Madison County Community Health Assessment

2021

Madison County Health Department

NCPH

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Madison Community Health Consortium

Collaboration

This document was developed by Madison County Health Department in partnership with Madison Community Health Consortium as part of a local community health assessment process. We would like to thank and acknowledge several agencies and individuals for their contributions and support in conducting this health assessment:

Name	Agency & Role	Duration & Role of Participant	Agency Website
Beth Honeycutt	Madison County Smart Start/Early Literacy coordinator	Ongoing/Prioritization Process	www.madisonss.org
Brea Kuykendall	Land of Sky Regional Council Area Agency on Aging	Ongoing/Prioritization Process	www.landofsky.org
Deana Stephens	Madison County Health Department/ Director of Community Health Programs	Ongoing/Community Health Assessment Co-Coordinator	www.madisoncountyhealth.org
Jennifer Angel	MCHD/WIC Director	Ongoing/Prioritization Process	www.madisoncountyhealth.org
Jodi Brazil	Madison County Health Department/ Director Madison Community Health Consortium	Ongoing/Community Health Assessment Co-Coordinator	www.madisoncountyhealth.org
Kaitlyn Orr	Madison County Health Department/ Pregnancy Care Manager	Fall 2021/Community Health Assessment Team	www.madisoncountyhealth.org
Kathy Price	Madison County Health Department /Administrative Office II	Fall 2021/Community Health Assessment Team	www.madisoncountyhealth.org
Kelly Payne	CRHI/Health-e-Schools	Ongoing/Prioritization Process	www.crhi.org
Lynn Bowles	Madison County Smart Start/Executive Director	Ongoing/Community Health Assessment Team	www.madisonss.org
Mark Van Tuyl	Vaya	Ongoing/Prioritization Process	www.vayahealth.com
Robin Wallin	Madison County Health Department/Director of Nursing	Fall 2021/Community Health Assessment Team	www.madisoncountyhealth.org
Stephanie McCullough	Community Housing Coalition of Madison County/Community Engagement Coordinator	Fall 2021/Community Health Assessment Team	www.chcmadisoncountync.org
Tammy Cody	MCHD, Health Director	Fall 2021/Community Health Assessment Team	www.madisoncountyhealth.org
Teresa Strom	Hot Springs Health Program, Director	Fall 2021/Community Health Assessment Team	www.hotspringshealth-nc.org
Tommy Jusus	Mars Hill Baptist Church	Fall 2021/Prioritization Process	www.marshillbc.org
Tonya Hensley	Madison Health-e-Schools, Health-e-Neighbors at Outland Family and Health-e-Corrections (Madison County jail) telehealth	Ongoing/Community Health Assessment Team	www.crhi.org
Trish Ward	CAO Head Start Nutritionist	Ongoing/Prioritization Process	www.communityactionopportunities.org

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Community Results Statement

Madison County residents are healthy and substance free.

Leadership for the Community Health Assessment Process

Name	Agency	Title	Agency Website
Deana Stephens	Madison County Health Department	Director of Community Health Programs	www.madisoncountyhealth.org
Jodi Brazil	Madison Community Health Consortium	Coordinator	www.madisoncountyhealth.org
Tammy Cody	Madison County Health Department	Health Director	www.madisoncountyhealth.org

Partnerships

Name	Agency	Title	Agency Website
Beth Vogler	Mars Hill University	Department Chair, Social Work	www.mhu.edu
Heather Sharp	Madison Substance Awareness Coalition	Director	www.madisoncountyhealth.org
Teresa Strom	Hot Springs Health Program	Executive Director	www.hotspringshealth-nc.org

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 stakeholders 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.

Collaborative Process Summary

Madison County's collaborative process is supported on a regional level by WNC Healthy Impact. Locally, the CHA team guides our process. This team reviews the data and provides input into health issues of concern. Data summaries for the identified health issues are then brought forth to the community, where health priorities are confirmed.

Phase 1 of the collaborative process began in January 2021 with the collection of community health

data. For more details on this process see Chapter 1 – Community Health Assessment Process.

Key Findings

The Community Health Assessment Coordinators with support from WNC Healthy Impact compiled a list of data filters to be used when viewing the data. While reviewing the data health indicators were scored and ranked based on size and severity while taking into consideration any disparities that might be noted. It was very apparent that the top ten health indicators could be grouped into four health issues of concern. Those issues were diabetes, healthy eating and healthy weight, mental health and substance use. Once the top issues of concern were determined a data summary document was created for each.

The Community Health Assessment (CHA) Team then reviewed each data summary independently and as a group virtually to fill in any information gaps. The CHA team was also instrumental in helping to shape the community prioritization meeting.

Community members met virtually in mid-November 2021. During this time background information regarding types of data collected, the review process, the Community Health Assessment Teams role was provided. Community members were able to review each data summary for the four health issues of concern and ask questions or provide input. Members then ranked the four health issues based on impactfulness and feasibility. The group then discussed benefits and downsides of combining the four issues into two health priorities, keeping capacity to address each issue in mind. Then members voted on how to structure the health priorities for the 2021 assessment.

For more details on this process see Chapter 1 – Community Health Assessment Process.

Health Priorities

Health Priority 1: Healthy Eating/Healthy Weight and Diabetes
Health Priority 2: Substance Use and Mental Health

Next Steps

CHA leadership, along with the Healthy Eating Active Living and Madison Substance Awareness teams, will work with community members to better understand the story and root causes behind our priority health issues. New and existing partners will be engaged to help to do better on these issues.

We will identify what works to do better through research on evidence-based strategies, observing what is working in other communities, and engaging priority populations. Strategies will be selected, as well as performance measures to ensure that residents are better off because of them.

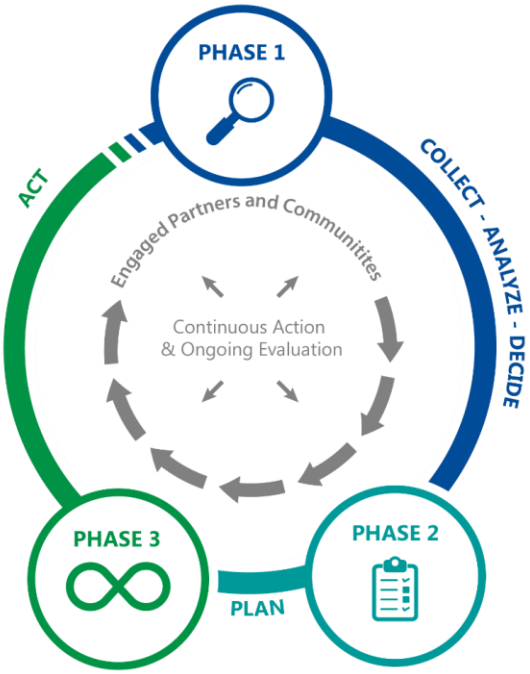
The Community Health Improvement plan will be developed as an electronic scorecard and published so that teams and the community at large can monitor progress.

