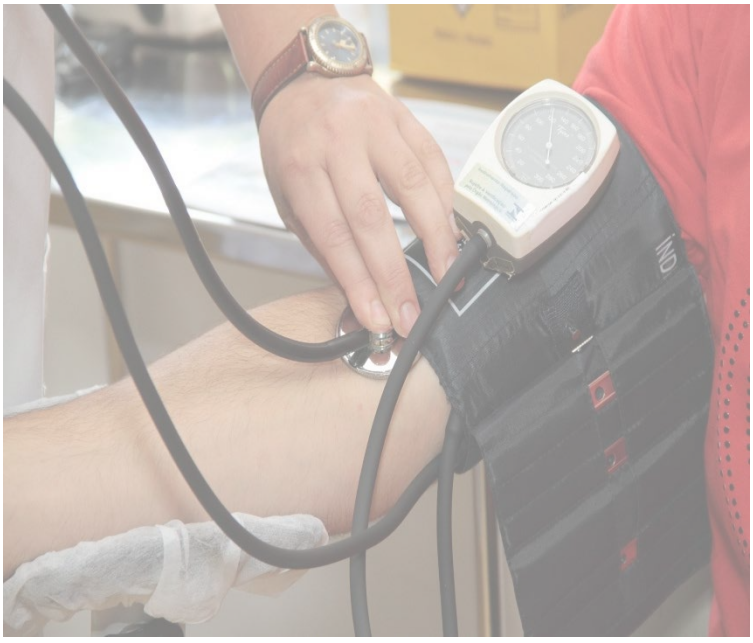
2018 Mitchell County Community Health Assessment



TOE RIVER HEALTH DISTRICT
Avery · Mitchell · Yancey County Health Departments

ACKNOWLEDGEMENTS

This document was developed by the Mitchell County Health Department in partnership with Blue Ridge Regional Hospital as part of a local community health (needs) assessment process. We would like to thank and acknowledge several agencies and individuals for their contributions and support in conducting this health assessment:

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Our community health assessment process and products were supported collaboratively by **WNC Healthy Impact**, a partnership between hospitals and health departments to improve community health in western North Carolina. This innovative regional effort is coordinated, housed and financially supported by **WNC Health Network**, the alliance of western NC hospitals working together to improve health and healthcare. Learn more at www.WNCHN.org.

WNC HEALTH NETWORK
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WNCHEALTHYIMPACT

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Community Results Statement

"Families in Mitchell County are healthy and safe, this county, and the health workers in it strive to do the most for the individuals who reside here. We will not stop until everyone in the community is thriving and living their life to the best of their ability."

Leadership for the Community Health Assessment Process

The Community Assessment was a cross-sectoral effort, supported by the leadership of the following sponsor organizations:

Name	Agency	Title	Agency Website
Jessica Farley	Toe River Health District	Health Promotion Supervisor	http://toeriverhealth.org/
Drew Brown	Toe River Health District	Health Promotion Coordinator	http://toeriverhealth.org/
Colby Boston	Blue Ridge Regional Hospital	Human Resources Manager	https://missionhealth.org/member-hospitals/blue-ridge/

Regional/Contracted Services

Our county received support from **WNC Healthy Impact**, a partnership and coordinated process between hospitals, public health agencies, and key regional partners in western North Carolina working towards a vision of improved community health. We work together locally and regionally to assess health needs, develop collaborative plans, take action, and evaluate progress and impact. This innovative regional effort is coordinated and supported by **WNC Health Network**. WNC Health Network is the alliance of hospitals working together to improve health and healthcare in western North Carolina. Learn more at www.WNCHN.org.

Theoretical Framework/Model

WNC Health Network provides local hospitals and public health agencies with tools and support to collect, visualize, and respond to complex community health data through Results-Based Accountability™ (RBA). RBA is a disciplined, common-sense approach to thinking and acting with a focus on how people, agencies, and communities are better off for our efforts.

Through WNC Healthy Impact, all hospitals and their public health partners can access tailored Results-Based Accountability training and coaching; scorecard licenses and development (including the electronic Hospital Implementation Strategy); and scorecard training and technical assistance.

Collaborative Process Summary

Mitchell County's collaborative process is supported by WNC Healthy Impact, which works at the regional level.

Locally, our process is a community wide and multi-faceted approach to completing the community health assessment and giving this information to the community. First, we look to our community partners (stakeholders in the community) at local meetings such as the Mitchell Community Health Partnership for things that they see in the community such as concerns, positive findings, or even initiatives that others aren't aware of. Once we host these meetings we use this data to further implement strategies into the community. Secondly, we disseminate this information to the local newspapers for the public to read and provide feedback via telephone or email. Online we also provide this information via our website because here people can access the document and read the priorities and the data that drives them. Once the information is into the community and feedback is provided we use this information to help with the CHA and priorities as we see fit. Toe River Health District has long had an outstanding relationship with the community we serve and providing them information on health priorities has long been essential to the way we operate.

Phase 1 of the collaborative process began in January, 2018 with the collection of community health data. For more details on this process see Chapter 1 – Community Health Assessment Process.

Key Findings

A community-wide 75-question survey was conducted to give residents an opportunity to express concerns and opinions about the quality of life in Mitchell County. This included questions about the quality of life, economy, education, environment, health, housing, leisure activities, safety, social issues, transportation, and emergency preparedness. Surveys were conducted by telephone by a trained interviewer, not through an automated touch-tone process, strategically across the county in an effort to reach a wide variety of the population surveys were also completed online. There are **2,602 surveys** completed via telephone and **663 completed online** and this data will be used to go forward for the CHA. Some of the major findings that the Mitchell Community Health Partnership points out are as follows: 17.8% of people stated that Mitchell County was a "Fair/Poor" place to live. Mitchell County survey shows that there is a 49.8% prevalence rate of high blood pressure. 18.8% of Mitchell County survey respondents experience food insecurity. 73.1% of people interviewed are considered overweight or obese. 61.5% stated that their life has been negatively affected by substance abuse.

On top of the surveys and online data collected, **19 community stakeholders** took part in an online key informant survey. These individuals listed things such as what they see as important characteristics of a health community such as recreational activity, access to care/ services, physical activity and affordable housing just to name a few. These individuals also ranked health issues with the overall titles being chronic disease, mental health and substance use, social determinants of health, and other issues. These broad health issues were individually voted on for more specific health concerns in the community for example under chronic disease the top three health issues were obesity, chronic pain, and cancer. Each main topic had these individual health issues ranked so that we could see what key informants believed were problems in the community.

Mitchell Community Health Partnership also discusses the importance of resources within the county. The county uses 2-1-1 frequently in order to provide citizens with the resources that are available to them in the county. Other major findings were stakeholders discussing the need for a fitness center and other healthy living opportunities within the county. The discussion of a local YMCA was brought up as an important resource that the county could use. That could help with things such as access to health facilities, positive activities for youth, decreased risk of chronic disease and cancer, and could improve maternal health.

Mitchell Community Health Partnership members identified ten (10) chief health concerns for the community based on findings from the community survey (telephone and online), combined with secondary health data and key informant data.

Top Ten Health Concerns:
1. Chronic Disease
2. Cancer (All Types)
3. Substance Abuse
4. Health Behaviors/ Lifestyles
5. Access to Healthcare/ Access to Health Facilities
6. Mental Health
7. Positive Activities for Youth/Teenagers
8. Social Determinants of Health
9. Availability of Employment
10. Maternal and Infant Health

Health Priorities

In November of 2018, Mitchell Community Health Partnership, along with the CHA Team members participated in a prioritization activity to determine the three leading health concerns to be addressed during 2019-2022. The worksheet asked that each of the ten concerns be ranked according to three criteria: Magnitude of the Problem, Seriousness of the Consequences, and Feasibility of Correcting the Problem.

The results from the prioritization process were reviewed and discussed at the meeting. The following health concerns were named as the focus for the next four-year cycle, 2019-2022:

1. **Chronic Disease/ Healthy Behaviors and Lifestyles**
2. **Access to Healthcare/ Social Determinants**
3. **Substance Abuse/ Mental Health**

Next Steps

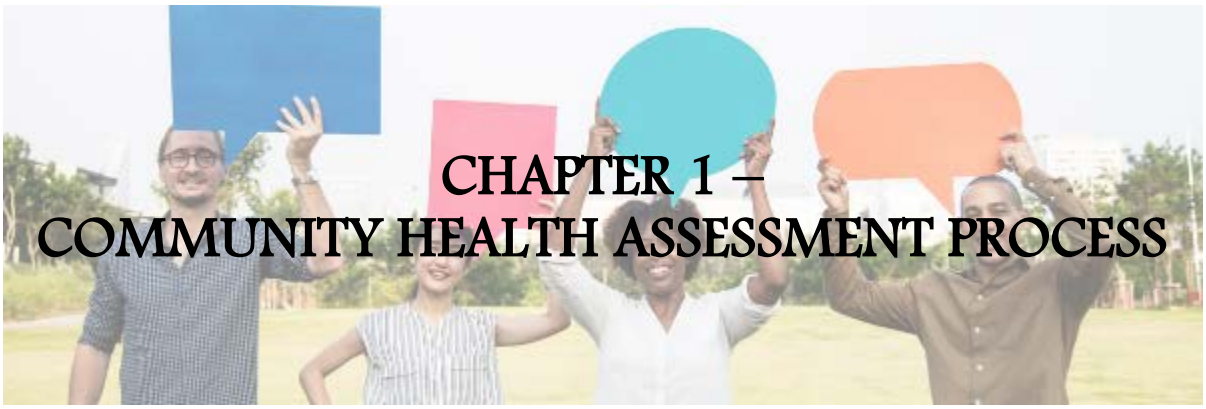
The 2018 CHA will be disseminated in a variety of ways. To begin, the document will be made available online at http://www.toeriverhealth.org. Hard copies will also be available at the Health Department, local library, and printed upon request.

The CHA Facilitator will present the CHA data during a Board of Health Meeting, a Mitchell Community Health Partnership steering committee meeting, a Mitchell County Health Department staff meeting, and upon request.

Next steps include the development of a community health improvement plan based on the findings from the CHA. The CHA Facilitator will convene community members and partners interested in moving forward on the selected health priorities. Action teams will emerge from

the selected health priorities and the teams will begin brainstorming evidence-based strategies. While much work has already been done to improve the health of our community's residents, more work is left to do to ensure that Mitchell County is the healthiest place to live, learn, work, and play.

All entities and organizations provided great insight into this process, offering opinions on the health status of this community. It is through their partnership and collaboration that we were able to make this a product about the community, by the community, and for the community.



CHAPTER 1 – COMMUNITY HEALTH ASSESSMENT PROCESS

Purpose

Community health assessment (CHA) is an important part of improving and promoting the health of county residents. A community health assessment (CHA) – which is a process that results in a public report – describes the current health indicators and status of the community, what has changed, and what still needs to change to reach a community's desired health-related results.

What are the key phases of the Community Health Improvement Process?

In the **first phase** of the cycle, process leaders for the CHA collect and analyze community data – deciding what data they need and making sense of it. They then decide what is most important to act on by clarifying the desired conditions of wellbeing for their population and by then determining local health priorities.

The **second phase** of the cycle is community health strategic planning. In this phase, process leaders work with partners to understand the root causes of the identified health priorities, both what's helping and what's hurting the issues. Together, they make a plan about what works to do better, form workgroups around each strategic area, clarify customers, and determine how they will know people are better-off because of their efforts.

In the **third phase** of the cycle, process leaders for the CHA take action and evaluate health improvement efforts. They do this by planning how to achieve customer results and putting the plan into action. Workgroups continue to meet, and monitor customer results and make changes to the plan as needed. This phase is vital to helping work groups understand the contribution their efforts are making toward their desired community results.

Definition of Community

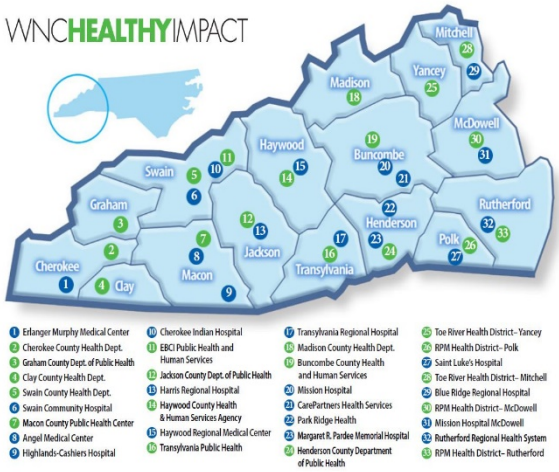
Community is defined as "county" for the purposes of the North Carolina Community Health Assessment Process. Mitchell County is included in Blue Ridge Regional Hospital's community for the purposes of community health improvement, and as such they were key partner in this local level assessment.

WNC Healthy Impact

WNC Healthy Impact is a partnership and coordinated process between hospitals, public health agencies, and key regional partners in western North Carolina working towards a vision of improved community health. We work together locally and regionally to assess health needs, develop collaborative plans, take action, and evaluate progress and impact.

This regional initiative is designed to support and enhance local efforts by:

- Standardizing and conducting data collection,
- Creating communication and report templates and tools,
- Encouraging collaboration,
- Providing training and technical assistance,
- Addressing regional priorities, and
- Sharing evidence-based and promising practices.



This innovative regional effort is supported by financial and in-kind contributions from hospitals, public health agencies, and partners, and is coordinated by **WNC Health Network**. WNC Health Network, Inc. is an alliance of hospitals working together, and with partners, to improve health and healthcare. Learn more at www.WNCHN.org.

Data Collection

The set of data reviewed for our community health assessment process is comprehensive, though not all of it is presented in this document. Within this community health assessment, we share a general overview of health and influencing factors, then focus more on priority health issues identified through a collaborative process. Our assessment also highlights some of our community strengths and resources available to help address our most pressing issues.

Core Dataset Collection

The data reviewed as part of our community's health assessment came from the WNC Healthy Impact regional core set of data and additional local data compiled and reviewed by our local CHA team. WNC Healthy Impact's core regional dataset includes secondary (existing) and primary (newly collected) data compiled to reflect a comprehensive look at health. The following data set elements and collection are supported by WNC Healthy Impact data consulting team, a survey vendor, and partner data needs and input:

- A comprehensive set of publicly available secondary data metrics with our county compared to the sixteen county WNC region
- Set of maps accessed from Community Commons and NC Center for Health Statistics
- WNC Healthy Impact Community Health Survey (cell phone, landline and internet-based survey) of a random sample of adults in the county
- Online key informant survey

See **Appendix A** for details on the regional data collection methodology.

Health Resources Inventory

We conducted an inventory of available resources of our community by reviewing a subset of existing resources currently listed in the 2-1-1 database for our county as well as working with partners to include additional information. Where gaps were identified, we partnered with 2-1-1 to fill in or update this information when applicable. See **Chapter 7** for more details related to this process.

Community Input & Engagement

Including input from the community is a critical element of the community health assessment process. Our county included community input and engagement in a number of ways:

- Partnership on conducting the health assessment process
- Through primary data collection efforts (survey, key informant interviews, listening sessions, etc.)
- By reviewing and making sense of the data to better understand the story behind the numbers

- In the identification and prioritization of health issues

In addition, community engagement is an ongoing focus for our community and partners as we move forward to the collaborative planning phase of the community health improvement process. Partners and stakeholders with current efforts or interest related to priority health issues will continue to be engaged. We also plan to work together with our partners to help ensure that programs and strategies in our community are developed and implemented with community members and partners.

At-Risk & Vulnerable Populations

Throughout our community health assessment process, our team was focused on understanding general health status and related factors for the entire population of our county as well as the groups particularly at risk for health disparities or adverse health outcomes. For the purposes of the overall community health assessment, we aimed to understand differences in health outcomes, correlated variables, and access, particularly among medically underserved, low-income, and/or minority populations, and others experiencing health disparities.

The at-risk and vulnerable populations of focus for our process and product include:

- Youth in the community
- Poverty stricken community members and their families
- Elderly in the community
- Minority groups in the community
- Physically/Mentally handicapped in the community

Toe River Health District wishes to help every vulnerable population in the communities we serve. We look to the area frequently to assure that we are reaching every disadvantaged group that exists in our community. Toe River Health District also realizes that reaching everyone in the community is a hard task, but we are always willing to reach more individuals that need help once we learn that they are in our county.

Though there are not universally accepted definitions of the three groups, here are some basic definitions from the Health Department Accreditation Self-Assessment Instrument (in some cases definitions have been slightly altered to better represent our region):

Underserved populations relate to those who do not access health care either because there is a lack of services or providers available or because of limitations such as income, literacy/language barriers or understanding on how to access services, cultural competency of clinicians, trust, transportation, etc.

At-risk populations are the members of a particular group who are likely to, or have the potential to, get a specified health condition. This could be from engaging in behavior (such as pregnant women who smoke) that could cause a specified health condition, having an indicator or precursor (high blood pressure) that could lead to a specified health condition or having a high ACE score (traumatic experiences), which is correlated with increased risk of specified health conditions.

A vulnerable population is one that may be more susceptible than the general population to risk factors that lead to poor health outcomes. Vulnerable populations, a type of at-risk population, can be classified by such factors as race/ethnicity, socio-economic status, cultural factors and age groups.

CHAPTER 2 – MITCHELL COUNTY

Location, Geography, and History of Mitchell County

Mitchell County is located in Western North Carolina, approximately 50 miles northeast of Asheville, North Carolina and 25 miles southeast of Johnson City, Tennessee. It is located in the Blue Ridge Mountains. The County's total land is 220 miles. Bakersville is the county seat, with a population of approximately 400. The county's largest town, Spruce Pine, is located in the southern part of the county and has a population of approximately 2,000. The county's average year-round temperature is 52 degrees and it receives an average of 46.7 inches of rain annually. Elevation ranges from 1,700 to 6,313 feet above sea level with an average elevation of 3,000 feet. The mountain climate is particularly appropriate for any number of outdoor activities such as whitewater rafting, hiking, backpacking, camping, fishing, horseback riding, and canoeing, kayaking, mountain biking, and picnicking.

