employment

Table 17 summarizes employment by sector. In Transylvania County the five sectors employing the greatest proportions of the workforce are, in descending order: (1) Health Care and Social Assistance (19.18%), (2) Retail Trade (16.82%), (3) Accommodations and Food Service (14.28%), (4) Educational Services (11.87%), and (5) Public Administration (9.02%). In WNC, the five leading employment sectors are: (1) Health Care and Social Assistance (18.52%), (2) Retail Trade (13.86%), (3) Accommodation and Food Services (11.43%), (4) Manufacturing (11.28%) and (5) Educational Services (9.19%). Statewide the comparably ordered list is composed of: (1) Health Care and Social Assistance (14.45%), (2) Retail Trade (11.66%), (3) Manufacturing (11.33%), (4) Educational Services (9.58%) and (5) Accommodation and Food Services (8.95%). The county, WNC and NC lists are quite similar, with variations in WNC stemming from its relative lack of manufacturing jobs and the regionally greater significance of the tourism industry, represented by the Accommodations and Food Service sector.

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

Sector	Transylvania County		WNC	NC
	Avg. No. Employed	% Total Employment in Sector**	% Total Employment in Sector**	% Total Employment in Sector**
Agriculture, Forestry, Fishing & Hunting	*	n/a	0.58	0.74
Mining	*	n/a	0.24	0.08
Utilities	*	n/a	0.36	0.35
Construction	412	5.13	4.75	4.53
Manufacturing	360	4.48	11.28	11.33
Wholesale Trade	161	2.01	2.35	4.38
Retail Trade	1,350	16.82	13.86	11.66
Transportation & Warehousing	155	1.93	2.53	3.27
Information	148	1.84	1.35	1.82
Finance & Insurance	203	2.53	2.25	3.88
Real Estate & Rental & Leasing	88	1.10	0.93	1.23
Professional, Scientific & Technical Services	189	2.35	3.32	4.96

Management of Companies & Enterprises	n/a	n/a	0.49	2.01
Administrative & Waste Services	197	2.45	4.90	6.53
Educational Services	953	11.87	9.19	9.58
Health Care & Social Assistance	1,540	19.18	18.52	14.45
Arts, Entertainment & Recreation	171	2.13	1.73	1.58
Accommodation & Food Services	1,146	14.28	11.43	8.95
Public Administration	724	9.02	7.18	6.18
Other Services	231	2.88	2.76	2.49
Unclassified	*	n/a	0.00	n/a
TOTAL ALL SECTORS	8,028	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 Transylvania County ($32,306) is $162 higher than the comparable figure for employees region-wide ($32,144) but $14,466 lower than the average annual wage statewide ($46,772).

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

Sector	Average Annual Wage per Employee		
	Transylvania County	WNC	NC
Agriculture, Forestry, Fishing & Hunting	n/a	$23,145	$28,752
Mining	n/a	41,662	45,828
Utilities	n/a	72,196	76,552
Construction	$31,189	31,190	41,316
Manufacturing	34,979	38,443	52,613
Wholesale Trade	51,022	36,182	61,194
Retail Trade	20,703	22,109	24,650
Transportation & Warehousing	40,517	39,117	43,400
Information	40,095	38,682	63,833
Finance & Insurance	39,339	42,881	75,088
Real Estate & Rental & Leasing	25,673	24,051	38,476
Professional, Scientific & Technical Services	34,811	36,584	66,951
Management of Companies & Enterprises	n/a	43,518	88,763
Administrative & Waste Services	29,267	25,753	30,258
Educational Services	33,974	32,604	39,787
Health Care & Social Assistance	35,019	32,843	42,811
Arts, Entertainment & Recreation	24,087	20,936	28,474
Accommodation & Food Services	16,096	14,424	14,877
Public Administration	35,326	33,818	43,641
Other Services	24,799	24,660	28,182
Unclassified	n/a	12,056	n/a
TOTAL ALL SECTORS	$32,306	$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 Transylvania County was lower than the comparable mean for WNC as well as the total for 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
Transylvania County	3.7	5.2	9.4	10.5	10.2
Regional Arithmetic Mean	4.9	6.8	11.8	11.8	11.5
State Total	4.8	6.3	10.5	10.9	10.5

Crime

Tables 20-22 present annual crime rates for Transylvania 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 Transylvania County was lower than the mean WNC index crime rate throughout the period cited in the table. The mean index crime rate in WNC was far lower than the comparable state rate for every year during the decade covered in the table. There is not enough information available from the data source to interpret annual variations in these rates.

Table 20. Index Crime Rate (2001-2010)

Geography	Index Crimes per 100,000 Population									
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Transylvania County	1,981.0	1,788.8	2,231.3	2,327.9	1,985.6	1,998.0	2,351.8	2,415.6	1,826.3	2,241.8
Regional Arithmetic Mean	2,163.4	2,294.3	2,413.8	2,656.0	2,648.1	2,536.4	2,688.3	2,703.4	2,502.2	2,426.4
State Total	5,005.2	4,792.6	4,711.8	4,641.7	4,622.9	4,654.4	4,658.6	4,581.0	4,191.2	3,955.7

Table 21 separates the violent crime rate from the overall index crime rate for the same period cited above. Over the period cited in the table the violent crime rate in Transylvania County waserratic, sometimes higher and sometimes lower than the comparable mean WNC rate. 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, nine of them in Transylvania 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
Transylvania County	186.9	102.2	156.5	247.7	175.0	234.3	256.9	198.3	167.8	202.6
Regional Arithmetic Mean	181.5	194.4	200.4	198.5	232.9	221.9	274.4	190.7	224.4	258.6
State Total	503.8	475.3	454.7	460.9	478.6	483.5	480.5	477.0	417.1	374.4

Table 22 separates the property crime rate from the overall index crime rate for the same period cited above. Comparing these figures to the index crime rate, it is clear that the majority of all index crime committed is property crime. The property crime rate for Transylvania County was lower than the comparable WNC mean rate as well as the total NC rate for the entire period from 2001 through 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
Transylvania County	1,794.1	1,686.6	2,074.8	2,080.2	1,810.6	1,763.7	2,094.9	2,217.3	1,658.5	2,039.2
Regional Arithmetic Mean	1,981.9	2,093.9	2,215.2	2,423.1	2,410.3	2,298.7	2,468.3	2,494.0	2,262.1	2,228.4
State Total	4,501.4	4,317.3	4,257.1	4,180.7	4,144.3	4,170.9	4,178.1	4,103.9	3,774.1	3,581.4

CHAPTER 3 – HEALTH STATUS AND HEALTH OUTCOME PARAMETERS

Health Rankings

America's Health Rankings

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

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

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

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

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

County Health Rankings

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

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

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

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

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

Table 24. County Health Rankings via MATCH (2012)

Geography	County Rank (Out of 100)[1]						
	Health Outcomes		Health Factors				Overall Rank
	Mortality	Morbidity	Health Behaviors	Clinical Care	Social & Economic Factors	Physical Environment	
Transylvania County	44	6	9	8	25	9	24

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:

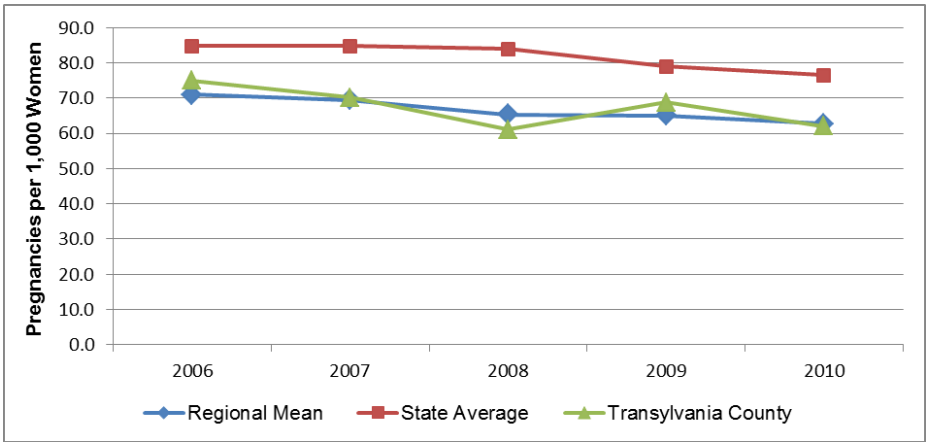
- Reproductive age = 15-44
- Total pregnancies = live births + induced abortions + fetal death at >20 weeks gestation
- Pregnancy rate = number of pregnancies per 1,000 women of reproductive age
- Fertility rate = number of live births per 1,000 women of reproductive age
- Abortion rate = number of induced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

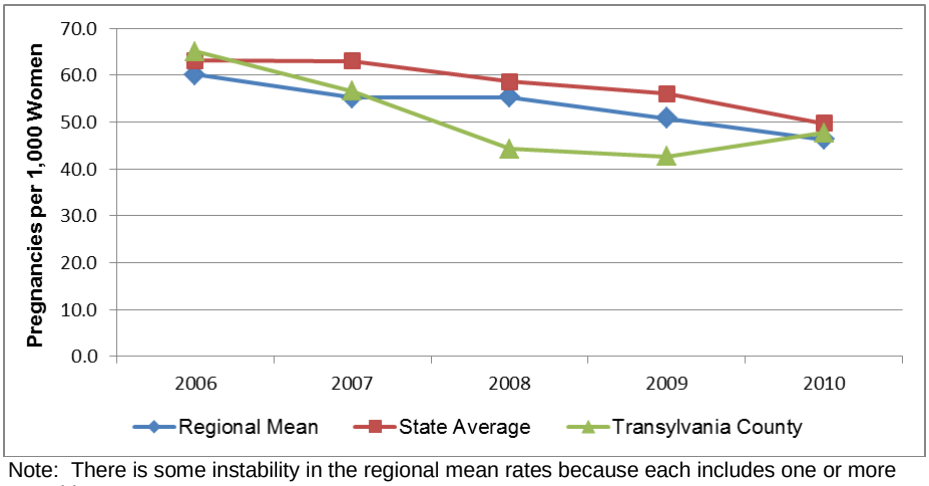
Data in Figure 1 illustrate that the pregnancy rate for women ages 15-44 in Transylvania County has been lower than the comparable state rate and approximately the same as the mean WNC rate throughout the period cited. The pregnancy rates in all three jurisdictions decreased between 2006 and 2010, by 17.3% in Transylvania County, by 11.6% in WNC, and by 9.9% in NC. The 2010 pregnancy rate was 62.0 in Transylvania 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 Transylvania County has been below the comparable mean WNC and NC rates over part of the period cited. Note that the teen pregnancy rate in all three jurisdictions decreased between 2006 and 2010, by 26.6% in Transylvania County, by 22.9% in WNC, and by 21.2% in NC. The 2010 teen pregnancy rate was 47.1 in Transylvania 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 Transylvania County was lower than the comparable mean percentage for WNC in each aggregate period cited, but the WNC mean was significantly higher than the comparable percentages statewide in all of the time periods cited in the table. The frequency of smoking during pregnancy in all three jurisdictions improved over the period cited, by 12.9% in Transylvania 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	
	#	%	#	%	#	%	#	%	#	%
Transylvania County	284	21.0	282	20.0	279	19.6	275	18.9	278	18.3
Regional Total	7,496	22.4	7,442	22.1	7,361	21.7	7,106	21.2	6,919	20.6
State Total	76,712	12.9	74,901	12.4	73,887	11.9	72,513	11.5	70,529	11.0

Late or No Prenatal Care

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

Table 26 shows data summarizing utilization of prenatal care during the first three months of pregnancy. The percent of births in Transylvania County that included early prenatal care was higher than both the mean figure for WNC as well as the total for NC as a whole throughout the period cited. The frequency of prenatal care utilization in Transylvania increased slightly (1.2%) over the period cited,

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 comparable 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	
	#	%	#	%	#	%	#	%	#	%
Transylvania County	1,245	92.2	1,313	93.3	1,330	93.3	1,360	93.5	1,416	93.3
Regional Total	35,375	89.3	35,799	89.0	36,433	88.9	36,806	88.0	37,049	86.9
State Total	497,895	83.5	503,331	83.0	510,954	82.5	519,098	82.1	524,902	82.1

Birth Outcomes

Low Birth Weight

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

Table 27 summarizes data on the number and percent of low birth weight (≤ 2500 grams or 5.5 pounds) births. (Note that NC SCHS also maintains data on *very* low birth weight [≤1500 grams or 3.3 pounds] births. There are so few very low birth weight births in WNC that county rates are too unstable to calculate a stable regional mean.) In WNC, the percentage of low-birth weight births was lower than the comparable percentage for NC as a whole in each of the aggregate periods cited in the table. Further, the percentages were relatively static in both jurisdictions during the entire period.

In Transylvania County over the time span from 2002-2006 through 2006-2010, low birth weight data demonstrated some variability, but county percentages were consistently lower than or equivalent to the comparable figures for the region, and lower than the figures for the state.

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

Geography	2002-2006		2003-2007		2004-2008		2005-2009		2006-2010	
	#	%	#	%	#	%	#	%	#	%
Transylvania County	142	7.4	145	7.8	138	7.4	129	8.3	130	8.2
Regional Total	3,447	8.2	3,473	8.4	3,467	8.3	3,434	8,2	3,373	8.2
State Total	54,991	9.1	56,541	9.1	57,823	9.1	58,461	9.1	58,260	9.1

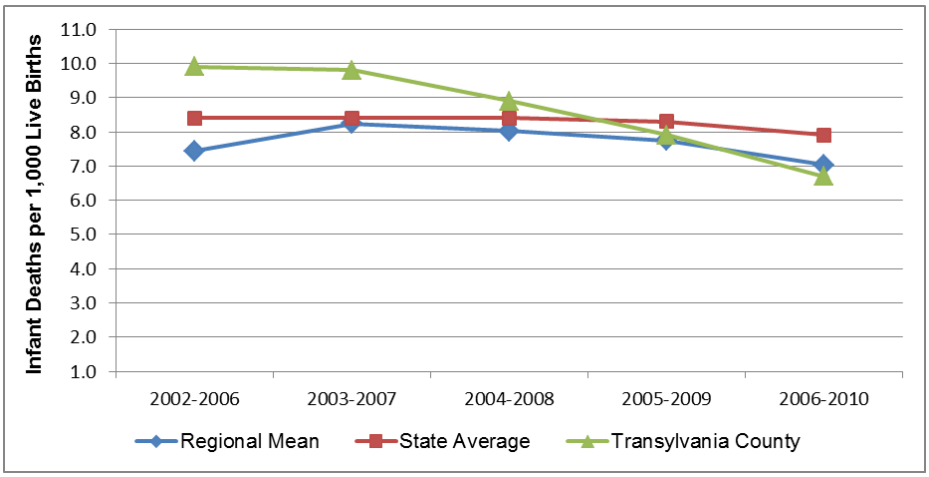
Infant Mortality

Infant mortality is the number of deaths of infants under one year of age per 1,000 live births. Figure3 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 Transylvania County plotted in Figure 3 appears higher than both the comparable WNC and NC rates for part of the period cited in the figure, it should be noted that all five of the plotted rates likely are unstable due to small numbers of events (n=10-14infant deaths per aggregate period). In the 2006-2010 aggregate period the infant mortality rate in Transylvania County was 6.7; comparable rates were 7.0 in WNC and 7.9 in NC overall.

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.

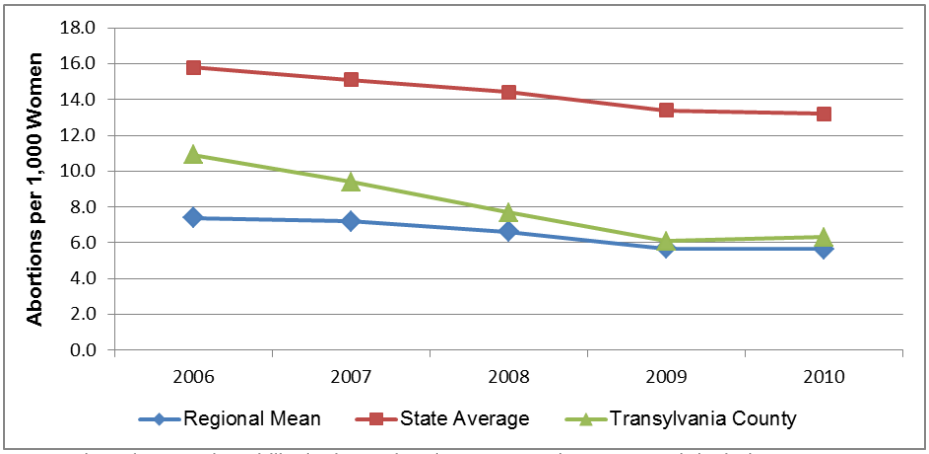
Due to small non-white populations and similarly small numbers of infant deaths among them in both Transylvania County and WNC it is not possible to calculate stable minority infant mortality rates for those jurisdictions. Statewide, the infant mortality rate among non-Hispanic African Americans is *more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

Abortion

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

The abortion rate in Transylvania County was between the WNC and NC rates throughout the period cited. The county abortion rate fell from 10.9 to 6.3 over the period cited in the figure, a decrease of 42.2%.

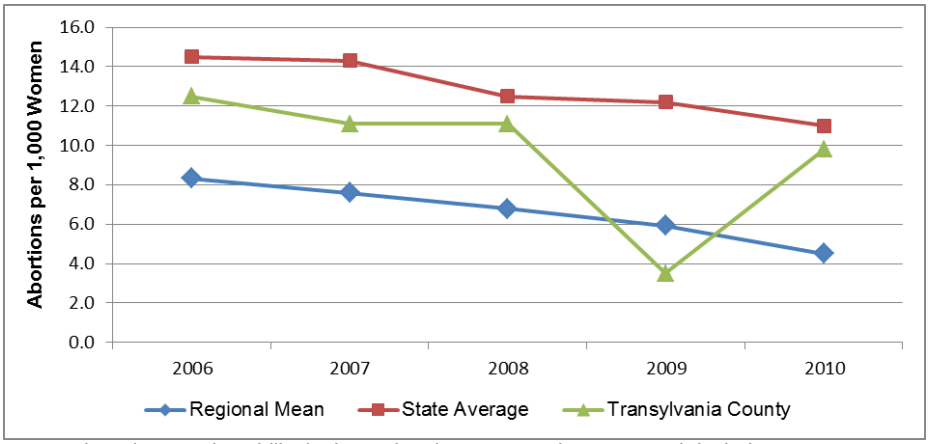
Figure 4. Pregnancies Ending in Abortion, Ages 15-44, per 1,000 Population (Single Years,2006-2010)



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 abortion rate in Transylvania County for teens ages 15-19 was mostly between the regional rate and the rate for the state as a whole over the period cited. The lower county abortion rate reported for 2009 (3.5) is a consequence of a low number of abortions that year (n=3) compared to other years (n=9-11). The teen abortion rate in both WNC and NC fell over the time period cited in the figure, by 45.8% in WNC and by 24.1% in NC. In Transylvania County the teen abortion rate fell 21.6% overall, from 12.5 in 2006 to 9.8 in 2010.

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 mortality 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 Transylvania County, WNC and NC for the five-year aggregate period 2006-2010. (The causes of death are listed in descending mean 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 Transylvania County differ in rank order from the comparable lists for WNC or NC, most notably in a higher county placement for suicide and unintentional motor vehicle injuries. In Transylvania County the mortality rate resulting from motor vehicle injuries (18.5) exceeds both the mean WNC and NC rates (16.7) by 10.8%. The county mortality rate for suicide (18.4)exceeds the mean WNC rate (16.7) by 10.2%, and the county mortality rate for all other injuries (45.0) exceeds the mean WNC rate (42.9) by 4.9% and the state rate (28.6) by 57.3%. 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 13 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	Transylvania County		WNC Mean		NC	
	Rank	Rate	Rank	Rate	Rank	Rate
Heart Disease	1	158.7	1	194.4	1	184.9
Total Cancer	2	141.6	2	180.3	2	183.1
Chronic Lower Respiratory Disease	5	38.6	3	51.1	4	46.4
Cerebrovascular Disease	4	40.6	4	44.0	3	47.8
All Other Unintentional Injuries	3	45.0	5	42.9	5	28.6
Alzheimer's Disease	6	23.4	6	30.7	6	28.5
Diabetes Mellitus	10	12.2	7	19.6	7	22.5
Pneumonia and Influenza	11	11.1	8	19.1	9	18.6
Unintentional Motor Vehicle Injuries	7	18.5	9	16.7	10	16.7
Suicide	8	18.4	10	16.7	12	12.1
Nephritis, Nephrotic Syndrome & Nephrosis	9	12.3	11	16.2	8	18.9
Septicemia	13	n/a	12	13.4	11	13.7
Chronic Liver Disease & Cirrhosis	12	10.7	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 Transylvania) 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 Transylvania County, deaths in the youngest age group were too highly varied by cause to yield stable rates for any cause of death; that instability is indicated by *italics*. Causes of death in the four older age groups in Transylvania County 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		
		Transylvania County	WNC	NC
00-19	**1**	*Other unintentional injuries*	Perinatal conditions	Perinatal conditions
	2	*Congenital abnormalities*	Motor vehicle injuries	Congenital abnormalities
	3	*Homicide*	Congenital abnormalities	Motor vehicle injuries
			Other unintentional injuries	
20-39	**1**	Other unintentional injuries	Other unintentional injuries	Motor vehicle injuries
	2	Motor vehicle injuries	Motor vehicle injuries	Other unintentional injuries
	3	Suicide	Suicide	Suicide
40-64	**1**	Cancer – all sites	Cancer – all sites	Cancer – all sites
	2	Heart disease	Heart disease	Heart disease
	3	Other unintentional injuries	Other unintentional injuries	Other unintentional injuries
65-84	**1**	Cancer – all sites	Cancer – all sites	Cancer – all sites
	2	Heart disease	Heart disease	Heart disease
	3	Chronic lower respiratory disease	Chronic lower respiratory disease	Chronic lower respiratory disease
85+	**1**	Diseases of the heart	Heart disease	Heart disease
	2	Cancer – all sites	Cancer – all sites	Cancer – all sites
	3	Cerebrovascular disease	Alzheimer's disease	Cerebrovascular disease

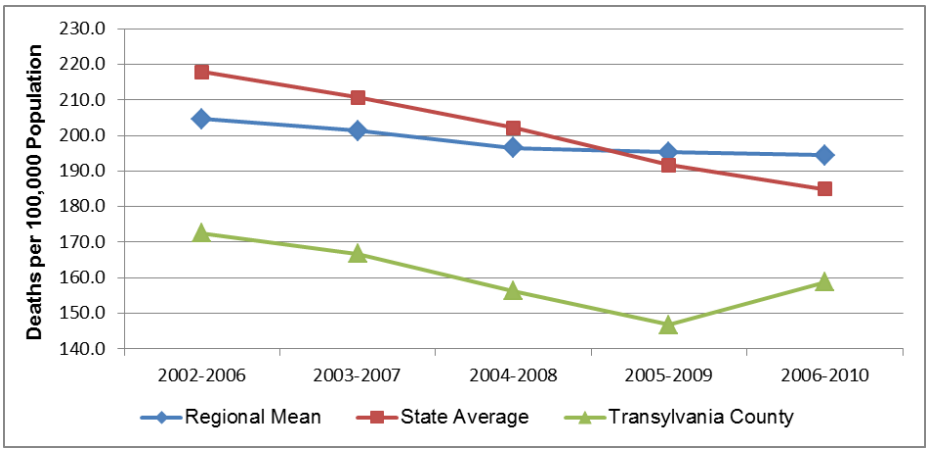
The following section examines in greater detail each of the causes of death listed in Table 28, in the order of highest mean WNC rank to lowest, beginning with heart disease.

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).

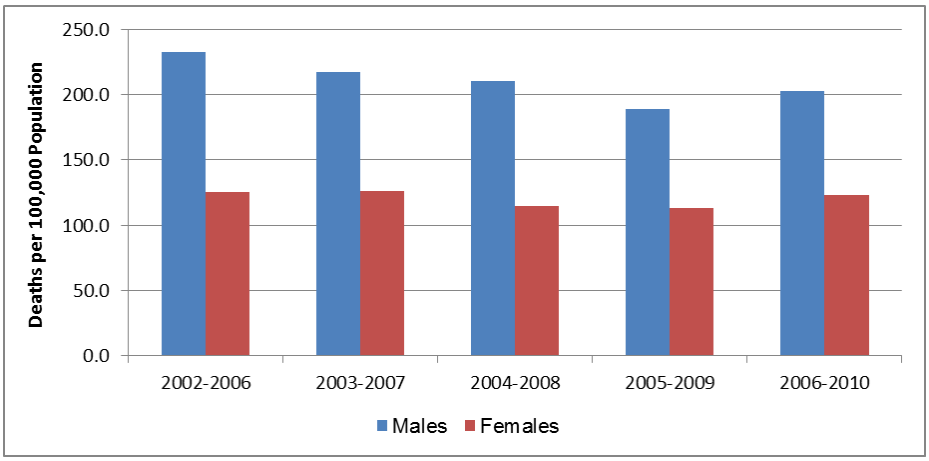
Heart disease was the leading cause of death in Transylvania County, WNC and NC in the 2006-2010 aggregate period. Figure 6 presents heart disease mortality trend data. This graph illustrates that the heart disease mortality rate in Transylvania County was lower than the comparable rates for WNC and NC throughout the period cited. The graph also illustrates that the heart disease mortality rate in Transylvania County fell from 172.5 in the 2002-2006 aggregate period to 146.8 in the 2005-2009 aggregate period, a decrease of 14.9%. This downward trend in county heart disease mortality began to reverse in the 2006-2010 aggregate period, to 158.7, so the trend bears watching. Over the same interval heart diseases mortality rates decreased in the other two jurisdictions. The NC heart disease mortality rate fell from 217.9 for the 2002-2006 aggregate period to 184.9 for the 2006-2010 aggregate period, a decrease of 15.1%. The mean WNC rate, which for the first three periods cited was below the state rate, surpassed the state rate and leveled during the two most recent periods. For the 2002-2006 period the mean WNC heart disease mortality rate was 204.6; by the 2006-2010 period it had fallen to 194.4, a decrease of 4.9%.

Figure 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 Transylvania County, stratified by gender. From these data it is clear that Transylvania County males have had a higher heart disease mortality rate than females for the past decade, with the difference as high as 85%. This trend data also shows, however, an apparent 12.6% decrease in the heart disease mortality rate among county males (from 232.2 to 202.9) and little change in the rate among county females (from 125.2 to 122.8) from the beginning of the entire period cited to the end. In the 2006-2010 aggregate period the heart disease mortality rate difference between males (202.9) and females (122.8) in the county was 65%.

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



Only four of the 16 counties in WNC (Buncombe, Jackson, Rutherford and Swain) had large enough minority populations to yield stable heart disease mortality rates for minority populations, so it is not possible to calculate stable mean region-wide rate for minorities. At the state level, heart disease mortality demonstrates significant racial disparity, with the minority rate higher than the non-minority rate. For example, statewide in 2006-2010 the heart disease mortality rate among non-Hispanic African American males (285.8) was almost 23% higher than the comparable rate among non-Hispanic white males (233.0), and the rate among non-Hispanic African American females (175.7) was 25% higher than the rate among non-Hispanic white females (140.9). The comparable rates among Other non-Hispanics were 148.7 for males and 102.7 for females. Hispanics had the lowest heart disease mortality rates, 55.7 for males and 36.9 for females (*Data Workbook*).

Total Cancer Mortality

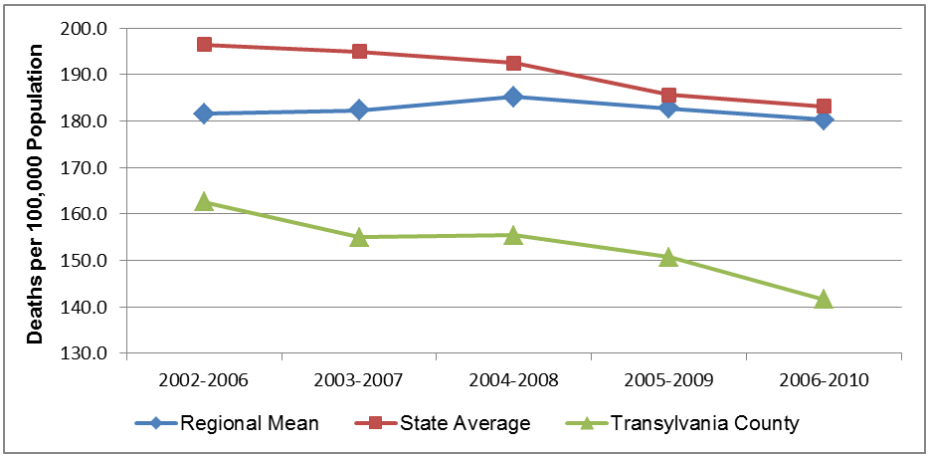
Cancer is a term for diseases in which abnormal cells divide without control and can invade nearby tissues. Cancer cells also can spread to other parts of the body through the blood and lymph systems. If the disease remains unchecked, it can result in death (National Cancer Institute).

Taken together, cancers of all types composed the second leading cause of death in Transylvania County, 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 Transylvania County has fallen, from 162.6 in the 2002-2006 aggregate period to 141.6 in the 2006-2010 aggregate period, a decrease of 12.9%. The total cancer mortality rate in the county was below the state and regional rates throughout the period cited in the figure.

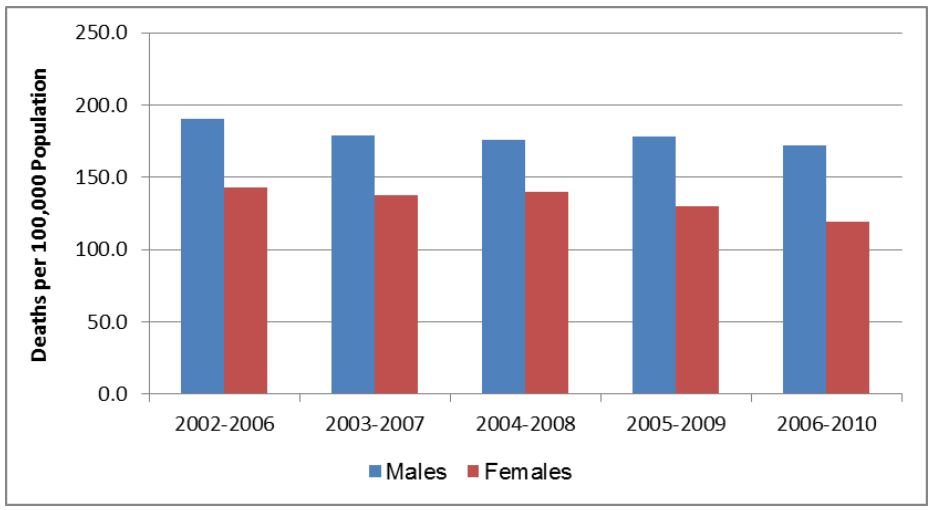
This graph also illustrates how over the period cited the total cancer death rate decreased at the state level, and the comparable mean regional rate fluctuated some but changed little in the net. Statewide, mortality attributable to all cancers decreased 6.8% over the period covered in the graph, from 196.4 in 2002-2006 to 183.1 in 2006-2010. In WNC the mean total cancer mortality rate decreased 0.6%, from 181.5 in 2002-2006 to 180.3 in 2006-2010. Nevertheless, the mean regional rate was lower than the comparable state rate in each of the periods cited in Figure 8, although the gap has narrowed.

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



Like heart disease mortality, total cancer mortality demonstrates a gender disparity. Figure 9 plots total cancer mortality rates for Transylvania 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 rates among Transylvania County males and females appear to be falling. In the most recent aggregate period (2006-2010) the total cancer mortality rate for Transylvania County males (171.7) is 44.2% higher than the comparable rate for females (119.1).

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



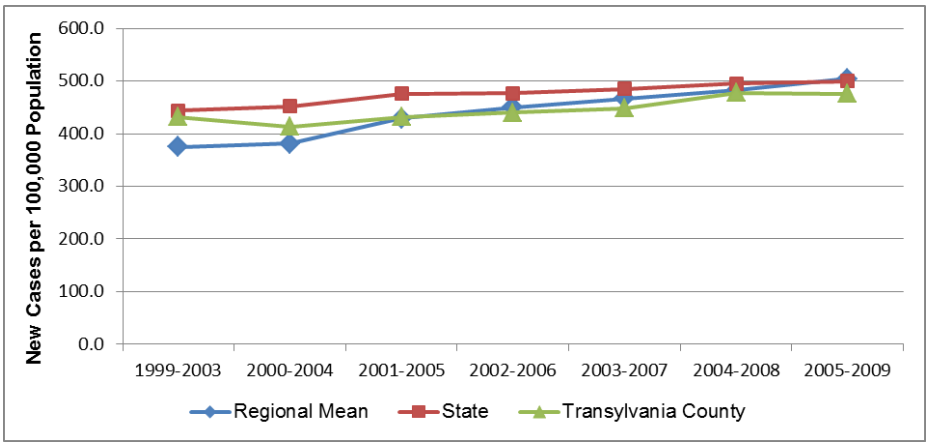
Regionally, only four of the 16 counties in WNC (Buncombe, Jackson, Rutherford and Swain) had large enough minority populations to yield stable total cancer mortality rates, so it is not possible to calculate stable mean region-wide rates for minority populations. At the state level, total cancer mortality 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 Transylvania County, WNC and NC between 1999-2003 and 2005-2009. In Transylvania County, the total cancer incidence rate rose from 431.3 at the beginning of the period cited to 476.0 at the end, an increase of 10.4%.

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

Figure 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 Transylvania 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. Transylvania County mortality rates for all four cancers are below mean WNC and NC rates. In Transylvania County lung cancer is the site-specific cancer with the highest mortality, followed by prostate cancer, breast 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
Transylvania County	38.5	13.3	20.4	11.9
Regional Mean	54.7	24.3	22.9	16.6
State	55.9	23.4	25,5	16,0

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

Table 31 summarizes the age-adjusted incidence rates for these four site-specific cancers for the 2005-2009 aggregate period. From this data it appears that in Transylvania County, as in WNC,

breast cancer is the site-specific cancer with the highest incidence, followed by prostate cancer, lung cancer, and colon cancer. Transylvania County incidence rates for breast cancer and prostate cancer are above both the mean incidence rate for WNC and the incidence rate for 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
Transylvania County	161.5	160.7	51.6	39.7
Regional Mean	154.0	139.2	75.4	46.0
State	154.5	158.3	75.9	45.5

Lung Cancer Mortality

Lung cancer was the leading cause of cancer mortality in Transylvania 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 Transylvania County was below the comparable mean rate for WNC as well as the rate for NC for the period cited in the graph. The lung cancer mortality rate in Transylvania County fell from 45.2 for 2002-2006 to 38.5for 2006-2010, a decrease of 14.8%. 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 lung cancer incidence rate fluctuated somewhat but was essentially 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)

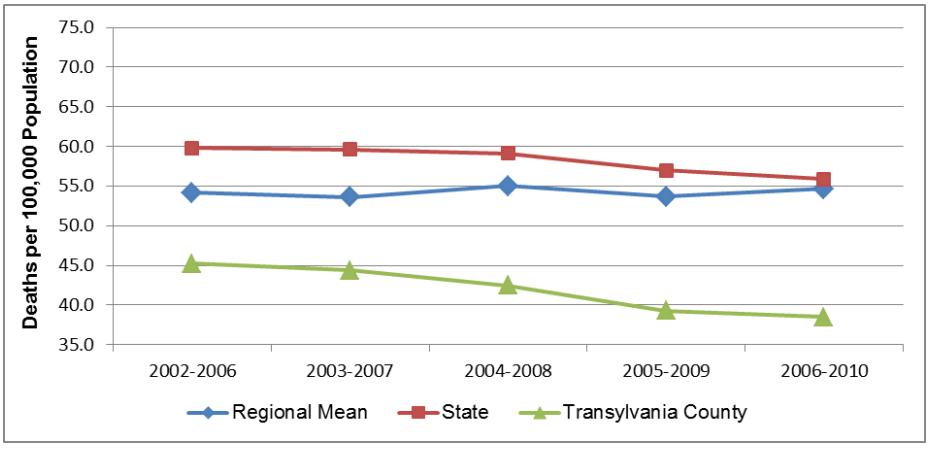


Figure 12 presents gender-stratified Transylvania County lung cancer mortality rates for several aggregate periods. From this data it is clear that males experience higher lung cancer mortality than females, with the lung cancer mortality rate among men from 35%-73% higher than the rate among women over the period cited. Of further note is the apparent recent decrease in the

lung cancer mortality rate among Transylvania County males, and the simultaneous slight increase in the lung cancer mortality rate among county females.