Chapter 1- Community Health Assessment Process

Purpose

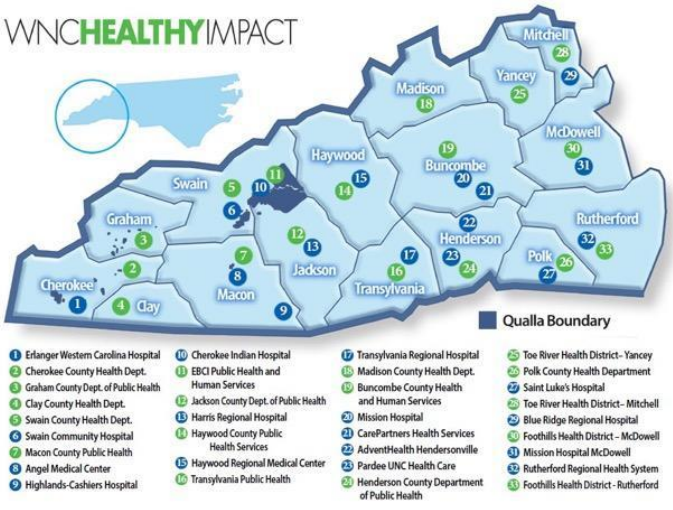
Community health assessment (CHA) is an important part of improving and promoting the health of county residents. A CHA results in a public report which describes the health indicators, status of the community, recent changes, and necessary changes to reach a community's desired health-related results.

Phases of the Community Health Improvement Process:



Definition of Community

Community is defined as "county" for the purposes of the North Carolina Community Health Assessment Process.



WNC Healthy Impact

WNC Healthy Impact is a partnership among local and regional hospitals, public health agencies, and key regional partners towards a vision of improved community health. The vision is achieved by developing collaborative plans, taking action, and evaluating progress. More information is at www.wnchn.org/wnchealthyimpact.

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 came from the WNC Healthy Impact regional data and local data. To ensure a comprehensive understanding, the dataset includes both secondary (existing) and primary (newly collected) data. 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 using Census and American Community Survey (ACS) data
- 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.

Additional Community-Level Data

In addition, the Madison Substance Awareness Coalition (MSAC) reviewed NC DETECT overdose data on a monthly basis. The Healthy Eating Active Living (HEAL) collected BMI data on all K-8 students in 2019. Data was not collected in 2020 due to COVID-19.

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. See **Chapter 6** 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

An overview of the CHA process was presented to Health Consortium members in November 2021. Data handouts were given to members and discussed in a virtual setting. A prioritization tool was used to rank each health issue on a scale of 1-4 based on impact, and feasibility. Members ranked each health issue and then voted.

The following health issues were selected by the membership:

1. Healthy Eating/Healthy Weight and Diabetes
2. Substance Use and Mental Health

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:

- Low income
- Literacy barriers
- Transportation issues
- Challenges accessing health care

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, or other barriers.

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.

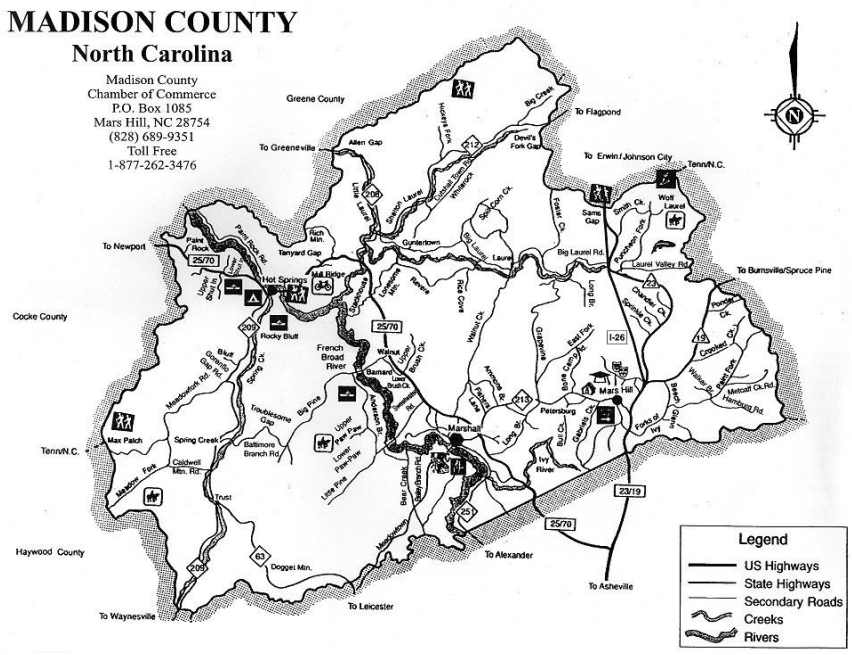
A vulnerable population is one that may be more susceptible than the general population to risk factors that lead to poor health outcomes. Vulnerable populations, a type of at-risk population, can be classified by such factors as discrimination/ prejudice based on race/ethnicity, socio-economic status,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

Health Department Self-Assessment Instrument (HDSAI) Interpretation Document v.7.0

Chapter 2 – Madison County

Location, Geography, and History of Madison County

Madison County offers 288,800 scenic acres of beautiful mountains and fertile valleys.



Nearly 73% of the county is forest land and nearly 25% of the county acreage is managed by the U.S. Forest Service. Madison, ranking 53 in size among North Carolina's 100 counties, is located 15 miles north of Asheville on the North Carolina/Tennessee border of the Smoky Mountains of Appalachia.