The county is home to the "Mineral City of the World", Spruce Pine and Roan Mountain which includes the world's largest natural rhododendron garden, and the longest stretch of grassy bald in the Appalachian range. Throughout the year such festivals as North Carolina Mineral and Gem Festival and North Carolina Rhododendron Festival bring many people to the area. As of 2017, the population was 15,072.

Mitchell County was one of the three dry counties in North Carolina, along with Graham and Yancey, but in March, 2009, after much controversy, the Town of Spruce Pine approved beer, wine, and ABC store sales. Mitchell County was formed in 1861 from parts of Burke County, Caldwell County, McDowell County, Watauga County and Yancey County. It was named in honor of Elisha Mitchell, professor of mathematics, chemistry, geology and mineralogy at the University of North Carolina from 1818 until his death in 1857. Dr. Mitchell was the first scientist to argue that a nearby peak in the Black Mountains was the highest point east of the Mississippi River. He measured the mountain's height and climbed and explored it. In 1857 he fell to his death on a waterfall on the side of the mountain. The mountain was subsequently named Mount Mitchell in his honor.

The creation of Mitchell County was brought about by the question of secession during the build up to the Civil War. The Northern half of the region strongly supported the Union and wanted to part company with the Southern half, which favored secession. The opportunity that enabled this split came about when Jacob W. Bowman, a rising young politician from what is now Bakersville, was elected to represent Yancey County in the N.C. legislature. Eager to serve

his constituents living north of Toe River, young Bowman was instrumental in the passage of an act that created the new county.

The county took a direct hit from "The Storm of the Century", also known as the "'93 Superstorm", or "The (Great) Blizzard of 1993". This storm event was similar in nature to a hurricane. The storm occurred between March 12–13, 1993, on the East Coast of North America. Parts of Cuba, Gulf Coast States, Eastern United States and Eastern Canada were greatly impacted.

The county suffered a tragic event on the evening of Friday, May 3, 2002 when a fire broke out at the Mitchell County jail in Bakersville, North Carolina. As a result of the fire 8 men lost their lives.

Population

According to data from the 2010 US Census, the total population of Mitchell County is 15,579. In Mitchell County, as region-wide and statewide, there is a higher proportion of females than males (51.2% vs. 48.8%).

Overall Population and Distribution, by Gender	Total Population (2010)	# Males	% Males	# Females	% Females
Mitchell County	15,579	7,979	48.8	7,600	51.2
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 Mitchell County 20.9% of the population is in the 65-and-older age group, compared to 19.0% region-wide and 12.9% statewide. The median age in Mitchell County is 45.7, while the regional mean median age is 44.7 years and the state median age is 37.4 years.

Median Age and Population Distribution, by Age Group	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
Mitchell County	46	769	4.9	2,574	16.5	8,976	57.6	3,260	20.9
Regional Total	44.7	40,927	5.4	132,291	17.4	441,901	58.1	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, Mitchell County is less diverse than either WNC or NC as a whole. In Mitchell County the population is 95.3% white/Caucasian and 4.7% 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. The proportion of the population that self-identifies as Hispanic or Latino of any race is 4.1% in Mitchell County, 5.4% region-wide, and 8.4% statewide.

Population Distribution by Racial/ Ethnic Groups	White	Black or African American	American Indian, Alaskan Native	Asian	Native Hawaiian, Other Pacific Islander	Other Race	Two or More Races	Hispanic or Latino (of any race)
Mitchell County	95.3	0.4	0.4	0.3	0.0	2.5	1.1	4.1
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

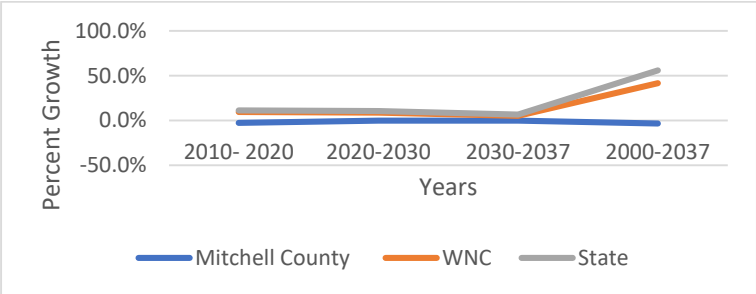
Population Growth Trend

Mitchell County is projected to see a decrease in county overall population with the growing trends that are projected via the US Census. The total population projections are as follows- 2010 (15,579), 2020 (15,191), 2030 (15,163), 2037 (15,164). The regional total during total population growth at this time period is 2010 (759,727), 2020 (832, 234), 2030 (905,878), 2037 (953,144). This shows that the region itself is projected to only increase in population size, while at the same time Mitchell County is projected to lower in total population growth.

Total Population Projected Growth	2010	2020	2030	2037
Mitchell County	15,579	15,191	15,163	15,164
Regional Total	759,727	832,234	905,878	953,144

Mitchell County is projected to decrease in % total population growth yearly as follows 2010-2020 (-2.5%), 2020-2030 (-0.2%), 2030-2037 (0.0%). Mitchell is the only county among the 16 in WNC with a negative overall 30-year growth rate. Double-digit (or near double-digit) positive population growth figures are projected for WNC and for NC as a whole over the same period. The percent total population growth is projected to decrease by a total of -3.3% from 2000-2037. This is in vast contrast to the region as a whole, which is projected to have a 41.8% increase between the years 2000-2037 while the state total is 56.0% during this same period of time. This shows a drastic change when comparing Mitchell County with the region and state, however this data also matches total population trend as well.

% Total Population Growth	2010-2020	2020-2030	2030-2037	2000-2037
Mitchell County	-2.5%	-0.2%	0.0%	-3.3%
Regional Total	9.5%	8.8%	5.2%	41.8%
State Total	11.4%	10.7%	6.7%	56.0%



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 Mitchell 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. The table 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. The data illustrate how the population age 65-and-older in the county is going to increase over the coming two decades. The percent increase anticipated for each age group in Mitchell County between 2010 and 2030 is 8.5% for the 65-74 age group, 35.8% for the 75-84 age group, and 50.0% 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.

Population Age 65 and Older by 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+
Mitchell County	20.9	11.8	6.7	2.4	24.3	13.1	8.3	3.0	25.6	12.8	9.1	3.6
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	6.5	2.2

CHAPTER 3 – A HEALTHY MITCHELL COUNTY

Elements of a Healthy Community

In the online survey, key informants were asked to list characteristics of a healthy community. They were also asked to select the health issues or behaviors that they feel are the most critical to address collaboratively in their own community over the next three years or more. Follow-up questions asked them to describe which contributors to progress and impediments of progress exist for these issues, as well as the likelihood that collaborative effort could make a positive change for these issues.

When key informants were asked to describe what elements they felt contributed to a health community in our county, they reported:

- Recreational/ Outdoor Activities
- Access to Care/ Services
- Physical Activity
- Equity in Access to Health Care

During our collaborative action planning efforts and next steps, we will further explore these concepts and the results our community has in mind.

In Mitchell County, a community health improvement coalition exists called Mitchell Community Health Partnership (MCHP); a team of citizens and agencies working to improve the health of the people of Mitchell County. Founded in February of 1998, upon receipt of a grant from the Duke Endowment Fund and in cooperation with the Bakersville Community Medical Center, Blue Ridge Regional Hospital and MAHEC, this partnership began and currently still exists. Its purpose is to assess rural health needs in the area, compile data, and organize a community group to improve the health of our citizens. With the formation of a county-wide steering committee, membership policies, and basic organization guidelines were developed, consisting of:

• Building and promoting collaborative partnerships
• Identifying critical needs in the community
• Guiding local planning efforts to improve health
• Supporting innovative health programs

• Advocating for health-promoting policies

Additionally, MCHP plays a large role in the CHA process. Members of the Steering Committee acts as the CHA Team by advising the process, providing input, and confirming the identified health priorities. Action Teams are formed around selected health priorities and charged with developing strategies to address each health priority. During our collaborative planning efforts and next steps, we will further explore these concepts and the results our community has in mind.

Community Assets

The following are believed to be community assets within Mitchell County, and things that the county itself can build upon:

• Beautiful land geographically, beautiful country
• Citizens who have lived their whole lived there
• Raising families and generations there
• History and connectedness within the population and communities
• Location/Outdoor spaces and opportunities for recreation (hiking, hunting, fishing, and other recreation for the mountains)
• Willingness to help others
• Agencies come together to network and attempt to address health issues facing the community
• New resources available in the area (such as the dental clinic and community health center)
• Networking of the local churches and faith community
• Tourism opportunities

CHAPTER 4 – SOCIAL & ECONOMIC FACTORS

As described by Healthy People 2020, economic stability, education, health and healthcare, neighborhood and built environment, and social community and context are five important domains of social determinants of health. These factors are strongly correlated with individual health. People with higher incomes, more years of education, and a healthy and safe environment to live in have better health outcomes and generally have longer life expectancies. Although these factors affect health independently, they also have interactive effects on each other and thus on health. For example, people in poverty are more likely to engage in risky health behaviors, and they are also less likely to have affordable housing. In turn, families with difficulties in paying rent and utilities are more likely to report barriers to accessing health care, higher use of the emergency department, and more hospitalizations.

Income & Poverty

"Income provides economic resources that shape choices about housing, education, child care, food, medical care, and more. Wealth, the accumulation of savings and assets, helps cushion and protect us in times of economic distress. As income and wealth increase or decrease, so does health" (County Health Rankings, 2018).

Income

Income provides economic resources that shape a variety of choices – choices about housing, education, childcare, food, medical care, and more. Income allows residents to not only purchase health insurance and medical care but also make choices that support healthy lifestyles. The simplest difference in health is between those in the highest and lowest income brackets, the relationship of income affecting health persists throughout all brackets. 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.

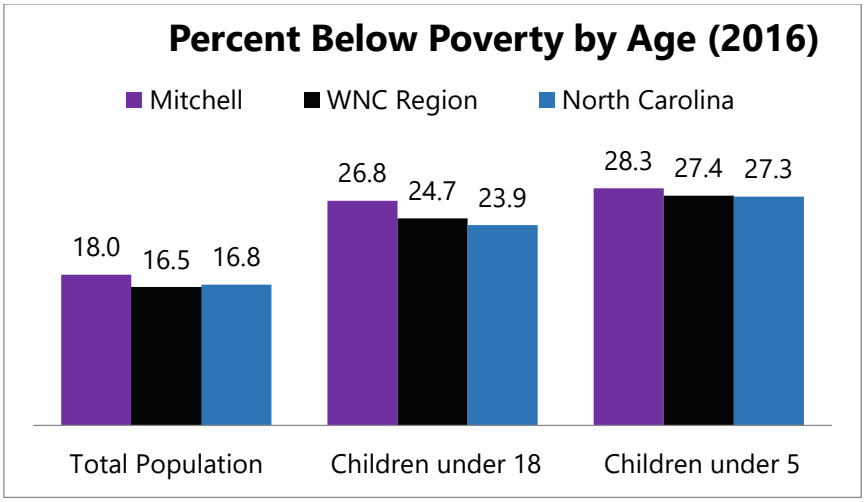
Median Household and Family Income

As calculated from the most recent estimate (2012-2016), the median *household* income in Mitchell County was $39,658, compared to a mean WNC median household income of $40,004, a difference of $346 *less* in Mitchell County. The median household income in Mitchell County was lower than the comparable state average for both the periods cited ($9,206 lower in 2010-2014 and $9,477 in 2011-2015); the gap expanded by $271 from to 2010-2014 to 2011-2015.

As calculated from the most recent estimate (2012-2016), the median *family* income in Mitchell County was $51,302, compared to a mean WNC median family income of $50,507 a difference of $795 *more* in Mitchell County. The median family income in Mitchell County in 2010-2014 was $9,641 *less* than the comparable state average, and in 2011-2015 the gap narrowed $1,287, to $8,354 less in Mitchell County.

Population in Poverty

The 100%-level poverty rate in Mitchell County was 18.0% in the 2012-2016 period. In the period cited, the poverty rate in Mitchell County was higher than the comparable rates in both WNC and NC. The number of individuals as a whole below the poverty level is 2,688 when compared to the region's mean of 7,798 it seems that Mitchell has a much less poverty. this can easily be concluded because of the difference in total population where Mitchell is the third lowest and therefore there aren't the same number of people in poverty as larger counties.



In much of NC, children suffer disproportionately from poverty, and it is apparent that children suffer disproportionately from poverty in our county. The estimated poverty rate among children under age 18 was higher compared to the overall poverty rate in every year cited. In Mitchell County the poverty rate for young persons (26.8%) was higher than the overall rate (18.0%) in 2016. Children under 5 in Mitchell County also suffer a higher rate of poverty in Mitchell County (28.3%) compared to the state (27.3%) and region (27.4%) as a whole. When comparing our children under 18 to both the state and the region Mitchell County also sees an increase as the county sits at 26.8 % compared to 24.7% for the region, and 23.9% compared to the state. Our Hispanic children, children living in single-mother families, and children under five are even more likely to be at risk for being poor.

Employment

"Employment provides income and, often, benefits that can support healthy lifestyle choices. Unemployment and under employment limit these choices, and negatively affect both quality of life and health overall. The economic condition of a community and an individual's level of educational attainment both play important roles in shaping employment opportunities" (County Health Rankings, 2018).

As of 2017, the top five employment sectors in Mitchell County with the largest proportions of workers (and average weekly wages) were:

- Healthcare and Social Assistance: 16.94% of workforce ($677.37 weekly wage)
- Educational Services: 14.72% of workforce ($624.83 weekly wage)
- Retail Trade: 13.66% of workforce ($481.76 weekly wage)
- Public Administration: 8.05% of workforce ($596.52 weekly wage)
- Mining: 7.57% of workforce ($1,356.47 weekly wage)

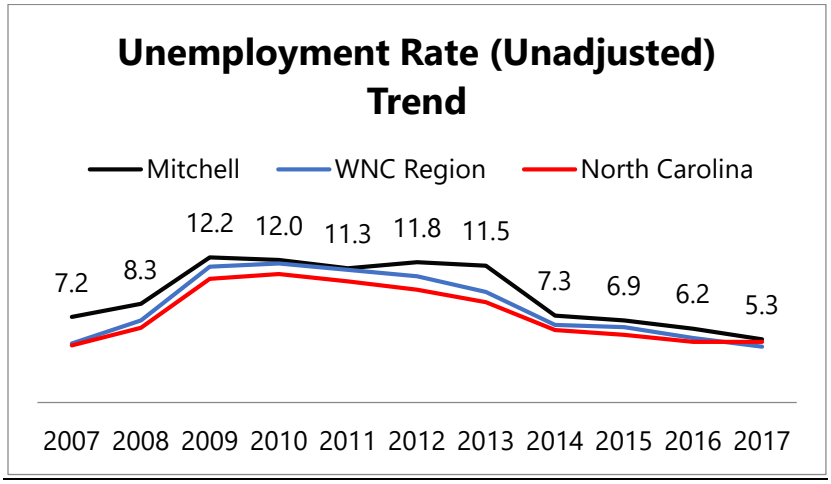
The county, WNC and NC lists are quite similar, with variations in WNC stemming from its relative lack of manufacturing jobs and the regionally greater significance of the tourism industry, represented by the Accommodations and Food Service sector. Mitchell County is quite different from the other jurisdictions in the high placement of employment in the Mining sector.

Unemployment

Throughout the period cited in the graph below (2007-2014) summarizes the annual unemployment rate in Mitchell County. From this data it appears that the unemployment rate in Mitchell County was higher than comparable figures for both WNC and NC as a whole throughout the period from 2007-2017. The graph below demonstrates the higher unemployment rate for Mitchell County when compared to the state and regional levels, and the data points above the line representing Mitchell County is the overall rate of unemployment for Mitchell County in that specific year.

It is important to note that a person is defined as unemployed if they:

- Had no employment during the week that includes the 12th of the month but were available at work
- Had made specific efforts to find employment during the four weeks' prior
- Were waiting to be recalled to a job from which they had been laid off
- Were waiting to report to a new job within 30 days



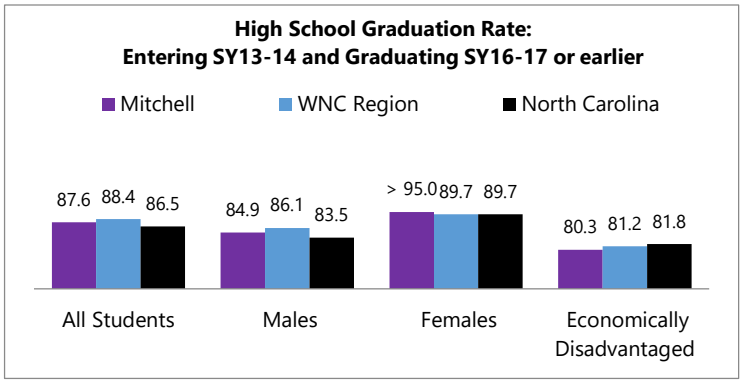
Education

"Better educated individuals live longer, healthier lives than those with less education, and their children are more likely to thrive. This is true even when factors like income are taken into account" (County Health Rankings, 2018).

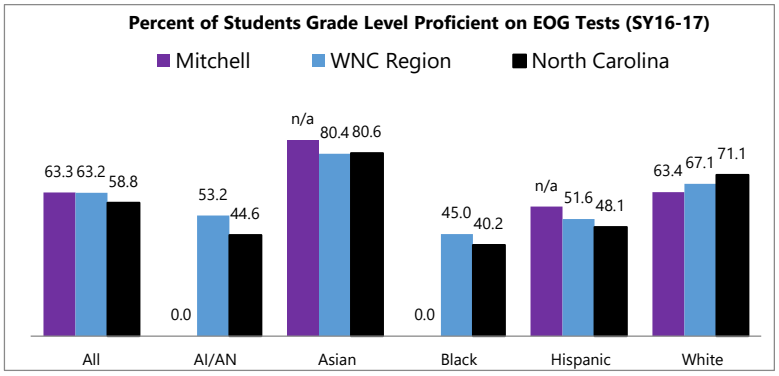
It is helpful to understand the level of education of the general population, and with what frequency current students stay in school and eventually graduate. Studies show that better educated individuals live longer, healthier lives than those with less education. Further, children of better educated individuals are more likely to thrive as well, even when factors like income are taken into account. More schooling is linked to many important factors that influence health – higher income, better employment options, increased social support, and increased support opportunities for healthier choices.