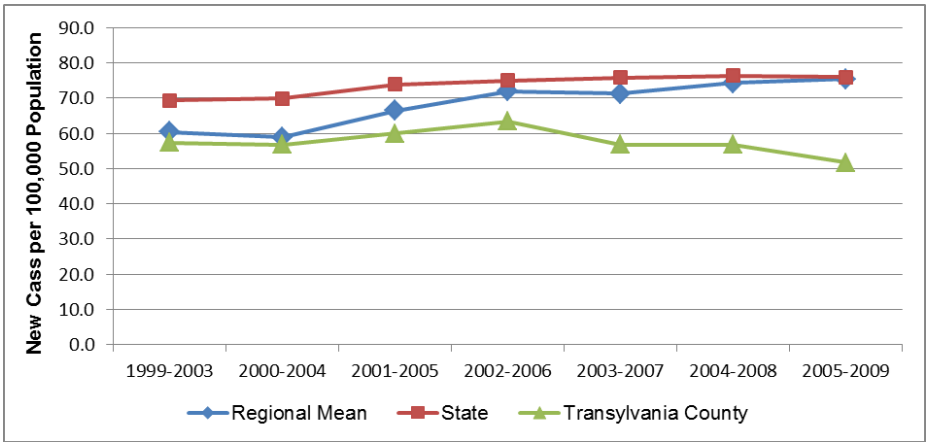
Figure 12. Gender Disparities in Lung Cancer Mortality, Transylvania County (Five-Year Aggregates, 2002-2006 through 2006-2010)

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

Since lung cancer is a significant cause of mortality in Transylvania 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 Transylvania County remained relatively static (varying from 56.7 to 63.4) 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 mean lung cancer incidence rate in WNC increased 25.0% from the 1999-2003 aggregate period (60.3)to the 2005-2009 aggregate period (75.4), while the statewide lung cancer incidence rate increased by 9.5% (from 69.3 to 75.9)over the same time frame. Since lung cancer mortality is already on the rise in the region, the increase in the incidence rate may portend additional lung cancer mortality in the future.

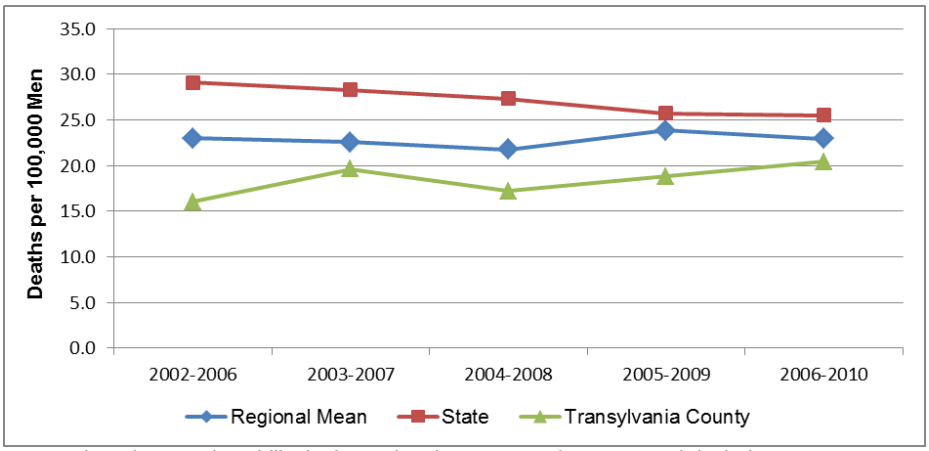
Figure 13. Lung Cancer Incidence, New Cases per 100,000 Population (Five-Year Aggregates, 1999-2003 through 2005-2009)



Prostate Cancer Mortality

Prostate cancer was the second leading cause of cancer death in Transylvania County in 2006-2010 (Table 30, cited previously).Figure 14 plots the prostate cancer mortality trend for several aggregate periods. The prostate cancer mortality rate in Transylvania County rose 27.5% over the period cited, from 16.0 to 20.4, with some variability due to lower numbers of deaths and unstable rates in the 2002-2004 and 2004-2008 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).

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

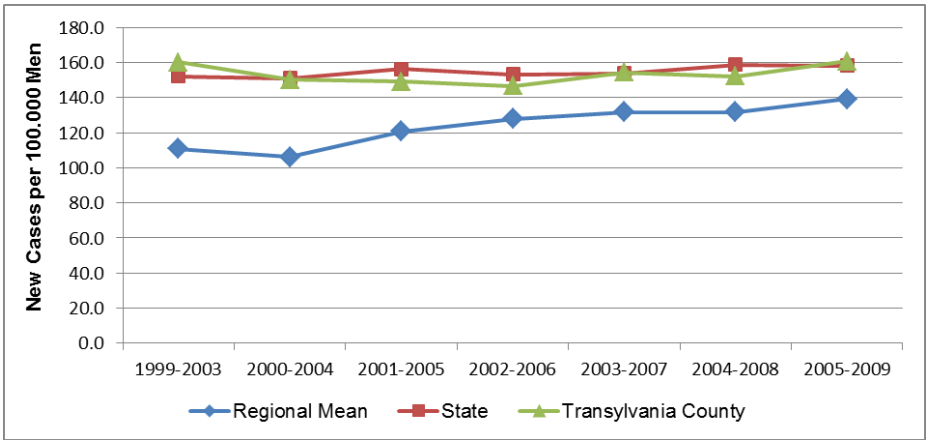


Note: There is some instability in the regional mean rates because each includes one or more unstable county rate.

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 15). 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 Transylvania County, where the prostate cancer incidence rate has been between comparable WNC and NC rates, the rate rose from 160.1 to 160.7 over the same period, an overall increase of 0.4%.

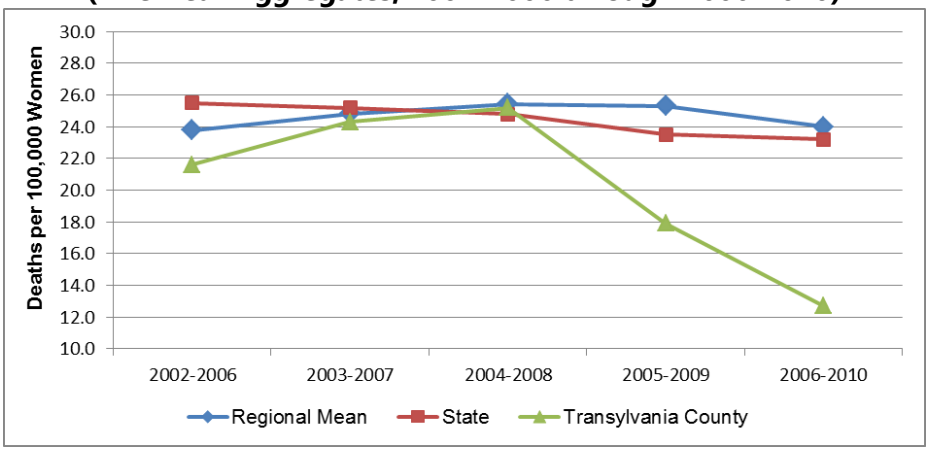
Figure 15. Prostate Cancer Incidence, New Cases per 100,000 Men (Five-Year Aggregates, 1999-2003 through 2005-2009)



Breast Cancer Mortality

Breast cancer was the third leading cause of cancer death in Transylvania County in 2006-2010 (Table 30, cited previously). Data in Figure 16 demonstrate that the breast cancer mortality rate in Transylvania County, which was mostly below the WNC and NC rates over the period cited, fell dramatically after 2004-2008. It should be noted that while technically stable, the 2005-2009 and 2006-2010 county rates both were based on smaller numbers of events than rates in the earlier aggregate periods, which may account for the observed rate variability. 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 has reversed to a current breast cancer death rate of 24.0. The WNC breast cancer mortality rate has exceeded the comparable state rate for the past three aggregate periods.

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

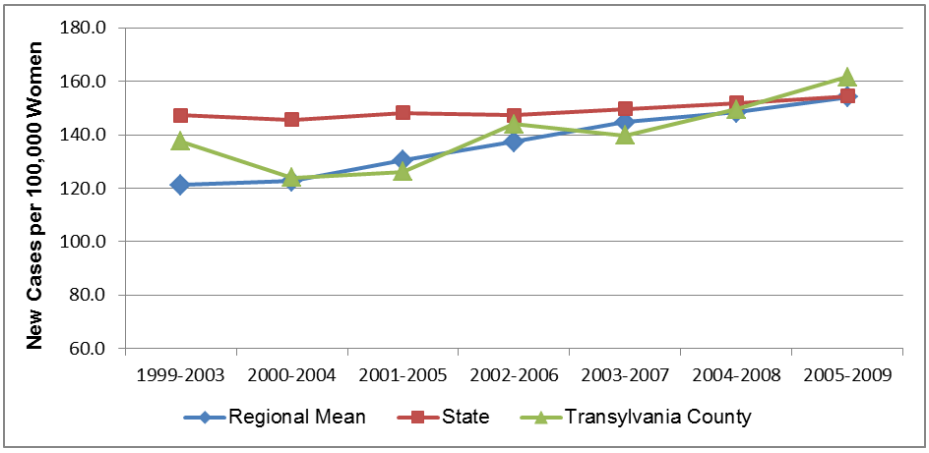


Note: There is some instability in the regional mean rates because each includes one or more unstable county rate.

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 17 demonstrates that the breast cancer incidence rate has been increasing in all three jurisdictions over the past several years. In Transylvania County, the breast cancer incidence rate rose from 137.6 new cases per 100,000 women in the 1999-2003 aggregate period to 161.5 in the 2005-2009 aggregate period, an increase of 17.4%. In WNC, the mean breast cancer incidence rate rose from 121.3 new cases per 100,000 women in the 1999-2003 aggregate period to 154.0 in the 2005-2009 aggregate period, an increase of 27.0%. At the state level, breast cancer incidence rate rose from 147.3 to 154.5 over the same period, an increase of approximately 5%.

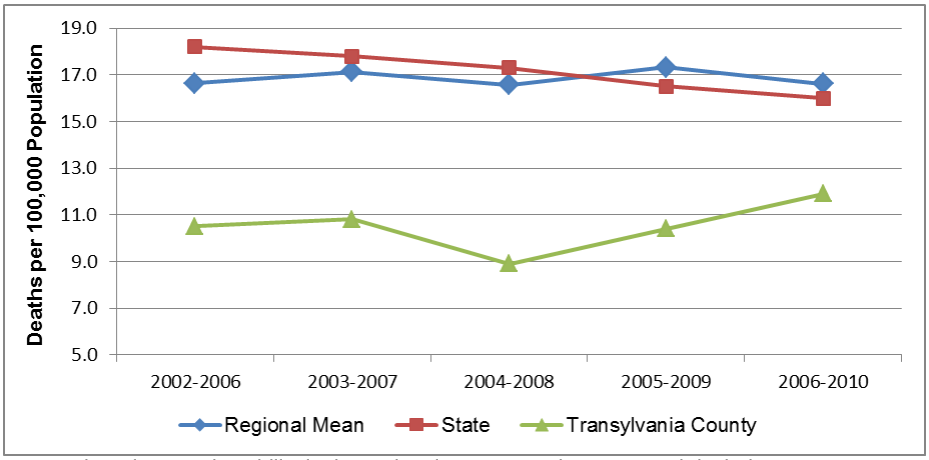
Figure 17. Breast Cancer Incidence, New Cases per 100,000 Women (Five-Year Aggregates, 1999-2003 through 2005-2009)



Colorectal Cancer Mortality

Cancer of the colon, rectum and anus (collectively "colorectal" cancer) caused the fourth largest mortality rate among the major site-specific cancers in Transylvania County, WNC 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 Transylvania County was far below the mean WNC rate and the NC rate throughout the period cited. However, the county colorectal cancer mortality rate rose from 10.5 in the 2002-2006 aggregate period to 11.9 in the 2006-2010 aggregate period, an increase of 13.3%. 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 Transylvania County there are too few colorectal cancer deaths stratified by gender (n=8-18 deaths per five-year aggregate period) to yield stable gender-based mortality rates. All the county rates shown in Figure 19 were unstable, and the NC SCHS did not release gender-stratified rates for the county in the last two aggregate periods due to below-threshold numbers of deaths. Because of the variability in the unstable rates available it is not possible to demonstrate a clear pattern of gender difference for colorectal cancer mortality rates in the county for the periods cited.

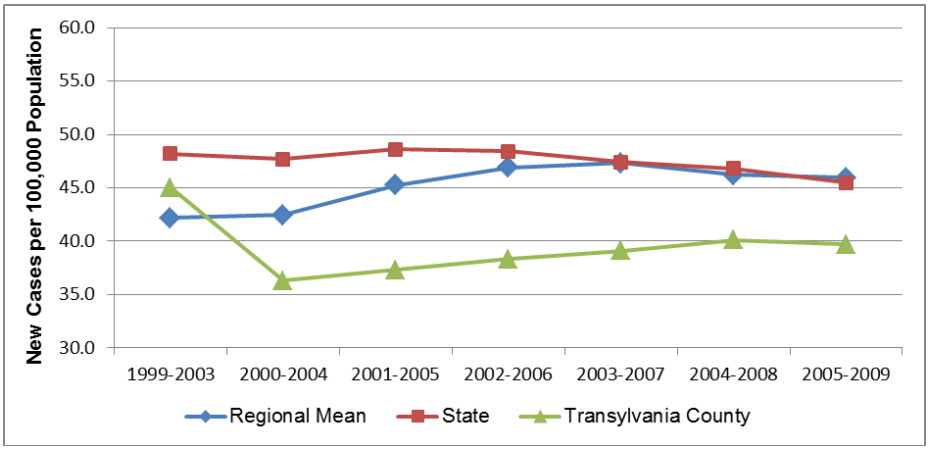
Figure 19. Gender Disparities in Colorectal Cancer Mortality, Transylvania County (Five-Year Aggregates, 2002-2006 through 2004-2008)

In WNC, only one of the 16 counties (Buncombe) had large enough minority populations to yield stable colorectal cancer mortality rates for any minority group, so it is not possible to calculate stable mean region-wide colorectal cancer mortality rates for minorities. Statewide, colorectal cancer mortality rates demonstrate some racial disparities. In the 2006-2010 aggregate period, the colorectal cancer mortality rate among African American non-Hispanic

males (29.0) was 58% higher than the comparable rate among white non-Hispanic males (18.4) and over three times the rate among Other non-Hispanic males (9.0). Statewide in the same period the colorectal cancer mortality rate was 18.5 for African American non-Hispanic females, 12.4 for white non-Hispanic females, and 9.9 for Other non-Hispanic females. Statewide, the colorectal cancer mortality rates were lowest for Hispanic males (7.4) and Hispanic females (5.4) (*Data Workbook*).

From data in Figure 20 it is apparent that after an initial drop between 1999-2003 and 2000-2004, the incidence rate for colorectal cancer in Transylvania County rose gradually over the remainder of the period cited, from 36.3 in 2000-2004 to 39.7 in 2005-2009, an increase of 9.4%. Despite this increase, the county colorectal cancer mortality rate was below the comparable mean WNC rate and NC rate for the last six aggregate periods. The WNC mean 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)



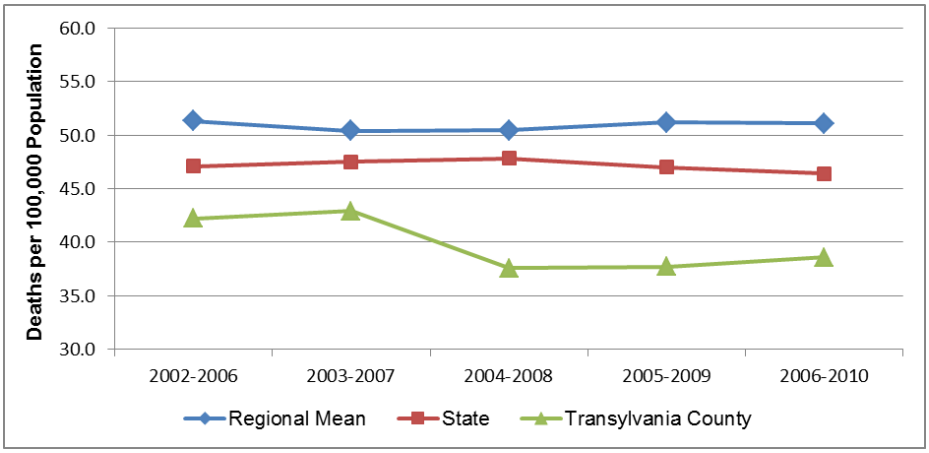
Chronic Lower Respiratory Disease (CLRD) Mortality

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 the fifth leading cause of death in Transylvania 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 was relatively stable in WNC and NC for the overall period from 2002-2006 through 2006-2010.Transylvania County had the lowest CLRD mortality rate of the three jurisdictions over the entire period, and the county rate declined 8.5%, from 42.2 at the beginning of the period cited to 38.6 at the end. 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 38.6 in Transylvania 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*). Most gender-stratified CLRD mortality rates in Transylvania County show a gender disparity as well, with the mortality rate for males exceeding the comparable rate for females by from 13% to 39% in every aggregate period except the first (Figure 22). In the last three aggregate periods, the CLRD mortality rates for Transylvania County males appear to be decreasing, while the comparable rates for county females appear to be increasing.

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

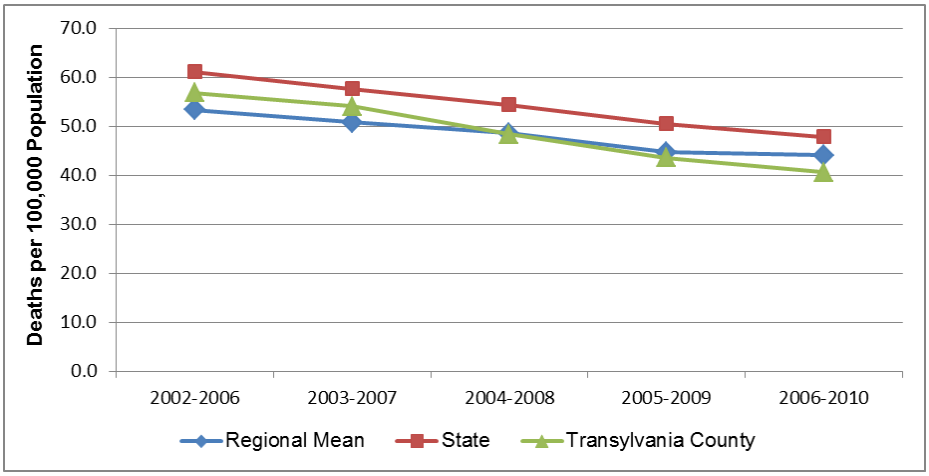
In WNC, only one of the 16 counties (Buncombe) had large enough minority populations to yield stable CLRD mortality rates for any minority group, so it is not possible to calculate a stable mean region-wide CLRD mortality rates for minorities. At the state level for the 2006-2010 aggregate period, the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

Cerebrovascular Disease (Stroke) Mortality

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

Cerebrovascular disease (stroke) is the fourth leading cause of death in both WNC and Transylvania County in the 2006-2010 period (Table 28, cited previously). Figure 23 plots stroke mortality rates for several aggregate periods. The stroke mortality rates for Transylvania County, WNC and NC all decreased over the period cited in the graph. The rate fell 28.5% in Transylvania County (from 56.8 to 40.6), 17.4% in WNC (from 53.3 to 44.9) and 21.8% in NC (from 61.1 to 47.8).These data also illustrate how the stroke mortality rate for Transylvania County was consistently below the comparable state rate, but varied above and below the mean WNC rate.

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)* or in Transylvania County (Figure 24).The stroke mortality rates for both men and women appear to have decreased overall over the entire period cited.

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

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

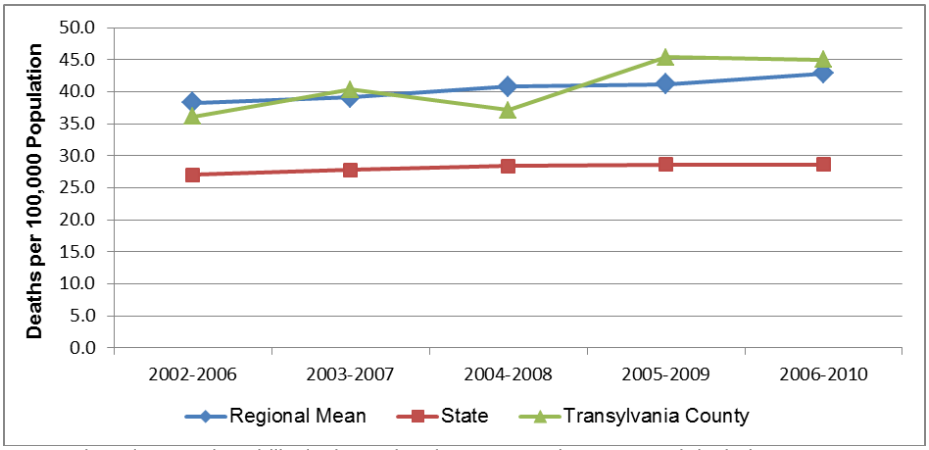
39.6 and the rate for Other non-Hispanic females was 30.0. The Hispanic population had the lowest stroke mortality rates statewide over the same period, 13.1 among males and 15.2 among females (*Data Workbook*).

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

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

Figure 25 plots the trend in mortality due to all other injuries for five aggregate periods. Throughout the period cited, the mean non-motor vehicle injury mortality rate in WNC exceeded the comparable NC rate by from 41% to 50%. The comparable rate in Transylvania County fluctuated around the WNC mean. While the state rate increased 5.9% (from 27.0 to 28.6) over the entire span cited, the WNC rate rose 12.3% from the first period (38.2) to the last (42.9). Over the same span, the comparable rate in Transylvania County rose 24.7%, from 36.1 to 45.0.

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 Transylvania County demonstrates a strong gender disparity (Figure 26). In each of the periods cited, the mortality rate for all other unintentional injuries among males was from 1.5 to 2.4 times the comparable rate among females. While the non-motor vehicle injury mortality rate among women in Transylvania County appeared to be variable, the rate among men increased 52.0% overall between the 2002-2006 and 2006-2010 aggregate periods.

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

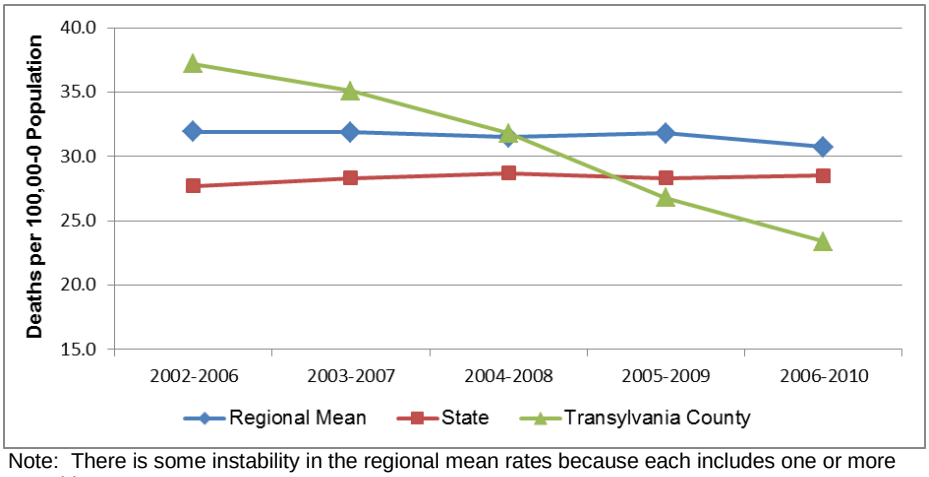
Alzheimer's disease is a progressive neurodegenerative disease affecting mental abilities including memory, cognition and language. Alzheimer's disease is characterized by memory loss and dementia. The risk of developing Alzheimer's disease increases with age (e.g., almost half of those 85 years and 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 Transylvania 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 Transylvania County, which declined by 37.1% over the entire period plotted in the figure, was above both the state and mean regional mortality rates in the first two aggregate periods, and below both the NC and mean WNC rates in the last two

aggregate periods. 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 mean 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 23.4 in Transylvania County, 30.7 in WNC, and 28.5 in NC.

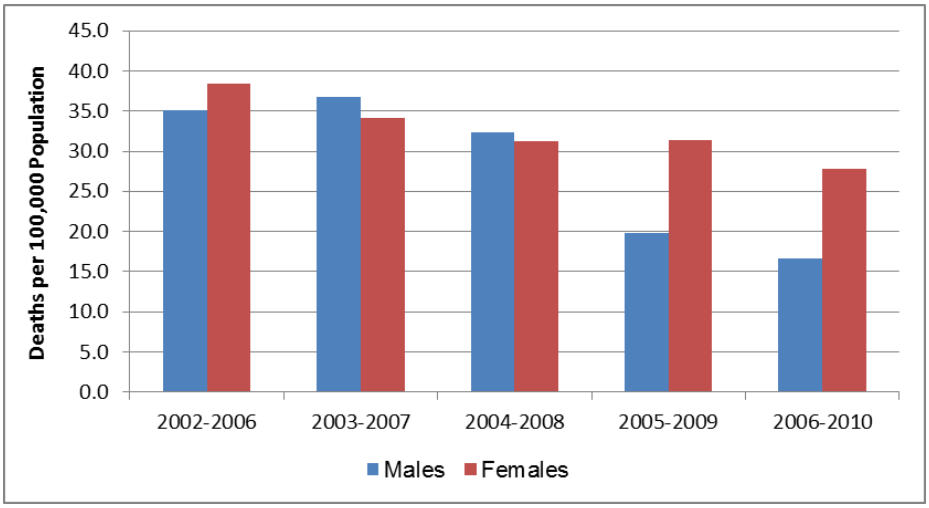
Figure 27. Alzheimer's Disease Mortality Rate, Deaths per 100,000 Population (Five-Year Aggregates, 2002-2006 through 2006-2010)



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 (*Data Workbook*). Figure 28 plots gender-stratified data for Alzheimer's disease in Transylvania County. Despite the fact that all plotted rates are technically stable, sometimes the rate was higher among males, and sometimes higher among females. In the 2006-2010 aggregate period the Alzheimer's disease mortality rate for county females was 27.8 and the rate for county males was 16.6, a difference of 67.5%.

Figure 28. Gender Disparities in Alzheimer's Disease Mortality, Transylvania 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

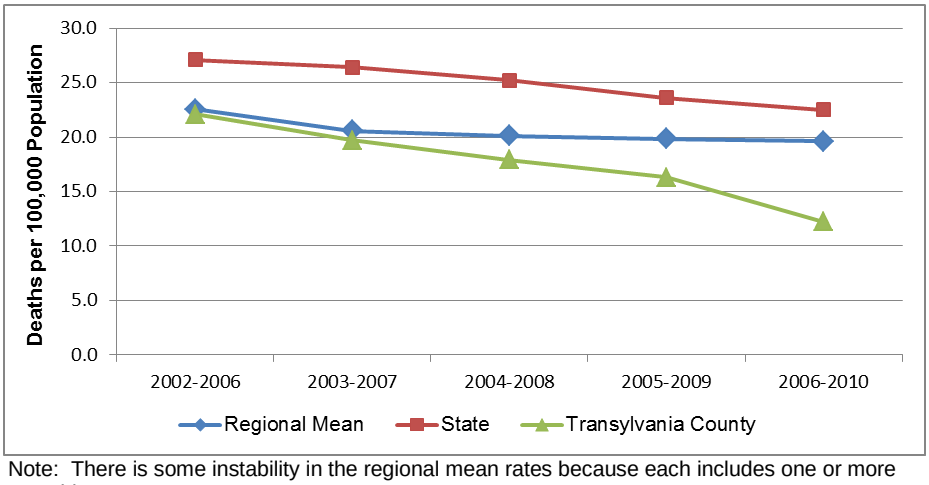
Diabetes is a disease in which the body's blood glucose levels are too high due to problems with insulin production and/or utilization. Insulin is a hormone that helps the glucose get to cells where it is used to produce energy. With type 1 diabetes, the body does not make insulin. With type 2 diabetes, 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 the tenth leading cause of death in Transylvania 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 Transylvania County was below both the mean WNC and NC rates for the duration of the period cited. The mean diabetes mortality rate in WNC is and has been lower than the state rate. Statewide, the diabetes mortality rate fell from

27.1 to 22.5 (17.0%) over the period cited in the figure. Region-wide, the mean diabetes mortality rate fell from 22.6 to 19.6 (13.3%) over the same period. In Transylvania County the diabetes mortality rate declined44.8% from the beginning of the period cited (22.1) to the end (12.2).

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.

Figure 30 plots diabetes mortality rates in Transylvania County stratified by gender. Note that several of the rates were not released by the NC SCHS due to below-threshold numbers of deaths. From the stable rates that are plotted, it appears that the diabetes mortality rate among county males exceeded the comparable rate for females in the first three aggregate periods. Note, however, that the rate among men declined from 28.7 to 20.8 over that time span, while the rate among women was more stable, varying only from 16.9 to 16.0 over the first four aggregate periods.

Figure 30. Gender Disparities in Diabetes Mellitus Mortality, Transylvania County (Five-Year Aggregates, 2002-2006 through 2005-2009)

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*).

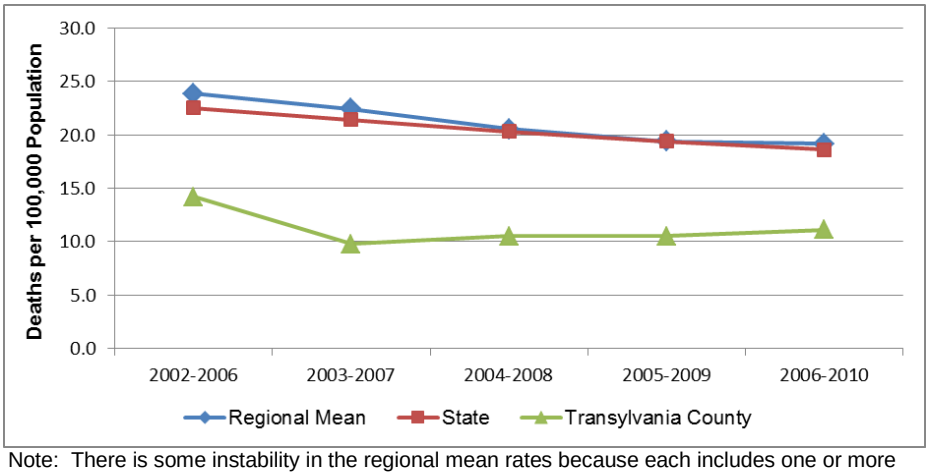
Pneumonia and Influenza Mortality

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 the eleventh leading cause in Transylvania 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 pneumonia/influenza mortality rate in Transylvania County was well below the comparable mean WNC and NC rates throughout the period cited in the figure. The mean pneumonia/influenza mortality rate in WNC closely paralleled the comparable NC rate throughout the period cited in the figure. Both the regional and state mortality rates for this cause of death decreased in the net over the period. The mean WNC rate decreased from 23.8 to 19.1 (19.7%) and the comparable NC rate decreased from 22.5 to 18.6 (17.3%). A corresponding decrease in pneumonia/influenza mortality in Transylvania County also occurred, with the rate falling 31.0% from 14.2 in 2002-2006 to 9.8 in 2003-2007, and remaining relatively stable since then.

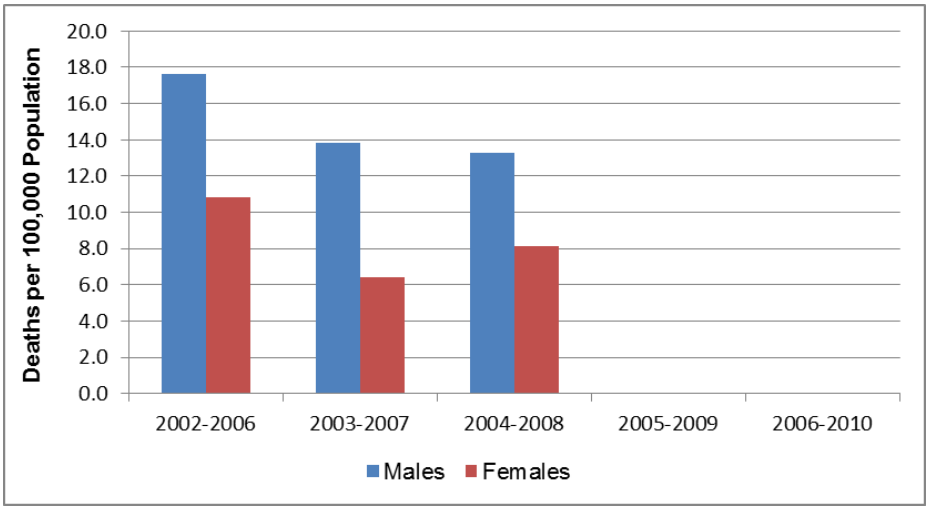
Figure 31. Pneumonia and Influenza Mortality Rate, Deaths per 100,000 Population (Five-Year Aggregates, 2002-2006 through 2006-2010)



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

Gender-stratified pneumonia/influenza mortality rates in Transylvania County during the target period were unstable due to small numbers of deaths (n=11-18 per gender per five-year aggregate period), so all the county data plotted in Figure 32are unstable. Note that the NC SCHS did not release gender-stratified rates for the county in the last two aggregate periods due to below-threshold numbers of deaths. Nevertheless the limited data available appears to illustrate that in Transylvania County the pneumonia/influenza mortality rate is significantly higher among males than among females.