The terrain is steep to gently rolling, with elevations ranging from 1,280 feet to 5,516 feet, the lowest running along the French Broad River into Tennessee. The diverse topography of Madison County, with several peaks over 5,000 feet in elevation and the low French Broad River Valley, provides for spectacular scenic visits. More than 15,000 acres of the county are located in the Pisgah National Forest. The Appalachian Trail runs along much of the northern border of the county. With whitewater rafting, snow skiing, snow tubing, the Appalachian Trail, scenic byways and a hot natural mineral spring, Madison County is rich in outdoor recreational opportunities.

In addition to the natural beauty, Madison County is defined by its rural nature. There are a little more than 20,000 residents. Nine miles of Interstate 26 follows the eastern side of the county into Tennessee. This was the first stretch of interstate in North Carolina to be designated a scenic byway.

When the railroad lost ground to automobile transportation, Madison County settled back into isolation from the forces developing the rest of the United States. The state found it too expensive to build roads in the mountains until the early 1960s, when road building in Appalachia received greater priority. Recently, major road improvements were made along 18 several routes, including improvements on Highway 25-70 and the upgrading of U.S. Highway 23 to Interstate I-26. As Madison County changes, it is important to take into consideration the mountain traditions, culture, and environment in relation to healthcare delivery and access.

One healthcare challenge is the lack of a hospital in the county, although there is a private non-profit medical practice with four offices located throughout the county, which is a benefit.

Madison County has a single public school system that comprises three elementary schools, one middle school, a high school, and an early college. There are approximately 2,400 students in the school system.

Mars Hill University (MHU), a private Liberal Arts University, was founded in 1856. The university has reorganized into three schools: Education and Leadership; Business and Community Service; and Arts and Science. In 2015 the RN to BSN program was added with the traditional BSN program beginning in Fall 2016 and the first graduating class was Spring 2018. MHU and the Madison County Health Department have a strong relationship, with faculty and students working together on various public health projects. The Madison Campus of Asheville-Buncombe Technical Community College, located in Marshall, offers training in tailored trade and technical classes, and industrial training.

There are three municipalities located in the county: Mars Hill, Marshall, the county seat, and Hot Springs. Mars Hill is home to Mars Hill University, which is one of the few universities in the nation to have a competitive clogging team that offers scholarships. Thanks to the presence of the university, residents of the town and county enjoy a variety of cultural, intellectual and entertainment offerings than would usually be found in a town of its size. Mars Hill University was founded in 1856 and still sits on its original site. The university's name (which became the town's name) comes from "Mars' hill" mentioned in the Bible, in Acts 17:22.

The county seat of Marshall is experiencing a revitalization effort that has led to extensive renovations of old buildings and a greater appreciation for the uniqueness of its architecture. The Madison County Arts Council sponsors many programs and events throughout the year. Buildings that housed Marshall Elementary and Marshall High School, public schools that were erected on an island in the French Broad River, have been renovated for artists, their studios and galleries.

Hot Springs is the smallest town in the county. It is located in the Pisgah National Forest where the Appalachian Trail intersects with the French Broad River. Outdoor recreation is abundant in the area with activities such as rafting, kayaking, and backpacking. In addition, Hot Springs boasts the Hot Springs Resort and Spa, which is known for its natural, mineral-rich springs and offers private tubs for soaking.

Population

Understanding the growth patterns and age, gender, and racial/ethnic distribution of the population in Madison County are key to planning the allocation of health care resources for the county in both the near- and long- term.

The following is a snapshot of data that tells us about the demographics of Madison County. You can find more data (such as geographic mobility, voting trends, household language, etc.) by visiting WNC Health Network's data center at www.WNCHN.org.

General Population Characteristics
2019 American Community Survey Estimates

Area	Total Population (2019)	% Males	% Females	Median Age*	% Under 5 Years Old	% 5-19 Years Old	% 20 - 64 Years Old	% 65 Years and Older
Madison	21,499	49.0	51.0	44.0	4.7	17.4	56.1	22.8
WNC (Regional)	792,708	48.4	51.6	46.8	4.8	16.4	56.1	15.9
State	10,264,876	48.7	51.3	38.7	5.9	19.3	59.0	22.8

Source: ACS Demographic and Housing Estimates (DP05). 2019 ACS 5-year estimates. Retrieved on April 15, 2021, from U.S. Census Bureau, Explore Census Data website: https://data.census.gov/

The Madison County population has a slightly higher proportion of females than males. The median age (44 years) is 2.8 years "younger" than the WNC regional average, but 5.3 years "older" than the NC average. Madison County has lower proportions of "younger persons" and higher proportions of "older persons" than NC as a whole.

Madison County has significantly lower proportions of all minority racial and ethnic groups than the WNC region and NC as a whole.

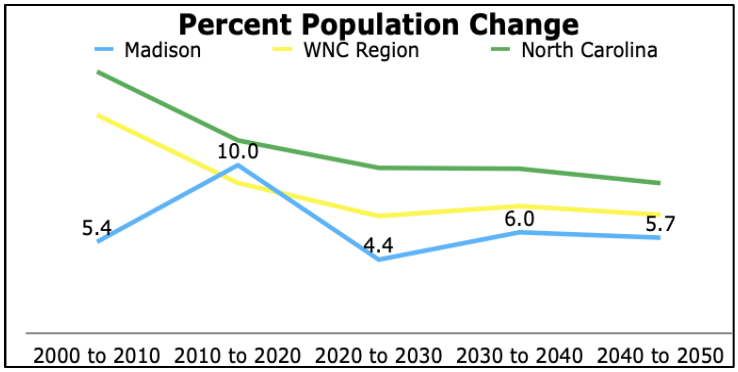
Population Distribution by Race/Ethnicity
2019 American Community Survey Estimates