Higher levels of education can lead to a greater sense of control over one's life, which is linked to better health, healthier lifestyles decisions, and fewer chronic conditions. Perhaps the greatest evidence for continuing education is connected to lifespan – on average, college graduates live nine more years than high school dropouts. These benefits of education trickle down to children as well; children whose mothers graduate from college are twice as likely to live past their first birthday, have decreased risk of cognitive development, decreased risk of tobacco and drug use, and lower risk of many chronic conditions (CDC, CDC Community Health Improvement Navigator, 2015).

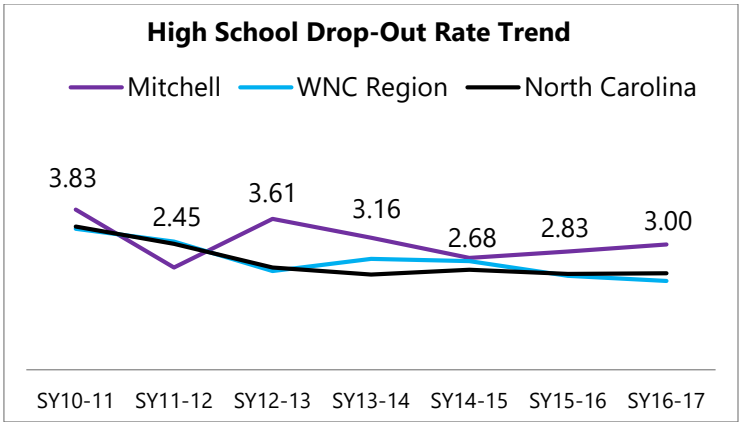
The first graph below illustrates the high school graduation rate with students entering the school year of 2013-2014 and graduating the school year of 2016-2017. All students' graduation rate for Mitchell County sits at 87.6% which is below the regional average of 88.4% and above the state average of 86.5%. Male graduation rate (84.9%) in Mitchell County is much lower than that of female graduation rate (>95.0%). Mitchell County has an outstanding female graduation rate in the county and sits approximately 5.3% above both the state and regional rate. The most shocking rate is the economically disadvantaged, because with Mitchell County in such a high rate of poverty as a whole it is quite worrisome that economically disadvantaged individuals only graduated high school at 80.3% from 2013-2014 to 2016-2017.



The second graph shows the proficiency in End of Grade testing in Mitchell County and compares it to the state and regional levels. The results from this chart are quite positive for Mitchell County. When comparing student populations, the Hispanic and Asian populations score higher than the regional and the state average of being proficient on the EOG tests. Overall Mitchell County (63.3%) edges out the region (63.2%) and also is better than the state (58.8%). The one category that scores lower than the regional (67.1%) and state (71.1%) average is the "White" student population (63.4%). Overall the positive ratings show that the students in the county who stick with their studies do very well when being tested, but that Mitchell County also has a relatively large student dropout rate.



This is further illustrated by the dropout rate graph, which shows that Mitchell County has a yearly drop-out rate above or even well above both the state and regional rates. The data points on the graph are the specific yearly dropout rates of Mitchell County by year. The lowest experienced dropout rate was in the school year 2011-2012 of 2.45% which was below both the state and regional levels. This graph also shows the highest dropout rate experienced by Mitchell County was (3.61%) in the school year of 2012-2013.



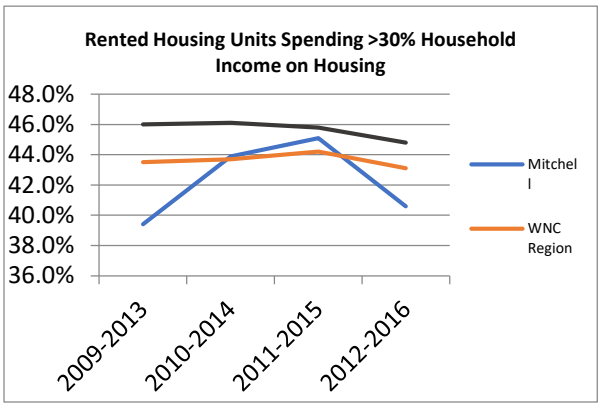
Housing

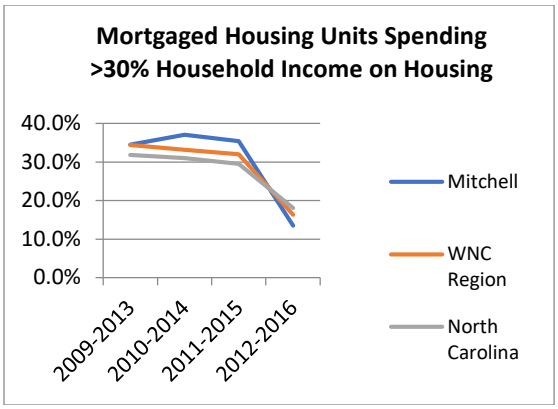
"The housing options and transit systems that shape our communities' built environments affect where we live and how we get from place to place. The choices we make about housing and transportation, and the opportunities underlying these choices, also affect our health" (County Health Rankings, 2018).

Housing options shape our community; the choices we make about housing and the opportunities to make these choices affect our health. Housing structures protect residents from weather while providing safe environments for families to live, learn, grow, and more. Unfortunately, houses and apartments can also be unhealthy and unsafe. Exposure to lead paint, improper insulation, the growth of mold and other indoor allergens all lead to unhealthy conditions.

Because the cost of housing is a major component of the overall cost of living for individuals and families it merits close examination. The table below 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 Mitchell County, the percentage of mortgaged housing units costing more than 30% of household income was 34.5% in 2009-2013, 37.1% in 2010-2014, 35.4% in 2011-2015, and 13.5% in 2012-2016. When comparing these numbers to both the state and the region between the years of 2010-2014 Mitchell County was 3.9% high than the regional rate (33.2%) and 6.1% higher than the state average of (31.0%). Mitchell County has consistently had a higher rate of mortgaged housing that is greater than 30% of household income, until in 2012-2016 when there was a sharp decline seen in the county, regional, and state level. The other graph below depicts the rented housing system and the percent of individuals that use greater than 30% of their household income on their rented housing. Mitchell County reached a high of 45.1% in 2011-2015; when comparing this to the regional rate (44.2%) there is a 0.9% higher rate in Mitchell County, and the state had a 0.7% higher rate than Mitchell County at 45.8%.





Housing is a substantial expense. In fact, a measure of economic burden in a community is the percent of housing units spending more than 30% of household income on housing. In Mitchell County, Mitchell County is about on par with the regional and state rates of renters spending greater than 30% of their income on housing, which presents a major burden for the state, region, and county.

Family & Social Support

People with greater social support, less isolation, and greater interpersonal trust live longer lives than those who are socially isolated. Therefore, neighborhoods richer in social capital provide residents with greater access to support and resources than those with less social capital. Social support stems from relationships – relationships with family members, friends, colleagues, neighbors, acquaintances. All of these relationships protect physical and mental health while facilitating healthy behaviors and choices. Conversely, those without social support are at increased risk for poor health outcomes such as increased vulnerability to the effects of stress, cardiovascular disease, overeating, in adults, smoking in adults, and obesity in children.

Social associations are a way to measure family and social support. Social associations are the number of membership associations (civic organizations, golf clubs, sports organizations, religious organizations, and more) per 10,000. In Mitchell County, the social association rate is 20.8 for 2015, almost double the rate in the state of NC.

Another measure of family and social support is the percentage of children in family households that live in a household headed by a single parent. Adults and children in single-parent households are at risk for adverse health outcomes such as mental health problems (substance abuse, depression, suicide) and unhealthy behaviors (smoking, excessive alcohol use). In Mitchell County, 34% of children live in single parent households, compared to 36% as the state rate for NC.

CHAPTER 5 – HEALTH DATA FINDINGS SUMMARY

Mortality

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. The table below presents a fairly recent summary of life expectancy for Mitchell County, WNC, and NC as a whole. The overall life expectancy in Mitchell County is 76.3 years. This is both slightly lower than that of WNC (77.7 years) and NC (77.4 years). For persons born in 2014-2016, life expectancy among comparator jurisdictions in longest among women than men. From this data it appears that females born in Mitchell County in the period cited could expect to live approximately 6 more 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 approximately 5 years longer on average than males born under the same parameters.

Life Expectancy at Birth for Person Born in 2014-2016

County	Overall	Sex		Race	
		Male	Female	White	African-American
Mitchell	76.3	73.1	79.7	76.3	n/a
WNC (Regional) Arithmetic Mean	77.7	75.1	80.4	78.0	76.2
State Total	77.4	74.8	79.9	78.3	74.9

The table below compares the mean rank order of the 15 leading causes of death in Mitchell County and NC for the five-year aggregate period 2012-2016. (The causes of death are listed in descending rank order for Mitchell County.) When looking at the data for Mitchell County the top ten leading causes of death read are Heart Disease, Cancer, Chronic Lower Respiratory Diseases, All Other Unintentional Injuries, Alzheimer's Disease, Cerebrovascular Disease, Diabetes Mellitus, Suicide, Pneumonia and Influenza, and Unintentional Motor Vehicle Injuries. The bottom five causes of death are Nephritis, Chronic Liver Disease and Cirrhosis, Septicemia, Homicide, and Acquired Immune Deficiency Syndrome. Mitchell County's two leading causes of death in Heart Disease (176.3) and Cancer (175.2) are both higher than the state's totals of Cancer (166.5) and Heart Disease (161.3) death rates.

Rank	Cause of Death	Mitchell	
		# Deaths	Death Rate
1	Diseases of Heart	221	176.3
2	Cancer	227	175.2

3	Chronic Lower Respiratory Diseases	98	73.1
4	All Other Unintentional Injuries	58	61.5
5	Alzheimer's disease	64	47.3
6	Cerebrovascular Disease	39	31.5
7	Diabetes Mellitus	30	26.2
8	Suicide	18	22.5
9	Pneumonia and Influenza	24	18.2
10	Unintentional Motor Vehicle Injuries	11	15.5
11	Nephritis, Nephrotic Syndrome, and Nephrosis	18	15.1
12	Chronic Liver Disease and Cirrhosis	8	8.5
13	Septicemia	10	7.0
14	Homicide	1	1.7
15	Acquired Immune Deficiency Syndrome	1	0.7
All Causes (some not listed)		1,079	879.1

When comparing the death rates of Mitchell County to the region and state as a whole there are a few things that stick out. First, the Cancer death rate between Mitchell (175.2) and the region (165.5)/ state (166.5) rates show that Mitchell County has approximately a ten percent higher death rate in both comparisons. Mitchell County has a higher suicide rate at 22.5% than both the regional rate (19.0%) and the state rate (12.9%) with approximately a 3.5% increase from the region and a 9.6% increase than the state rate. Some lower rates for Mitchell County when comparing to the region and the state rates were Liver Disease and Cirrhosis where Mitchell County had an 8.5% death rate compared to the region's rate of 13.6% and the state's rate of 10.3%.

Cause of Death	Mitchell		Comparison to WNC Regional Average Rate		Comparison to NC Rate	
	# Deaths	Death Rate	Rate	% Difference	Rate	% Difference
Acquired Immune Deficiency Syndrome	1	0.7	0.9	-17.6%	2.2	-68.2%
All Other Unintentional Injuries	58	61.5	45.8	34.2%	31.9	92.8%
Alzheimer's disease	64	47.3	31.7	49.4%	31.9	48.3%
Cancer	227	175.2	165.5	5.9%	166.5	5.2%
Cerebrovascular Disease	39	31.5	40.2	-21.6%	43.1	-26.9%
Chronic Liver Disease and Cirrhosis	8	8.5	13.6	-37.5%	10.3	-17.5%
Chronic Lower Respiratory Diseases	98	73.1	54.3	34.7%	45.6	60.3%
Diabetes Mellitus	30	26.2	22.4	16.9%	23.0	13.9%
Diseases of Heart	221	176.3	164.4	7.2%	161.3	9.3%
Homicide	1	1.7	4.1	-58.4%	6.2	-72.6%

Nephritis, Nephrotic Syndrome, and Nephrosis	18	15.1	14.6	3.5%	16.4	-7.9%
Pneumonia and Influenza	24	18.2	17.4	4.4%	17.8	2.2%
Septicemia	10	7.0	9.0	-22.0%	13.1	-46.6%
Suicide	18	22.5	19.0	18.6%	12.9	74.4%
Unintentional Motor Vehicle Injuries	11	15.5	15.5	-0.3%	14.1	9.9%
All Causes (some not listed)	1,079	879.1	800.7	9.8%	781.8	12.4%

Health Status & Behaviors

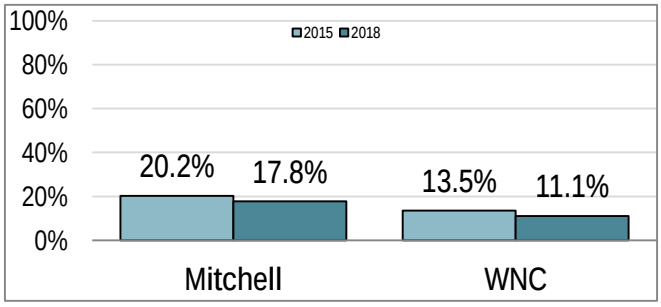
According to American's Health Rankings, the state of NC ranked 32nd overall out of 50 United States of America (where #1 is the best). Bringing this closer to home, the 2016 County Health Rankings ranked Mitchell County 31st overall among 100 NC counties. In terms of health outcomes, Mitchell County ranked:

- 19th in length of life (includes premature death)
- 45th in quality of life (includes poor or fair health, poor physical health days, poor mental health days, low birthweight)

In terms of health factors, Mitchell County ranked:

- 26th in health behaviors (including adult smoking, adult obesity, physical inactivity, access to exercise opportunities, alcohol-impaired driving deaths, and more)
- 89th in clinical care (including uninsured, primary care physicians, dentists, mental health providers, mammography screenings, and more)
- 49th in social and economic factors (includes high school graduation, unemployment, children in poverty, social associations, violent crime, and more)
- 39th in physical environment (includes air pollution-particulate matter, drinking water violations, severe housing problems, and more)

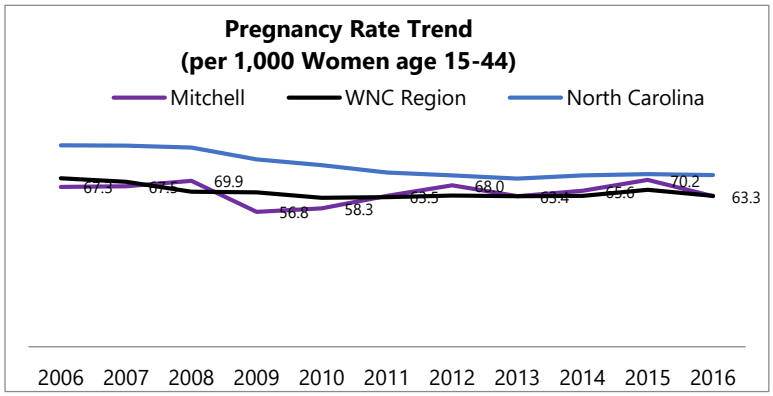
Since Mitchell County is ranked in the middle quartile of all counties in NC, there is much room to improve, especially in terms of health factors.



Data was collected throughout the CHA process on self-reported health status. Only 17.8% of Mitchell County residents that were surveyed stated that this county is a fair/poor place to live. Additionally, only 25.0% of residents stated that they experience "fair" or "poor" overall health. Finally, of those who reported that they were limited in activity in some way due to physical, mental, or emotional problems, most listed difficulty walking, back/neck problems, arthritis, and "other" as the types of problems that limit activity.

Maternal and Infant Health

The pregnancy rate for Mitchell County for women aged 15-44 years appears to have stayed consistent between the rates of 50 and 65 overall since 2012 to 2016 only spiking to 70.2% in 2015; similar to the pattern of WNC. However, the NC rate has consistently dropped every year cited, being 84.8 in 2006 decreasing to 70.8 in 2013 (falling 14 percent in 7 years) and then rising 2% back to approximately 72% from 2014-2016. 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").

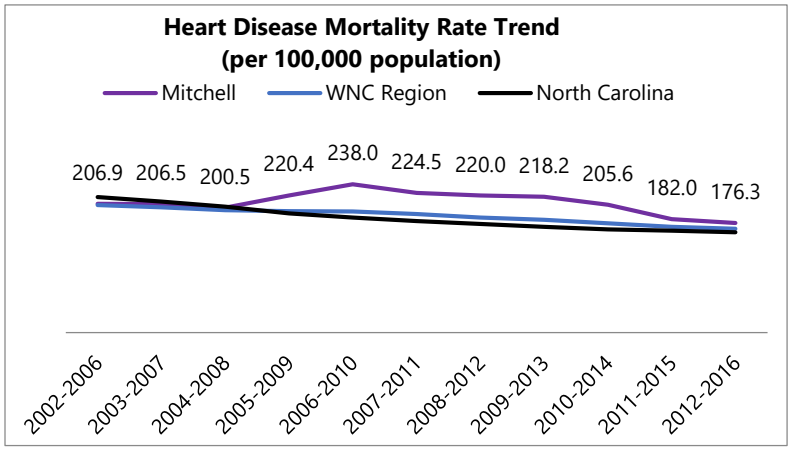


This graph illustrates that the pregnancy rate for women (ages 15-44) in Mitchell County was quite consistent, trending both below and above the mean WNC and NC rates over the period cited. The region and the state both remain consistent throughout this time while trending slightly down from the dates of 2006-2016. The WNC rate has relatively remained the same from 2012-2016, hovering around 62.5 percent. The North Carolina rate, although higher, has also relatively remained the same hovering around 72%. Among Mitchell County women, in 2016 the data was not available for most pregnancy rates; however, white non-Hispanic pregnancy rate was at 62.4%

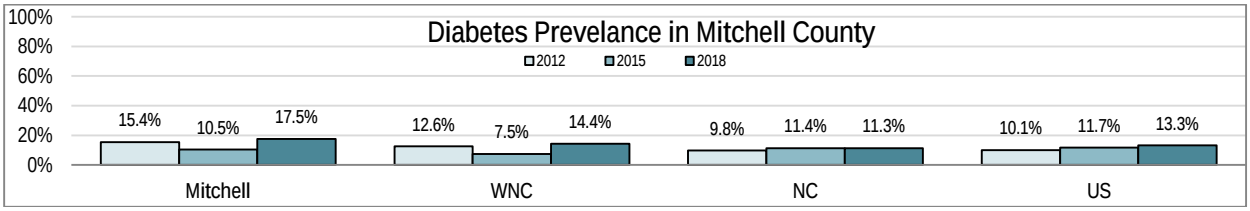
Chronic Disease

Chronic disease is a prominent health concern in Mitchell County, especially cardiovascular disease and cancer. The prevalence of heart disease mortality rate is higher in Mitchell County from 2012-2016 (182.0%) than the region (169.7%) and the state (163.7%).