Figure 32. Gender Disparities in Pneumonia/Influenza Mortality, Transylvania 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

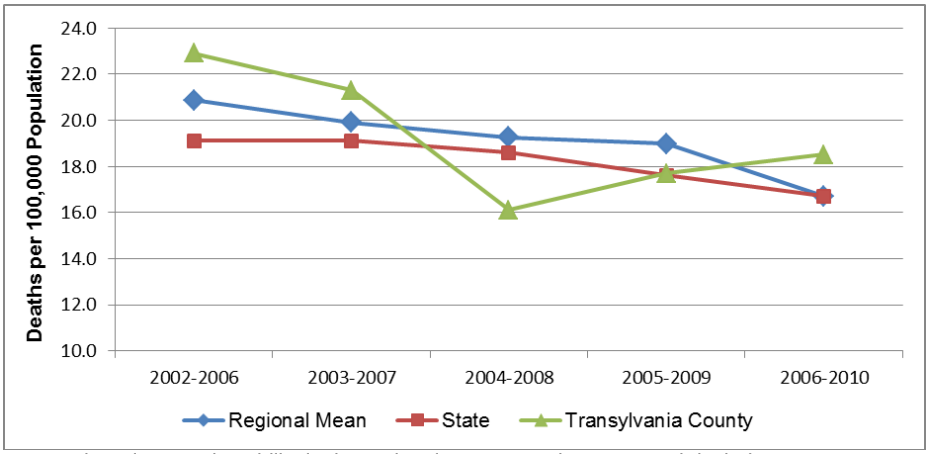
mortality rates demonstrate moderate racial disparities. Statewide in the 2006-2010 aggregate period the highest pneumonia/influenza mortality rate (24.1) occurred among African American non-Hispanic males, followed in order by white non-Hispanic males (21.5), white non-Hispanic females (17.3), African 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 seventh leading cause of death in Transylvania County in the 2006-2010 aggregate period (Table 28, cited previously).

Figure 33 plots UMVI mortality rates over several aggregate periods. From this data it appears that the mortality rate attributable to UMVI in Transylvania County was generally higher than both the mean WNC and NC rates for the first two aggregate periods, then fell to below both for one period before rising again to surpass both in the most recent aggregate period. The reason for this variability at the county level is unclear, as the rates are all technically stable. The mean WNC rate was slightly higher than the comparable state rate for most of the time span cited in the table. UMVI mortality rates fell in all three jurisdictions over the period cited in the figure. In Transylvania County the rate was 22.9 in the 2002-2006 aggregate period and 18.5 in the 2006-2010 aggregate period, an overall decrease of 19.2%. In WNC, the mean UMVI mortality rate fell from 20.9 to 16.7 (20.1%) and in NC the rate fell from 19.1 to 16.7 (12.5%).

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

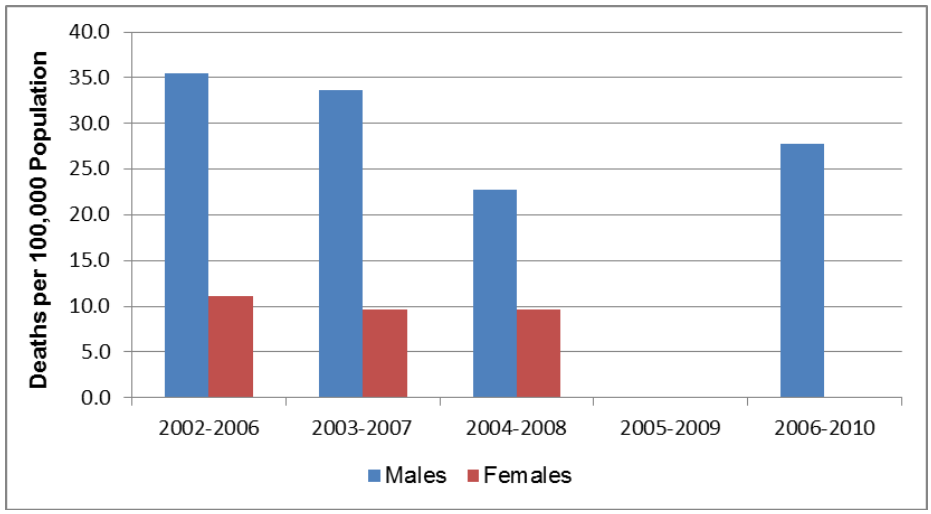


Note: There is some instability in the regional mean rates because each includes one or more unstable county rate.

In Transylvania County there were too few deaths among males and females attributable to UMVI in some aggregate periods to calculate a complete series of stable gender-stratified

mortality rates. Several of the rates depicted in Figure 34 are technically unstable, and NC SCHS suppressed several other stratified county rates for that reason. Nevertheless, Figure 34 makes it clear that the UMVI mortality rate among males was several times greater than the comparable rate among females in some of the periods cited.

Figure 34. Gender Disparities in Mean Unintentional Motor Vehicle Injury Mortality Transylvania County (Five-Year Aggregates, 2002-2006 through 2004-2008; 2006-2010)



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

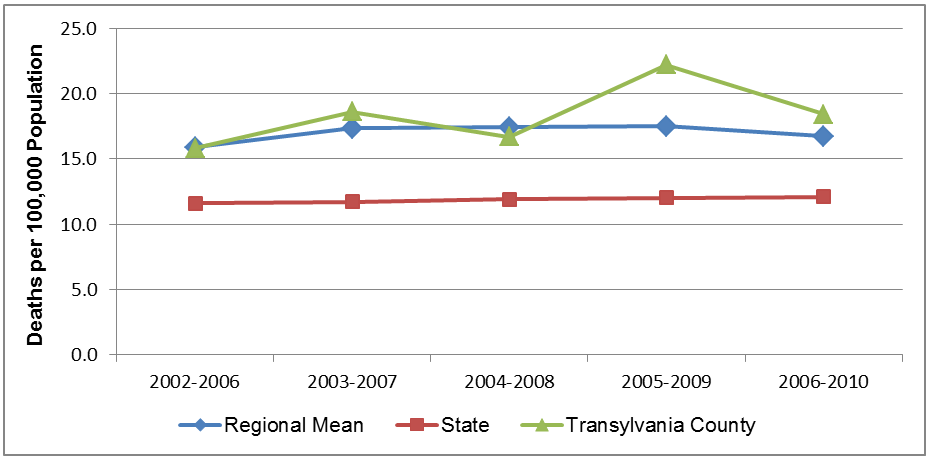
Suicide Mortality

Suicide was the tenth leading cause of death in WNC and the eighth leading cause of death in Transylvania 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 is generally higher in Transylvania 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 Transylvania County rose and fell variably. It should be noted that although all the Transylvania County data

points are technically stable, they are based on relatively small and changing numbers of events. For the 2006-2010 aggregate period the suicide mortality rate in Transylvania County was 18.4, in WNC it was 16.7 and in NC it was 12.1.

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 Transylvania County demonstrates a very pronounced gender disparity. From data in Figure 36 it is apparent that the suicide mortality rate for men is several times higher than the rate for women over the span of years cited. Although there is instability in the three data points for females (and NC SCHS did not calculate rates for females for the remainder of the periods cited in the figure), and instability in some data points for males, the apparent gender difference is consistent and likely real.

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

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

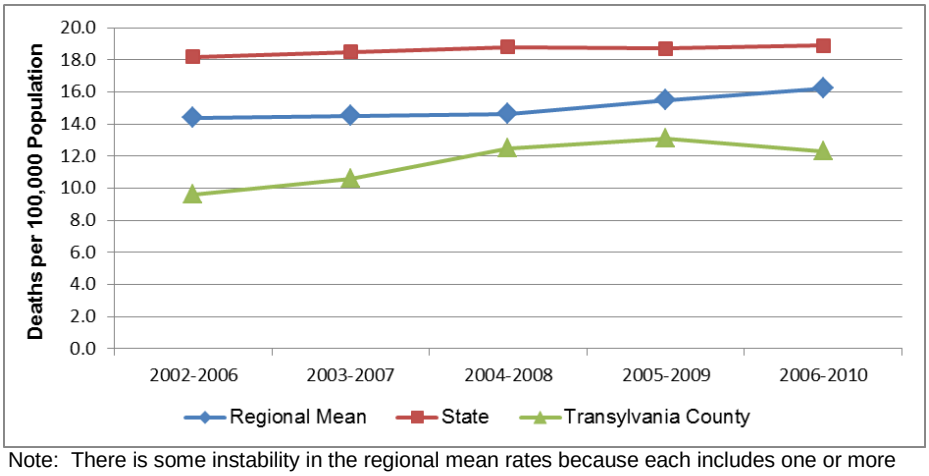
Nephritis, Nephrotic Syndrome and Nephrosis (Kidney Disease) Mortality

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

This set of kidney disorders was the eleventh leading cause of death in WNC and the ninth leading cause of death in Transylvania 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 Transylvania County was below the mean WNC rate for the entire period cited in the figure. Between the 2002-2006 aggregate period and the 2006-2010 aggregate period the mean regional rate climbed from 14.4 to 16.2 (12.5%), and the Transylvania County rate rose from 9.6 to 12.3 (28.1%). 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 Transylvania County in the target period are all unstable due to small numbers of deaths (n=6-19 per gender per five-year aggregate period), and the NC SCHS did not release stratified county data for the last two aggregate periods due to below-threshold numbers of deaths. The limited county data plotted in Figure 38 fails to demonstrate any clear pattern of gender-based difference in kidney disease mortality rates over the period cited.

Figure 38. Gender Disparities in Kidney Disease Mortality, Transylvania 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*).

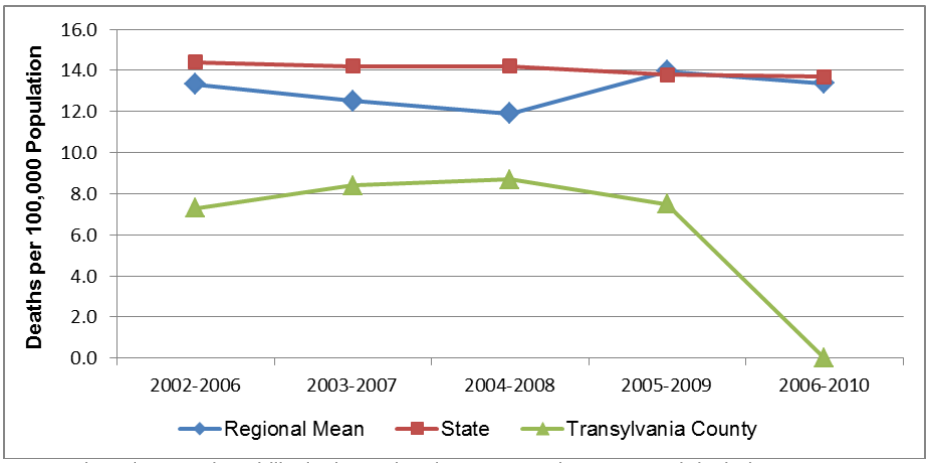
Septicemia Mortality

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 NCSCHS continues to use the older term.

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

Figure 39 plots septicemia morality data for several aggregate periods. This data shows that the mean WNC septicemia mortality rate fluctuated over the period cited in approaching the state rate, while the state rate decreased 4.9%, from 14.1 to 13.7. Fluctuation at the WNC-level may be attributed partly to unstable regional mean rates. In Transylvania County, the septicemia mortality rate also fluctuated, likely because of instability due to small numbers of events (n=16-24). Due to a small number of deaths, the NC SCHS did not release a septicemia mortality rate for Transylvania County in the 2006-2010 period, which is why the plot for the county drops to zero.

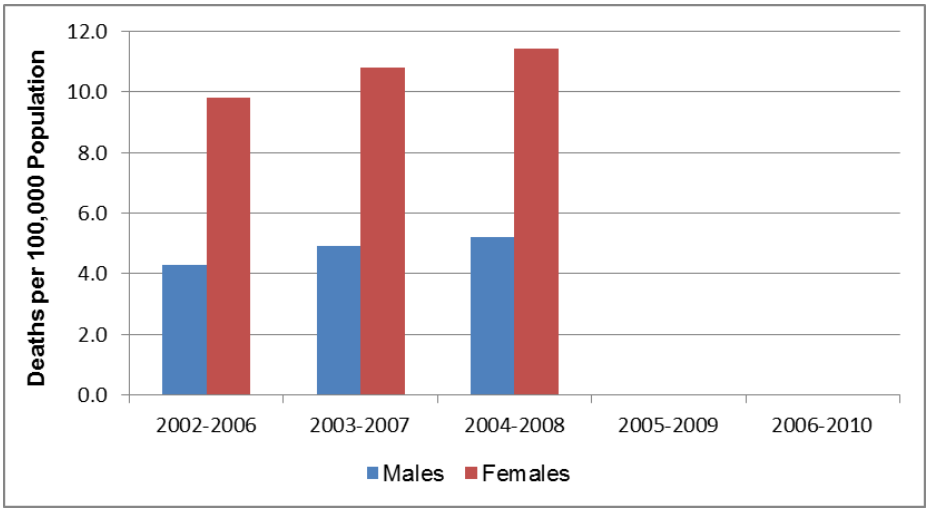
Figure 39. Septicemia Mortality Rate, Deaths per 100,000 Population (Five-Year Aggregates, 2002-2006 through 2006-2010)



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 Transylvania County are all unstable due to small numbers of deaths (n=4-18 per gender per five-year aggregate period), and the NC SCHS did not release gender-stratified rates for the county in the last two aggregate periods due to below-threshold numbers of deaths. From the limited county data presented in Figure 40, however, it does appear that the septicemia mortality rate among county females was significantly higher than the comparable rate among county males for the three aggregate periods for which there were rates.

Figure 40. Gender Disparities in Septicemia Mortality, Transylvania 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

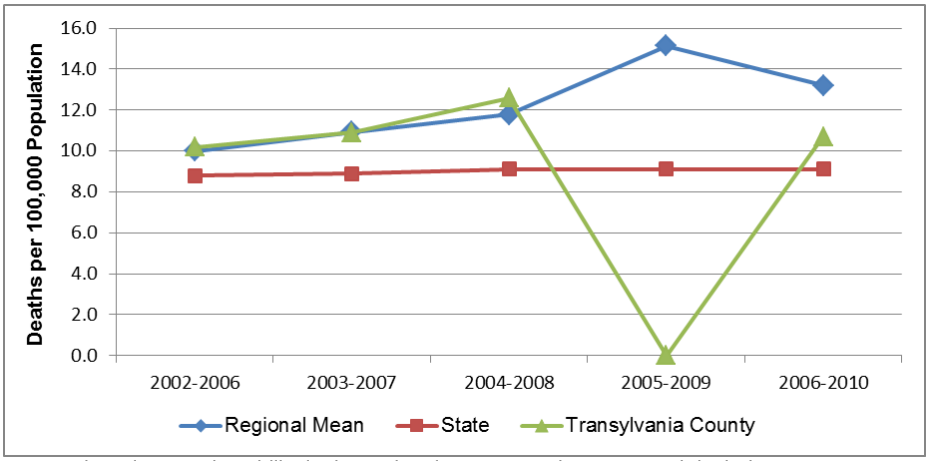
Chronic liver disease describes an ongoing disturbance of liver function that causes illness. Liver disease, also referred to as hepatic disease, is a broad term that covers all the potential problems that cause the liver to fail to perform its designated functions. Usually, more than 75% or three quarters 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 the twelfth leading cause of death in Transylvania 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 liver disease mortality rate in Transylvania County exceeded the comparable mean WNC rate in three aggregate periods, and that the mean WNC rate exceeded the state rate throughout the period cited. In WNC, the mean chronic liver disease mortality rate rose from 10.0 for 2002-2006 to 13.2 for 2006-2010, an increase of 32%. The Transylvania County liver disease mortality rates that are plotted in Figure 41 include one unstable rate, for 2002-2006, and a "dip" in the plot for2005-2009 because the NC SCHS did not release a county rate for that period. The most recent chronic liver disease mortality rate in Transylvania County, 10.7, was above the state rate (9.1) but below the mean regional rate (13.2).

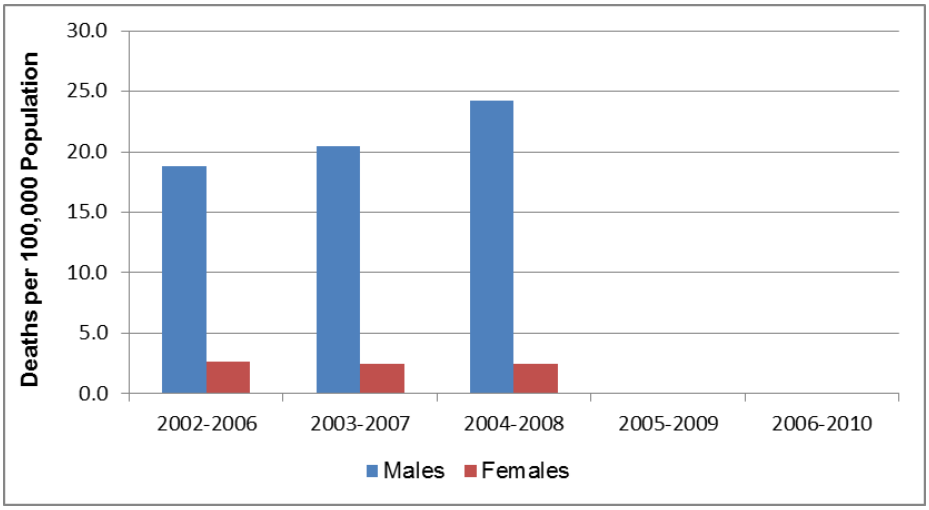
Figure 41. Chronic Liver Disease and Cirrhosis Mortality Rate
Deaths per 100,000 Population
(Five-Year Aggregates, 2002-2006 through 2006-2010)



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 Transylvania County are mostly unstable due to small numbers of deaths (n=2-17 per gender per five-year aggregate period), and the NC SCHS did not release stratified county rates for the last two aggregate periods due to below-threshold numbers of deaths. The only stable point plotted in Figure 42 is the rate for males in 2004-2008. Nevertheless, the limited data presented in the figure appears to reveal a strong gender-based disparity in mean liver disease mortality rates in the county, with the rate for males being several times higher than the rate for females throughout the period for which there was data.

Figure 42. Gender Disparities in Chronic Liver Disease and Cirrhosis Mortality
Transylvania 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*).

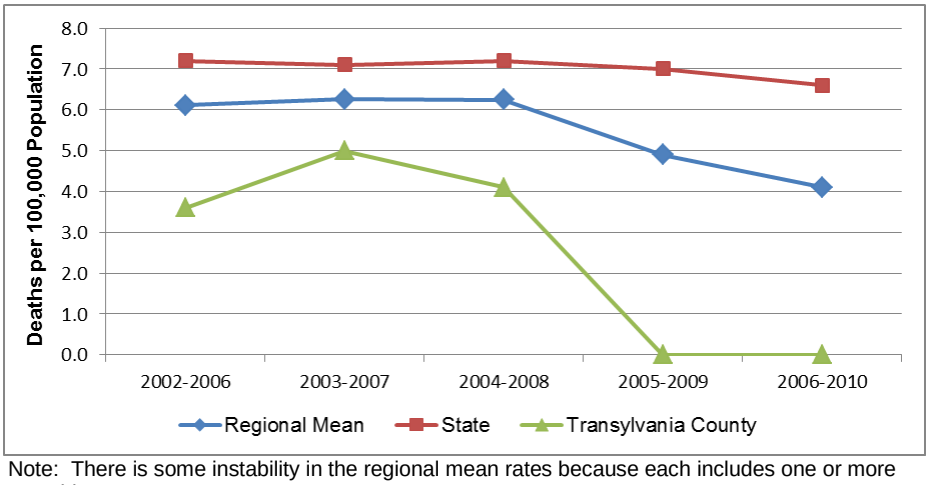
Homicide Mortality

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

Figure 43 plots homicide mortality rate trends over several aggregate periods. In Transylvania County there were too few deaths attributable to homicide (n=4-9 per five-year aggregate period) to calculate stable rates, and the NC SCHS did not release a homicide mortality rate for the county in the last two aggregate periods due to below-threshold numbers of deaths. From the limited data available, it appears that the homicide mortality rate in Transylvania County was below both the mean WNC and NC rate. It is also apparent from this data that the mean homicide mortality rate in WNC was lower than the comparable rate for NC as a whole. This observation would appear to be in concert with earlier data reporting lower rates of violent crime in WNC than in NC. The mean homicide mortality rate in WNC for the 2006-2010 aggregate period was 4.1; the comparable rate for NC was 6.6. The apparent decrease in

regional homicide mortality in recent years may be an artifact due to instability of the data attributable to small numbers of homicides.

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.

All the gender-stratified homicide mortality rates for Transylvania County in the target period were unstable due to small numbers of homicides (n=1-8 per gender per five-year aggregate period), and the NC SCHS did not release gender-stratified rates for the county in the last two aggregate periods. According to the limited data presented in Figure 44, the homicide rate among county males was several times higher than the comparable rate among females.

Figure 44. Gender Disparities in Homicide Mortality, Transylvania 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).

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 Transylvania County, WNC, and NC as a whole. From this data it appears that females born in Transylvania County in the period cited could expect to live 4.9 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 Transylvania County at the same time could expect to live a 6.9 years shorter lifespan than their white counterparts. According to mean values calculated for WNC, African Americans born at the same time could expect to live a 3.3 year shorter lifespan than their white counterparts. Life expectancy overall in Transylvania County (79.4) is 2.4 years longer than life expectancy in WNC (77.0 years), and 2.1 years longer than life expectancy in NC as a whole (77.3 years).

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

Geography	Overall	Gender		Race	
		Male	Female	White	African American
Transylvania County	79.4	76.9	81.8	79.4	72.5
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

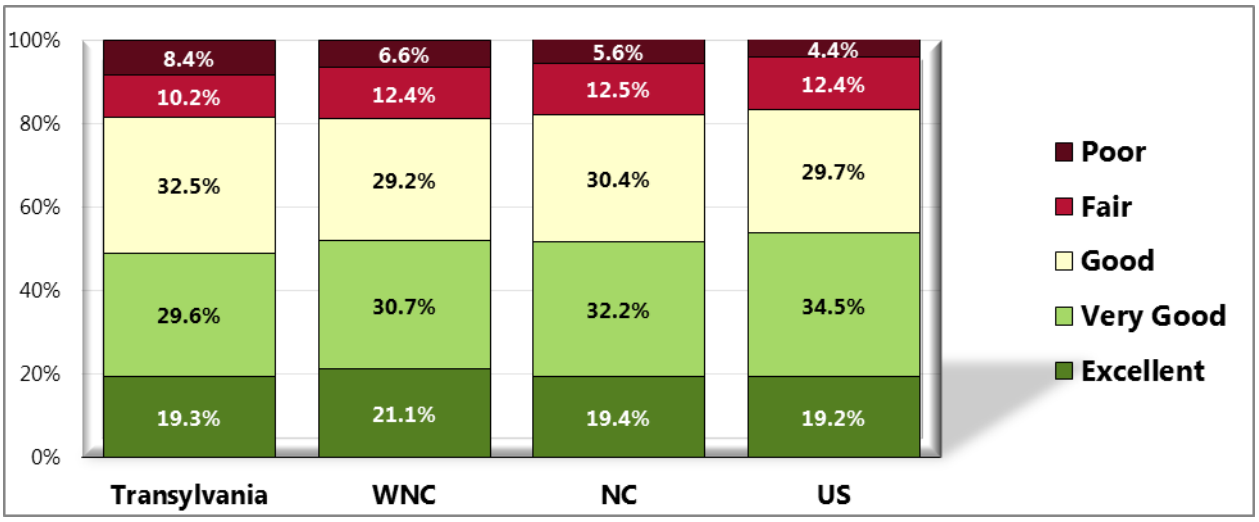
Morbidity as used in this report refers generally to the current presence of injury, sickness or disease (and sometimes the symptoms and/or disability resulting from those conditions) in the living population. In this report disability, diabetes, obesity, injury, communicable disease (including sexually-transmitted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

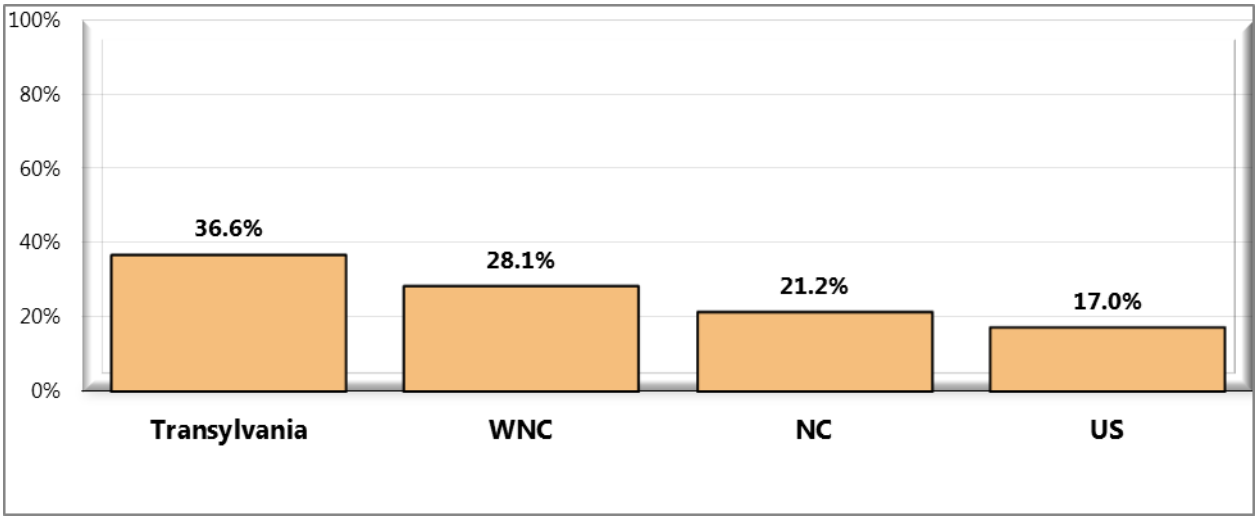
Disability and Limitations in Physical Activity

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)

	Arthritis/ Rheumatism	Back/Neck Problem	Difficulty Walking	Fracture/Bone/ Joint Injury	Heart Problem	Lung/Breathing Problem	Mental/ Depression	Other (<3%)
Transylvania	8.5%	18.7%	3.4%	9.2%	0.9%	2.9%	1.3%	55.1%

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

Notes:
- Asked of those respondents reporting activity limitations.

Davita Inc.

NC Division of Health Services Regulations awarded a certificate of need in 2008 to DaVita, Inc. to operate a dialysis facility in Transylvania County. Given the travel time necessitated to go back and forth to Hendersonville several times a week, dialysis patients in Transylvania County were left without adequate access to treatment. There were several delays in the process of opening the facility in Brevard, but in August 2012, DaVita announced they would be opening a dialysis center sometime during the first half of 2013.

Diabetes

Table 34 presents trend data from the US Centers for Disease Control and Prevention (CDC) on the estimated prevalence of diagnosed diabetes in Transylvania 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 Transylvania County fell from 8.1% in 2005 to 7.4% in 2009, a decrease of 8.6%. In WNC the mean percent prevalence of diagnosed diabetes among adults in WNC rose from 8.5% in 2005 to 9.0% in 2009, an increase of 5.9%. The diabetes prevalence in the county was lower than the mean prevalence in WNC throughout the period cited.

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

Geography	2005		2006		2007		2008		2009	
	#	%	#	%	#	%	#	%	#	%
Transylvania County	2,371	8.1	2,463	8.3	2,364	7.8	2,317	7.6	2,349	7.4
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 Transylvania County residents totaled 58 cases, or 1.6% of all inpatient hospitalizations listed for the county. In the same year, there were 1,240 inpatient hospital cases associated with treatment of diabetes in WNC. This number of cases represented 1.6% of all hospitalizations in the region. Statewide, diabetes hospitalizations composed 1.9% of all hospitalizations in NC (*Data Workbook*).

Obesity

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

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

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

Adult Obesity

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

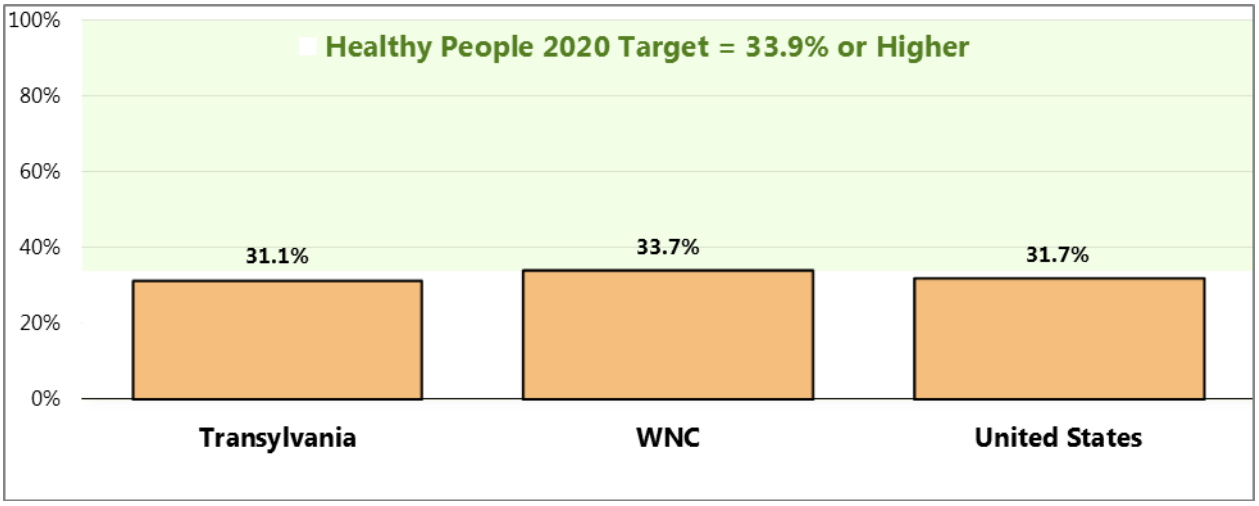
From these data it appears that the estimated prevalence of diagnosed obesity among adults in Transylvania County was somewhat variable between 2005 and 2009, although there was an overall increase of 4.7% in obesity prevalence from the beginning to the end of the period. The estimated mean prevalence 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%. Adult obesity was less prevalent in the county than the region throughout the period cited.

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

Geography	2005		2006		2007		2008		2009	
	#	%	#	%	#	%	#	%	#	%
Transylvania County	5,307	23.4	5,735	25.2	5,692	25.0	5,619	24.5	5,608	24.5
Regional Total	128,908	-	136,661	-	139,114	-	143,681	-	148,403	-
Regional Arithmetic Mean	8,057	25.2	8,541	26.4	8,695	26.7	8,980	27.4	9,275	28.0

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

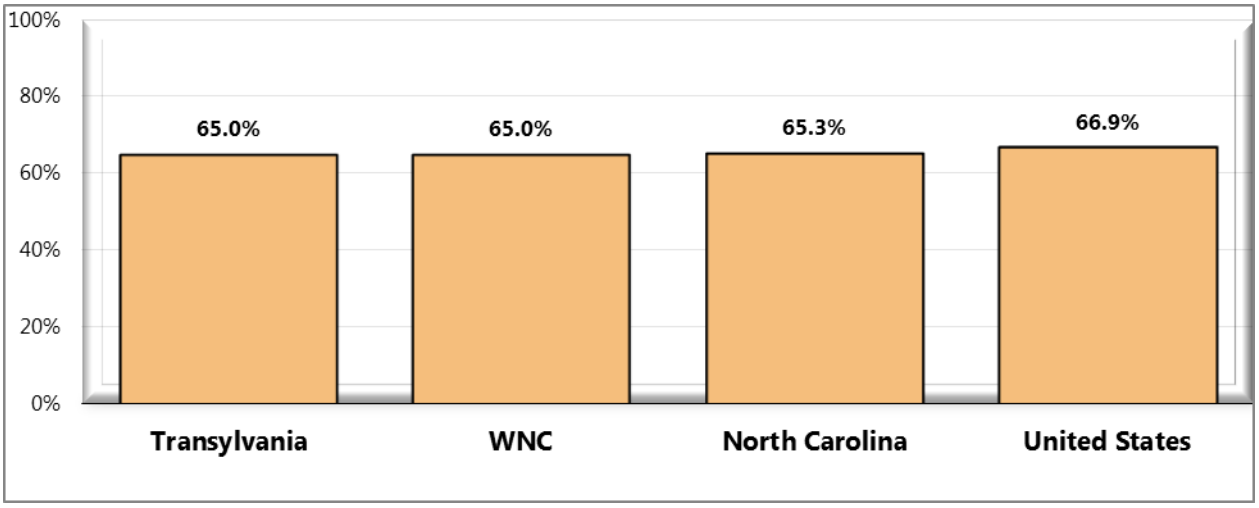
Figure 47. Healthy Weight (WNC Healthy Impact Survey)
(Percent of Adults With a Body Mass Index Between 18.5 and 24.9)



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

Notes:
- Based on reported heights and weights, asked of all respondents.
- US Department of Health and Human Services. Healthy People 2020. December 2010. http://www.healthypeople.gov Objective NWS-8]
- The definition of healthy weight is having a body mass index (BMI), a ratio of weight to height (kilograms divided by meters squared), between 18.5 and 24.9.

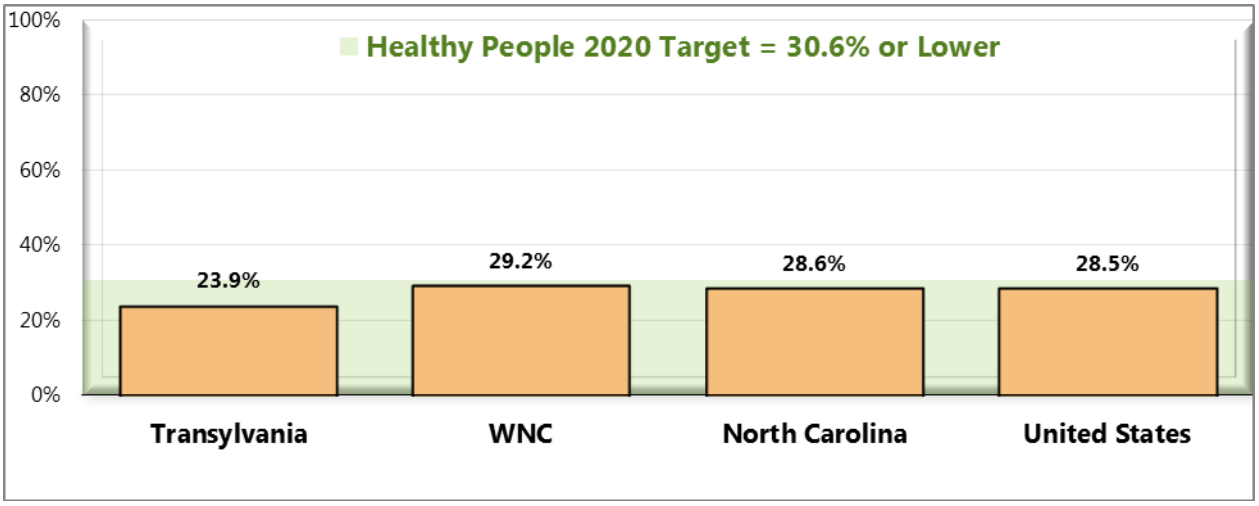
Figure 48. Prevalence of Total Overweight (WNC Healthy Impact Survey)
(Percent of Overweight or/Obese Adults; Body Mass Index of 25.0 or Higher)



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

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

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



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

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

Childhood Obesity

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

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

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

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

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

From data presented in Table 36 it appears that the prevalence of healthy weight among 2-4 year-olds in Transylvania County (66.9%) 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 Transylvania County (16.1%) than the mean for WNC (17.2%) and the same as the figure for NC as a whole (16.1%). The prevalence of *obesity* in Transylvania County 2-4 year-olds (13.0%) is lower than the mean prevalence in WNC (13.6%) and lower than the prevalence in NC as a whole (15.6%). It must be noted that the regional means denoted in *italics* contain one or more county percentages that are unstable due to small numbers of children participating in the program.