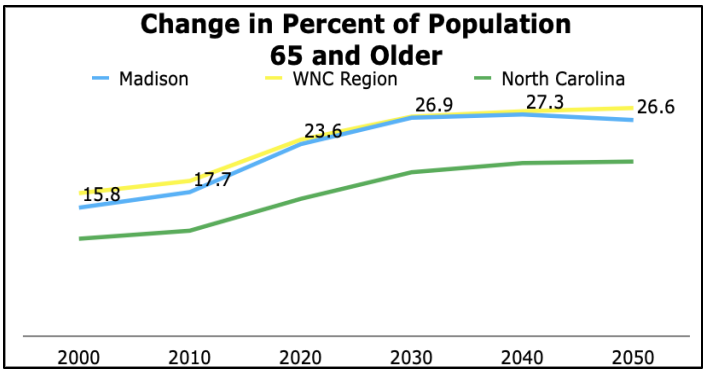
County	Total Population (2010)	% White	% Black or African American	% American Indian, Alaskan Native	% Asian	% Native Hawaiian, Other Pacific Islander	% Some Other Race	% Two or More Races	% Hispanic or Latino (of any race)
Madison	21,499	95.4	1.6	0.4	0.6	0.0	0.5	1.6	2.4
WNC (Regional) Total	792,708	90.0	4.3	1.5	0.9	0.1	1.4	1.9	6.1
State Total	10,264,876	68.7	21.4	1.2	2.9	0.1	3.1	2.7	9.4

Source: U.S. Census Bureau. (2021). *ACS Demographic and Housing Estimates: 2019 ACS 5-Year Estimates*. [Data tables]. Available from https://data.census.gov/

The modest rate of growth in Madison County is expected to slow over the next two decades, to a rate lower than the region and state.

Source: *Annual County Populations 2020-2029 and 2030-2030 and 2040-2050,* last updated February 18, 2021. Retrieved April 15, 2021, from North Carolina Office of State Budget and Management County/State Population Projections website: https://www.osbm.nc.gov/demog/county-projections



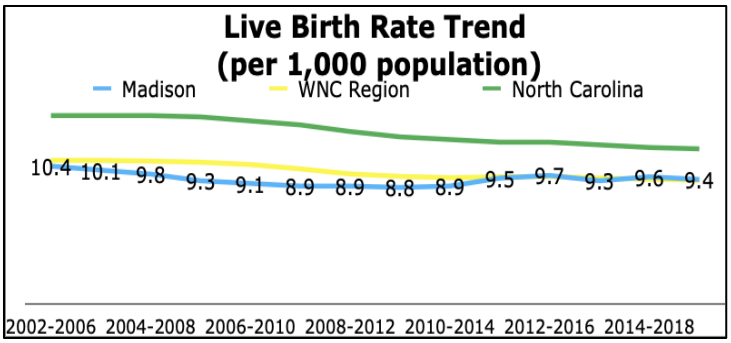


The "65 and older" population projection continues to trend higher in Madison and the WNC region than the state projections.

Source: North Carolina Office of State Budget and Management. (2021). *County/State Population Projections: Sex and Single Years of Age (2000-2050)*. [Data tables]. Available from https://www.osbm.nc.gov/demog/county-projections.

The live birth rate trend continues to be lower in Madison and the WNC region than the state.

Source: *Selected Vital Statistics, Volume 1 - 2019*. Retrieved July 20, 2021 from North Carolina State Center for Health Statistics (NC SCHS), North Carolina Vital Statistics website: https://schs.dph.ncdhhs.gov/data/vital/volume1/2019/



COVID-19 Pandemic

COVID-19 is an infectious disease caused by a virus (SARS-CoV-2). It affects different people in different ways. Some people do not have any symptoms, while others can have symptoms that range from mild to extremely severe leading to hospitalization or death. Even people who do not have symptoms initially can experience long-term complications. COVID-19 most often causes respiratory symptoms that feel like a cold or flu, but it can also harm other parts of the body (https://covid19.ncdhhs.gov/).

The local impact of the COVID-19 pandemic on the health of our community is still changing every day as we respond together to this unprecedented pandemic. In addition to the toll of the virus on the direct health of the community, it has also shifted resources and impacted our community's capacity to respond to existing health priorities. For example, **21.7% of Madison County survey respondents reported losing their job due to the pandemic, and 30.6% stated that they chose to go without needed medical care during the pandemic.** (Citation: WNC Health Network. (2021). *2021 WNC Healthy Impact Community Health Survey: Data Workbook.* [Data set]. Available from https://www.wnchn.org/wnc-data/regional-data/.)

For the latest information on how to keep our community safe from the virus, and the latest data regarding infection rates, hospitalizations, deaths, etc., please consult the North Carolina Department of Health and Human Services COVID-19 Dashboard: https://covid19.ncdhhs.gov/

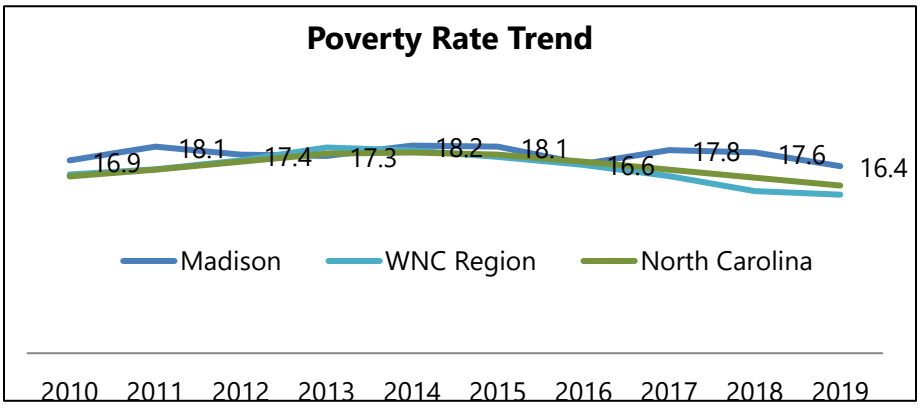
Chapter 3 – Social & Economic Factors

As described by Healthy People 2030, economic stability, education access and quality, healthcare access and quality, neighborhood and built environment, and social community and context are five important domains of social determinants of health. Social determinants of health (SDOH) are the conditions in the environments where 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. (Office of Disease Prevention and Health Promotion, 2020).

The following is a snapshot of data that tells us about the social and economic factors of Madison County. You can find more data (such as employment and wages by sector, etc.) by visiting WNC Health Network's data center at www.WNCHN.org.