Heart disease is the leading cause of death in Mitchell County. The graph below shows the mortality rate for heart disease from 2002-2016. The mortality rate has also been consistently higher in Mitchell County than the rates in both the Western North Carolina region and the state as a whole. Even though there has been slight decrease, the graph overall represents a problematic area for Mitchell County.

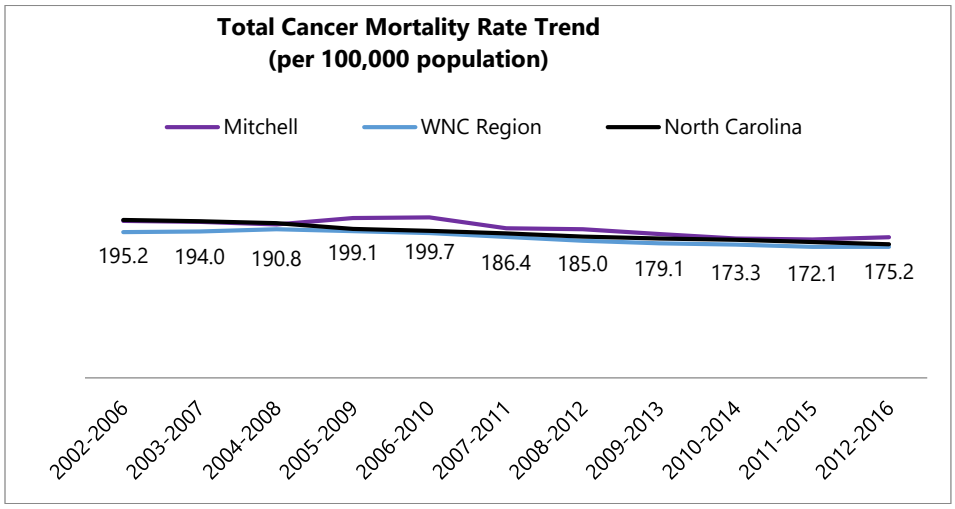


Diabetes and heart disease go hand-in-hand. The prevalence of diabetes has decreased in Mitchell County from 2012 to 2015 (15.4% to 10.5%). Once this decrease occurred Mitchell County then saw a rise in the prevalence in 2018 back up to 17.5% (a 7-point increase), while it increased in NC and the U.S. The prevalence in Mitchell County is higher than Western North Carolina (17.5% vs. 14.4%) and is higher than the state total (17.5% vs. 11.3%).

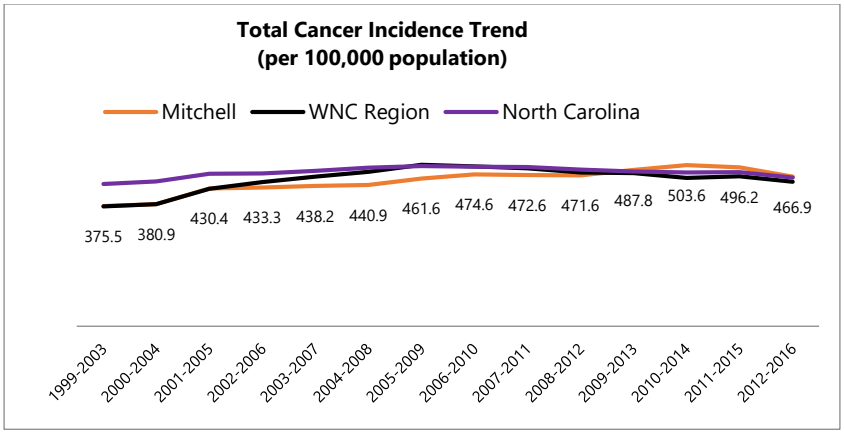


Cancer is another chronic issue that affects many people in Mitchell County. It is the second leading cause of death in the county.

The chart below shows the cancer mortality rate trends in Mitchell County, WNC, and NC. Mitchell has seen a decrease in cancer mortality from 2010-2016, but the rate still remains higher than in Western North Carolina and North Carolina. The region and the state both remain relatively steady with a slight decrease, with Mitchell County consistently hovering above the state and region.



The incidence of cancer has increased in Mitchell County over the years before seeing a slight decrease in the years of 2011-2015 and 2012-2016. This could be due to increased cancer screenings in the county and the fact that we are better able to detect cancer with increased technology. The incidence in the state and region also increased over the years, and then the state and region also seen a slight decrease. Mitchell County has hovered below the state and region in incidence rates over the years, however Mitchell County is actually above the rate for the state and region between the years 2011-2015 and 2012-2016.



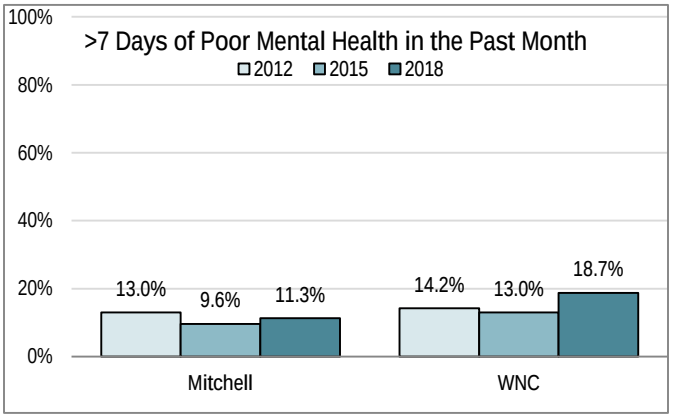
Injury and Violence

Unintentional injuries were the third leading cause of death for age group 00-19 years in the last community health assessment, however this data does not depict any leading causes of death for the age group 00-19 besides "conditions originating in the perinatal period" therefore no inferences can be made. This is the first leading cause of death for age group 20-39 years and the third leading cause of death for age group 40-64 years in Mitchell County. The death rate for other unintentional injuries were 51.1% for ages 20-39 and 84.3 for ages 40-64.

Mitchell County				
Age Group	Rank	Leading Cause of Death	# Deaths	Death Rate
00-19	1	Conditions originating in the perinatal period	1	6.4
20-39	1	Other Unintentional injuries	8	**51.1**
	2	Diseases of the heart	4	25.6
		Motor vehicle injuries	4	25.6
		Suicide	4	25.6
40-64	1	Cancer - All Sites	55	201.5
	2	Diseases of the heart	41	150.2
	3	Other Unintentional injuries	23	**84.3**
65-84	1	Cancer - All Sites	137	872.8
	2	Diseases of the heart	107	681.7
	3	Chronic lower respiratory diseases	56	356.8
85+	1	Diseases of the heart	69	3200.4
	2	Alzheimer's disease	43	1994.4
	3	Cancer - All Sites	34	1577.0

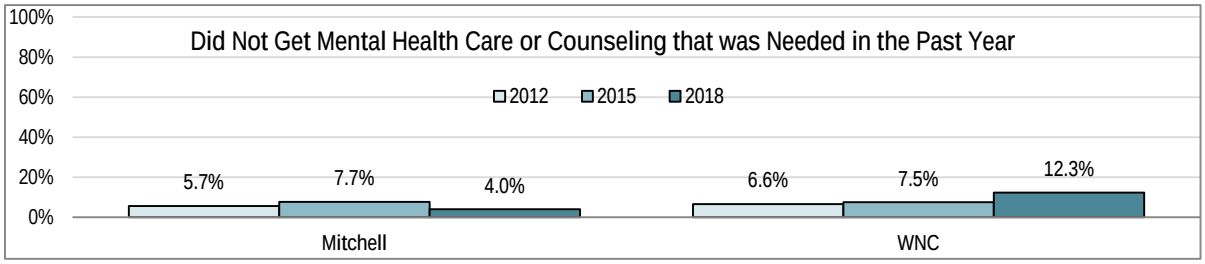
Mental Health and Substance Abuse

Mental health and substance abuse are key issues in Mitchell County. Mental health status is improving.



Findings from the 2018 WNC Healthy Impact Data Collection showed that 11.3% of respondents stated that they have had >7 days of poor mental health in the past month, which is a step back from 2015 (9.6%) showing that the rate has increased in that time span.

4.0% of Mitchell County residents surveyed said that they were unable to get mental health care or counseling in the past year (a decrease from 7.7% in 2015).

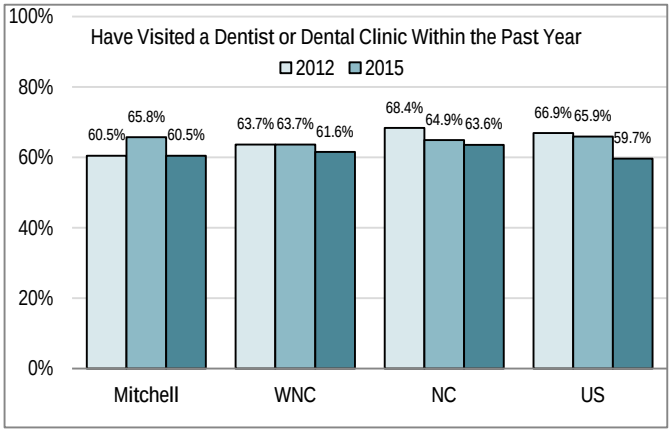


Mitchell County has unstable rates for all 5-year periods and therefore we cannot report on the suicide rates. They had however seen a sharp decrease in the suicide mortality rate from the previous Community Health Assessment.

Substance abuse is also a major issue in Mitchell County. It is identified as one of the three priority health issues.

Recent interviews with the Burnsville Chief of Police, Bakersville Chief of Police, Spruce Pine Chief of Police, Sheriffs Gary Banks and Donald Street, and a focus group of six deputies from Mitchell County confirm that both Mitchell and Yancey counties are experiencing increasing rates of drug related crime that it is compounded by the fact that other crimes (especially burglary) are a result of addicts attempting to get money/things to sell for drugs. Local law enforcement agencies and those from neighboring counties have cautioned "heroin is on our doorstep," based on the rise in heroin deaths in our community.

Oral Health

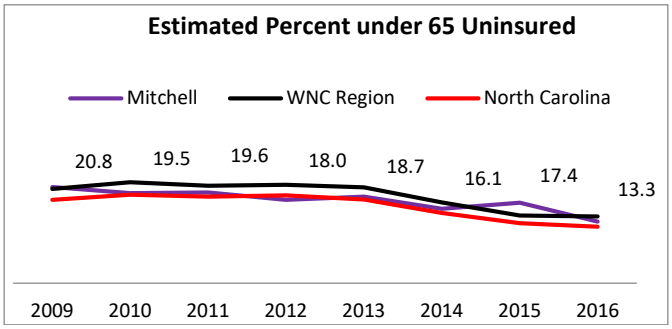


60.5% of resident in Mitchell County have visited a dentist or dental clinic in the past year (a decrease from 65.8% in 2015). This is lower than WNC and NC (61.6%% and 63.6%%).

East Carolina University School of Medicine opened up a Community Service Learning Center in Spruce Pine, NC in 2015. The dental clinic provides various dental services to both children and adults.

Clinical Care and Access

The passage and implementation of the Affordable Care Act strived to make insurance more accessible. With North Carolina failing to expand Medicaid, it has still made it difficult for some residents to obtain affordable access to health care. Access to health care increases access to preventive care, such as vaccinations and screenings. Preventative care is extremely important and contributes greatly to the overall health of a community. As shows in the figure below Mitchell County stays below the regional rate of people under 65 uninsured when compared to the region, and stays near the same as the state rates. Mitchell County did see a bump in uninsured between 2015-2016 before seeing a decline later in 2016. Mitchell County also has seen a drastic decrease in uninsured ages 18-64 2012 (20.3%), 2015 (18.4%), and 2018 (8.7%).

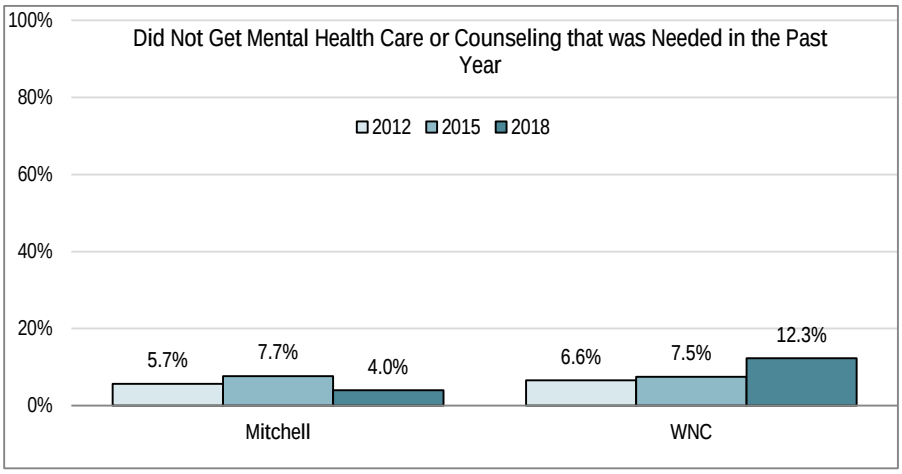


Health Professional Shortage Areas (HPSAs) are defined by HRSA as having shortages of primary care, dental care, or mental health providers. HPSA scores are given using several criteria such as population-to-clinician ratios. The three HPSA scores for Mitchell County are high (Mental Health: 15; Primary Care: 17; and Dental Health: 16). This shows that the majority of Mitchell County residents are medically underserved.

Number of Active Health Professionals per 10,000 Population Ratios

2014	Physicians	Primary Care Physicians	Dentists	Registered Nurses	Pharmacists
Mitchell	17.06	11.37	2.53	137.12	8.21
WNC	15.54	7.95	3.43	84.20	7.74
State Total	23.2	8.58	4.7	105.48	10.6

The chart above shows that Mitchell County has a higher ratio of active health professionals than the Western North Carolina region. Mitchell County also has a higher ratio of primary care physicians, registered nurses, and pharmacists than the state. Even though the ratios are higher, Mitchell County still qualifies as a Health Professional Shortage Area. Many residents of Mitchell County have barriers preventing them from accessing care such as finances, being un- or underinsured, lack or transportation, and various other impediments.



Results from the WNC Healthy Impact Data Collection show that 4.0% of Mitchell residents surveyed were unable to get needed medical care in the past year compared to 12.3% in the WNC region. This is a decrease from the 2015 survey when 7.7% of respondents said they were unable to get needed medical care.

At Risk Populations

At-risk populations in Mitchell County include minorities, un- and under-insured low-income residents, and those with unhealthy behaviors or activities.

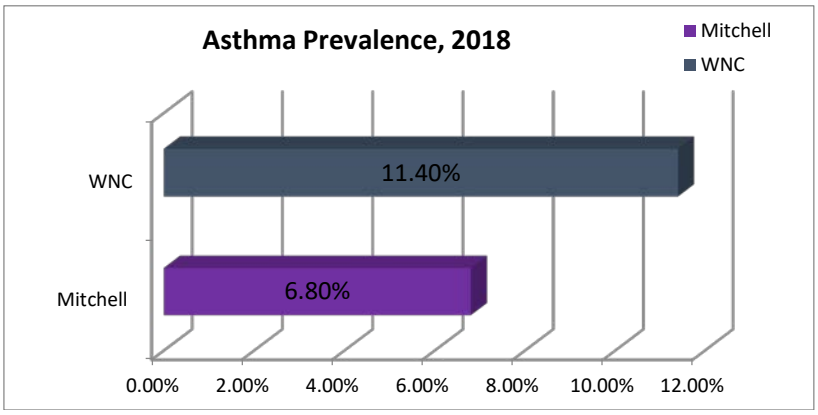
At-risk population	Health Condition/ Consequences
Minorities	Diabetes, Substance Abuse, Cancer, Heart Disease
Un-and under-insured	Poor quality of healthcare, lower rates of preventative care, premature death, uncontrolled chronic disease, lower rates of early stage diagnosis
Low-income	Premature death, poor nutrition, inadequate preventative care, poor access to medical care, increased death from injuries
Residents who smoke	Cancer, COPD, Stroke
Residents who abuse substances	Overdose, Death
Residents who are obese/ overweight	Diabetes, Heart Disease, Hypertension, Stroke, Cancer
Residents who do not get enough Physical Activity	Obesity Overweight, Heart Disease, Cancer
Residents with poor nutrition	Obesity, Overweight
Elderly	Falls and other accidents

CHAPTER 6 – PHYSICAL ENVIRONMENT

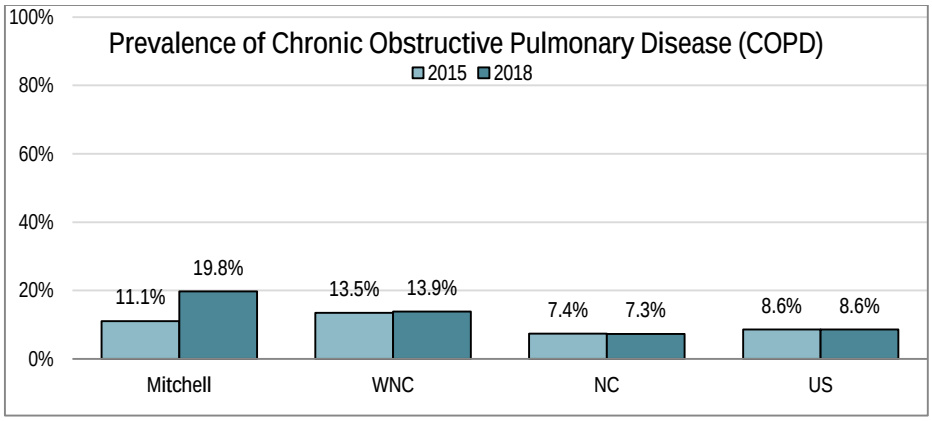
Air & Water Quality

"Clean air and safe water are prerequisites for health. Poor air or water quality can be particularly detrimental to vulnerable populations such as the very young, the elderly, and those with chronic health conditions. Clean air and water support healthy brain and body function, growth, and development. Air pollutants such as fine particulate matter, ground-level ozone, sulfur oxides, nitrogen oxides, carbon monoxide, and greenhouse gases can harm our health and the environment. Excess nitrogen and phosphorus run-off, medicines, chemicals, lead, and pesticides in water also pose threats to well-being and quality of life" (County Health Rankings, 2018).