Table 36. Prevalence of Obesity, Overweight, Healthy Weight and Underweight
Children 2 through 4 years
(2010)

Geography	Total	Underweight		Healthy Weight		Overweight		Obese	
		<5th Percentile		≥5th to <85th Percentile		≥85th to <95th Percentile		≥95th Percentile	
	#	#	%	#	%	#	%	#	%
Transylvania County	299	12	4.0	200	66.9	48	16.1	39	13.0
Regional Total	6,814	316	-	4,410	-	1,139	-	949	-
Regional Arithmetic Mean	426	20	*4.8*	276	64.5	71	*17.2*	59	*13.6*
State Total	105,410	4,935	4.7	66,975	63.5	17,022	16.1	16,478	15.6

From data presented in Table 37 it appears that the prevalence of children ages 5-11 with healthy weight in Transylvania County (75.0%) is higher than the comparable figure for WNC (63.4%) and higher than the figure for NC (54.3%), and the prevalence of *overweight* children ages 5-11 in Transylvania County (25.0%) is higher than both the mean WNC and NC percentages as well. However, these two county figures should be regarded as unstable, due to small numbers of children in the program. In WNC, the mean prevalence of obesity in the 5-11 age group (19.4%) is smaller than the comparable figure for NC as a whole (25.8%). It must be noted that the regional means denoted in *italics* contain one or more county percentages that are unstable due to small numbers of children participating in the program.

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

Geography	Total	Underweight		Healthy Weight		Overweight		Obese	
		<5th Percentile		≥5th to <85th Percentile		≥85th to <95th Percentile		≥95th Percentile	
	#	#	%	#	%	#	%	#	%
Transylvania County	12	0	**0.0**	9	**75.0**	3	**25.0**	0	**0.0**
Regional Total	1,243	26	-	721	-	208	-	288	-
Regional Arithmetic Mean	78	2	*2.9*	45	*63.4*	13	*14.3*	18	*19.4*
State Total	12,633	353	2.8	6,859	54.3	2,157	17.1	3,264	25.8

From data presented in Table 38 it appears that there are too few children ages 12-18 in the NC NPASS program in Transylvania County to calculate stable prevalence rates in any weight group. Examining instead regional data it appears that the prevalence of healthy weight children ages 12-18 is higher in WNC (56.3%) than statewide (51.9%), that the prevalence of *overweight* children ages 12-18 is higher in WNC (19.0%) than in NC as a whole (18.1%), but that the prevalence of *obesity* in this age group is smaller in WNC (23.8%) than statewide (28.0%). It must be noted that the regional means denoted in *italics* contain one or more county percentages that are unstable due to small numbers of children participating in the program.

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

Geography	Total	Underweight		Healthy Weight		Overweight		Obese	
		<5th Percentile		≥5th to <85th Percentile		≥85th to <95th Percentile		≥95th Percentile	
	#	#	%	#	%	#	%	#	%
Transylvania County	3	0	n/a	2	n/a	1	n/a	0	n/a
Regional Total	1,348	13	-	729	-	245	-	361	-
Regional Arithmetic Mean	84	1	*1.0*	46	*56.3*	15	*19.0*	23	*23.8*
State Total	6,854	133	1.9	3,560	51.9	1,241	18.1	1,920	28.0

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

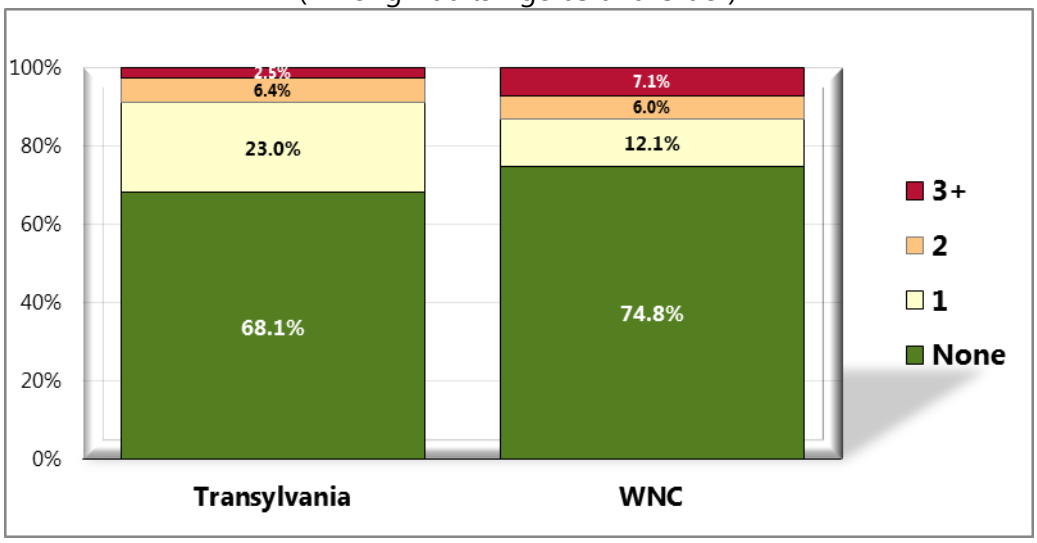
Injuries

Falls

There were 20 deaths due to falls in Transylvania County in the period 2006-2010. In 2009 alone there were three, two of them in the over-65 age group (one in the 75-84 age group, and one in the 85-and-over age group) (*Data Workbook*).

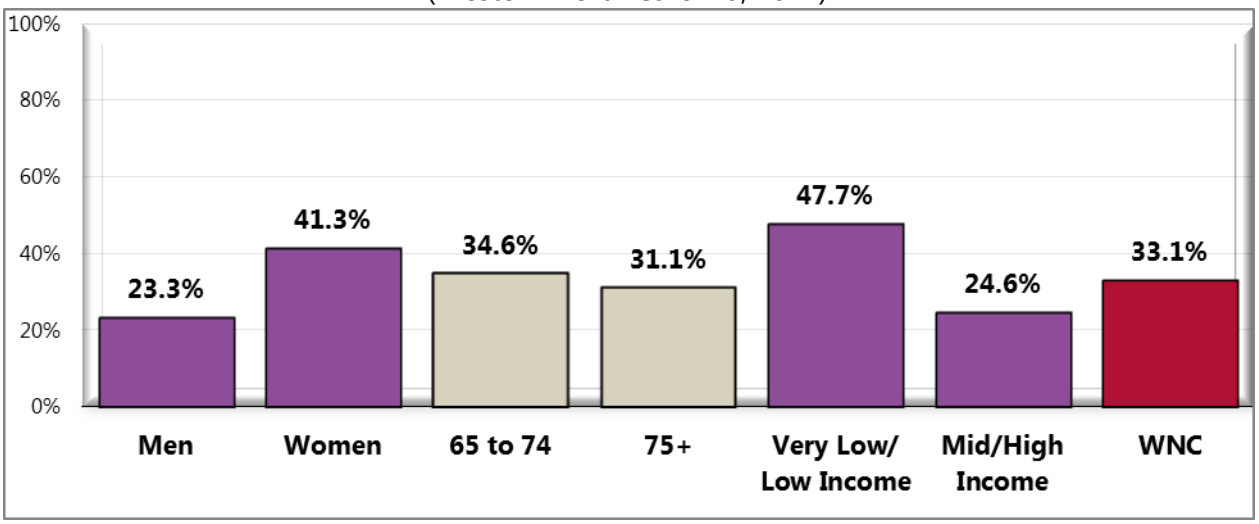
Survey respondents were also asked how many times they have fallen in the past 12 months, and how many of these falls caused an injury. Data is shown below for adults age 65 and older. Due to small county-level sample sizes, fall-related injury data is provided at the regional level.

Figure 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 Transylvania County demonstrate high variability, with the mean percentage of alcohol-related crashes sometimes above and sometimes below the percentage for WNC. However the percentage of alcohol-related traffic crashes in the county was above the comparable NC rate in every year cited in the table. The data in the table also shows that the percentage of alcohol-related vehicle crashes in WNC was higher than the comparable percentage for the state as a whole throughout the period cited, with the difference varying from 16% to 27% depending on the year. It also appears that the percent of crashes that was alcohol-related decreased in Transylvania County, WNC and NC since peaking in all three jurisdictions in 2008.

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

Geography	2006		2007		2008		2009		2010	
	# Crashes	% Alcohol-Related	# Crashes	% Alcohol-Related	# Crashes	% Alcohol-Related	# Crashes	% Alcohol-Related	# Crashes	% Alcohol-Related
Transylvania County	513	7.2	532	5.8	536	7.8	509	5.7	480	6.5
Regional Total	15,004	6.2	15,216	6.5	13,997	7.1	14,075	6.6	14,763	5.8
State Total	220,307	5.1	224,307	5.3	214,358	5.6	209,695	5.4	213,573	5.0

Table 40 presents additional detail on the nature of vehicular crashes for a single year, 2010. In Transylvania County 6.5% of *all* crashes were alcohol-related; none of the *fatal* crashes in the county were alcohol-related. In both WNC and NC as a whole, the proportion of *all* crashes that were alcohol-related was less than 6%, but the proportion of *fatal* crashes that were alcohol-related was over 30%. It is noteworthy that the percentages of crashes that were alcohol-related were higher in WNC than in NC for every outcome category displayed in Table 40.

Table 40. Outcomes of Traffic Crashes (2010)

Geography	Total Crashes		Property Damage Only Crashes		Non-Fatal Crashes		Fatal Crashes	
	# Reportable Crashes	% Alcohol-Related Crashes	# Reportable Crashes	% Alcohol-Related Crashes	# Reportable Crashes	% Alcohol-Related Crashes	# Reportable Crashes	% Alcohol-Related Crashes
Transylvania County	480	6.5	298	6.0	179	**7.3**	3	**0.0**
Regional Total	14,763	5.8	9,469	4.0	5,192	8.3	102	36.3
State Total	213,573	5.0	143,211	3.4	69,138	7.8	1,224	32.4

Distracted Drivers
There is no comparable data for Transylvania 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 Transylvania 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*).

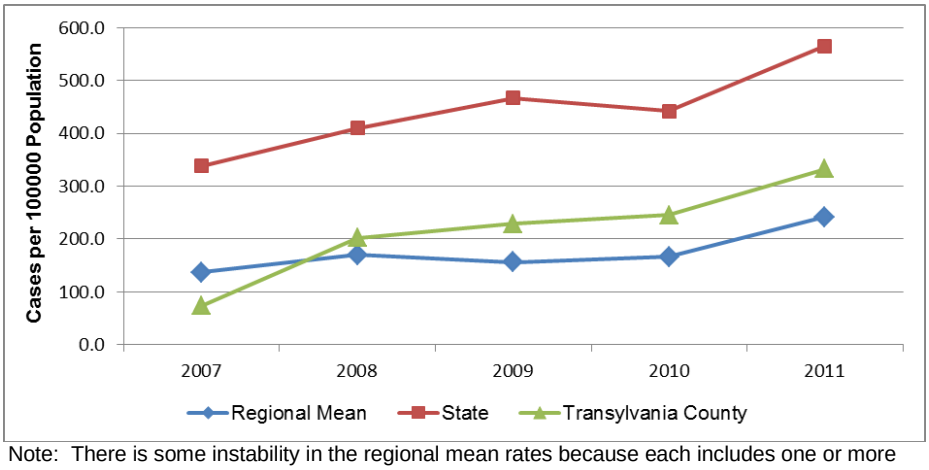
Poisonings
For the five-year aggregate period 2006-2010 there were 32 unintentional poisoning deaths in Transylvania County, with a corresponding age-adjusted mortality rate of 26.8 per 100,000 population. The comparable mean unintentional poisoning mortality rate for WNC was 23.1 over the same period.

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 is appears that chlamydia infection is more prevalent in Transylvania County than in WNC but less prevalent than in NC. 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 Transylvania County over the same period the chlamydia infection rate appears to have risen by four and one-half times the 2007 rate, from 73.4 to 332.4.

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

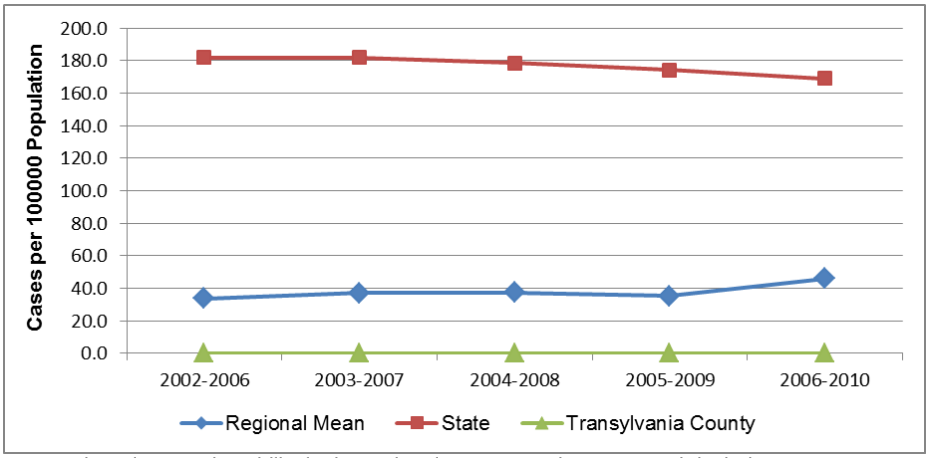


Note: There is some instability in the regional mean rates because each includes one or more unstable county rate.

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 U.S. 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. First, it should be noted that there were no gonorrhea cases reported in Transylvania County in any of the aggregate periods cited in the figure. 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.

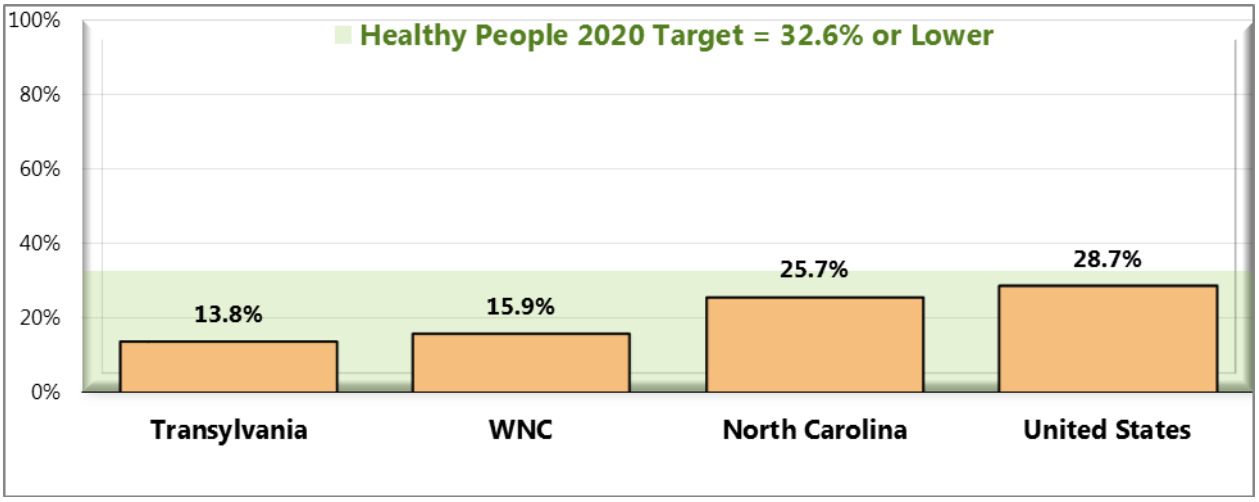
Personal, social, economic, and environmental factors all play a role in physical activity levels among youth, adults, and older adults. Factors **positively** associated with adult physical activity include: postsecondary education; higher income; enjoyment of exercise; expectation of benefits; belief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

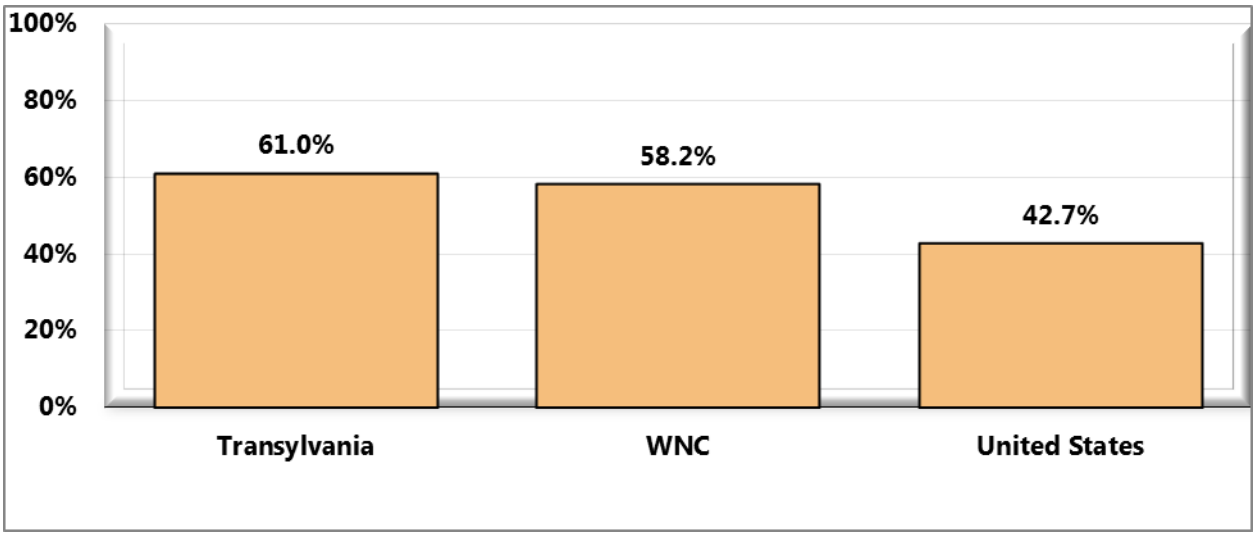
Figure 54. No Leisure-Time Physical Activity in the Past Month (WNC Healthy Impact Survey)



.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.

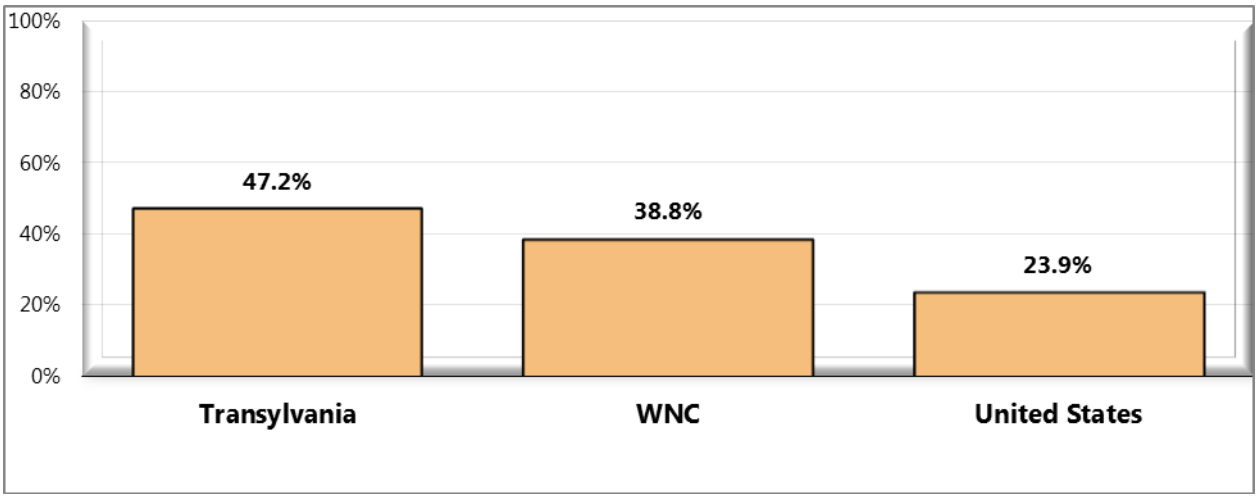
Figure 55. Meets Physical Activity Recommendations (WNC Healthy Impact Survey)



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 sweatingor 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 thatcause heavy sweating or large increases in breathing or heart rate) at least 3 times a week for 20 minutes at a time.

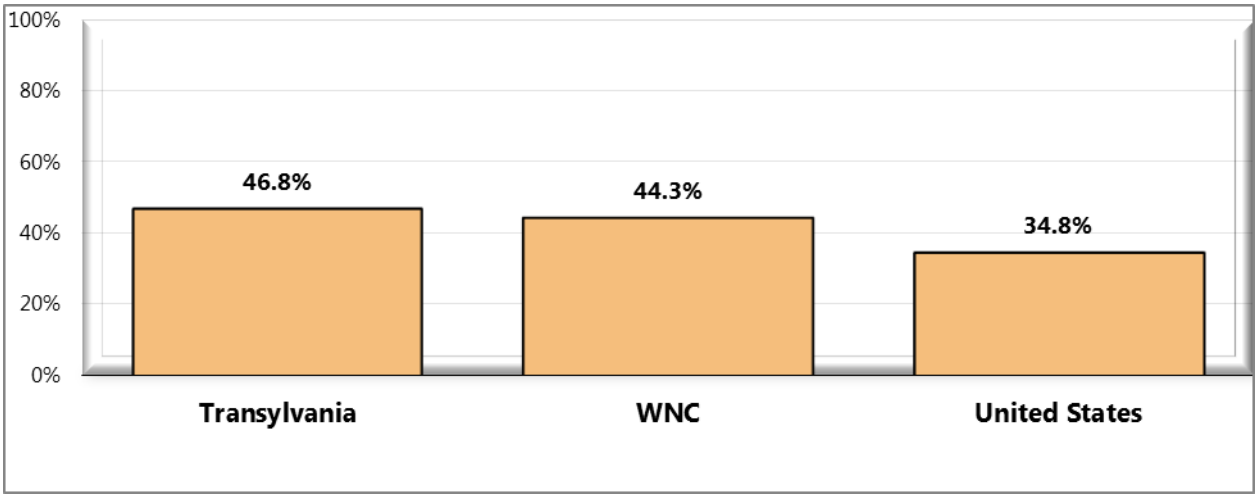
Figure 56. Moderate Physical Activity (WNC Healthy Impact Survey)



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

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

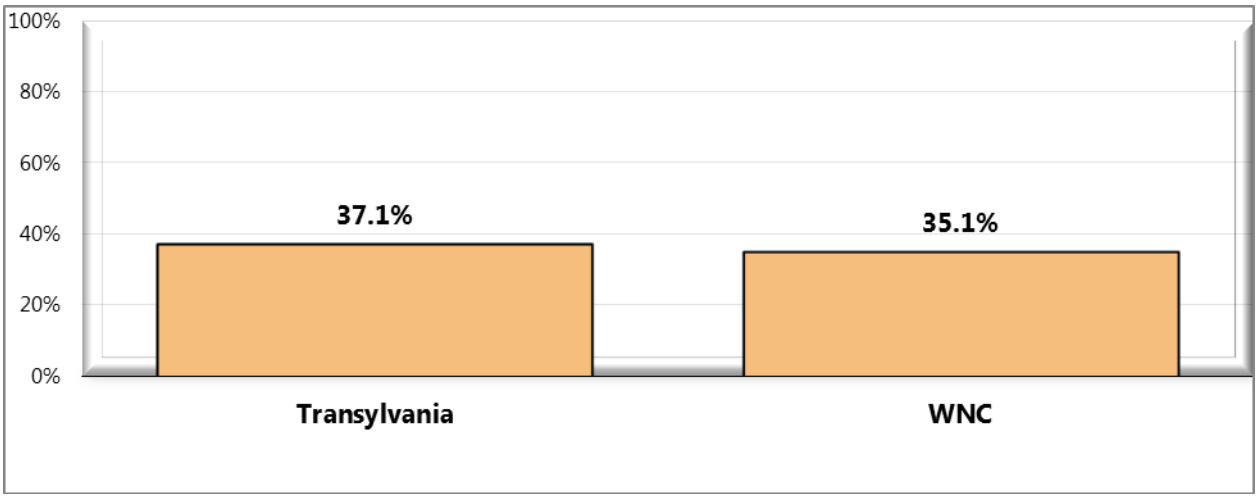
Figure 57. Vigorous Physical Activity (WNC Healthy Impact Survey)



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

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

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



Sources: • 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 83]
Notes: • Asked of all respondents.
• Strengthening Physical Activity: Takes part in physical activities or exercises that strengthen muscles at least 2 times per week.

Diet and Nutrition

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

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

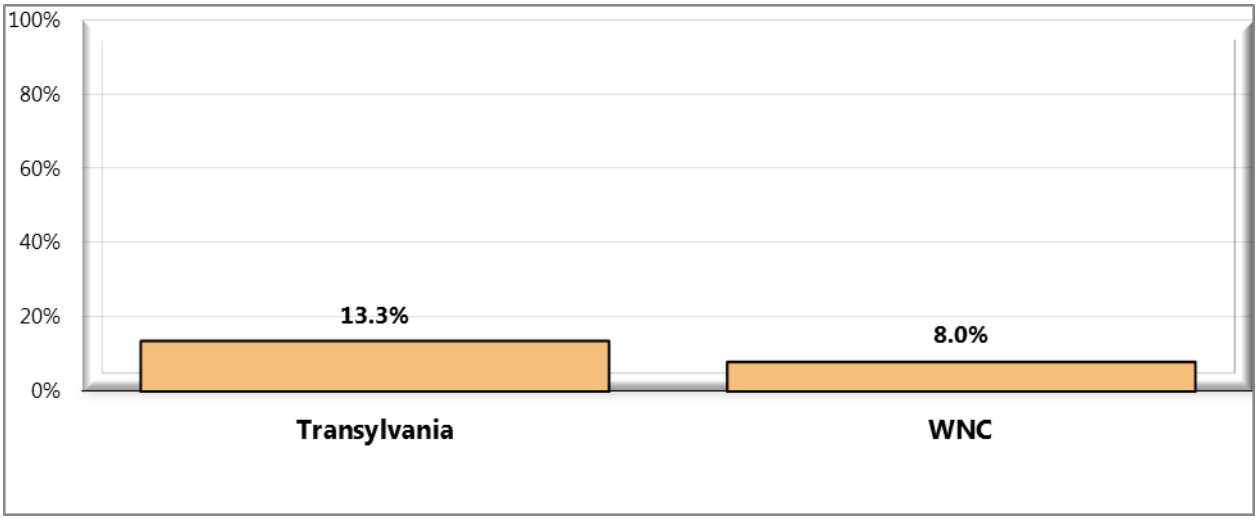
- Knowledge and attitudes
- Skills
- Social support
- Societal and cultural norms
- Food and agricultural policies
- Food assistance programs
- Economic price systems

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

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

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

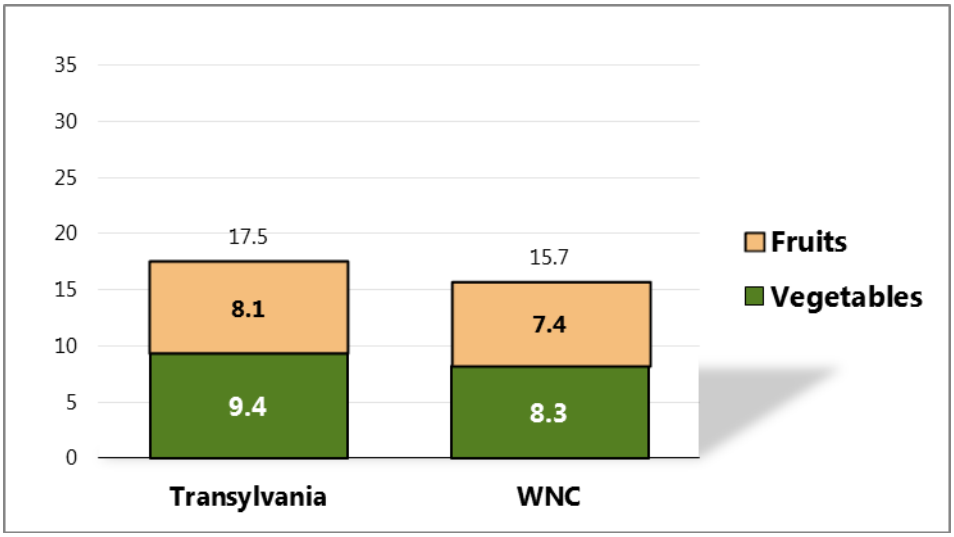
Figure 59. Had an Average of Five or More Servings of Fruits/Vegetables per Day in the Past Week (WNC Healthy Impact Survey)



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

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

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



Sources: ● 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Items 53-54]
Notes: ● Asked of all respondents.
● For this issue, respondents were asked to recall their food intake during the previous week. Reflects 35 or more 1-cup servings of fruits and/or vegetables in the past week, excluding lettuce salad and potatoes.

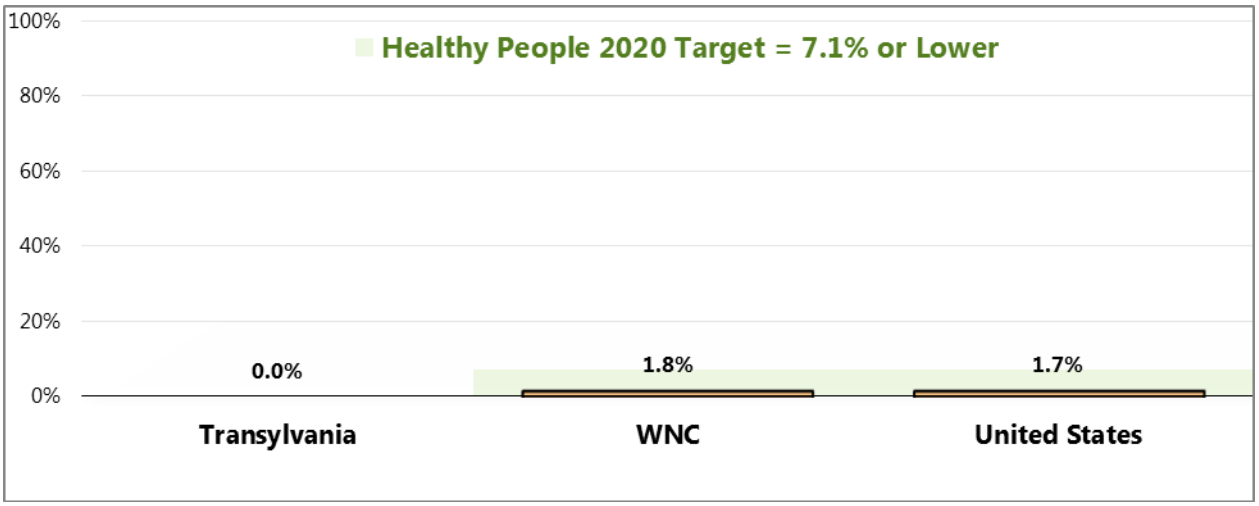
Substance Use/Abuse

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

Illicit Drugs

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

Figure 61. Illicit Drug Use in the Past Month (WNC Healthy Impact Survey)



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

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

C.A.R.E.

The Community Awareness Recovery Effort (C.A.R.E.) coalition began meeting in late 2010 to promote community awareness about substance abuse issues and to support recovery efforts. The group is a spin-off of the broad Mental Health, Substance Abuse, and Developmental Disabilities (MH/SA/DD) stakeholders group in the local community. C.A.R.E. members provide representation from various sectors – school system, hospital, faith community, law enforcement, public health, mental health providers, and the medical community. During monthly meetings, the coalition focuses on the best strategies to promote local action towards reducing overdoses on prescription medication. In July 2012, C.A.R.E. received funding to hire a part-time coordinator as a result of a two-year grant from NC Coalition Initiative (NCCI). Over the next year, the coordinator along with coalition members will attend several weeks of training to prepare them to lead the coalition in community assessment, problem analysis, planning, implementation, evaluation, and sustainability.

Transylvania County Schools administered the *Communities that Care Youth Survey* to students in 2008 to measure the incidence and prevalence of substance use, delinquency, and related problem behaviors and the risks that predict those problems in the community. Results showed that 51.9% of 6^{th}-12^{th} graders had used alcohol in their lifetime. Additionally, life-time use for tobacco was 65%, 22% for marijuana, 13% for inhalants, and 4.8% for ecstasy. Those numbers dropped by half when asked about use in the past 30 days. Overall, 8.4% reported the use of any illicit drug other than marijuana in the past 30 days.

The Emergency Department at Transylvania Regional Hospital has been tracking the number of overdose cases in ED visits over the last few years. In 2008 the ED reported 122 overdoses, 117

in 2009, 120 in 2010, and 131 in 2011. The leading substances contributing to the overdoses were benzodiazepines, followed by opiates, and sedatives/tranquilizers.

Transylvania County Juvenile Crime Prevention Council (JCPC)

The Juvenile Risk Assessment instrument is administered by Juvenile Court Counselors after juveniles are referred with a complaint alleging that a delinquent act has occurred and prior to adjudication of the juvenile. The Assessment is an instrument used to predict the likelihood of the juvenile being involved in future delinquent behavior. According to the Transylvania County Risk Factor Observations for 2011-2012, 38% of assessed youth have illegal substance abuse assessment or treatment needs; a 2 year increase trend & higher than state rate for past 3 years.