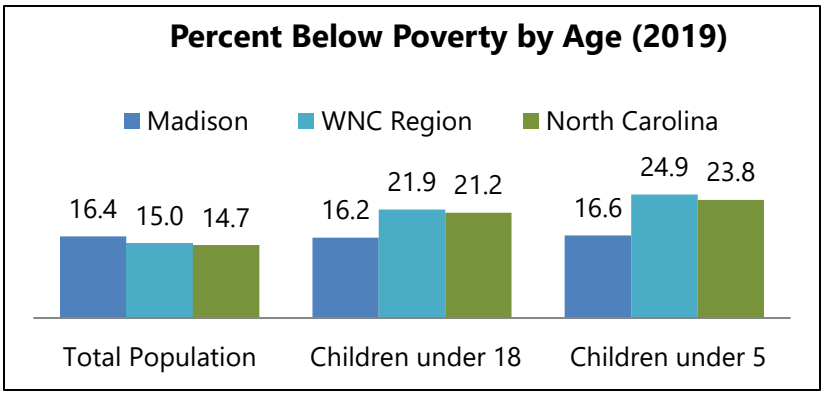
Income & Poverty

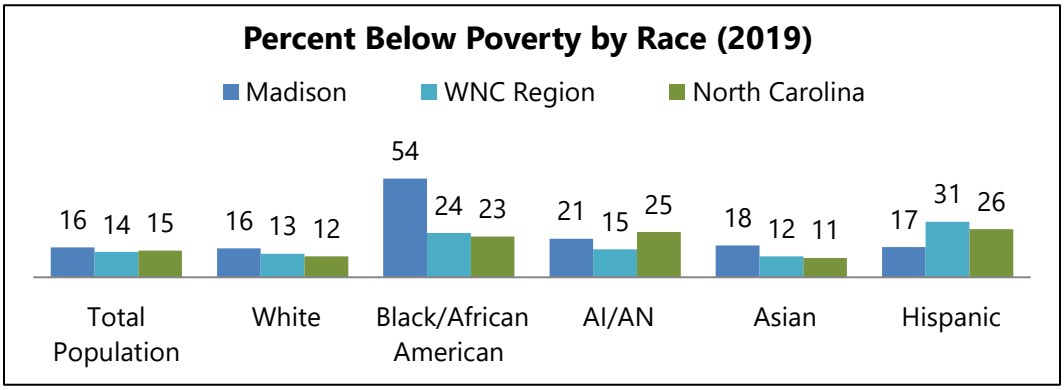
"Income provides economic resources that shape choices about housing, education, child care, food, medical care, and more. Wealth, the accumulation of savings and assets, helps cushion and protect us in times of economic distress. As income and wealth increase or decrease, so does health" (County Health Rankings, 2021).



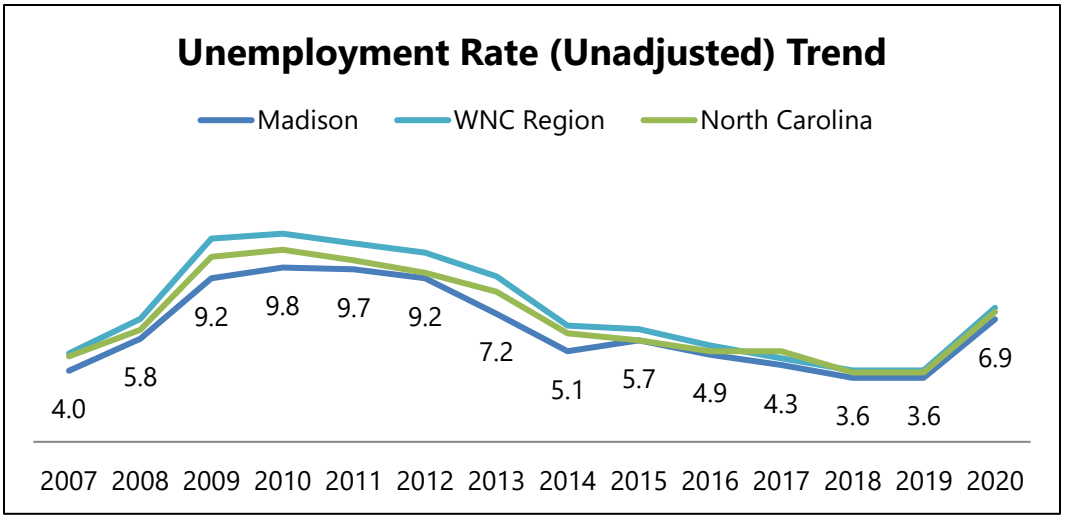
Poverty in Madison County is not evenly distributed, with children and African Americans experiencing greater burden.

Source: *Poverty Status in the Past 12 Months, 2015-2019 American Community Survey 5-Year Estimates (S1701)*. Retrieved April 28, 2021, from U.S. Census Bureau Explore Census Data website: http://census.data.gov





Employment



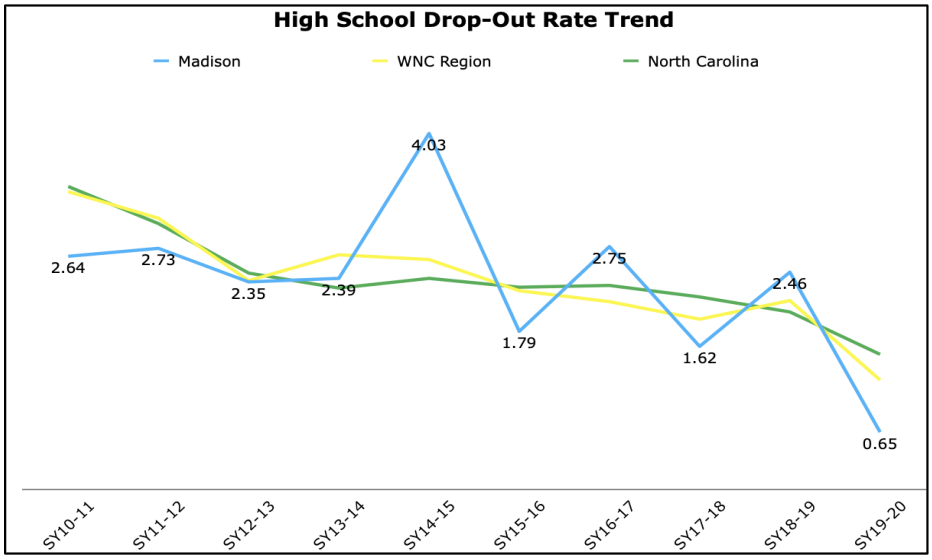
"Employment provides income and, often, benefits that can support healthy lifestyle choices. Unemployment and underemployment limit these choices, and negatively affect both quality of life and health overall. The economic condition of a community and an individual's level of educational attainment both play important roles in shaping employment opportunities" (County Health Rankings, 2021). Madison's unemployment rate is largely in line with the region and state in recent years.