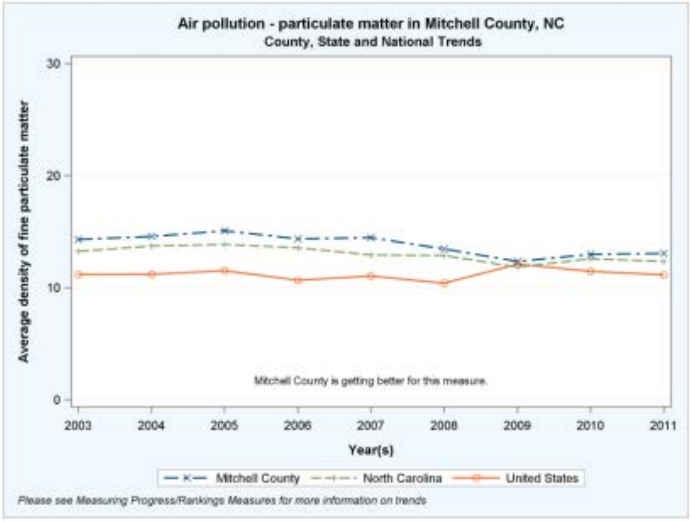
As displayed in the graphs to the left, the prevalence of asthma in Mitchell County in 2015 was 6.8%. This is lower than the prevalence in Western North Carolina (11.40%).



The 2018 prevalence of Chronic Obstructive Pulmonary Disease (COPD) was 19.8% in Mitchell County. This is higher than the prevalence in Western North Carolina (13.9%), and higher than the prevalence in the state of North Carolina (7.3%). Issues related to air quality contribute to cases of both asthma and COPD and worsen the symptoms of existing cases.



The average daily density of fine particulate matter in Mitchell County is 13.0 PM/2.5 compared to the overall average of 12.2 PM/2.5 in North Carolina (County Health Rankings, 2015). The mean has remained steady with a slight decrease in the past few years.



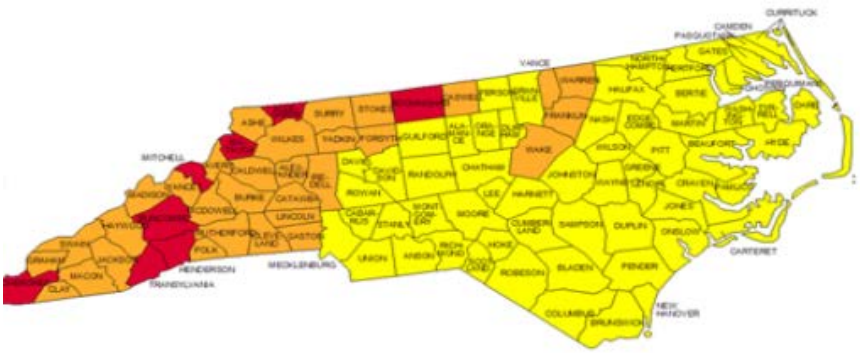
Toxic Chemical Releases

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, 2015).

The table below presents the 2012 TRI Summary for Mitchell County, which ranks 68th among the states 86 ranked counties. The TRI chemical released in the greatest quantity in Mitchell County was styrene, from BRP US, INC., in Spruce Pine. The second was lead, from US Gypsum Co. in Spruce Pine.

Total On- and Off-Site Disposal or Other Releases, In Pounds	County Rank (of 86 reporting) for Total Releases	Compounds Released in Greatest Quantity	Quantity Released, In Pounds	Releasing Facility	Facility Location
8,097	68	Styrene Lead	8,096 1	BRP US Inc US Gypsum Co.	Spruce Pine Spruce Pine

Radon is a colorless, odorless, radioactive gas that forms naturally from the decay of radioactive elements (American Cancer Society, 2015). According to EPA estimates, radon exposure is the number one cause of lung cancer among non-smokers. If a smoker is exposed to radon, their chance of getting lung cancer increases (EPA, 2015). The average indoor radon level in Mitchell County is 2.9 pCi/L, which is double the national average, but lower than the Western North Carolina arithmetic mean (4.1 pCi/L). The EPA's recommended action level for radon exposure is greater than 4 pCI/L.



Source: NC Radon Information
Key: Yellow- < 2pCi/L
Orange between 2 and 4 PCi/L
Red- >4 pCi/L

Water

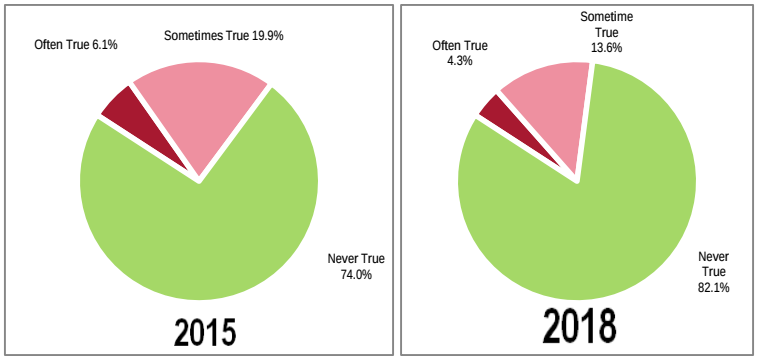
Water is a fundamental human need and clean water is vital to human health. Access to clean water is crucial to not only our health, but our community and economy as well. In 2014, 5,739 (36.8%) of Mitchell County citizens were served by community water systems with no contaminate violations as compared to 54.9% of citizens in Western North Carolina. Many people in Mitchell County access their water from wells or springs.

Access to Healthy Food & Places

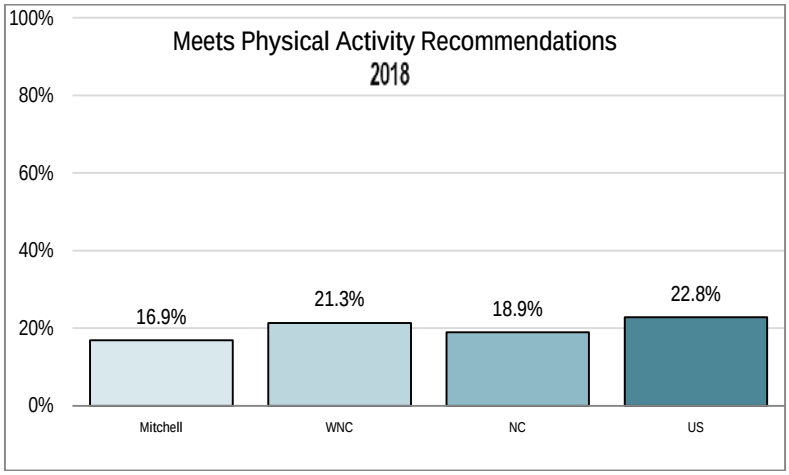
"Food security exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life" (Food and Agriculture Organization, 2006). "The environments where we live, learn, work, and play affect our access to healthy food and opportunities for physical activity which, along with genetic factors and personal choices, shape our health and our risk of being overweight and obese. As of 2013, 29 million Americans lived in a food desert, without access to affordable, healthy food. Those with lower education levels, already at-risk for poor health outcomes, frequently live in food deserts" (County Health Rankings, 2018).

Healthy diet and physical activity are necessary aspects of a person's overall health and well-being. Many diseases such as heart disease and diabetes are linked to poor food choices and inadequate physical activity. It is difficult for citizens to stay healthy if they do not have the physical or financial means to access places with healthy food choices and recreational facilities. There are two grocery stores and two farmer's markets that serve Mitchell County's 15,579 people. A lot of people live below the poverty line, have no vehicles, or have low access to grocery stores. In 2018 4.3% of individuals surveyed stated that it was often true for them to

have worried in the past year about food running out before having money to buy more. 13.6% stated that it was sometimes true for them to work about food running out before they had the money to buy more. Both of these rates were a decrease from 2015 where 6.1% said it was often true and 19.9% said it was sometimes true.



There is one recreational facility in Mitchell County. According to the results from the WNC Healthy Impact Data Collection, 16.9% of surveyed Mitchell County residents meet physical activity recommendation compared 21.3% in the Western North Carolina region and 18.9% in the state.



CHAPTER 7~ HEALTH RESOURCES

Health Resources

Process

To compile a Health Resource List, the CHA Work Team began by reviewing the Health Resource List developed during the 2015 CHA. Any outdated or incorrect information was edited and saved for future reference. The Team split the list into three categories:

- Health resources
- Supportive services
- Needed resources

Additionally, the CHA Facilitator met with the local community partners to compare our Health Resource List. Further additions and edits were made.

Finally, the CHA Facilitator compared all data gathered to the 2~1~1 dataset provided by WNC Healthy Impact. Further additions and edits were made and sent to the 2~1~1 coordinator so that the 2~1~1 online directory could be updated. In lieu of a printed directory, the CHA Work Team opted to focus on updating the 2~1~1 online directory for a number of reasons. The reasons are as follows:

- 2~1~1 is an easy to remember, three~digit telephone number that connects people with important community services to meet every day needs and the immediate needs of people in crisis.
- 2~1~1 is free, confidential, and available 24 hours a day.
- 2~1~1 can be accessed through the internet (www.nc211.org) or by calling 2~1~1 from any home, office or cell phone or the toll~free number of 1~888~892~1162.
- 2~1~1 can be updated in real~time, by sending updates to the 2~1~1 coordinator out of Asheville, NC.

Online/telephone directories such as 2~1~1 have an advantage over printed directories as they are accessible remotely, can be updated easily, and do not require printing costs.

Findings

In working with the 2015 Community Resource List and various community partners, the CHA Work Team updated the 2~1~1 Directory for Mitchell County. Resources available to our residents can be found by visiting www.nc211.org or by calling 2~1~1. During this updating process, much was found in terms of available health resources and supportive services.
To begin, Mitchell County has many health and supportive services in place for our children and older adults. One example would be our local Department of Social Services, which works

closely with all ages and demographics across the community, identifying their needs—whether they be housing-, insurance-, medical-, or else related—and assists the older adults in accessing these services.

Our community has access to many support groups (such as English as a Second Language, Weight Watchers, Abused Women Support Groups, etc.). Further, our community provides resources for those who are uninsured or under-insured (East Carolina University Dental Clinic, Bakersville Community Health Clinic (FQHC), Mission Hospital based Specialty Clinics held locally, and more). Finally, Mitchell County offers a plethora of county services to its residents (Health Department, Animal Shelter, Senior Center, Recreation Department, Department of Social Services, Emergency Management, and more).

Resource Gaps

Though many resources are available, there are gaps that need to be filled so that Mitchell County residents have adequate access to services. The following is a list of gaps identified through reviewing available resources, key stakeholder interviews, and listening sessions:

- **Affordable childcare:** High-quality, affordable childcare is a huge need in the community. Many parents have difficulty balancing work with childcare costs.
- **Affordable housing:** Few affordable housing options are available for residents, especially seniors.
- **Communication channels:** Living in a remote and isolated community, there needs to be more communication channels (newspapers, internet connectivity, radio stations, etc.).
- **Greenway system/sidewalks/fitness opportunities:** An extended, connected greenway would increase physical activity and active living opportunities for residents. Indoor and outdoor recreation facilities are in great need as well in order to increase physical activity among all ages and populations.
- **Healthy food options:** Healthy food options in the form of grocery stores, farm stands, etc. are needed to meet the needs of residents.
- **Medicaid expansion:** A large number of residents would benefit from Medicaid expansion.
- **Mental health services**: Services such as housing and treatment facilities would help those suffering from mental health issues. Helping our residents avoid incarceration or ED admittance is vital.
- **Access to health care (including specialty care):** Residents have difficulty accessing healthcare due to a lack of providers accepting new patients, financial constraints, and more. Further, many residents travel out of county for subspecialty care (neurology, endocrinology, etc.) Often, residents don't have the means to travel and go without care.
- **Food Security:** There are people in Mitchell County who do not have to imagine or try to understand what it feels like to be without access to good food: this is their reality.
- **Free and Accessible Youth Programs:** Little opportunity exist for our children and youth in the community to keep them busy and steered away from boredom outside of school; to push down every day struggles of life and avoid addictive and destructive behavior. Our children need the community to provide more safe places, enjoyable opportunities, and resourceful services.

CHAPTER 8 – IDENTIFICATION OF HEALTH PRIORITIES

Health Priority Identification

Process

Every three years we pause our work to improve community health so that we may step back and take a fresh look at all of the current data from our county that reflects the health of our community. We then use this information to help us assess how well we're doing, and what actions we need to take moving forward.

Beginning in 2018, our team spent time understanding the data and uncovering what issues were affecting the most people in our community. We also interviewed community leaders to find out what they're most concerned about. To identify the significant health issues in our community, our key partners (see a full list in the Executive Summary) reviewed data and discussed the facts and circumstances of our community.

We used the following criteria to identify significant health issues:

- Data reflects a concerning trend related to size or severity
- Significant disparities exist
- Issue surfaced as a high community concern
- County data deviates notably from the region, state or benchmark

Once our team made sense of the data, we presented key health issues to a wide range of partners and community members. The participants used the information we presented to score each issue, and then vote for their top areas of concern. Some of the factors they considered were how much the issue impacts our community, how relevant the issue is to multiple health concerns, and how feasible it is for our community to make progress on this issue.

This process, often called health issue prioritization, is an opportunity for various community stakeholders, such as Blue Ridge Regional Hospital and Mitchell County Health Department to agree on which health issues and results we can all contribute to, which increases the likelihood that we'll make a difference in the lives of people in our community.

Identified Issues

During the above process, the Mitchell Community Health Partnership identified the following health issues or indicators:

- *Chronic Disease*: The rates of chronic diseases are elevated in Mitchell County. Heart disease, respiratory disease, Alzheimer's, and hypertension are all diseases that impact many residents in the county. There is also a high prevalence of risk factors that lead to chronic disease in Mitchell County.

- *Cancer*: All types of cancer affect residents of various ages throughout the county and incidence of cancer is increasing.

- *Substance Abuse*: Our community is experiencing high prescription and recreational drug use as well as alcohol use. This leads to unhealthy behaviors and lifestyle choices that could result in higher rates of chronic disease and mortality in our community.

- *Health Behavior/ Lifestyles*: Many unhealthy behaviors and lifestyle choices such as obesity, poor nutrition, physical inactivity and tobacco use are leading to diseases and increasing morbidity and mortality rates.

- *Access to Healthcare*: Many residents are un- or underinsured, which makes it difficult to get the healthcare they need, especially regular check-ups and preventative care. Many also lack the transportation needed to get medical care.

- *Mental Health*: Availability of mental health services in sparse in Mitchell County. Elevated rates of substance abuse in the community make it necessary for mental health services to be readily available and easy to access without stigma.

- *Positive Activities for Youth/ Teenagers*: Mitchell County lacks a sufficient source of positive activities for youth and teenagers to participate in after school or on the weekends.

- *Social Determinants of Health*: Social aspects play a huge role in healthy citizens. Employment, poverty, education, income, and lack of resources are all issues in Mitchell County that need improvement in order to improve the health of its citizens.

- *Availability of Employment*: Mitchell County has a lack of job opportunities for the citizens that reside in here.

- *Maternal and Infant Health*: It is important that expectant mothers exhibit good nutrition and a healthy lifestyle and that should continue for the mother and infant after birth. Our community needs to improve on providing support for expectant mothers and infants. The teen pregnancy rate in Mitchell County is an issue with the rate being higher than WNC and NC.

- *Sexually Transmitted Disease/ Unintended Pregnancy:* Mitchell County has a high rate of STD transmission and unintended pregnancy among the community.

- *Injury and Violence:* Mitchell County's stakeholders want to lower the rate of injury and violence.

Priority Health Issue Identification

Process
During our group process, the following criteria were applied to the issues listed above to select priority health issues of focus for our community over the next three years:

- Criteria 1 – **Relevant** – How important is this issue? *(Urgency to solve problem; community concern; Focus on equity; Linked to other important issues)*
  - Size of the problem (number of population affected)
  - Community concern

- Criteria 2 – **Impactful** – What will we get out of addressing this issue? *(Availability of solutions/proven strategies; Builds on or enhances current work; Significant consequences of not addressing issue now)*
  - *Groups of people affected (are all people affected? Specific groups?)*
  - *Urgency to solve the problem*

- Criteria 3 – **Feasible** – Can we adequately address this issue?
  - *Availability of resources (staff, community partners, time, money, equipment) to address the issue; Political capacity/will; Community/social acceptability; Appropriate socio-culturally; Can identify easy, short-term wins)*
  - *Availability of solutions/proven strategies*
  - *Support system*
  - *Ethical*
  - *Political capacity/will*

Members from the CHA team reviewed data from the top ten identified health issues during a community meeting. They ranked those health issues based on the above criteria (magnitude, seriousness, feasibility) and voted anonymously on which issues should be a top priority.

Identified Priorities
The following priority health issues are the final community-wide priorities for our county that were selected through the process described above:

- **Substance Abuse and Increasing Availability/ Access of Mental Health-**Substance abuse has been an ongoing issue in Mitchell County for quite some time. Substance abuse prevention and increasing availability/ access of mental health services was listed as a health priority in the 2015, 2013, and the 2009 CHA's. Although there has been great progress, the CHA committee believes that continuous and expanded efforts need to be made to lower the rates of illicit drug use, prescription drug abuse, and increase availability and access of mental health services.