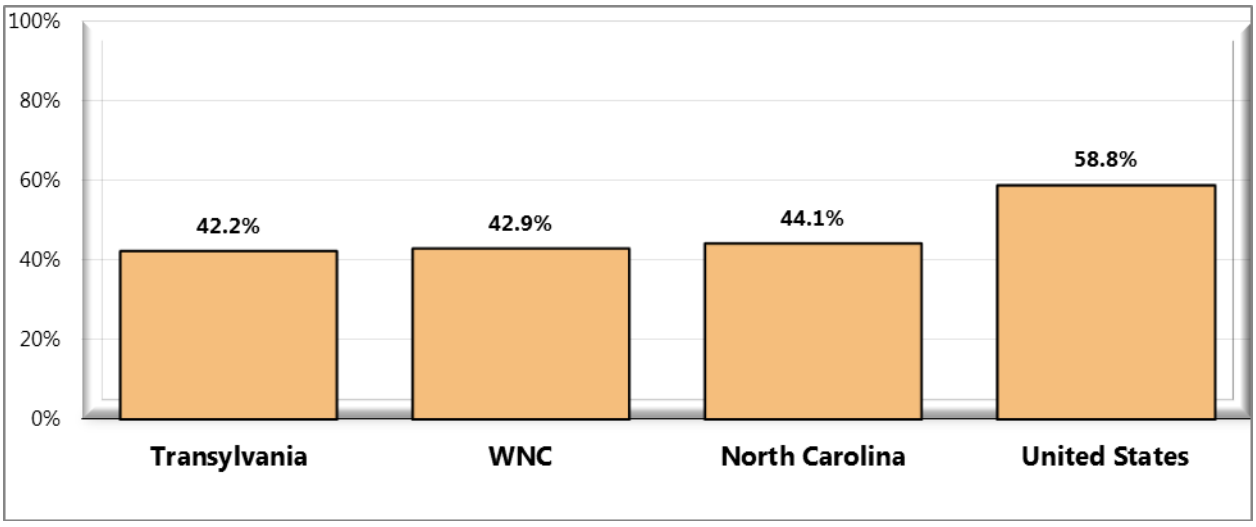
An additional tool, the Juvenile Needs Assessment instrument, is administered by Juvenile Court Counselors prior to court disposition of a juvenile to examine a youth's needs in various domains of life. The Needs Assessment found 46% of assessed youth have substance abuse/use issue. However, this is most likely under-reported and the figure should be interpreted as a measure of the minimum level of occurrence. Additionally, 46% of assessed youth need more mental health assessment, while 38% of assessed youth have mental health needs that are currently being addressed. (Transylvania County Juvenile Crime Prevention Council (JCPC))

Alcohol

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

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

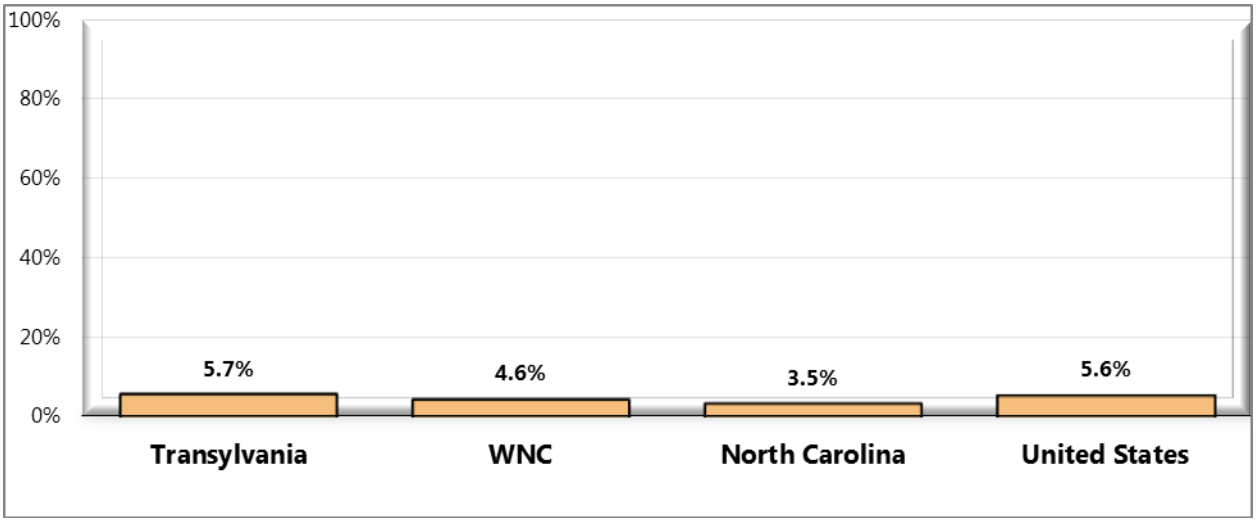
Figure 62. Current Drinkers (WNC Healthy Impact Survey)



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

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

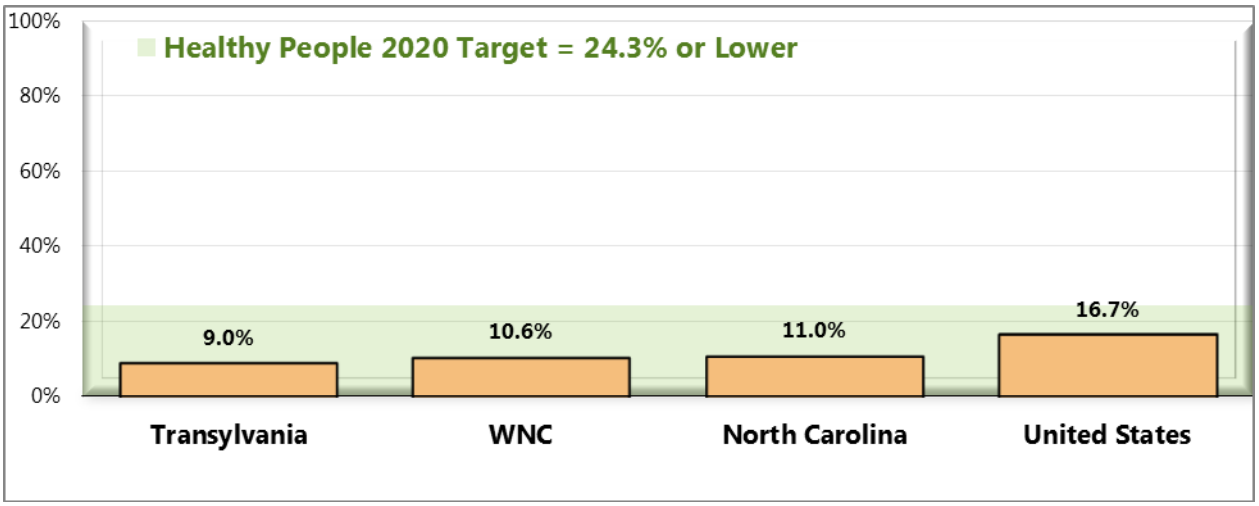
Figure 63. Chronic Drinkers (WNC Healthy Impact Survey)



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

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

Figure 64. Binge Drinkers (WNC Healthy Impact Survey)



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

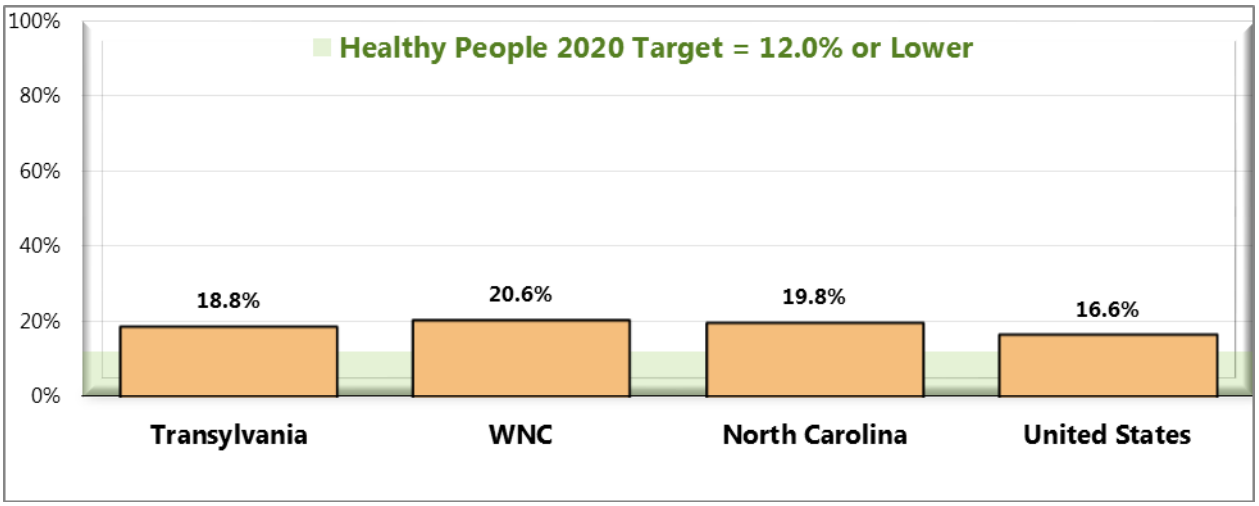
Notes:
- Asked of all respondents.
- Binge drinkers are defined as those consuming 5+ alcoholic drinks on any one occasion in the past 30 days; * note that state and national data reflect different thresholds for men (5+ drinks) and women (4+ drinks).

Tobacco

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

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

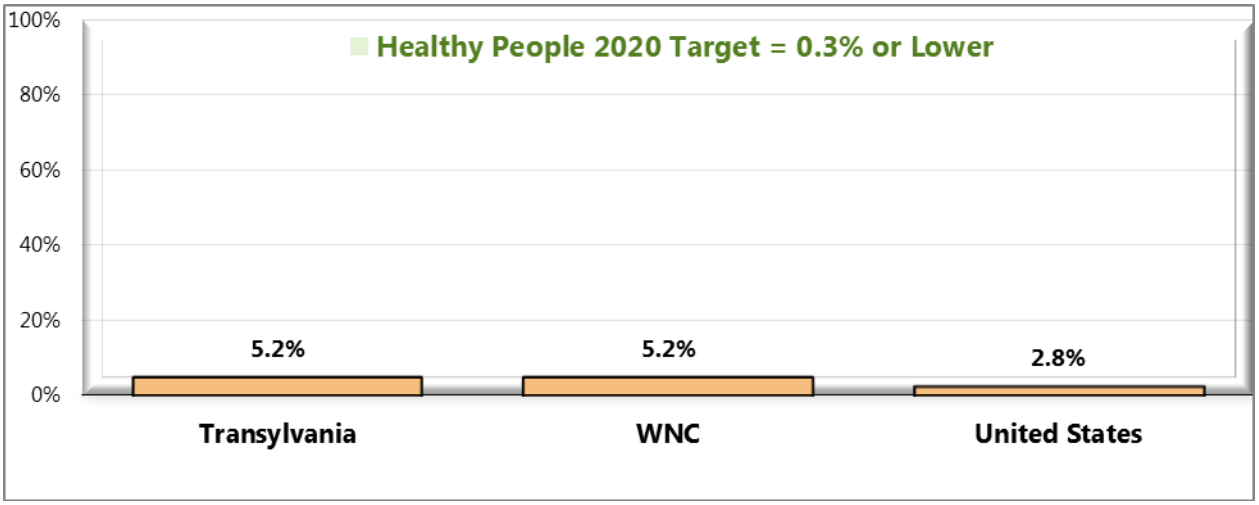
Figure 65. Current Smokers (WNC Healthy Impact Survey)



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

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

Figure 66. Currently Use Smokeless Tobacco Products (WNC Healthy Impact Survey)



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

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

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

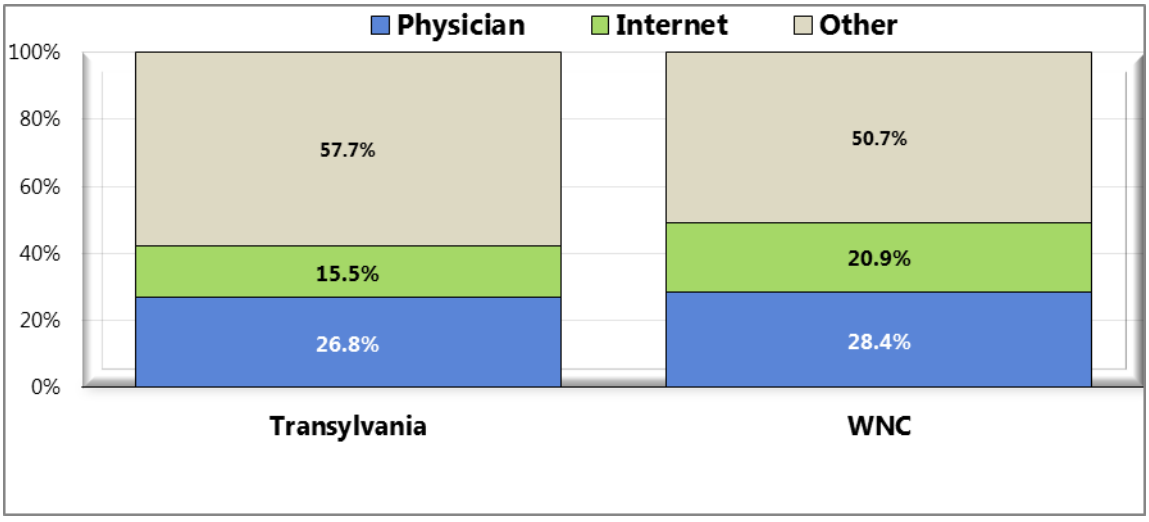
	Doctor	On My Own/Cold Turkey	Don't Know
Transylvania	✓	✓	✓
WNC	✓	✓	✓

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



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

CHAPTER 5 – CLINICAL CARE PARAMETERS

Medical Care Access

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

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

TRAIN

Transylvania Resource Access Information Network (TRAIN) acts as an information hub for health and human service organizations in Transylvania County as well as offering navigation and information about available resources directly to the consumer. Recognizing that unmet basic needs can have a direct impact on overall health; TRAIN aims to address a wide range of physical, mental, emotional, and financial needs of clients. A typical TRAIN client may be uninsured, live below the federal poverty line, struggle with medication needs, lack transportation, lack access to primary care, be unemployed or underemployed, or struggle with a chronic physical or mental disability. This population is often vulnerable to isolation, homelessness, substance abuse, and unhealthy family relationships.

TRAIN utilizes a web-based tool to collect client demographics, track referrals, and store a comprehensive database of existing resources in which all member organizations have access. Currently 15 local agencies – non-profit, government, education, and faith-based – participate in data sharing through Charity Tracker. To date, there are 750 clients entered into this system, but that number is expected to rise by the thousands once all agencies have entered complete client listings. The database enables participating agencies to prevent duplication of services while assisting clients through health and basic needs navigation services. These referrals may include medical care for the uninsured, free physicals, prescription assistance, vision testing and glasses, substance abuse treatment, food pantries, self-sufficiency programs, emergency shelter, income-based housing options, vocational rehabilitation, discount dental care, employment resources, legal services, family support programs, and transportation options.

The most recent initiative of the program is called HealthTRAIN, which is collaboration between United Way, Transylvania County Transportation, The Free Clinic, The Bread of Life, The Haven, SAFE and the Employability Taskforce. HealthTRAIN provides transportation to increase access to the Free Clinic for uninsured clients to receive basic medical care. Transportation is also

provided for special events an programs that support employment opportunities and healthy living activities in the region.

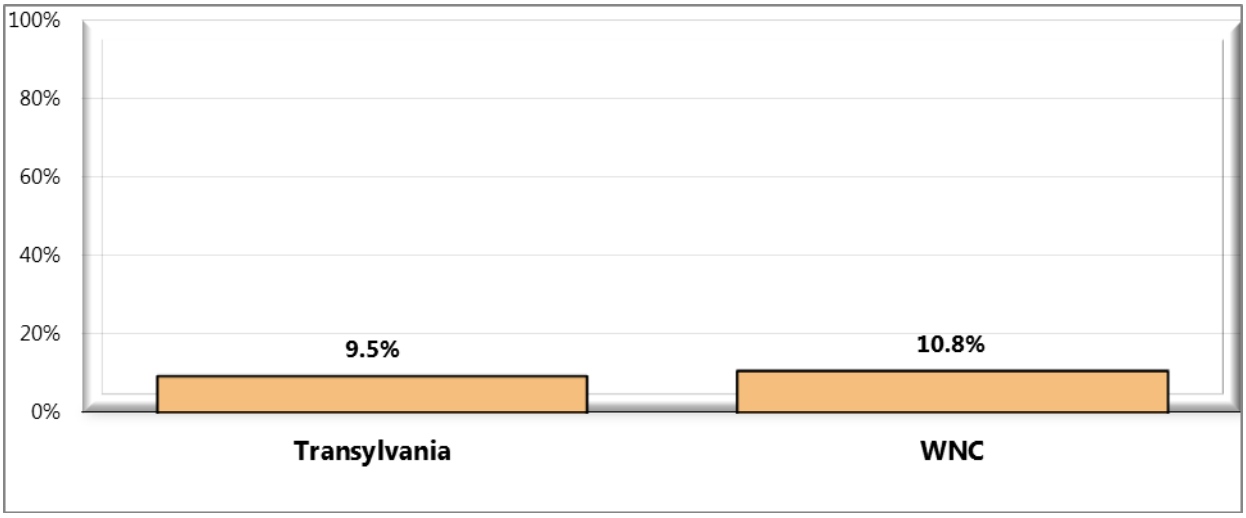
TRAIN receives funding through an initial grant provided by Blue Cross Blue Shield Foundation of North Carolina in 2011. Additionally, United Way of Transylvania County provides funding for special projects and supplemental salary to carry TRAIN through fiscal year 2012-2013.

Self-Reported Access

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

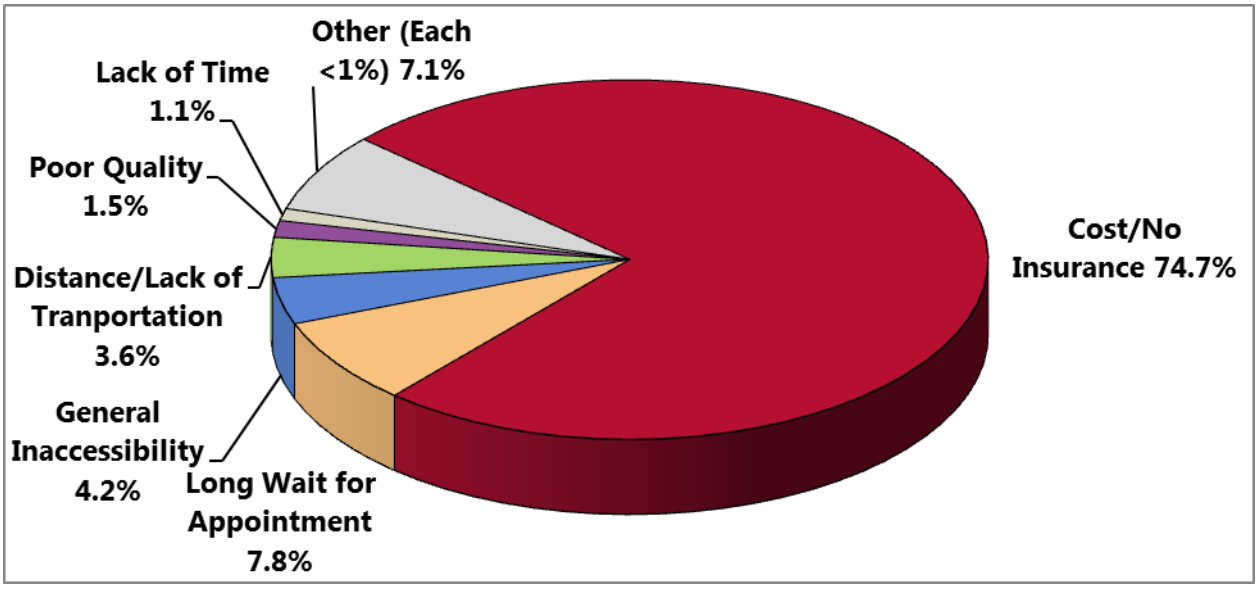
Survey respondents were also asked to indicate their agreement with the following statement: "*Considering cost, quality, number of options and availability, there is good healthcare in my county*."

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



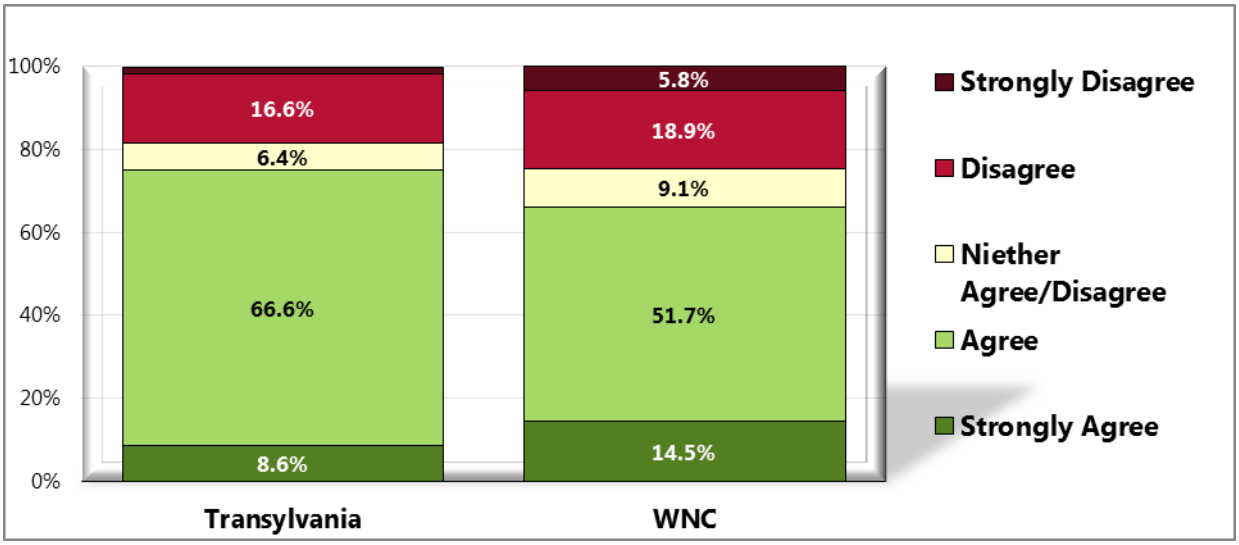
Sources: ● 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 13]
Notes: ● Asked of all respondents.

Figure 69. Primary Reason for Inability to Get Needed Medical Care (WNC Healthy Impact)
(Adults Unable to Get Needed Medical Care at Some Point in the Past Year)
(Western North Carolina, 2012)



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

Figure 70. "Considering cost, quality, number of options And availability, there is good health care in my county (WNC Healthy Impact Survey)



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

Health Care Providers

Provider/Population Ratios

One way to judge the supply of health care providers in a jurisdiction is to calculate the ratio of the number of health professionals to the number of persons in the population of that jurisdiction. In NC, there is data on the ratio of active health professionals per 10,000 population calculated at the county level. Table 41 presents those data (which for simplicity's sake will be referred to simply as the "ratio") for Transylvania 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, in both 2008 and 2010 the ratio of registered nurses to population was lower in Transylvania County than in WNC, NC or the US; the ratio for dentists was lower in the county than in the other three jurisdictions in 2010. In both 2008 and 2010 the ratio of physicians to population was higher in Transylvania County than in WNC but lower than in NC or the US. For primary care physicians, the ratio was higher in Transylvania County than in the other three jurisdictions both years. It should be noted that the average ratios for WNC are lower than the comparable state averages in every professional category listed in the table, and lower than the comparable nation average in every professional category except primary care.

Table 41. Active Health Professionals per 10,000 Population (2008 and 2010)

Geography	2008					2010				
	Phys	Primary Care Phys	Dents	RNs	Pharms	Phys	Primary Care Phys	Dents	RNs	Pharms
Transylvania County	15.5	10.3	3.5	75.2	9.4	16.6	11.2	2.7	71.7	8.7
Regional Average	15.0	8.9	3.4	75.3	7.0	14.8	8.9	3.4	74.9	6.9
State Average	21.2	9.0	4.3	95.1	9.3	21.7	9.4	4.4	97.4	9.2
National Average	23.2*	8.5*	4.9	91.4	8.0	22.7**	8.2**	5.7	92.0	8.3

* Data are for 2006
** Data are for 2008

Providers by Specialty

Table 42 lists the number of active health care professionals in Transylvania County and WNC, by specialty, for 2010. From these data it is apparent that there are several categories of professionals absent from Transylvania County, among them general practitioners, certified nurse midwives, and podiatrists. There also are three or fewer specialists in the county in the categories obstetrics/gynecology, pediatrics, occupational therapy assistant, optometrist, and psychological assistant.

Table 42. ActiveHealth Professionals in Transylvania County and WNC, by Specialty (2010)

Category of Professionals	Transylvania County	WNC Total
Physicians		
Primary Care Physicians	37	813
Family Practice	14	368
General Practice	0	10
Internal Medicine	15	240
Obstetrics/Gynecology	3	85
Pediatrics	5	110
Other Specialties	18	853
Dentists and Dental Hygienists		
Dentists	9	342
Dental Hygienists	20	479
Nurses		
Registered Nurses	238	7,981
Nurse Practitioners	8	316
Certified Nurse Midwives	0	28
Licensed Practical Nurses	49	1,854
Other Health Professionals		
Chiropractors	5	192
Occupational Therapists	9	242
Occupational Therapy Assistants	2	99
Optometrists	2	84
Pharmacists	29	669
Physical Therapists	22	511
Physical Therapy Assistants	14	309
Physician Assistants	6	290
Podiatrists	0	24
Practicing Psychologists	5	201
Psychological Assistants	1	87
Respiratory Therapists	10	370

Blue Ridge Community Health Services

In June 2012, Blue Ridge Community Health Services announced the opening of a new health clinic in Brevard to improve access to affordable, comprehensive health services in Transylvania County. Based in Hendersonville, Blue Ridge Community Health Services previously applied for the expansion grant in 2010, but did not receive funding in the first round. Brevard Health Center will open the beginning of November 2012 and offer a full spectrum of health care services to all residents of Transylvania County and neighboring communities, including primary care for adults and children, dental services, medication assistance, and behavioral health. The center will accept Medicaid and Medicare, but the center's mission will be to improve access to

low-income individuals and will accept patients without insurance on a sliding scale based on family size and household income.

Uninsured Population

Table 43 presents periodic two-year data on the proportion of the non-elderly population (ages 19-64) without health insurance of any kind. While there was a 21% increase in the percent of uninsured adults at the state level from 2006-2007 to 2009-2010,the percent of uninsured adults in Transylvania County as well as WNC decreased from one two-year period to the next throughout the span of years shown in the table. In Transylvania County the decrease was 6.3%, and in WNC it was 5.9%.

Table 43. Estimated Percent Uninsured Adults, Ages 19-64
Biennial Periods (2006-2007, 2008-2009, and 2009-2010)

Geography	Percent Uninsured		
	2006-2007	2008-2009	2009-2010
Transylvania County	22.1	21.8	20.7
Regional Arithmetic Mean	23.4	22.3	22.0
State Total	19.5	23.2	23.6

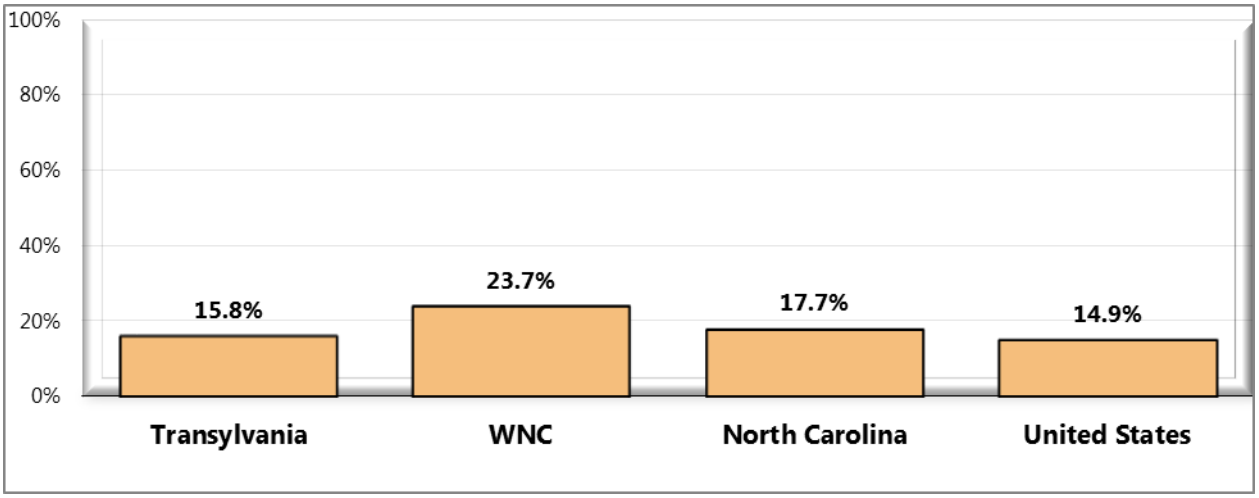
Table 44 shows the percent uninsured for one biennium (2009-2010) stratified by age. This data makes it clear that in Transylvania County as well as in WNC and NC as a whole, insurance coverage is better for children, among whom the percentage uninsured is less than half the percentage uninsured among the 19-64 age group. For all age categories cited, the percent uninsured is lower in Transylvania County and WNC than in NC.

Table 44. Estimated Percent Uninsured, All Ages
(2009-2010)

Geography	2009-2010		
	Children (0-18)	Adults (19-64)	Total (0-64)
Transylvania County	9.5	20.7	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 71.Lack of Healthcare Insurance Coverage (WNC Healthy Impact Survey)
(Among Adults 18-64)



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

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

The Free Clinic

The mission of The Free Clinic of Transylvania County is to understand and serve the health and wellness needs of the medically uninsured who live in the county. To be eligible for services, patients must have no health insurance (including Medicare and Medicaid) and have a family income within 200% of the Federal Poverty Guidelines (currently, less than $886/week for a family of four). Services include primary care, in-house lab tests, x-rays, metabolic testing and maintenance, and tobacco cessation. Since 2003, the Free Clinic has served this community through the support of grants and donations from local foundations, churches, organizations, and individuals.

Medicaid Eligibility

Table 45 presents trend data on the number and percent of persons eligible for Medicaid for several state fiscal years. This data demonstrates that in Transylvania County the percent of Medicaid-eligible persons rose from SFY2004 through SFY2006 and fell after that. The percent of Medicaid-eligible Transylvania County residents was lower than the comparable WNC mean 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 percent Medicaid-eligible in WNC exceeded the comparable percent eligible statewide for every period cited.

Table 45. Number and Percent of Population Medicaid-Eligible (SFY2004 through SFY2008)

Geography	SFY 2004		SFY 2005		SFY 2006		SFY 2007		SFY 2008	
	#	%	#	%	#	%	#	%	#	%
Transylvania County	5,281	17.92	5,380	18.11	5,526	18.49	5,357	17.64	5,430	17.65
Regional Total	128,727	-	132,895	-	138,616	-	139,891	-	142,606	-
Regional Arithmetic Mean	16,091	19.90	16,612	20.21	17,327	20.75	17,486	20.52	17,826	20.82
State Total	1,512,360	17.97	1,563,751	18.31	1,602,645	18.46	1,682,028	18.98	1,726,412	19.04

Screening and Prevention

Diabetes

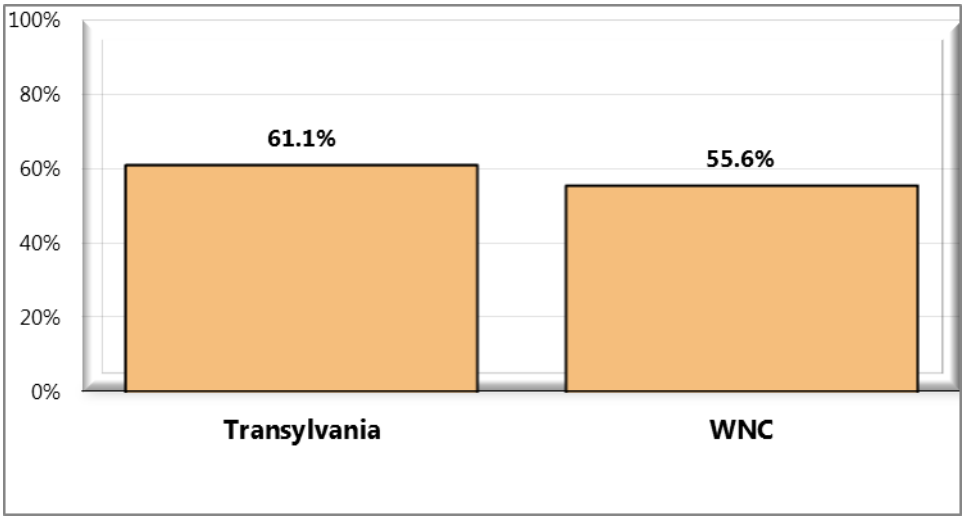
Diabetes mellitus occurs when the body cannot produce or respond appropriately to insulin. Insulin is a hormone that the body needs to absorb and use glucose (sugar) as fuel for the body's cells. Without a properly functioning insulin signaling system, blood glucose levels become elevated and other metabolic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

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

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

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

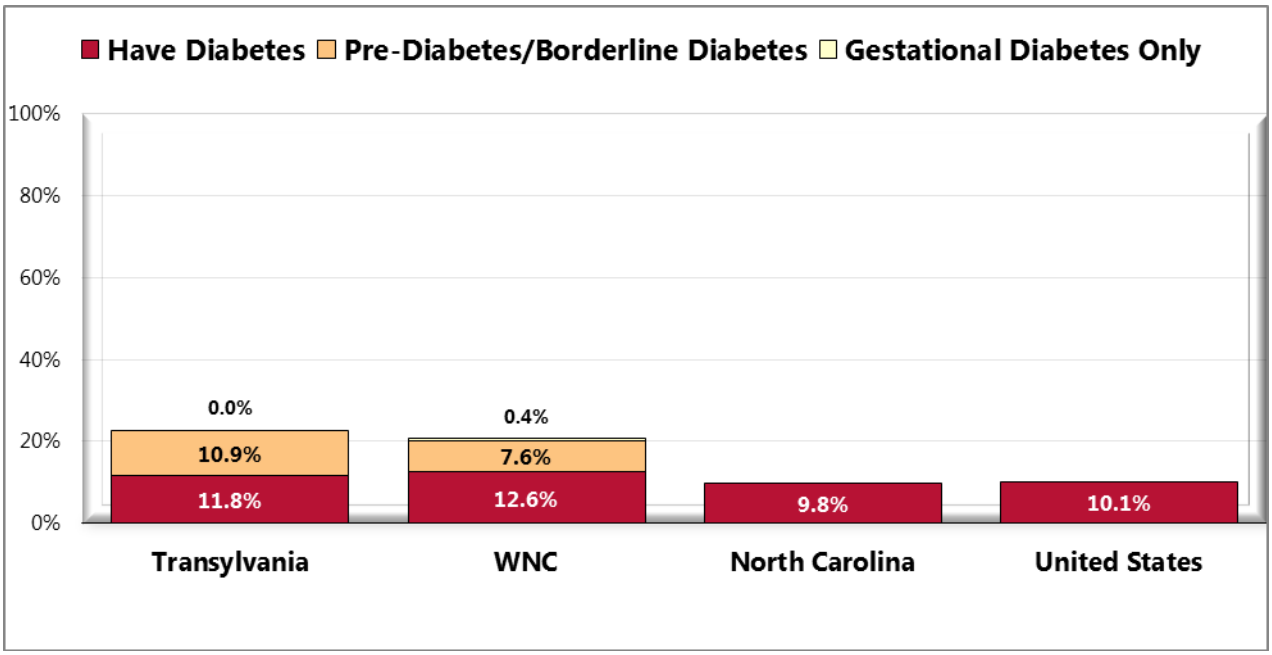
Figure 72. Tested for Diabetes in the Past Three Years (WNC Healthy Impact Survey)
(Among Adults Who Have Not Been Diagnosed With Diabetes)



Sources:
- 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 19]

Notes:
- Asked of respondents who have never been diagnosed with diabetes; also includes women who have only been diagnosed when pregnant.