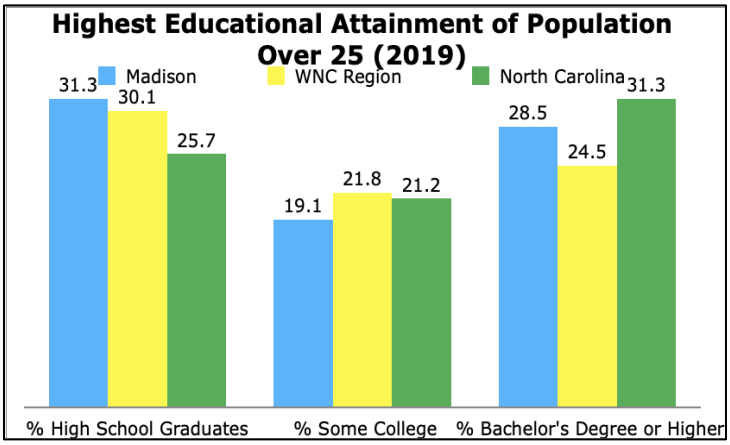
Source: *Local Area Unemployment Statistics (LAUS) - Unemployment Rate, 2020 and 2021. Retrieved May 21, 2021, from North Carolina Department of Commerce, Labor and Economic Analysis Division (LEAD), D4 - Demand Driven Data Delivery System website: http://d4.nccommerce.com/*

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, 2021).

The High School Drop-Out Rate Trend in Madison is trending downwards, similar to the region and state, with Madison students currently graduating at a higher rate than their regional and state peers.





Source: - *Educational Attainment: 2015-2019 American Community Survey 5-Year Estimates (S1501).* Retrieved April 27, 2021 from U.S. Census Bureau Explore Census Data website: http://census.data.gov

Racism and Discrimination

"Racism is an underlying or root cause of health inequities and leads to unfair outcomes between racial and ethnic groups. Different geographic areas and various racial and ethnic groups experience challenges or advantages that lead to stark differences in life expectancy, infant mortality, poverty, and more" (County Health Rankings, 2021).

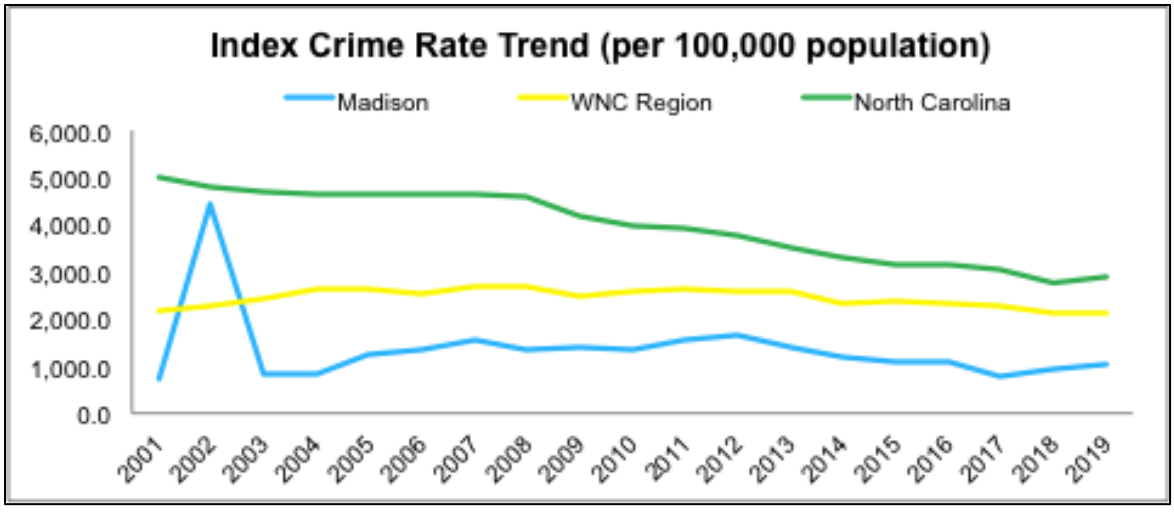
In a recent survey of western NC residents, 24.7% of Madison County respondents *disagreed* with the statement that "the Community is a Welcoming Place for People of All Races and Ethnicities" compared to 16.8% of the region on average disagreeing with the same statement. In the same survey, 7.4% of Madison respondents reported that they had been often or sometimes threatened or harassed due to their race/ethnicity.

Source: WNC Health Network. (2021). *2021 WNC Healthy Impact Community Health Survey: Data Workbook.* [Data set]. Available from https://www.wnchn.org/wnc-data/regional-data/.

Community Safety

"Injuries through accidents or violence are the third leading cause of death in the United States, and the leading cause for those between the ages of one and 44. Accidents and violence affect health and quality of life in the short and long-term, for those both directly and indirectly affected, and living in unsafe neighborhoods can impact health in a multitude of ways" (County Health Rankings, 2021).

Index crime is the sum of all violent and property crime. The index crime rate in Madison County was lowest among comparators throughout the period cited except for 2002. The property and violent crime rates in Madison County are consistently lower than the region and state.



Source: North Carolina Department of Justice. (2021). *State Bureau of Investigation: Crime Trends - Offenses and Rates per 100,000*. [Data tables]. Available from crimereporting.ncsbi.gov

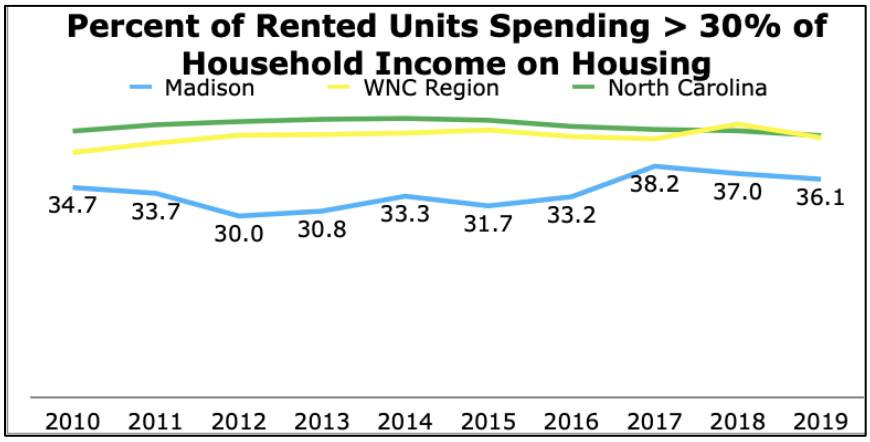
In FY2019-2020, 99 persons in Madison County were identified as victims of sexual assault, which is decreased from the previous time period. The single most frequently reported specific type of sexual assault by individuals in Madison County during this period was rape (42) followed by adult survivor of child sexual assault (16).