- **Healthy Living Behaviors/ Lifestyles and Chronic Disease Prevention-** Preventative health measures are extremely important for individual health and community health. Preventative health care measures stop some chronic diseases and reduce healthcare spending costs for the community. Primary prevention is the most effective type of prevention. Health living behaviors and lifestyles was a health priority of the 2015 and 2013 CHA. Mitchell County has a high prevalence of heart disease, respiratory disease, cancer, and other chronic diseases.

- Access to Healthcare/Social Determinants~ Social determinants of health are conditions in the environment in which people are born, live, learn, work, play, worship, and age that affect a wide range of health, functioning, and quality-of-life outcomes and risks (Healthy People 2020). Mitchell County's employment rates, poverty levels, education, income, and lack of resources are all social aspects that can affect the health and wellness of its citizens. One addition to the third priority is the access to healthcare. This is of vital importance because Mitchell County as a whole has low access to healthcare and being able to provide this to the community will help their health in multiple ways.

PRIORITY ISSUE #1:

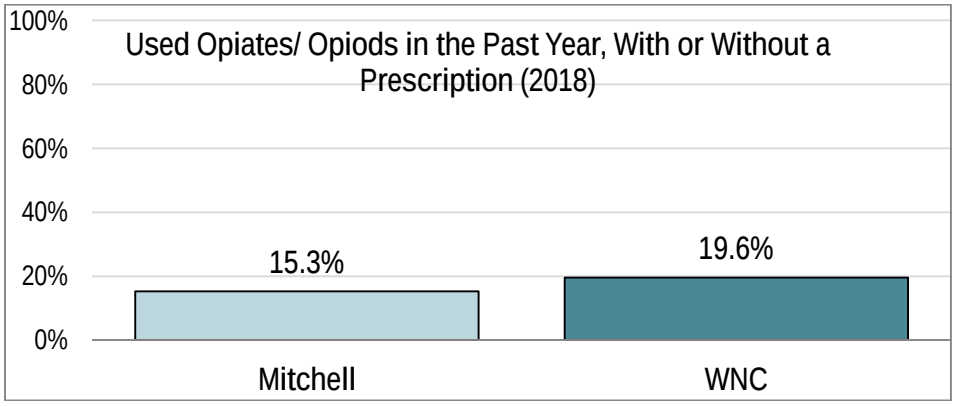
Substance Abuse and Increasing Availability/ Access of Mental Health

Substance abuse prevention and increasing availability/access to mental health services is an ongoing issue in Mitchell County. It was identified as a top health priority in both the 2009, 2013, and 2015 CHA. Substance abuse can include a number of substances, including alcohol, prescription drugs, and illicit drugs. Mitchell County has had annual Drug-Take Back Days and has drug drop-boxes placed throughout the county. The Mitchell County Health Department also got new drug drop boxes placed in their facility. There is also a part-time Substance Abuse Coordinator for a two-county area (Mitchell and Yancey Counties). Improvement has been made on preventing substance abuse and increasing mental health services, but much more is to be done. This was chosen as a health priority due to the concern about abuse of illegal drugs among residents and misuse of prescription drugs among teens and adults as well as increased alcohol abuse. Mitchell County's Substance Abuse Task Force has continued to seek out opportunities in every way to help this county lower its drug abusing population.

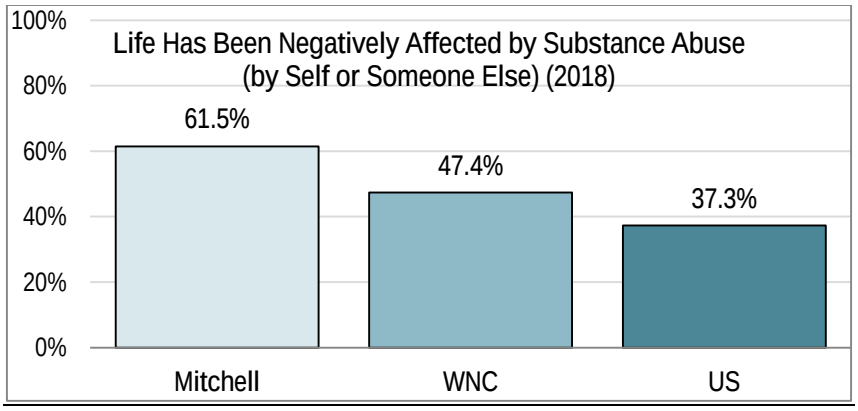
What Do the Numbers Say?

Health Indicators

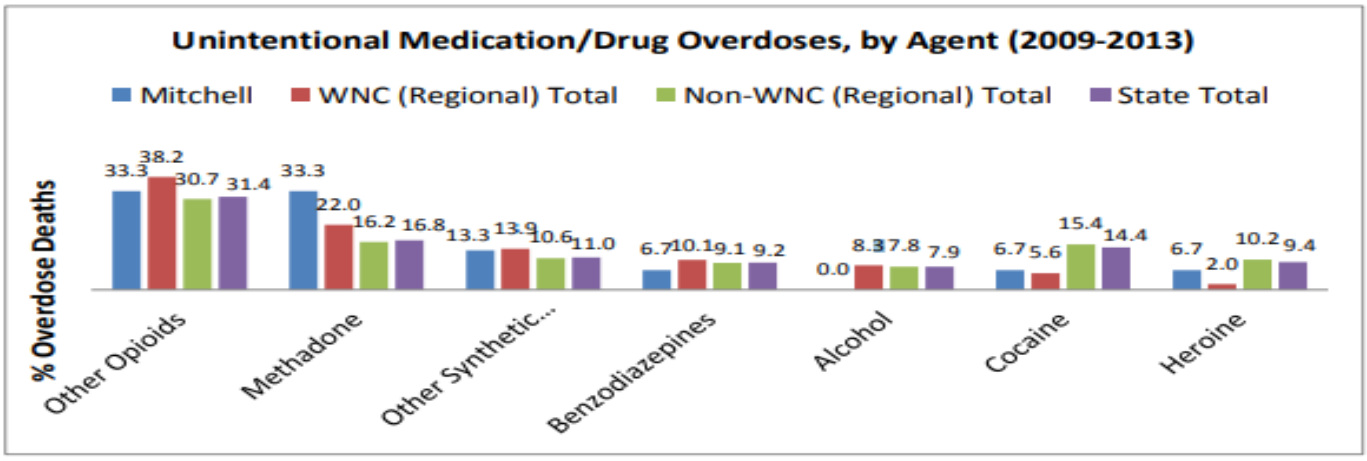
When asked if they have used opioids in the past year with or without a prescription 15.3% of Mitchell County residents said that they had. This is compared to 19.6% of the Western North Carolina Rate. This is clearly an important issue regarding the use of opioids in our community, because with 15.3% of the population using with or without a prescription this shows how imbedded opioids are in Mitchell County.



61.5% of Mitchell County residents stated that their life has been negatively affected by Substance Abuse in some way. This is problematic as the drug problem has lowered the quality of life around the county and the citizens that live in it. This is compared to 47.4% of Western North Carolina and 37.3% in the United States, obviously this is a problem as Mitchell County's rates are much higher than that of the region and state.

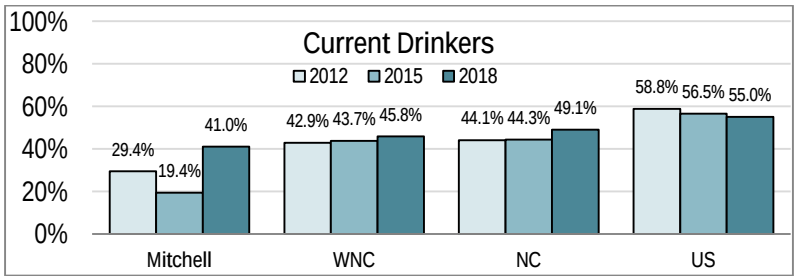


The rate of unintentional medication/drug overdoses is elevated in Mitchell County for many substances. The overdose rate for other opioids was 32% as compared to 38.2% in the WNC region and 31.4% in the state. The overdose rate for methadone was quite alarming at 33.3% as compared to 22% in the region and 16.8% in the state. The methadone overdose rate for Mitchell County is almost double the state rate. The overdose rate for other drugs such as other synthetics, benzodiazepine, alcohol, cocaine, and heroine are also worrisome for Mitchell County, but less than regional and state rates (Medication and Drug Poisoning 2009-2013).



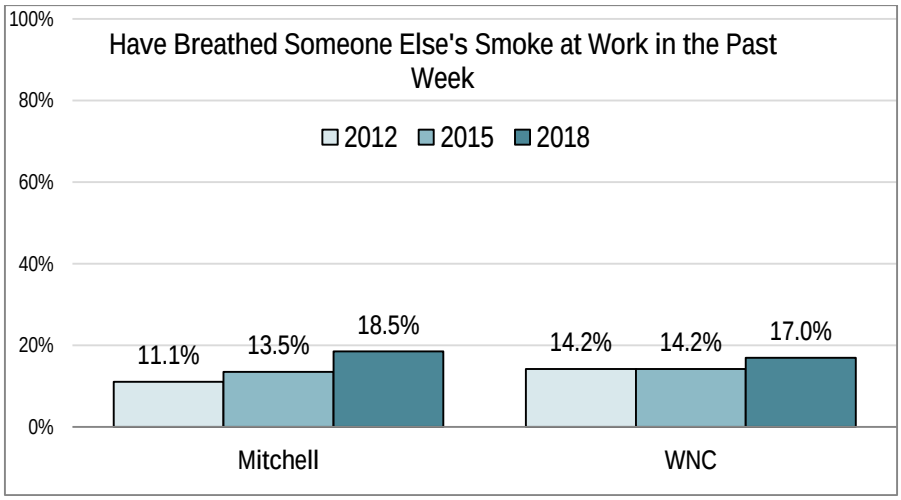
Source: Medication and Drug Poisoning.

The number of current drinkers has seen a massive rise from 2015 to 2018 from 19.4% to 41.0% in Mitchell County. This 2018 rate is lower than the region (45.8%), state (49.1%), and national (55.0%) rates. This is still a very concerning visual to see the rate in the county rise 21.6% from 2015 to 2018 even if it is lower than the rates surrounding the county.

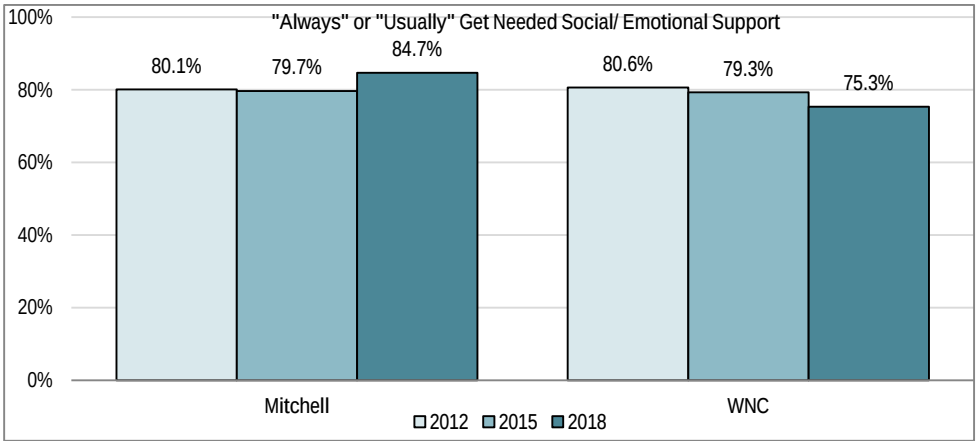


What Did the Community Say?

The community was surveyed and 18.5% stated that at some point during the day they breathe someone else's smoke at work. This is 1.5% higher than the regional rating of 17.0%.



When asked about social/emotional support, Mitchell County residents responded that 84.7% of them always or usually get social and emotional support. This has increased slightly since 2015 when 79.7%% responded that they always or usually get social/emotional support (WNC Healthy Impact Data Collection, 2015)



<u>Specific Populations At-Risk</u>

While all residents in Mitchell County can benefit from strategies that prevent substance abuse and improve access to mental health services young residents could benefit the most. Many young people think that prescription drugs are safer than illegal drugs because they are prescribed by a physician, dispensed by a pharmacist, and manufactured by pharmaceutical companies (SAMHSA 2015). According to results from the 2015 Youth Risk Behavior Survey conducted in Mitchell County schools, 128 of 294 (43.5%) respondents said they had drunk alcohol and 20.6% said they had tried marijuana, and 4.78% said they had taken a prescription drug without a doctor's permission. (YRBS 2015).

What is Already Happening?

- Some resources to address substance abuse and increase availability/access to mental health resources are already in place in our community. Yet there are opportunities to increase these resources to meet the needs of the population. A list of resources is as follows:

Organization:	Primary Focus or Function	Website or Contact Information
Project Lazarus	Believes that communities are ultimately responsible for their own health and that every drug overdose is preventable.	www.projectlazarus.org
Mitchell County Schools	Collaborates with families and community partners to provide a safe, caring, and engaging learning environment that prepares graduates to become responsible citizens in a diverse, global society.	www.mcsnc.org
Mitchell County Sheriff's Department	Protects citizens through crime.	www.mitchellcounty.org/department/sheriff.html
Bakersville Medical Clinic	Improve the health of every individual in the greater Mitchell County Community while providing this care in a culturally sensitive professional and compassionate manner with special emphasis on reaching the medically underserved population.	www.bakersvilleclinic.org
Blue Ridge Regional Hospital	Identify and respond to the health and wellness needs of the region, partnering with patients, families and friends through a comprehensive approach to healing that ministers the mind, body and spirit.	www.blueridgehospital.org
Partners Aligned Towards Health	Collaborating effort that involves, educates, and unites the community for the design and implementation of strategies that will improve the health of children now and in the future.	http://pathwnc.org/
Mitchell County DSS	Provides assistance and services to all eligible citizens of Mitchell County in a timely, efficient manner.	www.mitchellcounty.org/departments/socialservice.html
Local Pharmacies/ Pharmacist	Plays a key role in helping and assisting concerned citizens understand what can be done to create awareness and prevention in the community.	Mechelle Akers familyakers@hotmail.com
AMY Regional Library System	To help communities create and maintain a foundation for literacy,	www.amyregionallibrary.org

	economic development and democracy.	
Coalition/ Groups		
Mitchell- Yancey Substance Abuse Task Force	Provide facilitation of community assessment, public education and substance abuse treatment and prevention programs by coordinating various agencies, organizations and segments or our community.	http://pathwnc.org/programs/prevention
Mitchell Community Health Partnership	Functioning together to improve the health of people of Mitchell County by way of teamwork from citizens and agencies.	**Ronald and Libby McKinney ronmck@frontier.com**

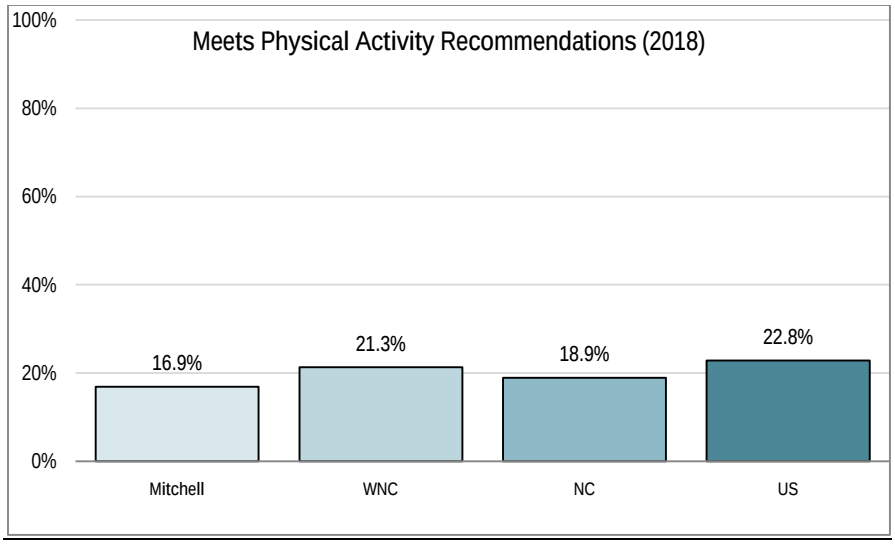
PRIORITY ISSUE #2:
Healthy Living Behaviors/ Lifestyles and Chronic Disease Prevention

Healthy living behaviors/lifestyles and chronic disease prevention go hand in hand. Healthy living behaviors/lifestyles was also a health priority in the 2015 CHA. It is important to adapt healthy behaviors and lifestyles to prevent diseases from occurring. Primary prevention is the most effective form of prevention. Mitchell County has a high prevalence and incidence of many chronic diseases such as heart disease, stroke, diabetes, respiratory diseases and cancer. It is important to combat these diseases to promote the health and well-being of the citizens of our County.

What Do the Numbers Say?

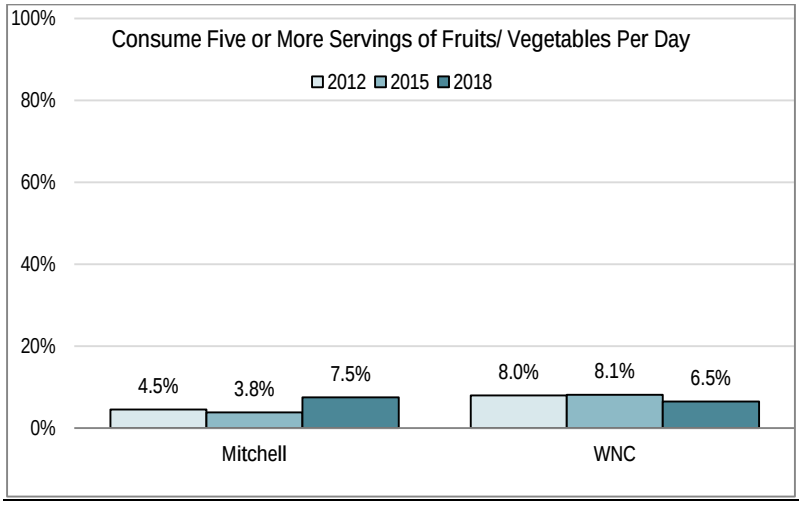
Health Indicators

According to the 2018 WNC Healthy Impact Data Collection, 16.9% of Mitchell County residents meet physical activity recommendations. This percentage is lower than the WNC region and the state (21.3%% and 18.9%% respectively). Mitchell County has seen a steep decline in physical activity recommendations; in 2015 47.5% stated they meet activity recommendations and in 2018 16.9% of Mitchell County stated they meet the recommendations, a 30.6% decline. When you are not physically active, you increase your chances of heart disease, type II diabetes, high blood pressure, high blood cholesterol, and stroke (USDA ChooseMyPlate, 2018).