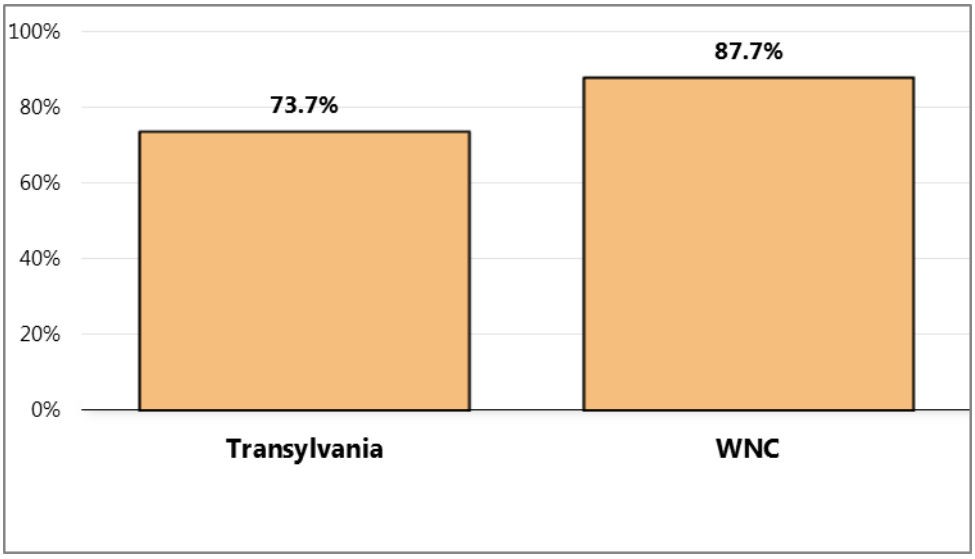
Figure 73. Prevalence of Diabetes (Ever Diagnosed)
(WNC Healthy Impact Survey)



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

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

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

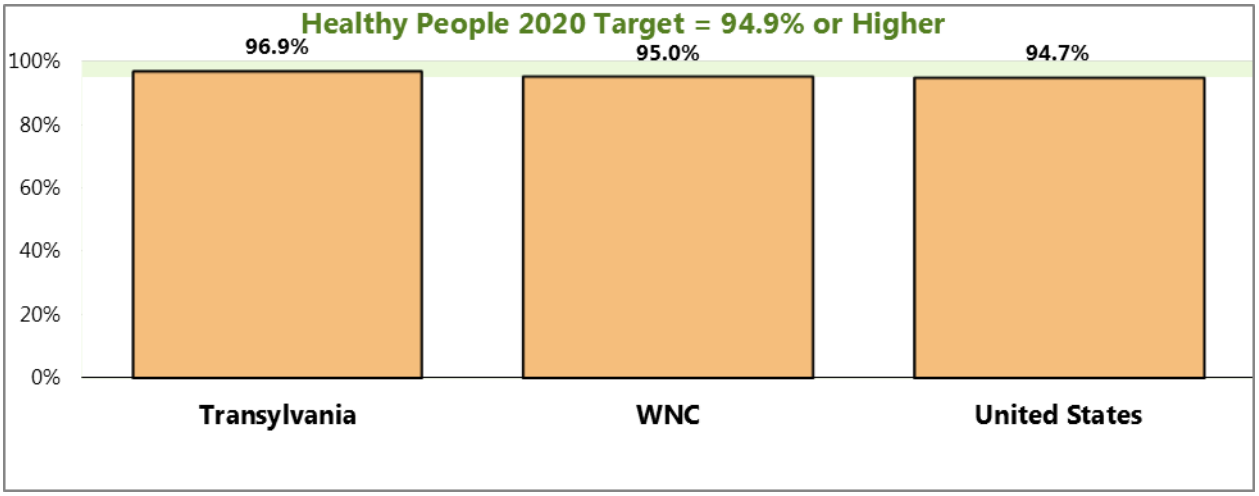


Sources: ● 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 21]
Notes: ● Asked of respondents who have been diagnosed with diabetes or prediabetes/borderline diabetes.
● In this case, the term "action" refers to taking natural or conventional medicines or supplements, diet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

Hypertension

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

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

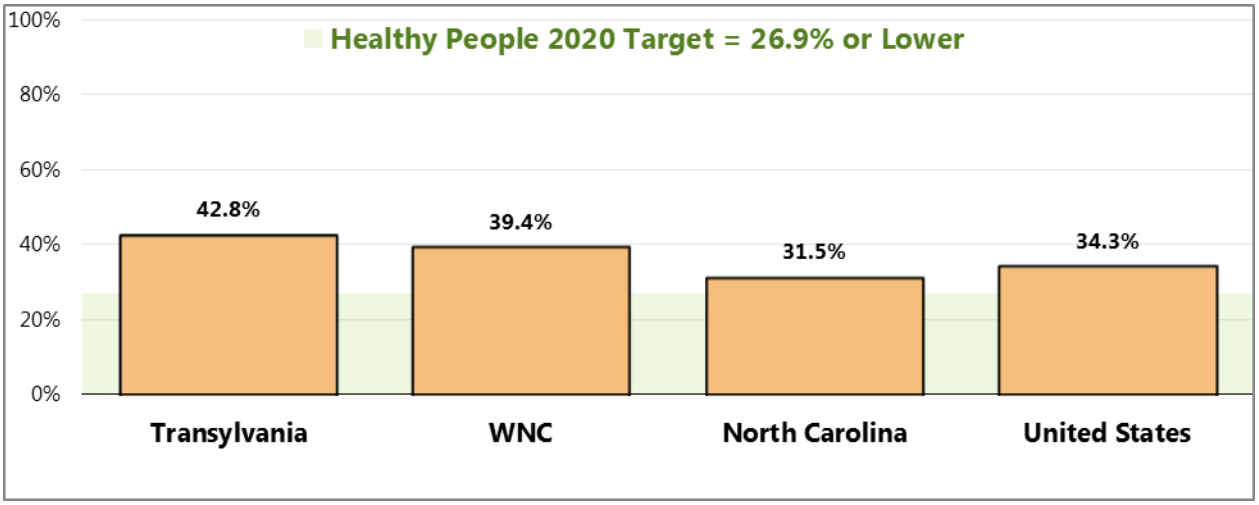


Sources: ● 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 24]

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

Notes:
- Asked of all respondents.

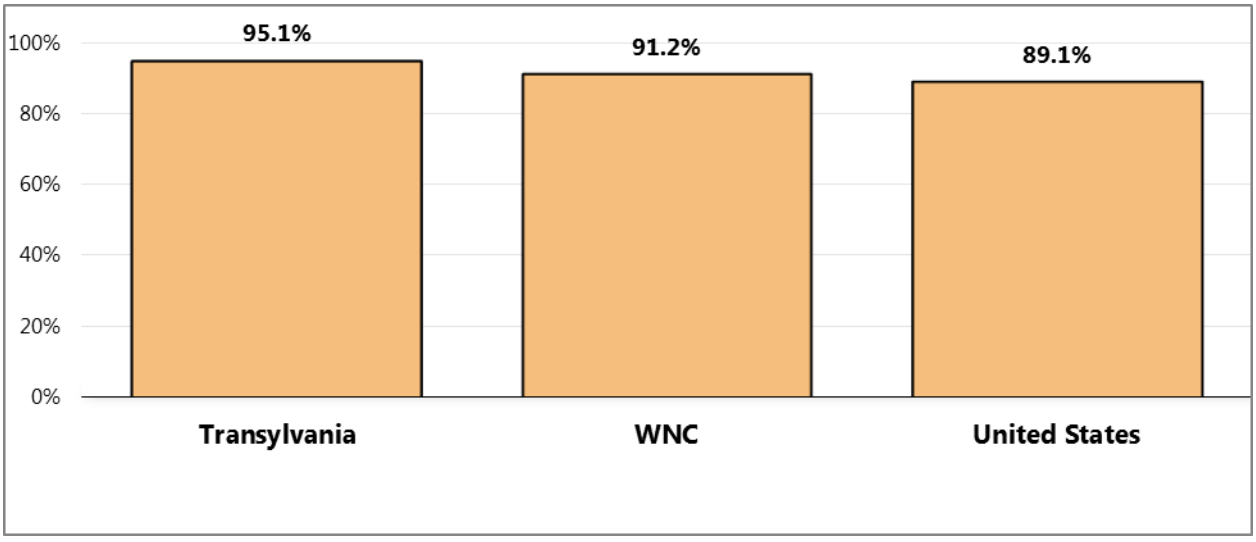
Figure 76. Prevalence of High Blood Pressure (WNC Healthy Impact Survey)



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

Notes:
- Asked of all respondents.

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



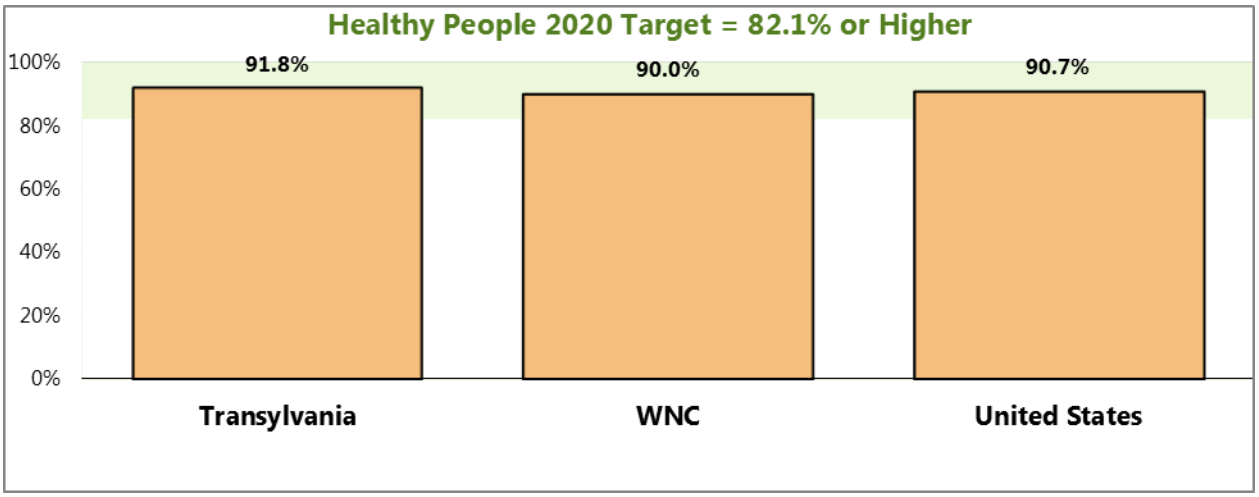
Sources:
- 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 23]
- 2011 PRC National Health Survey, Professional Research Consultants, Inc.

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

Cholesterol

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

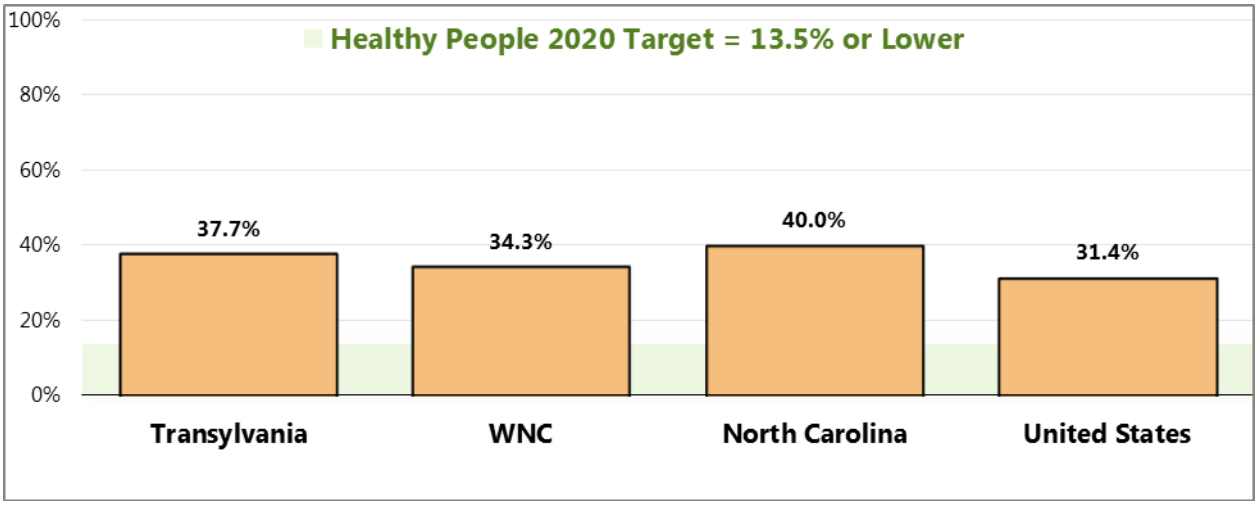
Figure 78. Have Had Blood Cholesterol Levels Checked in the Past Five Years (WNC Healthy Impact Survey)



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

Notes:
- Asked of all respondents.

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

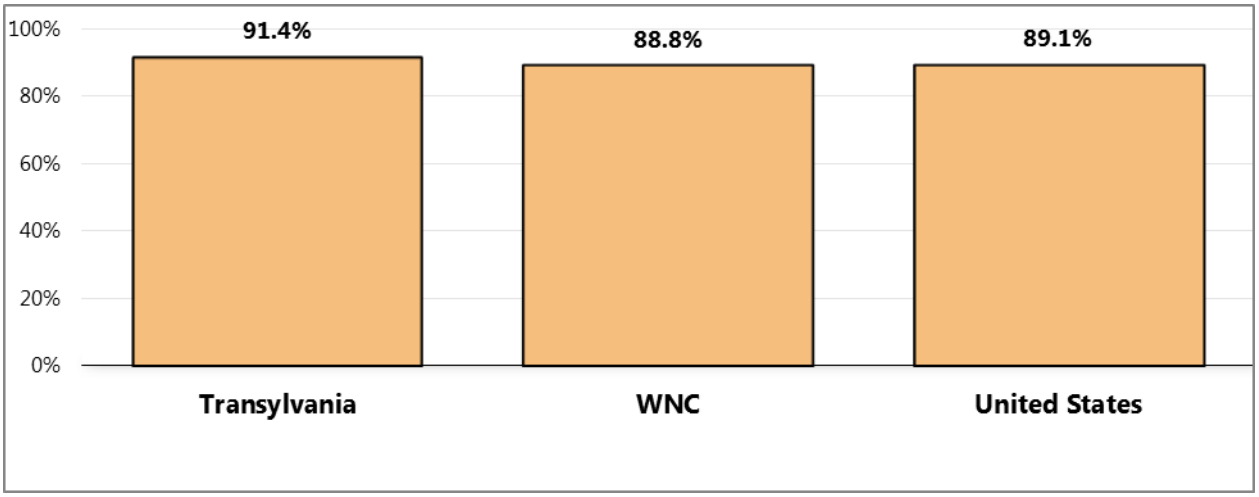


Sources:
- 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 77]

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

Notes: ● Asked of all respondents.

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



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

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

Healthcare Utilization

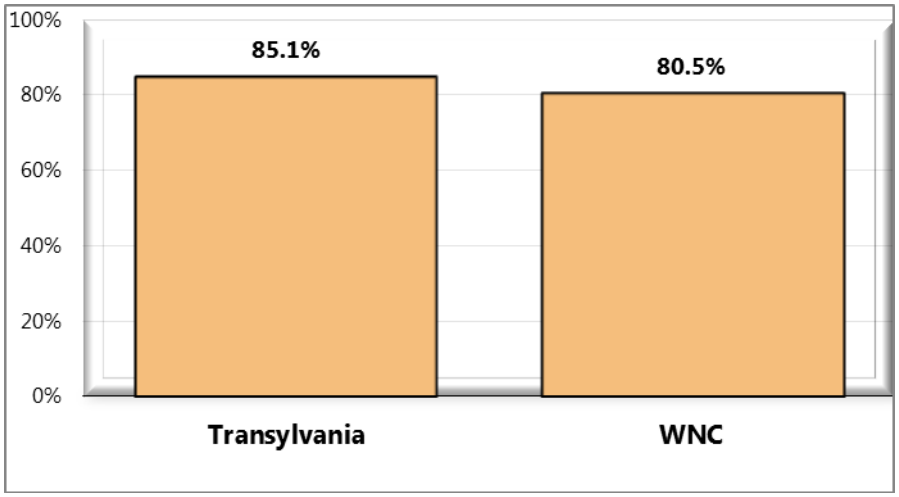
Routine Medical Care

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

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

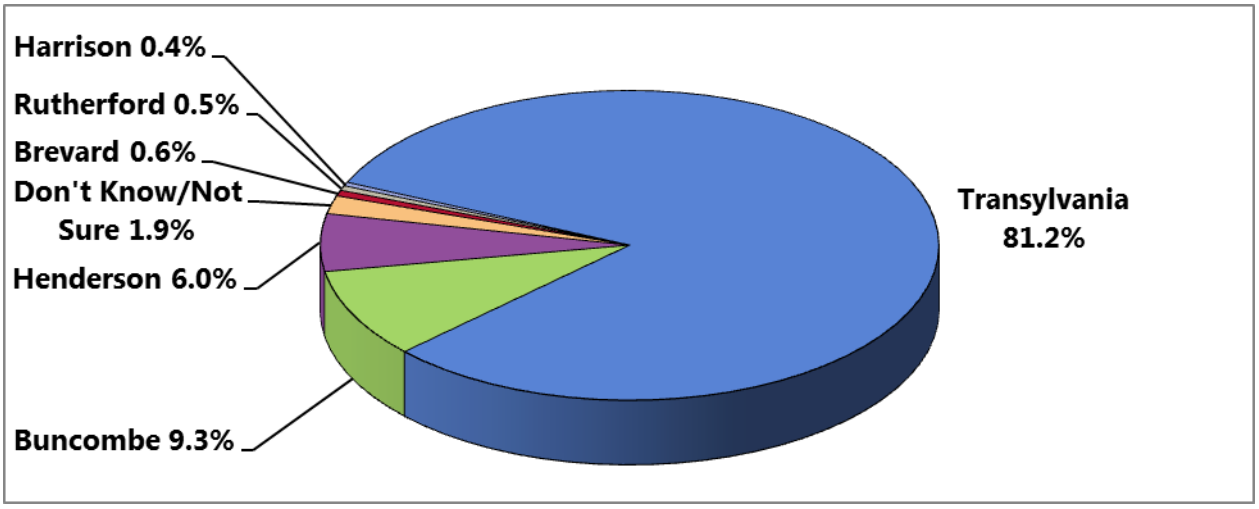
Improving health care services includes increasing access to and use of evidence-based preventive services. Clinical preventive services are services that: **prevent** illness by detecting early warning signs or symptoms before they develop into a disease (primary prevention); or **detect** a disease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

Figure 81. Have One Person Thought of as Respondent's Personal Doctor or Health Care Provider (WNC Healthy Impact Survey)



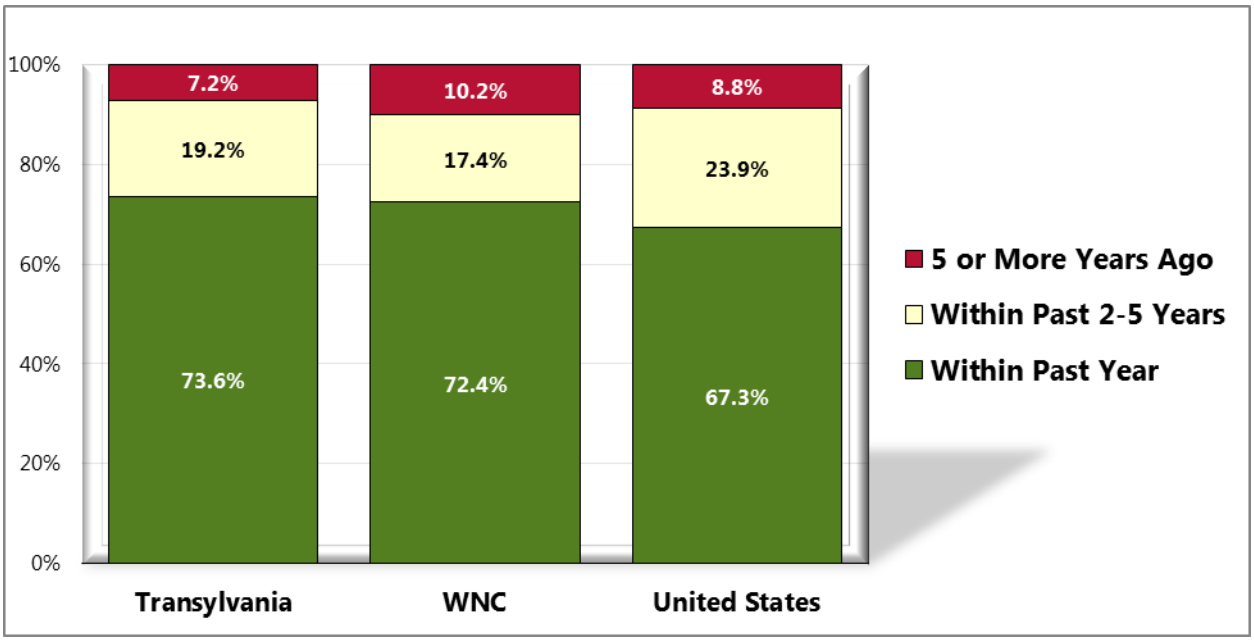
Sources: • 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 16]
Notes: • Asked of all respondents.

Figure 82. County in Which Personal Physician/Health Care Provider Is Located (WNC Healthy Impact Survey)
(Among Respondents With a Personal Physician/Health Care Provider)



Sources: • 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 101]
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 46, the diagnoses associated with the highest frequency of emergency department visits in Transylvania County in 2010 were chest pain/ischemic heart disease (9.83% of all ED visits), followed by psychiatric disorders (6.60%) and lower respiratory disorders (5.79%). 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 46. North Carolina Emergency Department Visits, NC DETECT Data (2010)

Diagnosis	Transylvania County		WNC Mean
	#*	%	%
Chest pain/ischemic heart disease	1,502	9.83	11.83
Heart failure	242	1.58	2.58
Cardiac arrest	25	0.16	0.14
Lower respiratory disorders	885	5.79	9.48
Diabetes	452	2.96	8.80
Neoplasms	120	0.79	1.57
Dental problems	308	2.02	1.85
Stroke/TIA	140	0.92	0.62
Traumatic brain injury	45	0.29	0.30
Psychiatric disorders	1,008	6.60	10.98
Substance abuse	406	2.66	2.99
Total ED Visits	15,283	n/a	n/a

* % represents percent of total ED visits
Note: for the full description of the disease group diagnosis codes included in each diagnosis line, see the *Data Workbook*.

Table 47 presents a summary of the major first-listed emergency department diagnoses for the WNC region according to DRG code. According to this data, the most common first-listed diagnosis codes in emergency departments across the region are abdominal pain (2.37% of all ED visits) and back pain, sprains of the lumbar spice, and sciatica (also 2.37%). It would appear that some of these cases could qualify for diversion to other health care providers *if* they were present in the community.

Table 47.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 48 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 48, the diagnosis resulting in the highest number of cases of hospitalization in 2010 among Transylvania County residents was cardiovascular and circulatory diseases (including heart disease and cerebrovascular disease), which accounted for 678 hospitalizations. The next highest number of hospitalizations was for digestive system diseases, including chronic liver disease and cirrhosis (468 cases), followed by respiratory diseases, including pneumonia/influenza and chronic obstructive pulmonary disease (390 cases).

Table 48. Inpatient Hospital Utilization by Transylvania County Residents, by Principal Diagnoses Excluding Newborns and Discharges from Out-of-State Hospitals (2010)

Diagnostic Category	Total # Cases		
	Transylvania County	Region	North Carolina
INFECTIOUS & PARASITIC DISEASES	110	2,741	41,705
-- Septicemia	54	1,604	27,412
-- AIDS	n/a	41	1,456
MALIGNANT NEOPLASMS	126	2,599	31,225
-- Colon, Rectum, Anus	18	324	3,770
-- Trachea, Bronchus, Lung	21	346	4,541
-- Female Breast	9	157	1,498
-- Prostate	10	192	2,505
BENIGN, UNCERTAIN & OTHER NEOPLASMS	26	650	8,948
ENDOCRINE, METABOLIC & NUTRITIONAL DISEASES	137	2,905	40,208
-- Diabetes	58	1,240	18,101
BLOOD & HEMOPOETIC TISSUE DISEASES	34	770	14,011
NERVOUS SYSTEM & SENSE ORGAN DISEASES	74	1,597	19,315
CARDIOVASCULAR & CIRCULATORY DISEASES	678	12,961	162,327
-- Heart Disease	461	9,006	108,060
-- Cerebrovascular Disease	131	2,259	29,429
RESPIRATORY DISEASES	390	8,683	93,891
-- Pneumonia/Influenza	137	3,089	29,852
-- Chronic Obstructive Pulmonary Disease	134	2,557	30,832
DIGESTIVE SYSTEM DISEASES	468	8,527	95,068
-- Chronic Liver Disease/Cirrhosis	10	178	2,361
GENITOURINARY DISEASES	214	4,123	45,978
-- Nephritis, Nephrosis, Nephrotic Synd.	44	1,036	14,368
PREGNANCY & CHILDBIRTH	311	7,921	125,271
SKIN & SUBCUTANEOUS TISSUE DISEASES	59	1,287	17,734
MUSCULOSKELETAL SYSTEM DISEASES	290	5,950	58,753
-- Arthropathies and Related Disorders	176	3,155	30,683
CONGENITAL MALFORMATIONS	6	294	3,318
PERINATAL COMPLICATIONS	13	198	4,035
SYMPTOMS, SIGNS & ILL-DEFINED CONDITIONS	121	3,916	48,299
INJURIES & POISONING	363	7,474	78,637
OTHER DIAGNOSES (INCL. MENTAL DISORDERS)	297	7,329	84,657
ALL CONDITIONS	3,717	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 49 presents data on the percent of the Medicaid population eligible for dental care that utilizes it. This data represents the Medicaid population of all ages, but split into under-age-21 and age-21-and over-categories. In all three jurisdictions the Medicaid population under age 21 appears to be more likely to utilize dental services than the population age 21 and older. The figures for Transylvania County are lower than in the other two jurisdictions.

Table 49. Medicaid Recipients Receiving Dental Services, All Ages (2010)

Geography	Medicaid Recipients Utilizing Dental Services (by Ages Group)					
	<21 Years Old			21+ Years Old		
	# Eligible for Services	# Receiving Services	% Eligibles Receiving Services	# Eligible for Services	# Receiving Services	% Eligibles Receiving Services
Transylvania County	3,446	1,581	45.9	2,268	603	26.6
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 50, 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 50. Medicaid-Recipients Receiving Dental Services, Ages 1-5 (2010)

Geography	Children (aged 1-5) Enrolled in Medicaid Who Received Any Dental Service In the Previous 12 Months)		
	# Eligible for Services*	# Receiving Services**	% Eligibles Receiving Services
Transylvania County	1,014	522	51.1
Regional Total	26,820	14,407	53.7
State Total	n/a	n/a	51.7

Healthy Smiles Dental Project

Started over 12 years ago, the Health Smiles Dental Project was honored with the NC GlaxoSmithKline Foundation Child Health Recognition Award for commitment to child health programs and advocacy in September 2012. Healthy Smiles is a collaboration between the local Department of Public Health, local dental practices, Smart Start of Transylvania County, regional hospitals, and child care centers. The project provides education, dental screenings, and access to dental care for uninsured and Medicaid-eligible children from birth to 5 years old. Beginning in July 2012, Health Smiles Dental Project began providing dental education to children 6-12 years old through funding provided by United Way of Transylvania County.

During the 2010-2011 reporting year, 321 children received dental screenings and 183 received dental treatment. Of those children completing a treatment program, 75% maintained dental health at follow-up appointments. Additionally, all 16 child care centers participated in dental health education for staff and children. For the 2011-2012 fiscal year, the project provided 414 dental screenings and 200 children received dental treatment. Through periodic exams and cleanings, 70% of those children maintained dental health.

Dental Screening Results among Children

Table 51 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 Transylvania County (1.75 per child) was 19% lower than the mean percentage for WNC (2.18) but 17% higher than the state average (1.50).

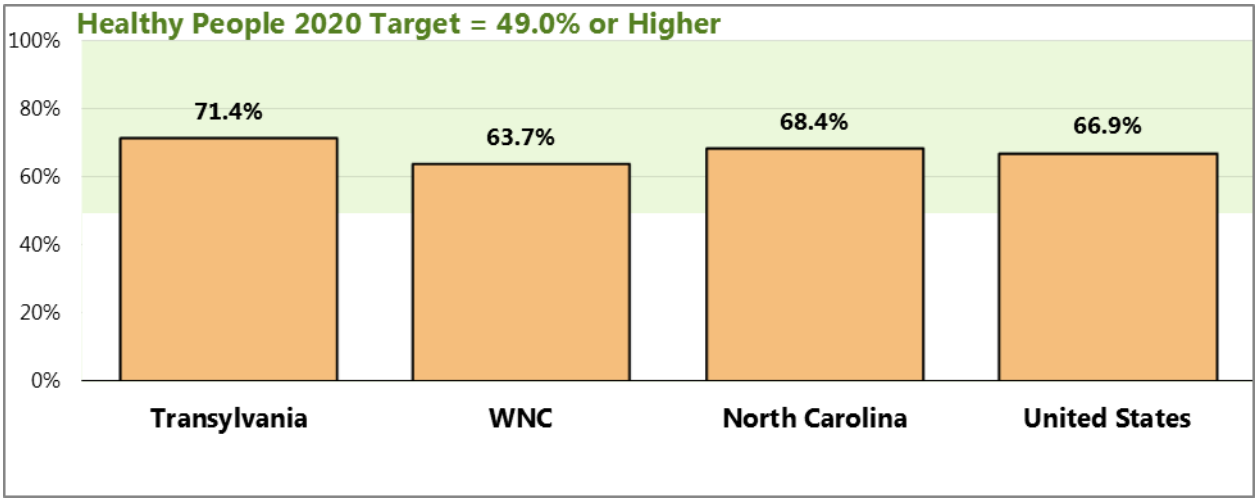
Table 51. Dental Screening Results, Kindergarteners (2009)

Geography	Average # Decayed, Missing or Filled Teeth
Transylvania County	1.75
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 11th leading cause of death in the United States, accounting for the deaths of approximately 30,000 Americans each year.

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

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

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

Mental Health Service Utilization Trends

Table 52 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 52. Persons Served in Area Mental Health Programs (2006-2010)

Geography	# Persons Served in Area Mental Health Programs				
	2006	2007	2008	2009	2010
Transylvania County	1,145	888	529	518	653
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 53 presents figures on the numbers of persons receiving services in NC state alcohol and drug treatment centers. Although the pattern of increase is not straight-line, it appears that increasing numbers of persons in WNC have received services from NC state alcohol and drug treatment centers since 2007. Noteworthy at the regional level was a 23% increase in persons being served between 2009 and 2010. There is no clear pattern discernible in the data for Transylvania County.

Table 53. Persons Served in NC State Alcohol and Drug Treatment Centers (2006-2010)

Geography	# Persons Served in NC Alcohol and Drug Treatment Centers				
	2006	2007	2008	2009	2010
Transylvania County	12	18	25	19	35
Regional Total	664	604	774	751	921
State Total	4,003	3,733	4284	4,812	4,483

Table 54 presents figures on the numbers of persons receiving services in NC state psychiatric hospitals. The number of persons in Transylvania County utilizing these services fell every year from 2006 to 2010, decreasing by 51% over the period. The number of persons in WNC receiving these services also fell. The number of persons in WNC utilizing state psychiatric hospital services in 2010 (564) was 63% lower than the number utilizing services in 2006 (1,509). The decrease in persons receiving services likely is a reflection of a decreasing availability of state services, rather than a decreasing need for services.

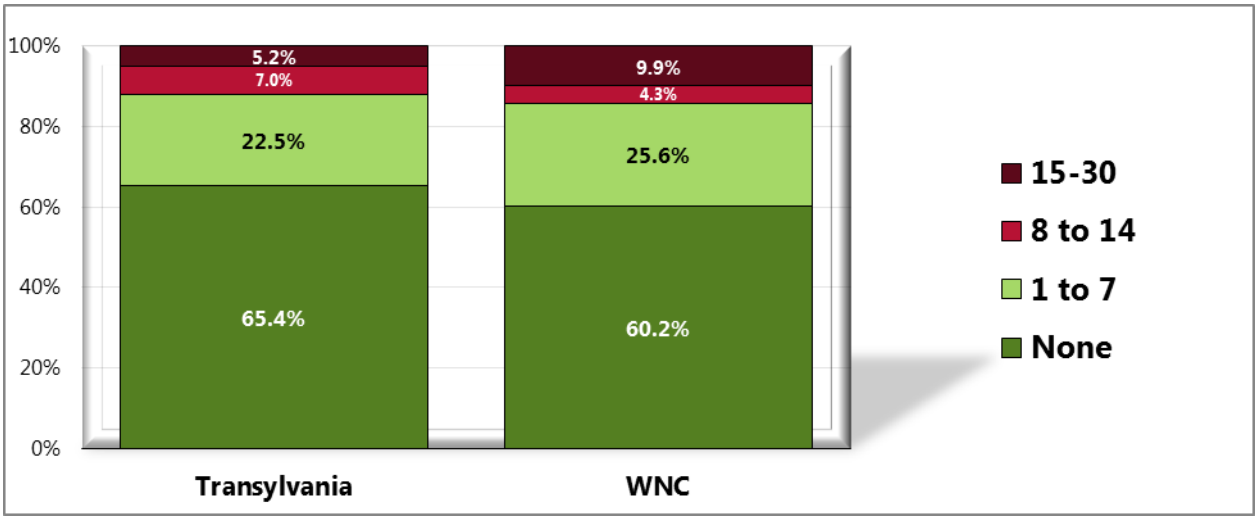
Table 54. Persons Served in NC State Psychiatric Hospitals (2006-2010)

Geography	# Persons Served in NC State Psychiatric Hospitals				
	2006	2007	2008	2009	2010
Transylvania County	53	48	42	26	20
Regional Total	1,509	1,529	1190	818	564
State Total	18,292	18,498	14643	9,643	7,188

Poor Mental Health Days

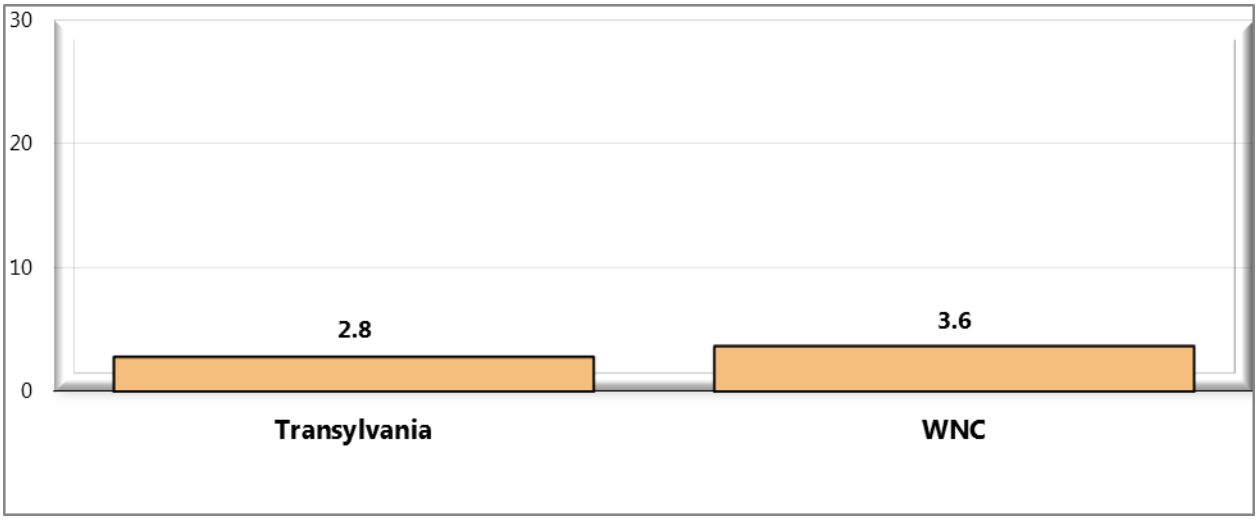
Survey respondents were asked, "Now thinking about your mental health, which includes stress, depression, and problems with emotions, for how many of the past 30 days was your mental health not good?"