Regionally, the most frequently reported type was also rape followed by adult survivor of child sexual assault; statewide the most frequently reported type was rape followed by child sexual offense.

Statewide and region-wide the most commonly reported offender was an acquaintance or relative. In Madison the most common offender was a boy/girlfriend followed by a relative, similar to the previous time period. Source: North Carolina Department of Administration. (2021). *County Statistics - Sexual Assault: Statewide Statistics by Year*. [Data tables]. Available from https://ncadmin.nc.gov/about-doa/divisions/council-for-women.

Housing and Transportation

"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, 2021).
Source: U.S. Census Bureau. (2021). *Gross Rent as a Percentage of Household Income in the Past 12 Months: ACS 5-Year Estimates*. [Data tables]. Available from http://census.data.gov



In a recent survey of WNC residents, 28.1% of Madison respondents "Always/Usually/Sometimes Worried or Stressed About Paying Rent or Mortgage in the Past Year" compared to 26.7% of the region on average and 32.2% of national respondents. Also, 6.3% of Madison respondents reported "yes" to the question "Was there a time in the past 12 months when you did not have electricity, water, or heating in your home?" compared to 11.5% of the region on average.
Source: WNC Health Network. (2021). *2021 WNC Healthy Impact Community Health Survey: Data Workbook.* [Data set]. Available from https://www.wnchn.org/wnc-data/regional-data/.

In Madison County, 9.3% of renter-occupied households have no vehicle available for use, compared to 3.9 of owner-occupied households. This is similar to the regional findings on average.
Source: U.S. Census Bureau. (2021). Tenure by Vehicles Available by Age of Householder*: 2014-2018 ACS 5-Year Estimates*. [Data tables]. Available from http://census.data.gov

Family & Social Support

"People with greater social support, less isolation, and greater interpersonal trust live longer and healthier lives than those who are socially isolated. Neighborhoods richer in social capital provide residents with greater access to support and resources than those with less social capital" (County Health Rankings, 2021).

In Madison County, 71.8% of respondents reported that they "always/usually get the needed social/emotional support," which is slightly higher than the regional average of 69.8% but significantly down from previous years (82.9% in 2018, 83.1% in 2015, and 75.5% in 2012).

Chapter 4 – Health Data Findings Summary

The following is a snapshot of data that tells us about the health of Madison County. You can find more data (such as specific disease mortality trends) by visiting WNC Health Network's data center at www.WNCHN.org.

Please also note that the data regarding the health behaviors and outcomes that relate to the priority health issues can be found in the corresponding chapters of this report and are not repeated here.

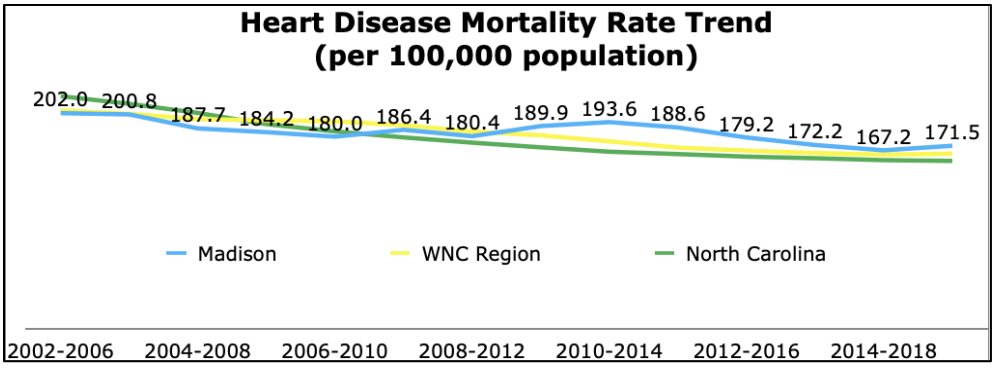
Mortality

Rank	Fifteen Leading Causes of Death, Age-Adjusted per 100,000 Population, Single 5-year Aggregates 2015-2019	Madison County	
		# Deaths	Death Rate
1	Diseases of Heart	283	171.5
2	Cancer	249	148.9
3	Cerebrovascular Disease	91	56.3
4	Chronic Lower Respiratory Diseases	97	55.0
5	All Other Unintentional Injuries	62	48.1
6	Alzheimer's disease	48	28.8
7	Pneumonia and Influenza	37	22.0
8	Unintentional Motor Vehicle Injuries	24	20.5
9	Diabetes Mellitus	28	19.0
10	Septicemia	23	14.3
11	Nephritis, Nephrotic Syndrome, and Nephrosis	22	14.0
12	Suicide	**15**	**13.1**
13	Chronic Liver Disease and Cirrhosis	**16**	**12.2**
14	Homicide	**2**	**1.4**
15	Acquired Immune Deficiency Syndrome	**1**	**1.0**
	All Causes (some not listed)	1,296	812.2

Source: North Carolina State Center for Health Statistics (NC SCHS). (2020). *Causes of Death.* [Data tables]. Available from https://schs.dph.ncdhhs.gov/data/.