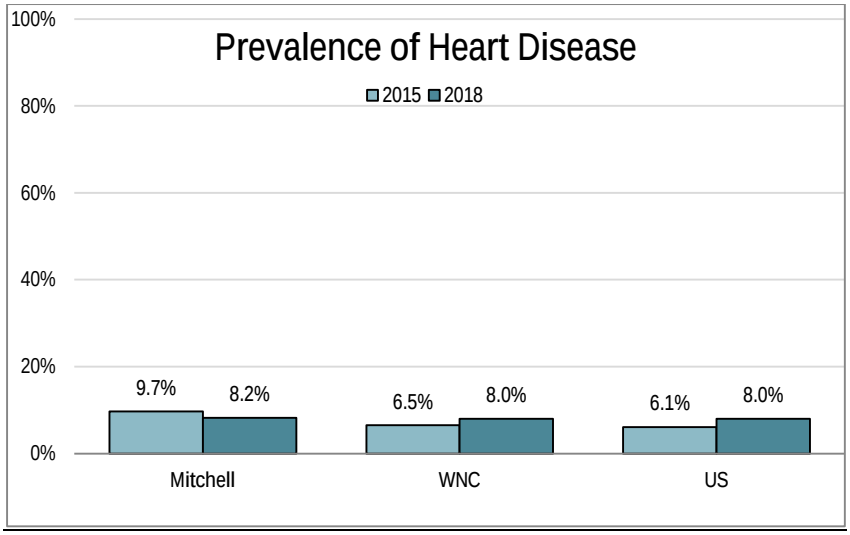


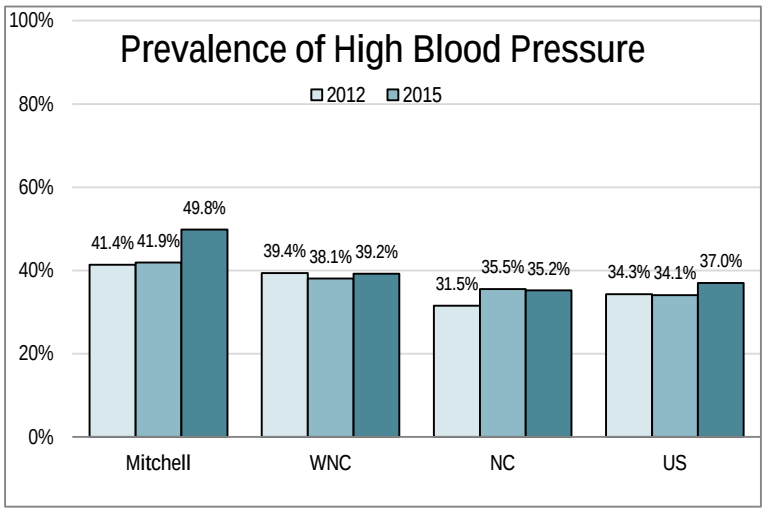
What Did the Community Say?

7.5% of Mitchell County residents stated that they consume five or more servings of fruits and vegetables per day. This is an increase from 3.8% in the year 2015. Mitchell County is 1% higher than the regional total that consumes five or more servings of fruits and vegetables per day. Obviously, eating healthy is of vital importance when discussing a healthy lifestyle and lowering the risk of high blood pressure, diabetes, and other chronic issues.



According to the 2018 WNC Healthy Impact Data Collection, the prevalence of heart disease (8.2%) is greater in Mitchell County than in WNC (8.0%) and the US (8.0%). Heart disease is the leading cause of death in Mitchell County. The percent of total deaths from heart disease is much greater in Mitchell County than the WNC region and the State. Mitchell County has seen a decrease of prevalence of heart disease from 9.7% in 2015 to 8.2% in 2018.

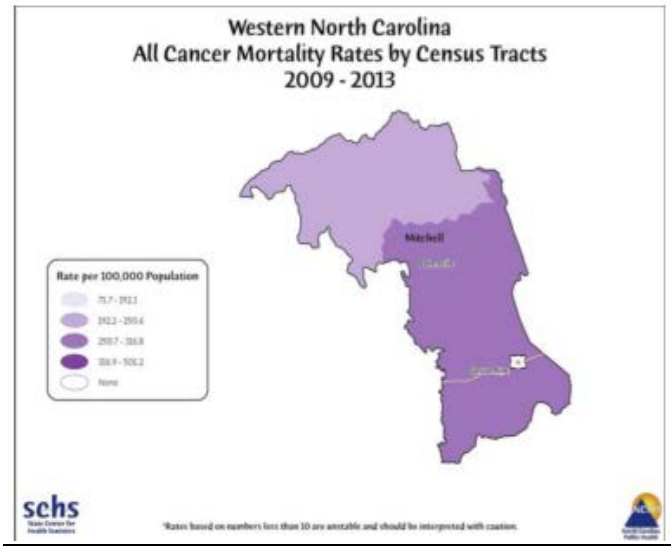


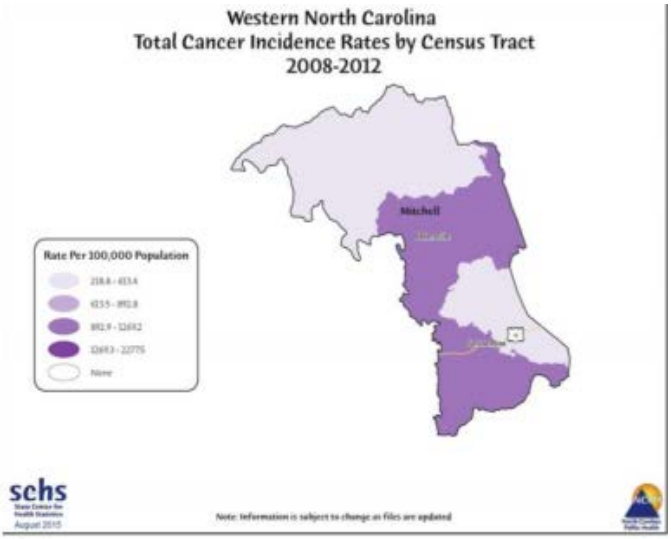


High blood pressure prevalence is also elevated in Mitchell County at 49.8% compared to 39.2% in WNC and 35.2% in NC. Mitchell County seen a 7.9% increase from 2015 (41.9%) to 2018 (49.8%). High blood pressure is a major risk factor for heart disease (2018 WNC Healthy Impact Data Collection).

Understanding the Issue

As shown in the figures below, cancer incidence and mortality rates differ throughout Mitchell County. The mortality rates are higher in the southern end of the county, including Bakersville and Spruce Pine. The cancer incidence rates in Mitchell County are higher near cities of a higher population, Bakersville and Spruce Pine. Though there is not cure for cancer, it is important to take measures to prevent it.





Specific Populations At-Risk

All residents in Mitchell County can benefit from strategies that focus on preventative health care measures. There are many risk behaviors such as inactivity, poor nutrition, and tobacco use that can cause a greater risk of chronic diseases. Other vulnerable populations may include low-income residents and the un- or under-insured. These residents have issues with accessing health care on a regular basis. They are the populations who may not get regular check-ups, screenings and vaccinations, all of which are crucial to preventing chronic diseases.

What is Already Happening?

Many resources to improve healthy living behaviors/lifestyles and chronic disease prevention are already in place in our community. Yet there are opportunities to increase these resources to meet the needs of the population. A list of resources is as follows:

Organization	Primary Focus or Function	Website or Contact Information
Mitchell County Health Department	Dedicated to protect and improve health conditions of people and maintaining a healthy environment in Mitchell County; enabling them to be healthy by working through an organized community effort focusing on: health promotion, disease prevention, education and awareness, access to and provision of care, and quality and value of life.	www.toeriverhealth.org
Mitchell County Schools	Collaborates with families and community partners to provide a safe, caring, and engaging learning environment that prepares graduates to become responsible citizens in a diverse, global society.	www.mcsnc.org
Mitchell County Cooperative Extension	Partner with community to deliver education and technology that enrich the lives, land and economy of Mitchell County Residents.	www.mitchell.ces.ncsu.edu
Blue Ridge Partnership for Children	Enhance the lives of children birth to five and their families, through collaborative efforts that provide expanded and continuing opportunities for optimal growth and development.	www.BlueRidgeChildren.org
Partners Aligned Towards Health	Collaborating effort that involves, educates, and unites the community for the design and implementation of strategies that will improve the health of children now and in the future. PATH implements an annual tennis camp at the local park; as well as coordinates a Youth-to-Youth initiative in the middle schools.	http://pathwnc.org/
Coalitions/ Groups:		
HOPE for Children	Support kid-friendly communities, active living, and healthy eating while promoting clinical and community supports to reduce chronic disease among families.	Lisa Pitman & Wendy Boone wendy.b.boone@dhhs.nc.gov lisa.pittman3@dhhs.nc.gov
Mitchell Community Health Partnership	Functioning together to improve the health of people of Mitchell County by way of teamwork from citizens and agencies.	Ronald and Libby McKinney ronmck@frontier.com

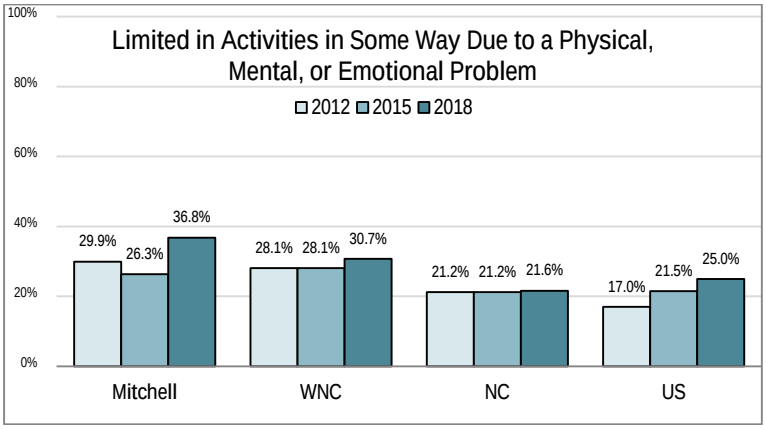
PRIORITY ISSUE #3:
Access to Healthcare/ Social Determinants

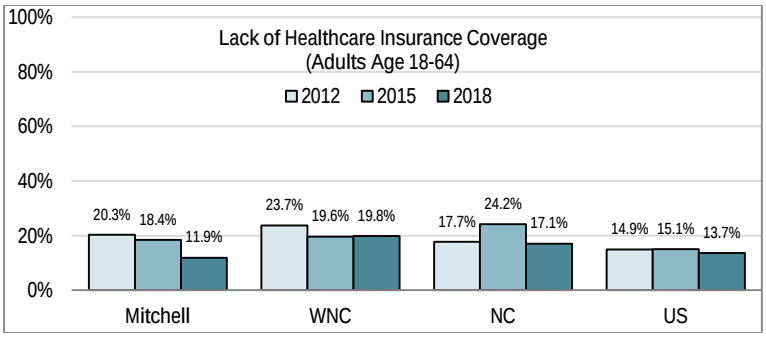
Health is not just physical; social aspects are involved as well. Access and assistance for low-income households to healthcare was a priority on the 2015 CHA with a focus on lack of healthcare, insurance, and everyday items to survive. Access to healthcare has now been a priority on the 2013, 2015, and 2018 Community Health Assessments with social determinants of health being added to the most recent. Employment rate, poverty level, amount of education and income, and lack of resources needed all play a role in the health status of citizens. Availability of resources to meet daily needs such as food and clean water are a necessity to not only surviving, but also having good health. It is also important for citizens to have education job opportunities in order to make livable wages to be able to afford healthcare, food, and transportation.

What Do the Numbers Say?

Health Indicators

When asked if they were limited in activities in some way due to a physical, mental, or emotional problem, 36.8% Mitchell County residents responded that they were. This is more than WNC (30.7%) and greater than NC (21.6%). Many citizens in Mitchell County are un- or under-insured. In the 2018 WNC Healthy Impact Data Collection, 11.9% of respondents in Mitchell County said that they lack healthcare insurance coverage. This is less than WNC (19.8%) and NC (17.1%), but still alarmingly high. The healthy people 2020 target is to have 0% of adults 18-64 lacking healthcare insurance coverage. It is difficult for residents to attain the medical care they need without health insurance (2018 WNC Healthy Impact Data Collection)

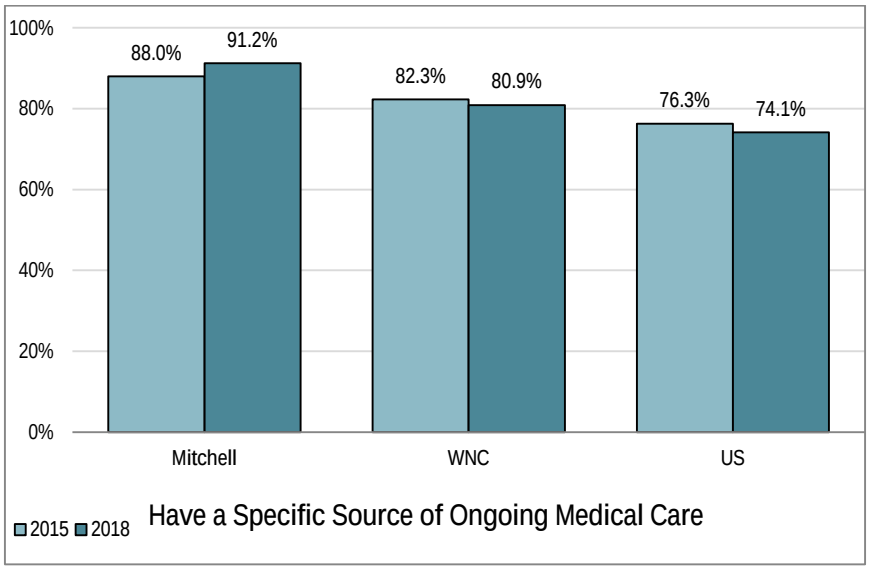


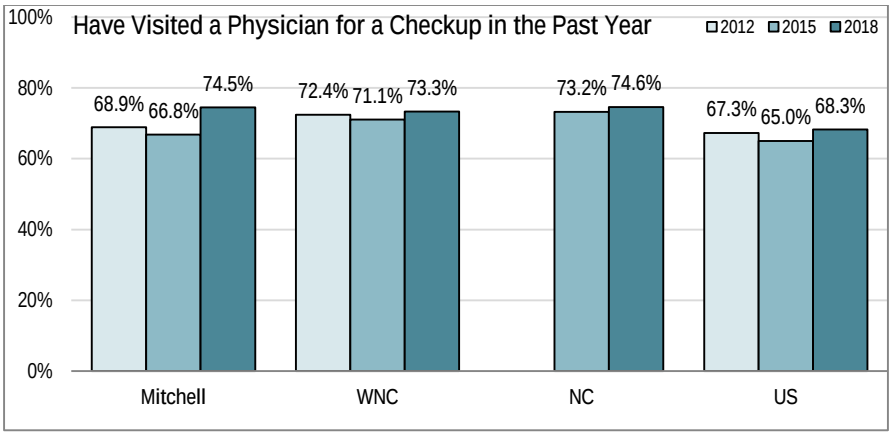


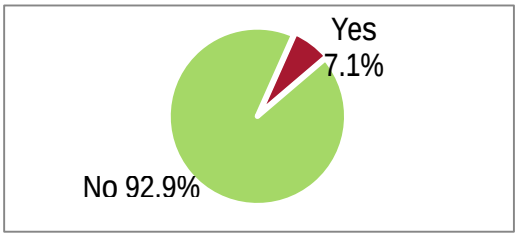
What Did the Community Say?

Understanding the Issue

Although many citizens of Mitchell County regular see a physician for regular, preventative visits, many do not. 91.2% of surveyed citizens in the county responded that they have a specific source of ongoing medical care. The Healthy People 2020 target is 95% or higher. Also, only 74.5% of Mitchell County citizens responded that they had visited a physician for a checkup in the past year. This is more than the percentage in both WNC (73.3%) and NC (74.6%). It is very important to maintain regular medical care to prevent chronic disease (2018 WNC Healthy Impact Data Collection).







Food insecurity affects many citizens of Mitchell County, especially those with no transportation, low-income residents, and the elderly. 7.1% of those surveyed in the WNC Healthy Impact Data Collection said that members of the household cut the size of meals or skipped meals because there wasn't enough money for food last year.

Specific Populations At-Risk

Although social determinants of health affect all residents, many subgroups are impacted in a more harmful way. Low-income and un- or under-insured residents often have a hard time with keeping up with regular visits to their physician or dentist. If they do not keep up with preventative screening and vaccines, it puts them at a higher risk for developing chronic diseases. Low-income and food insecure residents often have issues accessing places that provide healthy foods due to lack of funds or transportation issues.

What is Already Happening?