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)

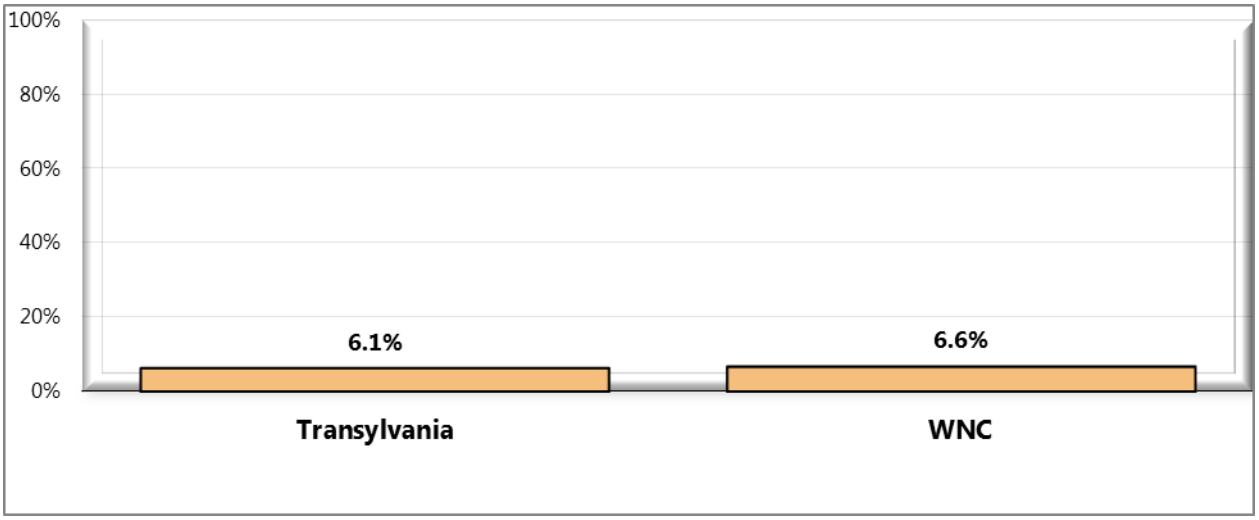


Sources: ● 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 64]
Notes: ● Asked of all respondents.

Access to Mental Health Services

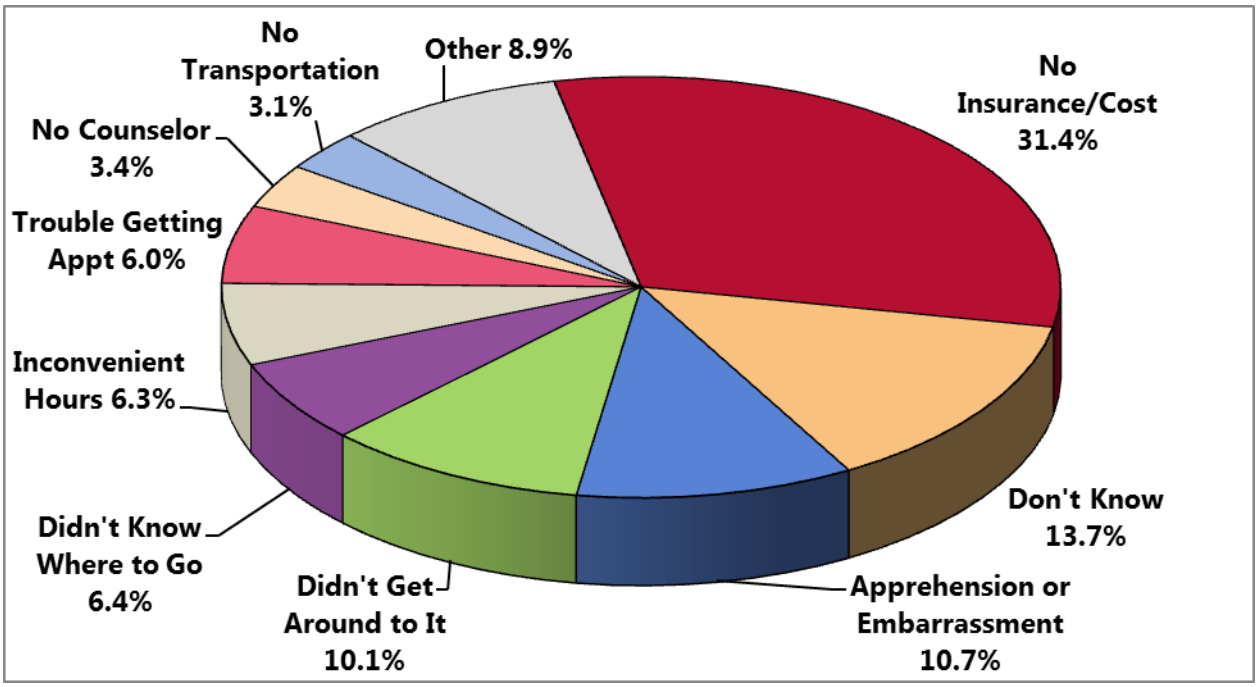
Survey respondents were asked if they had a time in the past year when they needed mental health care or counseling, but did not get it at that time. Those who responded, "yes," were asked to name the main reason they did not get mental health care or counseling. Due to small county-level sample sizes, 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)
(Western North Carolina Adults Unable to Get Needed Mental Health Care in the Past Year)

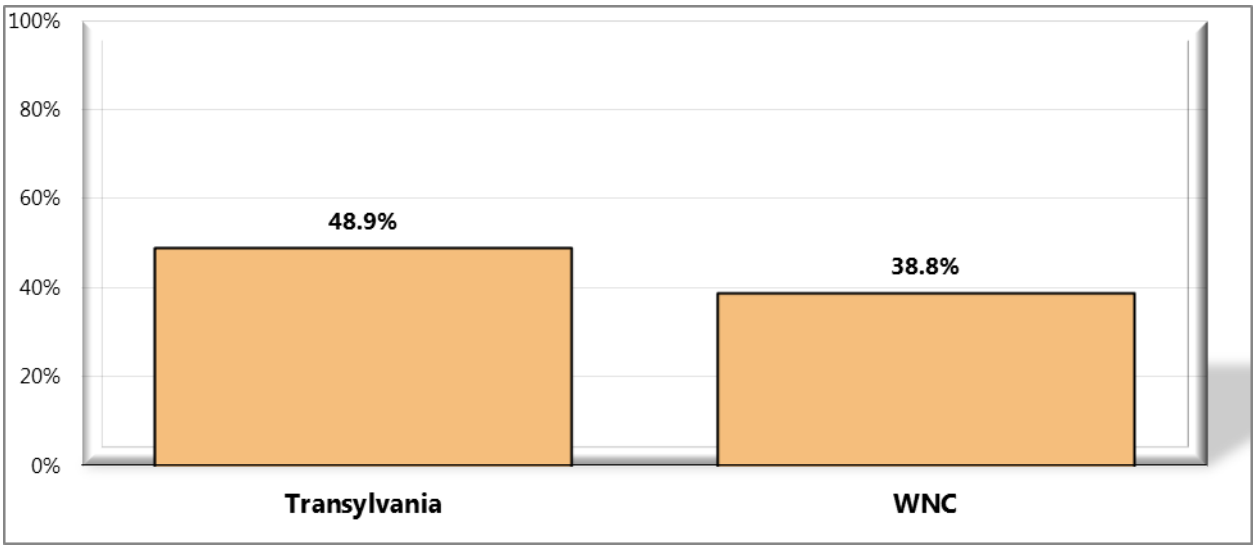


Sources: ● 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 66]
Notes: ● Asked of those respondents who were unable to get needed mental health care in the past year.

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.

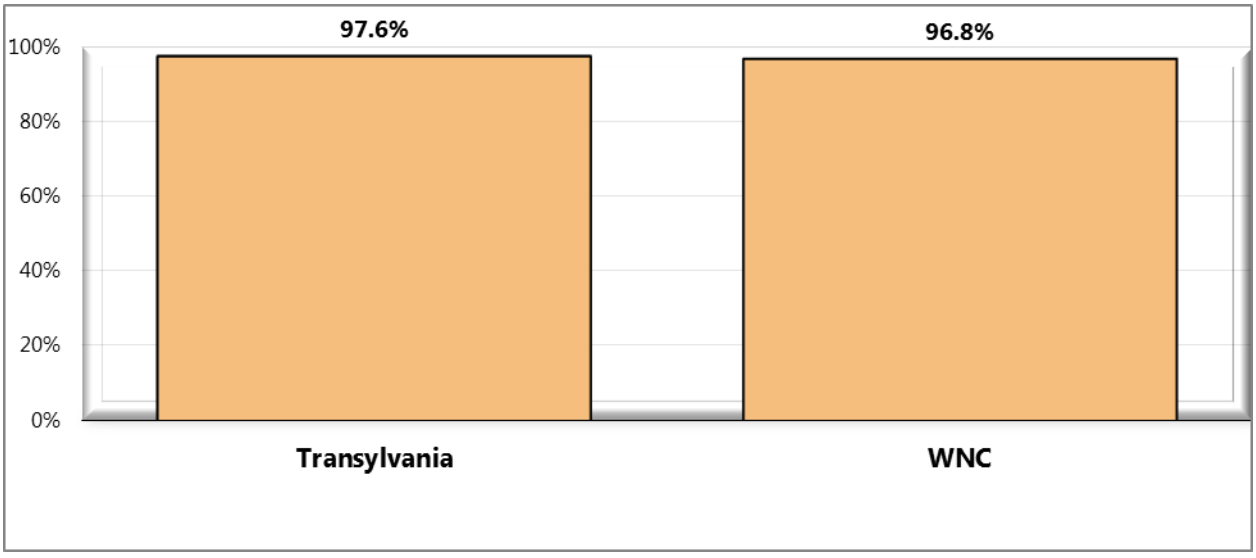
Figure 89. Have Completed Advance Directive Documents (WNC Healthy Impact Survey)



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)

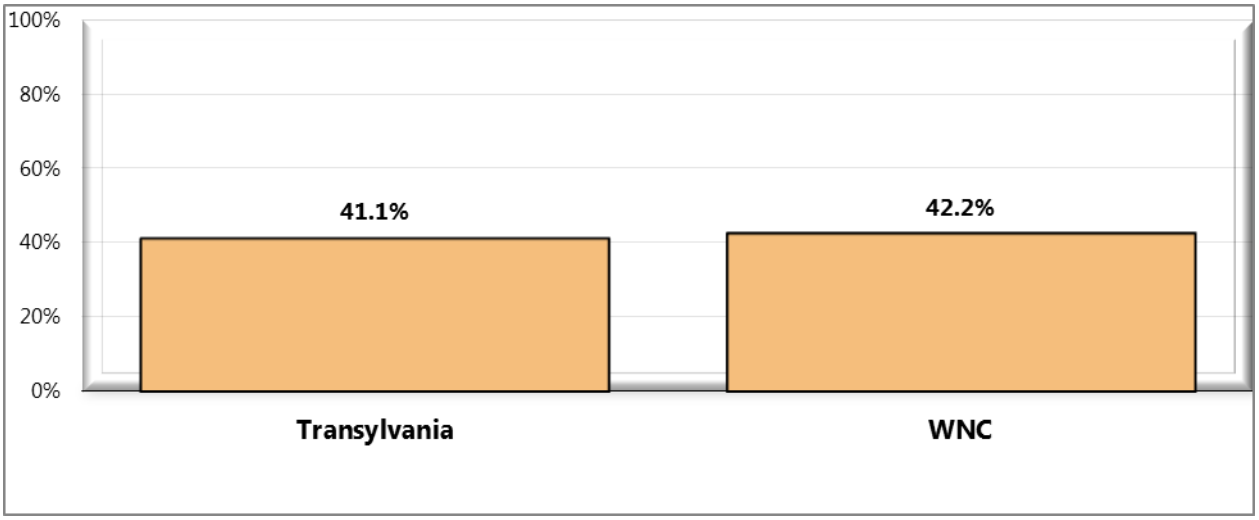


Sources: ● 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 35]
Notes: ● Asked of respondents with completed advance directive documents.

Care-giving

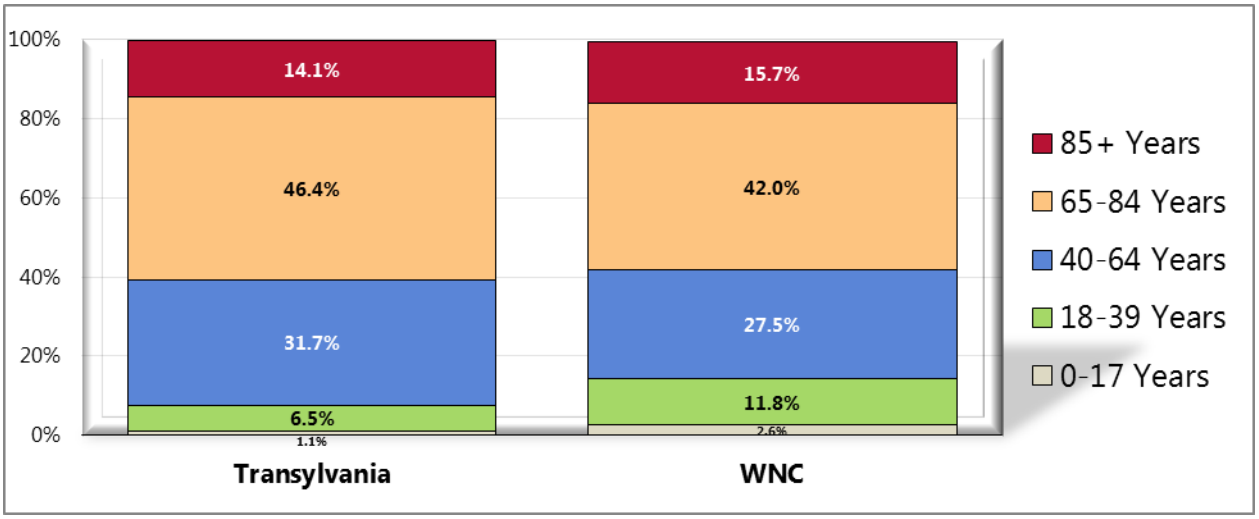
People may provide regular care or assistance to a friend or family member who has a health problem, long-term illness, or disability. Respondents were asked, "During the past month, did you provide any such care or assistance to a friend or family member?" Those who answered, "yes," were asked for the 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 55. Primary Health Issue of Person for Whom Respondent Provides Care (WNC Healthy Impact Survey)

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

	Aging	Alzheimers /Dementia	Cancer	Diabetes	Emotional/ Mental	Heart Disease	Stroke	Other (Each <4%)	Don't Know/Not Sure
Transylvania	12.7%	9.4%	10.9%	6.4%	0.0%	5.0%	3.9%	46.7%	5.0%
WNC	7.9%	8.4%	8.6%	4.3%	4.8%	7.4%	4.9%	46.3%	7.4%

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

Table 56. Primary Type of Assistance Needed by Person for Whom Respondent Provides Care (WNC Healthy Impact Survey)

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

	Other (Each <2%)	Learning/ Remembering	Communi-cating	Moving Around the Home	Taking Care of Living Space	Taking Care of Self	Help with Anxiety/ Depression	Transportation Outside Home
Transylvania	2.5%	6.3%	4.4%	9.8%	9.5%	20.0%	22.8%	24.7%
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 57 defines the AQI levels.

Table 57. General Health Effects and Cautionary Statements, Air Quality Index

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

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

The EPA reports AQI measures for nine of the 16 counties in the WNC region: Buncombe, Haywood, Graham, Jackson, Macon, McDowell, Mitchell, Swain and Yancey. Note that Transylvania County is not among the monitored counties. The WNC figures presented in Tables 58 and 59 below represent the arithmetic means of the values for those nine counties. Data in Table 58 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 58. 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 59 lists the pollutants causing the air quality deficiencies. This data shows that in WNC in 2011 the primary air pollutants were ozone (O_3) and small particulate matter ($PM_{2.5}$).

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

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

Table 59. CAPs Causing Air Quality Problems,WNC (2011)

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

Toxic Chemical Releases

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

According to EPA data, twelve of the 16 WNC counties had measurable TRI releases in 2010. (Only Clay, Madison, Polk and Transylvania Counties did not.) In 2010, Haywood County in WNC was the eighth leading emitter of TRIs in NC in terms of tonnage of TRI chemicals released. Although not among the "top ten", Rutherford County, also in WNC, ranks just off the list, at number eleven. (No other WNC county ranks higher than 21st.) The *Data Workbook* presents detail on toxic chemical releases in all 16 WNC counties. Transylvania is not listed among the 86 counties in NC reporting TRI chemical releases.

Indoor Air Quality

Environmental tobacco smoke

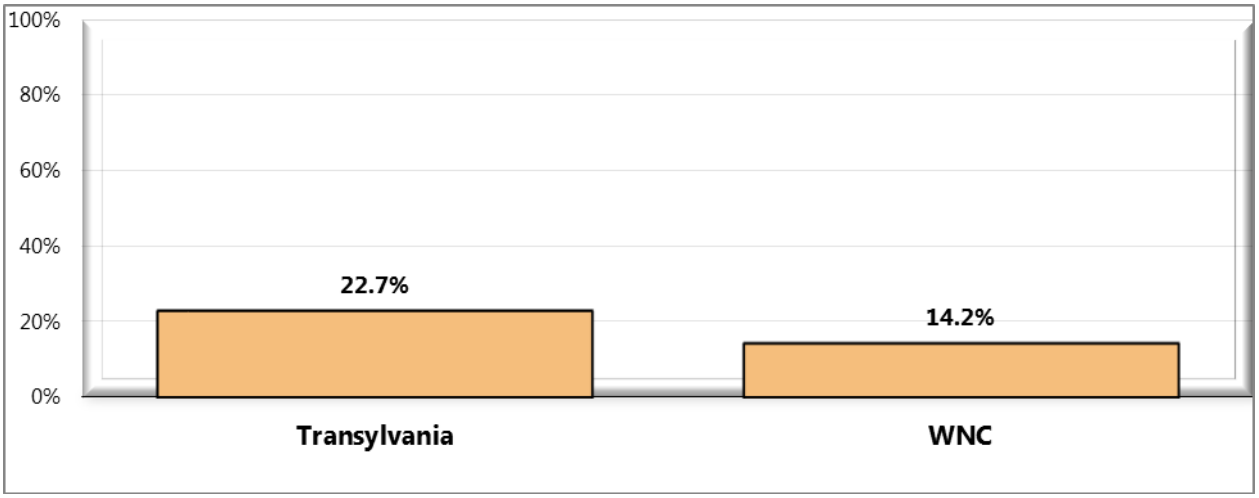
Tobacco smoking has long been recognized as a major cause of death and disease, responsible for hundreds of thousands of deaths each year in the US. Smoking is known to cause lung cancer in humans, and is a major risk factor for heart disease. However, it is not only active smokers who suffer the effects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

ETS is a mixture of two forms of smoke that come from burning tobacco: sidestream smoke (smoke that comes from the end of a lighted cigarette, pipe, or cigar) and mainstream smoke (smoke that is exhaled by a smoker). When non-smokers are exposed to secondhand smoke it

is called involuntary smoking or passive smoking. Non-smokers who breathe in secondhand smoke take in nicotine and other toxic chemicals just like smokers do. The more secondhand smoke that is inhaled, the higher the level of these harmful chemicals will be in the body (American Cancer Society, 2011).

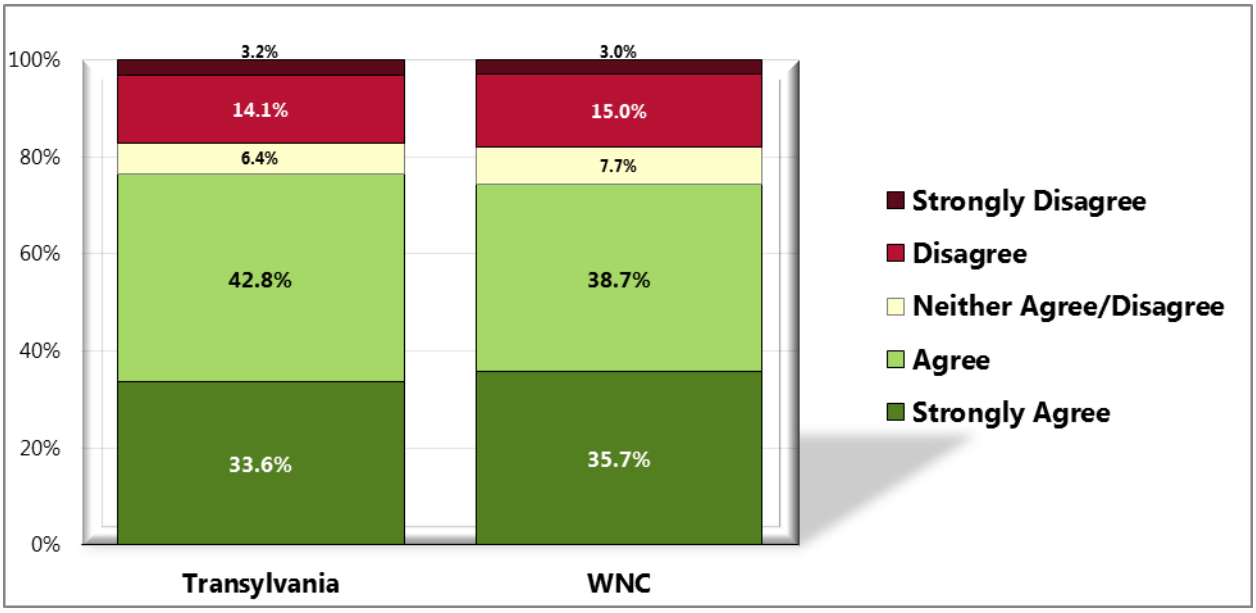
Survey respondents were asked about their second-hand smoke exposure in their workplace. Specifically, they were asked, "During how many of the past 7 days, at your workplace, did you breathe the smoke from someone who was using tobacco?" In order to evaluate community members' perceptions about environmental 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)



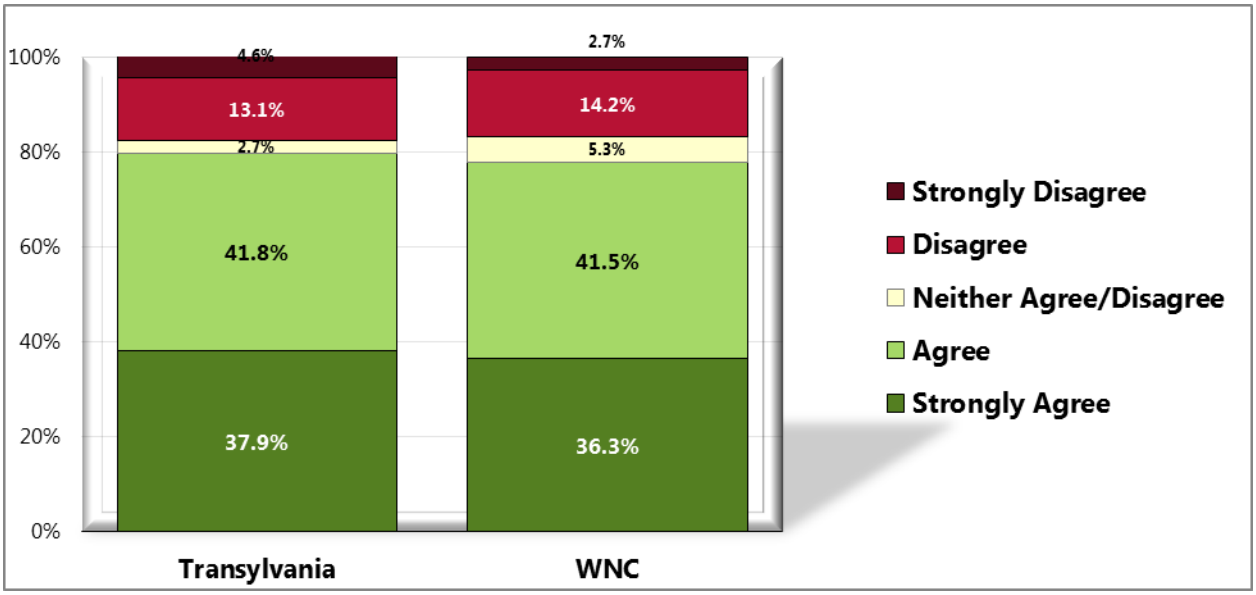
Sources: ● 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 44]
Notes: ● Asked of employed respondents.

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



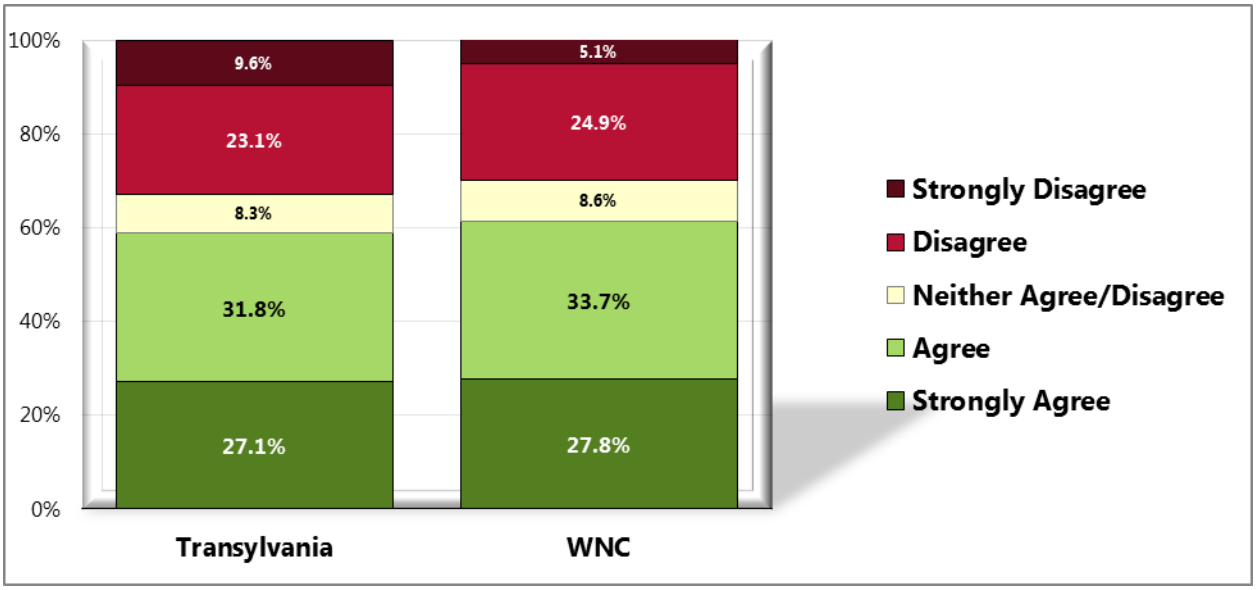
Sources: ● 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 45]
Notes: ● Asked of all respondents.

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 Transylvania County, 15,781 of 33,090 county residents, or 47.7%, were being served by community water systems in February of 2012. Presumably the remaining 52.3% were served by wells or other sources.

Fluoridation of Drinking Water

Over 200 million people in the United States receive fluoridated drinking water every day. In North Carolina, 87.3% of the population receives fluoridated water through a public water

system. The July 2007 decision by Brevard City Council to discontinue fluoridation of drinking water ended a 27 year history of fluoridation in Brevard. Subsequently in March 2011, city staff was directed to reevaluate fluoridation and to engage with the Transylvania County Board of Health to attain health based recommendations that were relevant to community perspectives on fluoridation. A core component of the process included a public hearing held by the Board of Health on November 15, 2011 to receive public input about fluoridation. Although the number of speakers for the public hearing was small, the nature of the comments can be associated with general categories of perspectives on fluoridation (supportive and opposed). Many of the same themes were evidenced in 2007 prior to removal of fluoride from the city's drinking water system and have framed local public discourse on the topic since that time.

In response, the Board of Health prepared a document entitled "Fluoridation of Drinking Water" in which opposition and supportive points voiced at the public hearing were addressed in detail. Through extensive review and objective analysis of research and credible scientific bodies including peer reviewed findings, the Board of Health did not substantiate any health concerns associated with the modality of fluoridated drinking water (at optimal levels) other than the limited risk of fluorosis. Strong scientific evidence exists to support the beneficial role of fluoride in preventing dental caries and that fluoridated drinking water remains one of the most cost efficient and effective strategies for improving and protecting dental health in any community. The Board of Health recommends that Brevard City Council provide every consideration for reintroducing fluoride into the City of Brevard drinking water system. The local medical and dental communities are also in support of this consideration and have endorsed fluoridation of drinking water systems. However, Brevard City Council has not yet reached a decision on the reintroduction of fluoride.

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 Transylvania County was 7.5 pCi/L, almost six 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).

Community Transformation Grant (CTG)

The North Carolina Division of Public Health (DPH) was awarded Community Transformation Grant (CTG) funding to work with state and local partners to implement policy, systems and environmental changes that support (1) tobacco free living, (2) active living, (3) healthy eating and (4) high impact evidence-based clinical preventive services over a five-year period. Funding for CTG is authorized through the Affordable Care Act 2010 and DPH funds 10 multi-county collaboratives with $400,000 per year for five years based upon performance and funding

availability. Transylvania County falls in the Region 1 collaborative along with Cherokee, Graham, Clay, Swain, Macon, Jackson, and Haywood. The strategies of focus for Region 1 will involve increasing the number of new or revised comprehensive plans that include health considerations, increase the number joint-use agreements that increase access to physical activity opportunities, increasing the number of convenience stores offering and promoting healthier food and beverage options, increasing the number of new or enhanced farmers' markets, mobile markets, farm stands and community supported agriculture programs, and increasing tobacco-free government buildings and grounds.

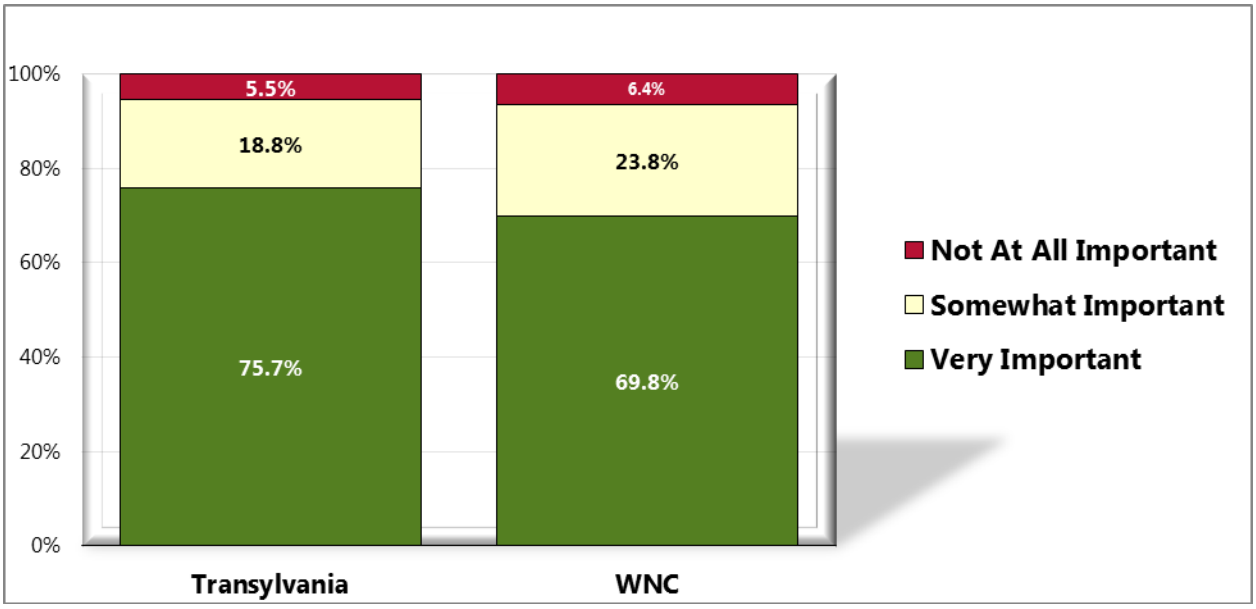
Access to Farmers' Markets and Grocery Stores

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 Transylvania County there was one farmers' market in 2009 and two in 2011 (*Data Workbook*).

According to the same source, there were a total of 158 grocery stores in the 16 WNC counties in 2007. This number was reported to have shrunken by 4, to a total of 154, in 2009, a decrease of 2%. In Transylvania County the number of grocery stores shrank from 7 to 6 over the same period (*Data Workbook*).

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

Figure 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 Transylvania County the number of fast food restaurants fell from 23 to 22 over the same period (*Data Workbook*).

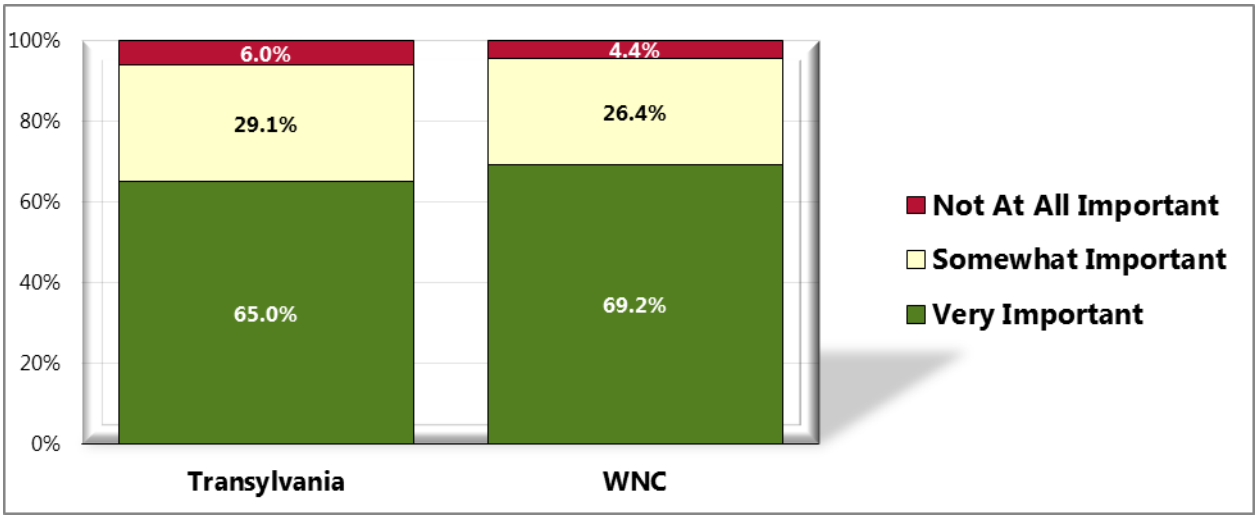
Also according to the USDA, mean per capita fast food expenditures in WNC rose 45% (from $514 to $746) between 2002 and 2007, and mean per capita restaurant expenditures in WNC also rose 45% (from $449 to $665) over the same period (*Data Workbook*).

Access to Recreational Facilities

According to the same source cited above, there were a total of 81 recreation and fitness facilities in the 16 WNC counties in 2007. This number was reported to have dropped by 26, to a total of 55a total of 55, in 2009, a decrease of 32%. In Transylvania County the number of recreational and fitness facilities was 4 in both 2007 and 2009 (*Data Workbook*).

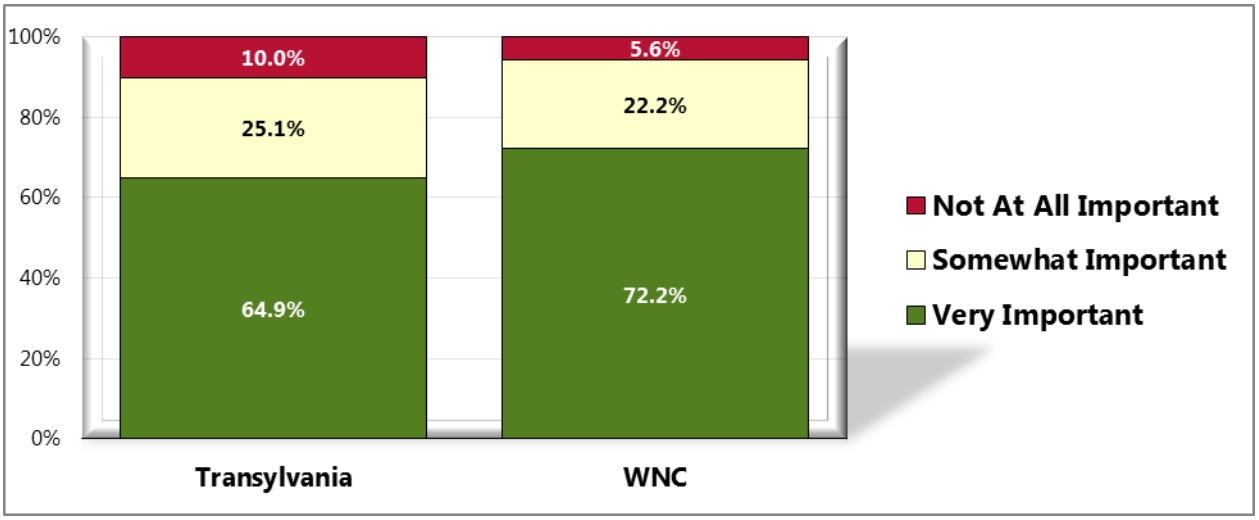
Survey respondents were asked whether they feel it is important for community organizations to explore ways to increase the public's access to physical activity spaces during off-times, as well as whether it is important for communities to improve access to trails, parks, and greenways. Survey respondents in Transylvania County were also asked about their county's need for more indoor public physical activity spaces.

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



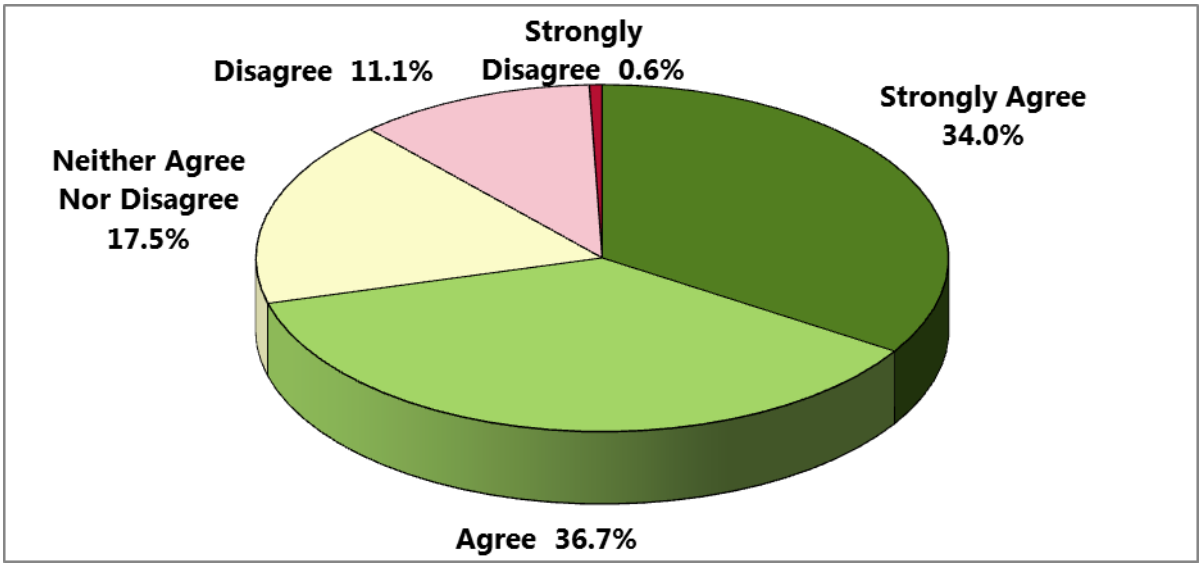
Sources: ● 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 60]
Notes: ● Asked of all respondents.

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."To Meet the health and wellness needs of its residents, my county needs more indoor public physical activity spaces such as gyms, recreation centers, or indoor pools." (WNC Healthy Impact Survey)



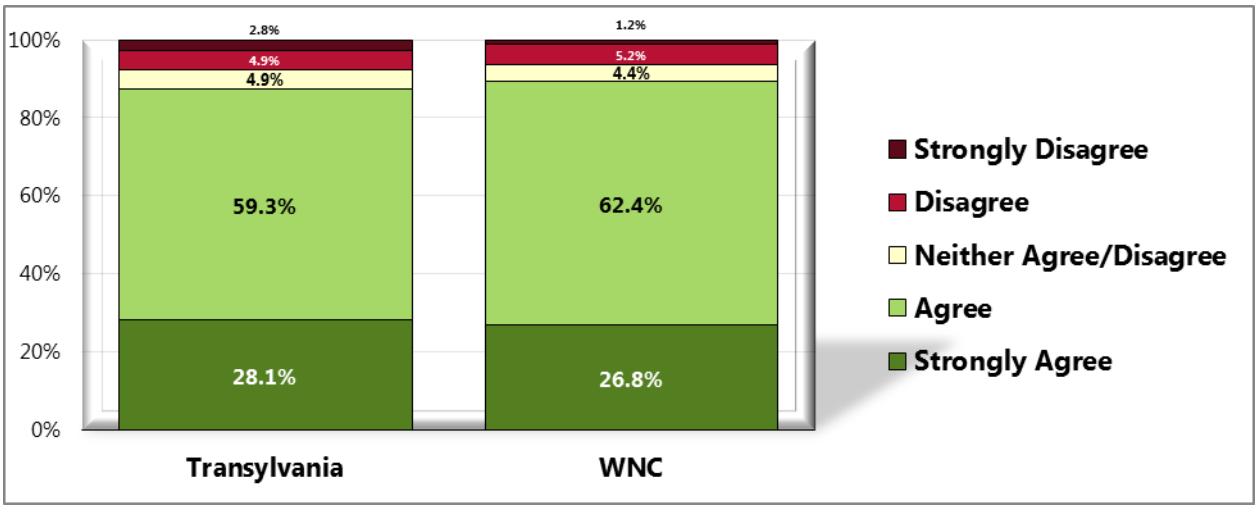
Sources: ● 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 116]
Notes: ● Asked of all respondents.

CHAPTER 7 – QUALITY OF LIFE

Perception of County

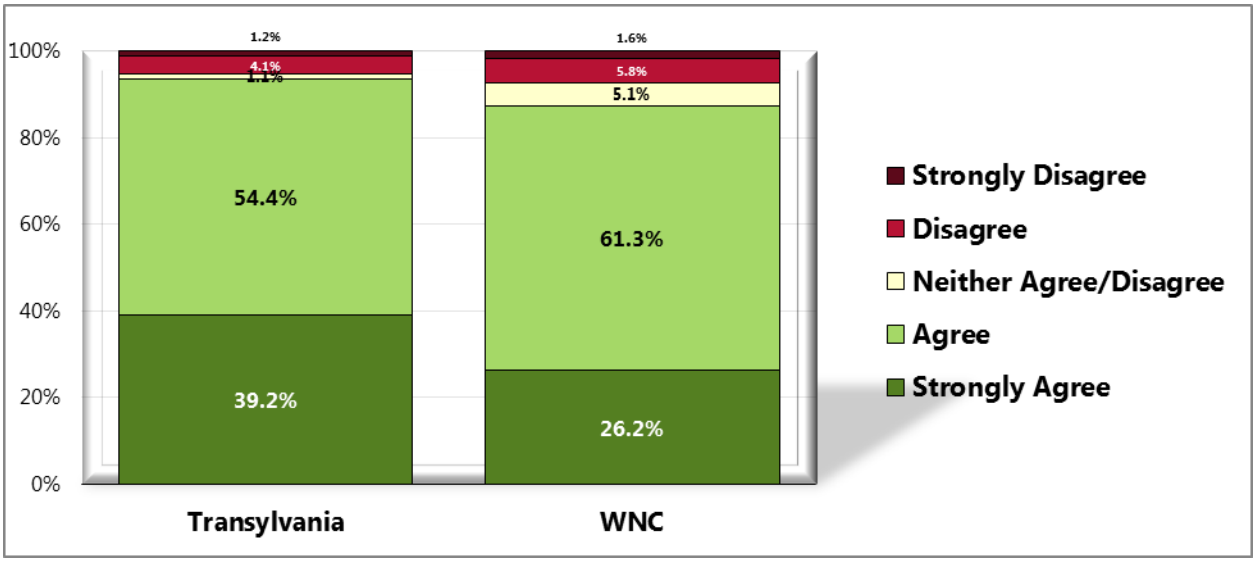
In order to evaluate community members' perceptions about the quality of life in western North Carolina (WNC), survey respondents were given a series of three statements regarding life in their county (my county is a good place to raise children, my county is a good place to grow old, and there is plenty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

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



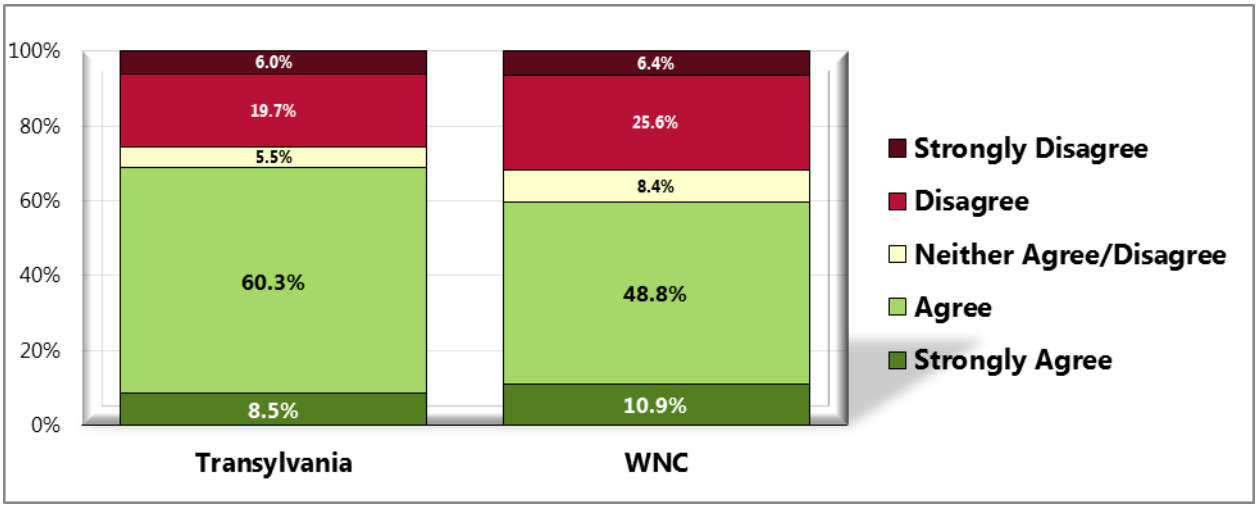
Sources: ● 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 5]
Notes: ● Asked of all respondents.

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 60. 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
Transylvania	✓	✓		✓		
WNC	✓	✓	✓			

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

Land-of-Sky Regional Council Need Assessment

Providing services to the older adult population in Buncombe, Henderson, Madison, and Transylvania Counties, Land-of-Sky Regional Council conducted a need assessment survey to determine the top 3 ranked areas of concern for our aging population. The survey was included as part of the Region B Area Agency on Aging's Plan for FY 2012-2016 and was divided into four categories. A total of 581 contacts received the Survey Monkey link and 179 seniors, caregivers, and professionals completed the survey in our region. The number one *Supportive Services* concern of seniors in Transylvania County is transportation followed by housing and home improvement. For *Nutrition*, seniors were most concerned with the availability of the home-delivered meals program to all areas of the county. Nutrition counseling and nutrition education were tied for the 2nd greatest concern. Finally, the issues of greatest concern for Health Care are dental care, mental health counseling, medication management/counseling, and health screenings.

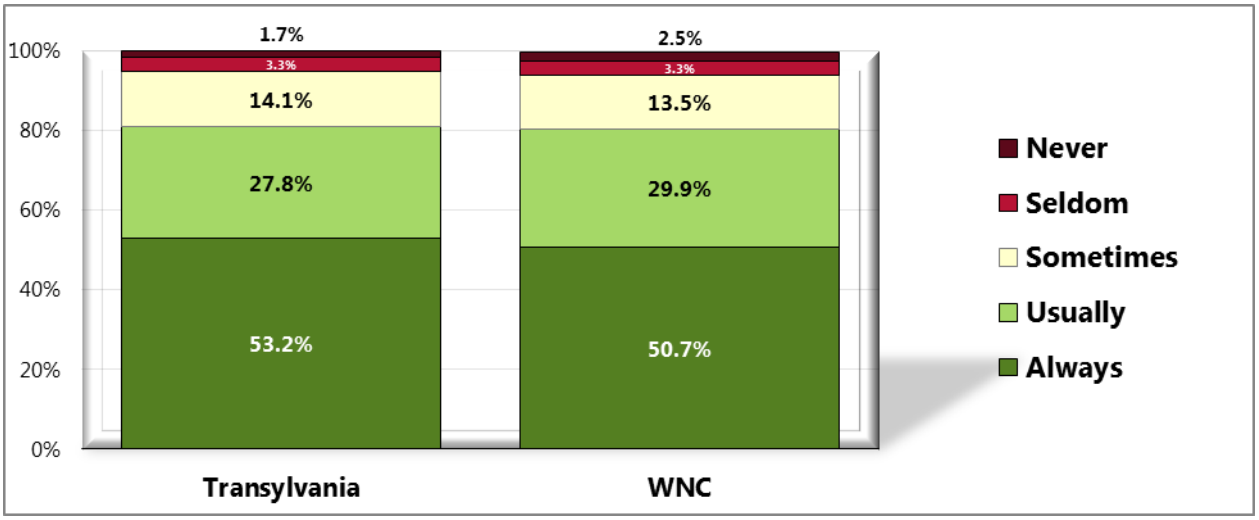
Table 61. Top Three Neighborhood/Community Issues Perceived as in Most Need of Improvement (WNC Healthy Impact Survey)

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

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

Social and Emotional Support

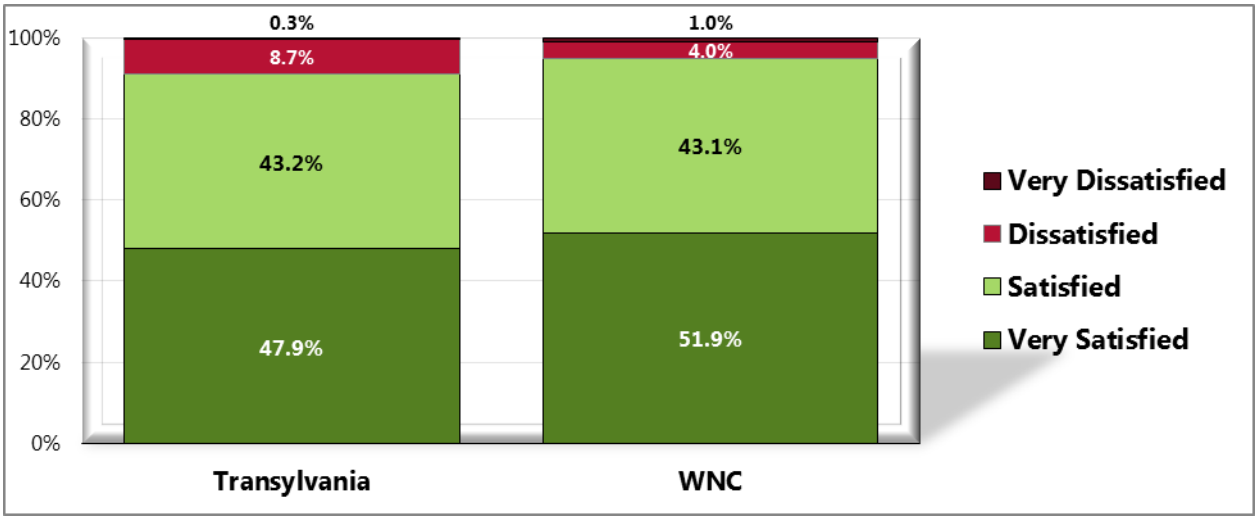
Figure 104. Frequency of Getting Needed Social/Emotional Support (WNC Healthy Impact Survey)



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

Satisfaction with Life

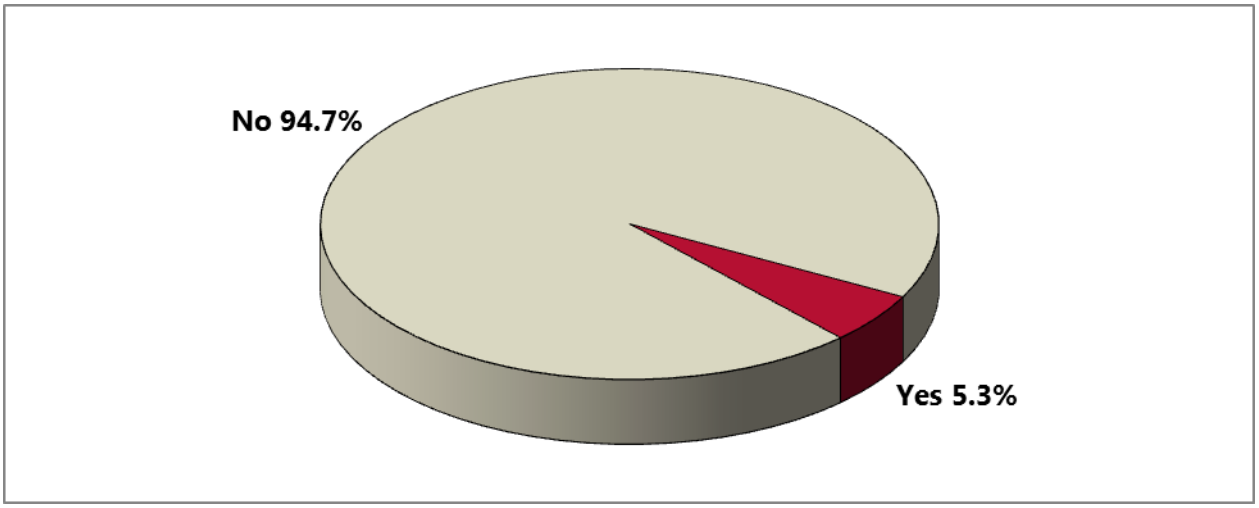
Figure 105. Satisfaction with Life (WNC Healthy Impact Survey)



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

Receipt of Assistance

Figure 106. Have Received Assistance From a Local Program, Church or Charitable Organization in the Past Year (WNC Healthy Impact Survey)



Sources: • 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 120]
Notes: • Asked of all respondents.

CHAPTER 8 - HEALTHCARE & HEALTH PROMOTION RESOURCES

Health Resources

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

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

Resource Gaps

The following resource gaps are based on local review and collaborative discussions around availability of services specifically related to Transylvania County's priority health issues. Review of 2-1-1 data as well as completion of the Health Resource Inventory helped to further identify these needs.

- No substance abuse treatment available other than court involved alcohol-related cases. Residents must travel out of county to receive any intensive services.
- Limited numbers of local dental providers that accept new Medicaid patients.
- Limited local tobacco cessation resources.

CHAPTER 9 - HEALTH PRIORITIES & NEXT STEPS

Prioritization Process & Criteria

In an effort to determine the priority health issues to be addressed in the community health action plans, the Transylvania County CHA Team used a variety of methods to report assessment findings to the community. This created the opportunity to meet with county residents to engage them in the CHA process, to report CHA findings, and to garner their input about health priorities. The CHA Team created a powerpoint detailing the process of community health assessment, data highlights and analysis, and a description of next steps in determining priorities. The powerpoint was emailed to local partners as well as presented at a CHA information session open to the public and CHA Team in December 2012.

The CHA Team advertised for this public meeting presentation in the local paper, through various partner email lists, and at regular community group meetings during November 2012. An effort was made to include people from all parts of the county and people of all ages, races, cultures, classes, job classifications, etc. The meeting was designed specifically to present CHA findings and generate a discussion period to hear opinions from the audience and lasted just over an hour. During this session, those present were given the opportunity to weigh-in on potential priorities based on data findings through a *Dotmocracy* activity. Through this interactive process, participants determined their level of support for six broad health issues and identified opportunities and challenges the community may face in addressing each issue.

The CHA team researched several methods for determining priorities and decided to use the *Hanlon Method* outlined in the CHA guidebook and on the NACCHO website. This method allowed the CHA Team and other interested people to come together and discuss the choices and resources available to best meet the community's needs. Realizing that different methods of communication appeal to different individuals; staff provided several means for participation in prioritization. The CHA Team was invited to a meeting specifically designated to determine the top three health priorities in early January. Partners also received priority-setting materials via email, powerpoint, and at community group meetings during December and January. Staff developed a *Problem Importance Worksheet* for each health issue to highlight local data, current strategies, and *Healthy NC 2020* objective-related information. This worksheet assisted individuals in determining the *magnitude* and *seriousness* of the health problem as well as the *feasibility* of a successful intervention. The CHA Team and other interested citizens were asked to rate each health issue based on these three parameters and then provide a numerical ranking score.

Through use of the *Hanlon Method*, partners were able to recognize that our community faces a number of health problems that call for intervention; however, resources may not currently be available to address each problem. Once interested citizens and partners had a chance to complete a *Problem Importance Worksheet* for each health issue, staff compiled the rankings into a formula that weighted seriousness and feasibility. The three health issues that received

the highest scores were designated as the top three health problems to focus on in community health action planning during 2013.

Priority Health Issues

The 2009 Community Health Assessment resulted in the following priorities:

- Access to Care
    - Mental health, substance abuse, chronic illness, dental health
- Healthy Lifestyles/Wellness
    - Mental health, substance abuse, chronic illness, dental health
- Basic Needs
    - Education, housing, employment, food security

The Transylvania County 2012 Community Health Assessment Priority Areas are:

- **Obesity**
- **Dental Health**
- **Mental Health/Substance Abuse**

Next Steps

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

Transylvania County, along with our partners in WNC Healthy Impact, will move forward with information in this Community Health Assessment to collaborative action planning and determining how we can most effectively impact health in our community. This process will include the possibility of creating a Community Health Improvement Plan (CHIP) to coordinate action and target resources in order to inform our action planning process. Action Plans will be submitted by the Transylvania County Department of Public Health to the NC Division of Public Health in June 2013. Dissemination of this CHA report will include making all reports publicly available on the Transylvania County Department of Public Health and the WNC Healthy Impact website as well as presented to the Transylvania County Board of Health.

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

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

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

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

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APPENDICES

Appendix A – Data Collection Methods & Limitations
Appendix B – WNC Healthy Impact Survey Instrument
Appendix C – Health Resource Inventory

APPENDIX A - DATA COLLECTION METHODS & LIMITATIONS

Secondary Data

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

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

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

Secondary Data Methodology

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

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

Because in any CHA it is instructive to relate local data to similar data in other jurisdictions, throughout this report representative county data is compared to like data describing the 16-county region and the state of NC as a whole. WNC Healthy Impact received approval from the

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

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

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

Data Definitions

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

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

Error

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

Age-adjusting

Secondly, since much of the information included in this report relies on *mortality* data, it is important to recognize that many factors can affect the risk of death, including race, gender, occupation, education and income. The most significant factor is age, because an individual's risk of death inevitably increases with age. As a population ages, its collective risk of death increases; therefore, an older population will automatically have a higher overall death rate just because of its age distribution. At any one time some communities have higher proportions of "young" people, and other communities have a higher proportion of "old" people. In order to compare mortality data from one community with the same kind of data from another, it is necessary first to control for differences in the age composition of the communities being

compared. This is accomplished by *age-adjusting* the data. Age-adjustment is a statistical manipulation usually performed by the professionals responsible for collecting and cataloging health data, such as the staff of the NC State Center for Health Statistics (NC SCHS). It is not necessary to understand the nuances of age-adjustment to use this report. Suffice it to know that age-adjusted data are preferred for comparing most health data from one population or community to another and have been used in this report whenever available.

Rates

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

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

Regional arithmetic mean

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

Describing difference and change

Fifthly, in describing differences in data of the same type from two populations or locations, or changes over time in the same kind of data from one population or location—both of which appear frequently in this report—it is useful to apply the concept of *percent* difference or change. While it is always possible to describe difference or change by the simple subtraction of a smaller number from a larger number, the result often is inadequate for describing and understanding the *scope* or *significance* of the difference or change. Converting the amount of difference or change to a percent takes into account the relative size of the numbers that are changing in a way that simple subtraction does not, and makes it easier to grasp the meaning of the change. For example, there may be a rate of for a type of event (e.g., death) that is one number one year and another number five years later. Suppose the earlier figure is 12.0 and the latter figure is 18.0. The simple mathematical difference between these rates is 6.0. Suppose also there is another set of rates that are 212.0 in one year and 218.0 five years later. The simple mathematical difference between these rates also is 6.0. But are these same simple numerical differences really of the same significance in both instances? In the first example, converting the 6 point difference to a percent yields a relative change factor of 50%; that is, the smaller number increased by half, a large fraction. In the second example, converting the 6 point difference to a percent yields a relative change factor of 2.8%; that is, the smaller number increased by a relatively small fraction. In these examples the application of percent makes it very clear that the difference in the first example is of far greater degree than the difference in the second example. This document uses percentage almost exclusively to describe and highlight degrees of difference and change, both positive (e.g., increase, larger than, etc.) and negative (e.g., decrease, smaller than, etc.)

Data limitations

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

Gaps in Available Information

There are a variety of data that would be useful in assessing the health of Transylvania County but are unavailable - for example, additional information on prescription drug abuse/misuse and accurate assessments of child overweight and obesity rates for all age groups, to name a few. Currently, a concerning gap in available information is due to limited ability to stratify within our primary and secondary data sections in order to better determine disparities. For now, data on health disparities within other geographic area (region, state, or nation) is often included when a regional stratification is not available. WNC Healthy Impact will be exploring new sources of data, additional survey questions, and ways of better analyzing disparity data in the future.

WNC Healthy Impact Survey (Primary Data)

Survey Methodology

Survey Instrument

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

Professional Research Consultants, Inc.

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

Sample Approach & Design

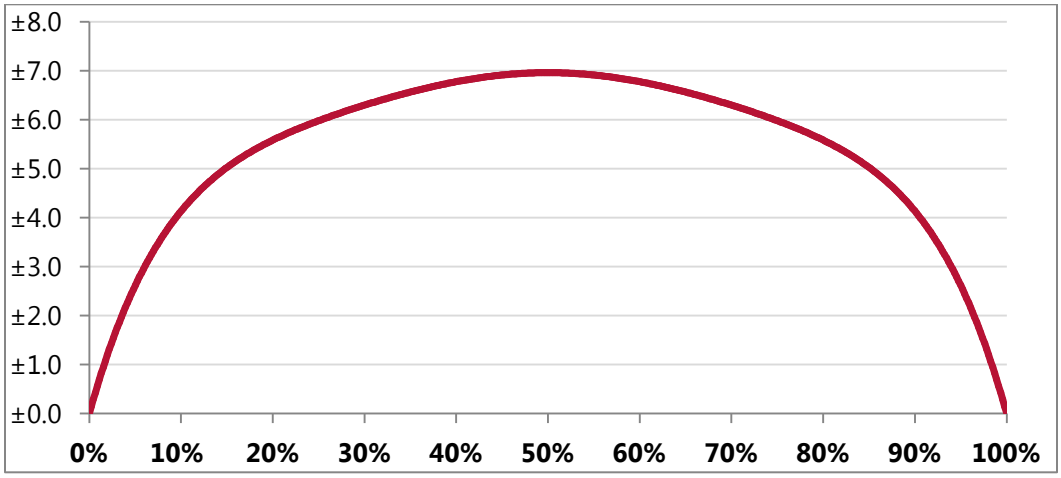
To ensure the best representation of the population surveyed, a telephone interview methodology (one that incorporates both landline and cell phone interviews) was employed. The primary advantages of telephone interviewing are timeliness, efficiency and random-selection capabilities.

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

Sampling Error

For our county-level findings, the maximum error rate is ±6.9%.

Expected Error Ranges for a Sample of 200 Respondents at the 95 Percent Level of Confidence



Note: ● The "response rate" (the percentage of a population giving a particular response) determines the error rate associated with that response. A "95 percent level of confidence" indicates that responses would fall within the expected error range on 95 out of 100 trials.

Examples:

● If 10% of the sample of 200 respondents answered a certain question with a "yes," it can be asserted that between 5.8% and 14.2% (10% ± 4.2%) of the total population would offer this response.

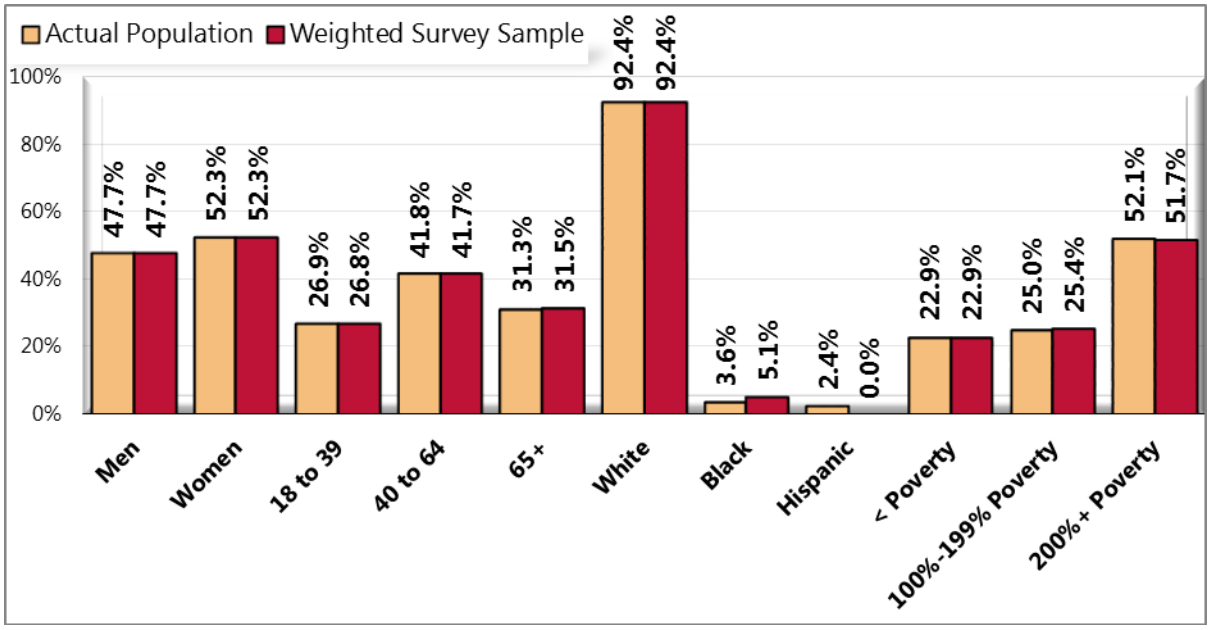
● If 50% of respondents said "yes," one could be certain with a 95 percent level of confidence that between 43.1% and 56.9% (50% ± 6.9%) of the total population would respond "yes" if asked this question.

Sample Characteristics

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

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

Population & Sample Characteristics
(Transylvania 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.

Health Resource Inventory

A listing of available health and human services resources was obtained via United Way's WNC 2-1-1 http://www.211wnc.org/ which serves Buncombe, Henderson, Madison, and Transylvania Counties in Western NC. 2-1-1 is an information and referral service that links people to community health and human services. United Way's 2-1-1 service is free, confidential and available 24/7 to speakers of all languages. Resources are available through phone and the web.

WNC Healthy Impact requested information on health-specific resources currently listed in the 2-1-1 database for Transylvania County, as 2-1-1 maintains a comprehensive database of community resources. Please note that the obtained list is a point-in-time summary list, and greater details on available services can be accessed by calling 2-1-1 to speak to a trained staff person or visiting www.211wnc.org . Additionally, staff updated the existing Health Resource Inventory included in the 2009 Community Health Assessment. By documenting resources available via 2-1-1 and updating the 2009 Health Resource Inventory, a fairly comprehensive inventory of services is included in this report. Please reference Appendix C - Health Resource Inventory for a complete listing of the health resources available to residents in Transylvania County.

APPENDIX B - COMMUNITY HEALTH SURVEY INSTRUMENT

Double-click on the survey coversheet below to access the complete survey instrument. If you cannot access this, please contact your local health department for a copy.

Professional Research Consultants

Date _____
Interviewed by _____ ID# __ __ __ __

2012-0615-02

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

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

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

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

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

APPENDIX C - HEALTH RESOURCE INVENTORY

A listing of available health and human services resources was obtained via United Way's WNC 2-1-1 http://www.211wnc.org/ which serves Buncombe, Henderson, Madison, and Transylvania Counties in Western NC. 2-1-1 is an information and referral service that links people to community health and human services. United Way's 2-1-1 service is free, confidential and available 24/7 to speakers of all languages. Resources are available through phone and the web.

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The following is a list of the names and types of health-specific resources for the Transylvania County 2012 Health Resource Inventory.