Many programs and resources social determinant of health are already in place in our community. Yet there are opportunities to increase these resources to meet the needs of the population. A list of resources is as follows:

Organizations	Primary Focus or Function	Website or Contact Information
Mitchell County DSS	Provides assistance and services to all eligible citizens of Mitchell County in a timely, efficient manner.	www.mitchellcounty.org/departments/socialservices.html
Mitchell County Health Department	Dedicated to protect and improve health conditions of people and maintaining a healthy environment in Mitchell County; enabling them to be healthy by working through an organized community effort focusing on: health promotion, disease	www.toeriverhealth.org

	prevention, education and awareness, access to and provision of care, and quality and value of life.	
Mitchell County Department of Transportation	Strives to provide easier mobility choices and to improve the economic well-being and quality of life for the community. The department strives to excel in providing safe, reliable, affordable, courteous public transit services that address the needs of Mitchell County Residents.	www.mitchellcounty.org /department/transportation.html
Men's Baptist Association (Faith Community)	Many churches sense a responsibility to reach out to the community at large outside their walls. Local churches integrate sharing faith and meeting social needs. Faith motivates and shapes their outreach, but the focus of their ministry is meeting social needs, not nurturing faith in others.	NA
Mitchell Senior Center (Meals on Wheels)	Faithful to assisting the older adults in Mitchell County to maintain their own home as long as possible; offering a variety of programs and services designed especially for the older adult.	www.mitchellcounty.org /departments/seniorcenter
Bakersville Medical Clinic	Improve the health of every individual in the greater Mitchell County Community while providing this care in a culturally sensitive professional and compassionate manner with special emphasis on reaching the medically underserved populations.	www.bakersvilleclinic.org
MY Health-E-Schools	Allows school nurses to contact ill students with health care providers. School-based health centers have been shown to improve attendance and reduce barriers to learning. MY Health-e-Schools increases	http://crhi.org/MY-Health-e-Schools/index.html

	classroom attendance for students and decrease time spent away from work for the parent or caregiver of the student.	
Shepard Staff	Provide temporary food and heating assistance to residents of Mitchell County who are in need.	www.mcshepardstaff.org
Food Distributions thru Food Pantries and Backpack Program (MANNA Food Bank)	Involving, educating, and uniting people in the work of ending hunger in Western North Carolina.	www.mannafoodbank.org
Intermountain Children Services (HeadStart)	Partner with local Smart Start Partnerships, braiding Smart funds to increase and maintain high quality comprehensive services for at-risk preschool children and their families.	www.headstartnc.org
Blue Ridge Partnership for Children	Enhance the lives of children birth to five and their families, through collaborative efforts that provide expanded and continuing opportunities for optimal growth and development.	www.BlueRidgeChildren.org
AMY Regional Library System	To help communities create and maintain a foundation for literacy, economic development and democracy.	www.amyregionallibrary.org
Coalition/ Groups:		
Mitchell County Community Garden	Serves as a healthy, inexpensive activity for youth that can bring them closer to nature, and allow them to interact with each other in a socially meaningful and physically productive way. Hopes are that through the opportunities given through working with the garden, people will take what they have learned and continue on to strive for creating access to fresh produce in their own communities.	Jeffery Vance Jeffrey_vance@ncsu.edu
Green Valley Community Garden	Community based, Christian outreach ministry located on	NA

	the county line between Mitchell and Avery Counties, serving Spruce Pine and Newland. The garden consists of a one-acre space and tended by community volunteers and a garden manager. The mission is to help hunger relief agencies and provide fresh fruits and veggies to our neighbors in need of food assistance. The garden also serves as an "outdoor classroom" for the community members and local school children to learn about and put into practice technique of sustainable agriculture.	

CHAPTER 9 ~ NEXT STEPS

Collaborative Planning

Collaborative planning with hospitals and other community partners will result in the creation of a community-wide plan that outlines what will be aligned, supported and/or implemented to address the priority health issues identified through this assessment process.

Sharing Findings

The final Community Health Assessment will be shared specifically with the following stakeholders:

- Present to the Toe River Health District Board of Health
- Present to the Mitchell County Board of Commissioners
- Present to the Mitchell Community Health Partnership
- Distribution to Mitchell County School Administration
- Distribution to doctors and nurses at Blue Ridge Regional Hospital
- Distribution to Mitchell County Senior Center
- Post on local radio station website www.wtoe.com
- Conduct a Public Services Announcement with the local radio station
- Publish on the monthly Health Page and posted on the local newspapers websites: www.mitchellnewsjournal.com and www.blueridgechristainnews.com
- Make available on local agency websites and local libraries in Spruce Pine and Bakersville

Where to Access this Report

Information here from your dissemination plan about where the report will be located, in person and online.

- WNC Health Network website
- www.toeriverhealth.org
- Local library

For More Information and to Get Involved

Visit www.toeriverhealth.org or contact Mitchell County Health Department at (828) 688-2371.

WORKS CITED

Primary Data:

- WNCHN – Online Key Informant Survey, 2018

- WNCHN – WNC Health Impact Community Health Survey, 2018

Secondary Data:

WNC Healthy Impact DATA WORKBOOK, 2018

Population Overview - 2010-2037, last updated October 2, 2017. Retrieved March 29, 2018, from North Carolina Office of State Budget and Management County/State Population Projections website: https://www.osbm.nc.gov/demog/county-projections

Selected Vital Statistics, Volume 1 - 2016. Retrieved March 29, 2018 from North Carolina State Center for Health Statistics (NC SCHS), North Carolina Vital Statistics website: http://www.schs.state.nc.us/data/vital/volume1/2016/

Educational Attainment: 2012-2016 American Community Survey 5-Year Estimates (S1501). Retrieved April 2, 2018 from U.S. Census Bureau American FactFinder website: http://factfinder2.census.gov

High School Dropout Counts and Rates, 2010-2011 through 2016-2017 (Table D5), from Consolidated Data Reports. Retrieved April 2, 2018, from Public Schools of North Carolina, Annual Dropout Reports website: http://www.ncpublicschools.org/research/dropout/reports/

Year Cohort Graduation Rate Report, 2012-2013 Entering 9th Graders Graduating in 2015-16 or Earlier - LEA Results. Retrieved April 2, 2018, from Public Schools of North Carolina, Cohort Graduation Rates website: http://www.ncpublicschools.org/accountability/reporting/cohortgradrate

Poverty Status in the Past 12 Months, 2012-2016 American Community Survey 5-Year Estimates (S1701). Retrieved April 3, 2018, from U.S. Census Bureau American FactFinder website: http://factfinder2.census.gov

America's Health Rankings, A Call to Action for Individuals and their Communities, 2012016 Annual Report. Retrieved June 20, 2017, from America's Health Rankings website: http://www.americashealthrankings.org/

County Health Rankings & Roadmaps, 2016. Retrieved April 14, 2016, from County Health Rankings and Roadmaps website. A collaboration between the Robert Wood Johnson Foundation and the University of Wisconsin Population Health Institute: http://www.countyhealthrankings.org/

2016 Pregnancy, Fertility, and Abortion Rates per 1,000 Population, Females Ages 15-44 by Race/Ethnicity, Perinatal Care Regions, and County of Residence. Retrieved June 21, 2018, from North Carolina State Center for Health Statistics (NC SCHS), Vital Statistics - North Carolina Reported Pregnancies website: https://schs.dph.ncdhhs.gov/data/vital/pregnancies/2016/

2012-2016 Race-Specific and Sex-Specific Age-Adjusted Death Rates by County (CD21B). Retrieved on June 22, 2018, from North Carolina State Center for Health Statistics (NC SCHS), 2018 County Health Data Book website: https://schs.dph.ncdhhs.gov/data/databook/

2012-2016 Death Counts and Crude Death Races per 100,000 Population for Leading Causes of Death, by Age Groups NC 2012-2016. Retrieved June 25, 2018, from North Carolina Center for Health Statistics (NC SCHS), 2018 County Health Data Book website: https://schs.dph.ncdhhs.gov/data/databook/

2012-2016 Race-Specific and Sex-Specific Age-Adjusted Death Rates by County (CD21B). Retrieved on June 25, 2018, from North Carolina State Center for Health Statistics (NC SCHS), 2018 County Health Data Book website: https://schs.dph.ncdhhs.gov/data/databook/

2012-2016 Cancer Mortality Rates per 100,000 Population Age-Adjusted to the 2000 US Census. Retrieved June 28, 2018, from North Carolina State Center for Health Statistics (NC SCHS), Central Cancer Registry. http://www.schs.state.nc.us/data/cancer/mortality_rates.htm

2012-2016 Race-Specific and Sex-Specific Age-Adjusted Death Rates by County (CD21B). Retrieved on June 25, 2018, from North Carolina State Center for Health Statistics (NC SCHS), 2018 County Health Data Book website: https://schs.dph.ncdhhs.gov/data/databook/

Secondary Data from Regional Core

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 data 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 Department of Health and Human Services; NC Office of State Budget and Management; NC Department of Commerce; Employment Security Commission of NC; UNC-CH Jordan Institute for Families; NC Department of Public Instruction; NC Department of Justice; NC Division of Medical Assistance; NC Department of Transportation; and the Cecil B. Sheps Center for Health Services Research. The WNC Healthy Impact data 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 data past a certain date; in most cases that end-point was August 2018.

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; the Centers for Disease Control and Prevention; National Center for Health Statistics; NC DPH Nutrition Services Branch; and NC DETECT.

Environmental data was gathered from sources including: US Environmental Protection Agency; US Department of Agriculture; and NC Department of Environment and Natural Resources.

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. The WNC regional comparison is used as "peer" for the purposes of this assessment. Where appropriate and available, trend data has been used to show changes in indicators over time.

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.

WNC Healthy Impact Survey (Primary Data)

Survey Methodology

The 2018 WNC Healthy Impact Community Health Survey was conducted from March to June. The purpose of the survey was to collect primary data to supplement the secondary core dataset, allow individual counties in the region to collect data on specific issues of concern, and hear from community members about their concerns and priorities. The survey was conducted throughout the entire WNC Healthy Impact region, which includes the following

16 counties: Buncombe, Cherokee, Clay, Graham, Haywood, Henderson, Jackson, Macon, Madison, McDowell, Mitchell, Polk, Rutherford, Swain, Transylvania and Yancey.

Professional Research Consultants, Inc. (PRC) designed and implemented the survey methodology, which included a combination of telephone (both landline and cell phone) interviews, as well as an online survey. The survey methodology was designed to achieve a representative sample of the regional population that would allow for stratification by certain demographic characteristics, while also maximizing data collection timeliness and efficiency. Survey sampling and implementation methodology is described in greater detail below.

Survey Instrument

The survey instrument was developed by WNC Healthy Impact's data workgroup, consulting team, and local partners, with assistance from PRC. Many of the questions were derived from the CDC Behavioral Risk Factor Surveillance System (BRFSS) and other validated public health surveys. Other questions were developed specifically by WNC Healthy Impact, with input from regional and local partners, 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 only of their county's residents.

Sampling Approach & Design

PRC designed the survey methodology to minimize sample bias and maximize representativeness by using best practice random-selection sampling techniques. They also used specific data analysis techniques, including post stratification, to further decrease sample bias and account for underrepresented groups or nonresponses in the population. Post stratification involves selecting demographic variables of interest within the population (here, gender, age, race, ethnicity, and poverty status) and then applying "weights" to the data to produce a sample which more closely matches the actual regional population for these characteristics. This technique preserves the integrity of each individual's responses while improving overall representativeness. In order to determine WNC regional estimates, county responses were weighted in proportion to the actual population distribution to appropriately represent Western North Carolina as a whole. Since the sample design and quality control procedures used in the data collection ensure that the sample is representative, the findings may be generalized to the region with a high degree of confidence.

Survey Administration

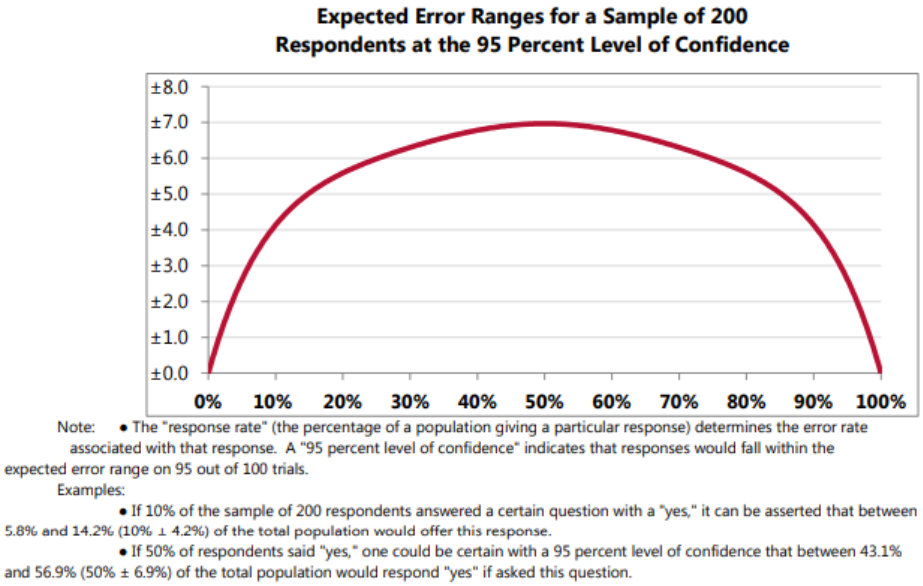
PRC piloted the survey through 30 interviews across the region and consulted with WNC Health Network staff to resolve substantive issues before full implementation. PRC used trained, live interviewers and an automated computer-aided telephone interviewing system to administer the survey region-wide. Survey interviews were conducted primarily during evening and weekend hours, with some daytime weekday attempts. Interviewers made up to five call attempts per telephone number. Interviews were conducted in either English or Spanish, as preferred by respondents. The final sample included 29 percent cell phone-based survey respondents and 71 percent landline-based survey respondents. Including cell phone numbers in the sampling algorithm allowed better representation of demographic segments that might otherwise be under sampled in a landline-only model.

PRC also worked with a third-party provider to identify and invite potential respondents for an online survey for a small proportion (20%) of the sample population. The online survey was identical to the telephone survey instrument and allowed better sampling of younger and more urban demographic segments.

About the Mitchell County Sample

Size: The total regional sample size was 3,265 individuals age 18 and older, with from our county. PRC conducted all analysis of the final, raw dataset. 2,602 surveys were completed via telephone (landline [71%] and cell phone [29%]); while 663 were completed online for Mitchell County specifically.

Sampling Error: For our county-level findings, the maximum error rate at the 95% confidence level is
Expected Error Ranges for a Sample of
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:

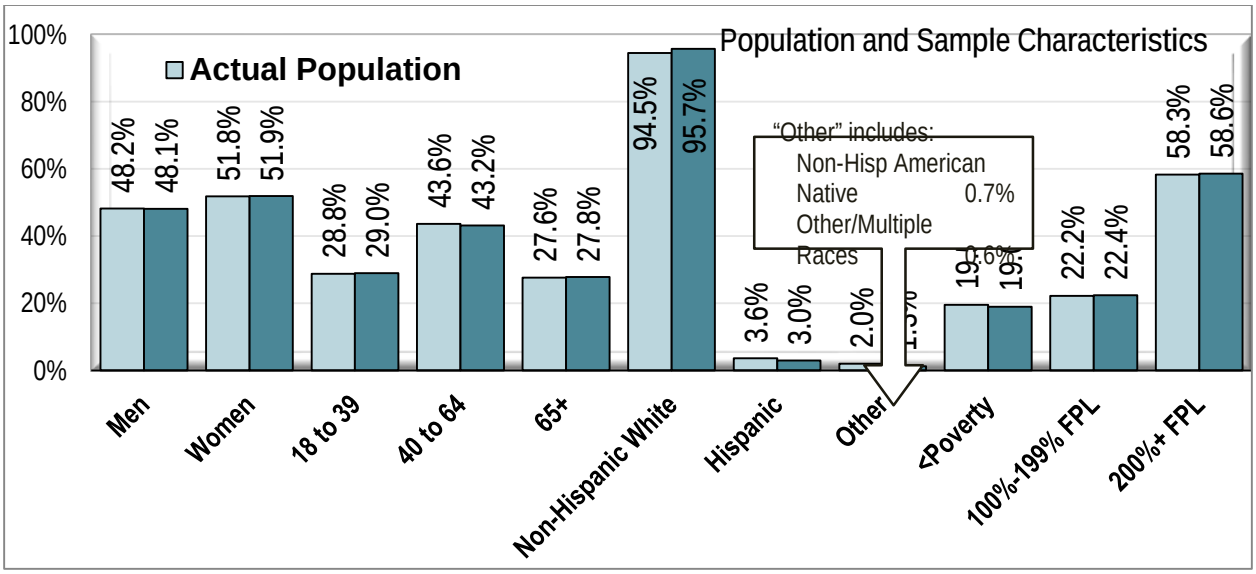
• If 10% of the sample of 200 respondents answered a certain question with a "yes," it can be asserted that between 5.8% and 14.2% (10% ± 4.2%) of the total population would offer this response.

• 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.

Examples:

- If 10% of a 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.

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



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 2017 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.

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.

Online Key Informant Survey (Primary Data)

Online Survey Methodology

Purpose and Survey Administration

WNC Healthy Impact, with support from PRC, implemented an Online Key Informant Survey to solicit input from local leaders and stakeholders who have a broad interest in the health of the community. WNC Healthy Impact shared with PRC a list of recommended participants, including those from our county. This list included names and contact information for physicians, public health representatives, other health professionals, social service providers, and a variety of other community leaders. Potential participants were chosen because of their ability to identify primary concerns of the populations with whom they work, as well as of the community overall.

Key informants were contacted through an email that introduced the purpose of the survey and provided a link to take the survey online. Reminder emails were sent as needed to increase participation.

Online Survey instrument

The survey provided respondents the opportunity to identify critical health issues in their community, the feasibility of collaborative efforts around health issues, and what is helping/hurting their community's ability to make progress on health issues.

Participation

In all, 19 community stakeholders took part in the Online Key Informant Survey for our county, as outlined below are the organizations that took place in helping us.

- Blue Ridge Partnership for Church
- Community Care of WNC
- Intermountain Children's Services
- Mitchell Cooperative Extension
- Mitchell County Transportation
- Mitchell County Commissioner
- Mitchell County DSS
- Mountain Community Health
- Mountain Community Health Clinics

- MY Healthy Families
- Partners Aligned Toward Health
- Pastor
- Toe River Health District
- VAYA Health
- Youth Pastor

Through this process, input was gathered from several individuals whose organizations work with low-income, minority populations, or other medically underserved populations.

Online Survey Limitations
The Online Key Informant Survey was designed to gather input from participants regarding their opinions and perceptions of the health of the residents in the area. Thus, these findings are based on perceptions, not facts.

To collect this data, purposive sampling (a type of non-probability sampling which targets a specific group of people) was used. Unlike the random sampling technique employed in the telephone survey, the purpose is not to make generalizations or statistical inferences from the sample to the entire population, but to gather in-depth insights into health issues from a group of individuals with a specific perspective.

Local Survey Data or Listening Sessions

Data Definitions
Reports of this type customarily employ a range of technical terms, some of which may be unfamiliar to many readers. 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 rates 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 sixteen 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.