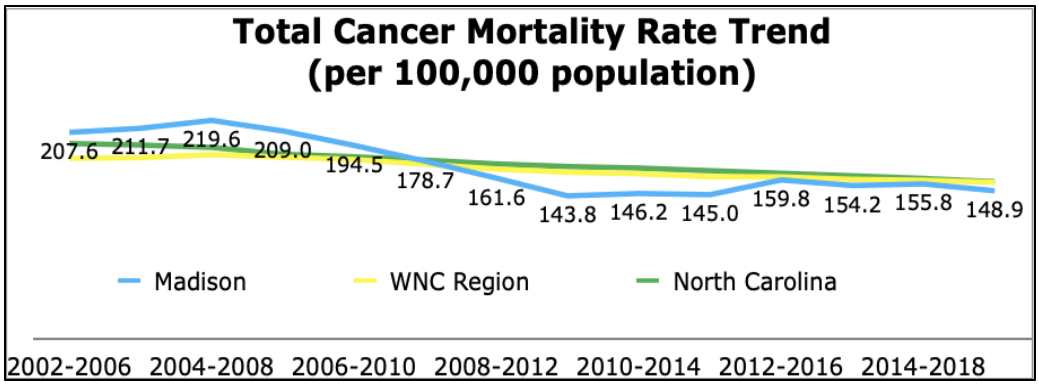
Madison County				
Age Group	**Rank**	**Three Leading Cause of Death by Age Group, Unadjusted Death Rates per 100,000 Population, Single 5-year Aggregate 2015-2019**	**# Deaths**	**Death Rate**
00-19	1	Cancer - All Sites	2	8.6
		Congenital anomalies (birth defects)	2	8.6
		Motor vehicle injuries	2	8.6
		Suicide	2	8.6
	5	Pneumonitis due to solids & liquids	1	4.3
		Other Unintentional injuries	1	4.3
20-39	1	Other Unintentional injuries	14	57.1
	2	Motor vehicle injuries	5	20.4
	3	Cancer - All Sites	3	12.2
		Diabetes mellitus	3	12.2
		Suicide	3	12.2
40-64	1	Cancer - All Sites	74	203.9
	2	Diseases of the heart	47	129.5
	3	Chronic lower respiratory diseases	18	49.6
		Other Unintentional injuries	18	49.6
65-84	1	Diseases of the heart	142	683.3
	2	Cancer - All Sites	131	630.4
	3	Chronic lower respiratory diseases	65	312.8
85+	1	Diseases of the heart	92	3516.8
	2	Cerebrovascular disease	43	1643.7
	3	Cancer - All Sites	39	1490.8

Source: North Carolina State Center for Health Statistics (NC SCHS). (2021). *Death Counts and Crude Death Rates per 100,000 Population for Leading Causes of Death.* [Data tables]. Available from https://schs.dph.ncdhhs.gov/data/.



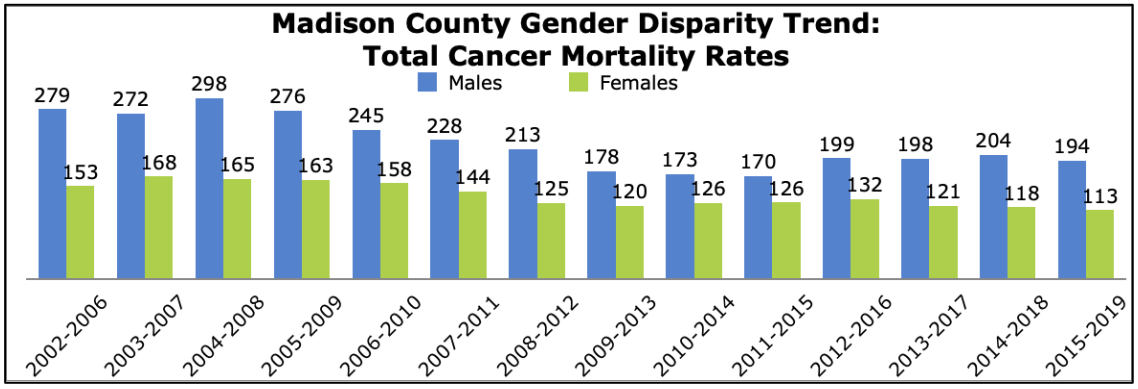
Heart disease is the leading cause of death in Madison County and the rate is higher than the WNC Region and the state.

Source: North Carolina State Center for Health Statistics (NC SCHS). (2021). *Race-Specific and Sex-Specific Age-Adjusted Death Rates by County: County Health Data Book.* [Data tables]. Available from schs.dph.ncdhhs.gov/data/.

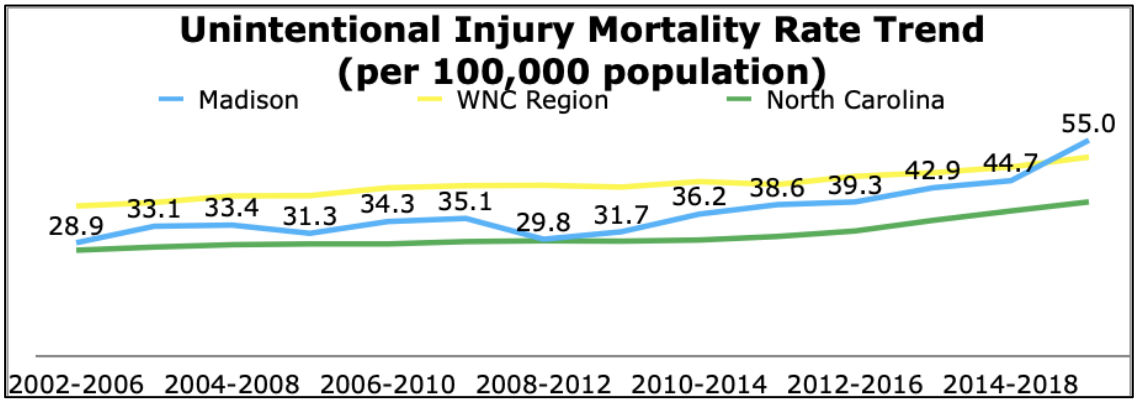


As with heart disease, Madison males have a historically higher cancer mortality rate than females. Lung cancer is the leading site specific cancer followed by breast cancer in women.

Source: North Carolina State Center for Health Statistics (NC SCHS). (2020). *Race-Specific and Sex-Specific Age-Adjusted Death Rates by County: County Health Data Book.* [Data tables]. Available from https://schs.dph.ncdhhs.gov/data/.



Source: North Carolina State Center for Health Statistics (NC SCHS). (2021). *Central Cancer Registry: NC Cancer Incidence Rates per 100,000 Population Age-Adjusted to the 2000 US Census.* [Data tables]. Available from schs.state.nc.us/data/cancer/incidence_rates.htm.



Source: North Carolina State Center for Health Statistics (NC SCHS). (2021). *Race-Specific and Sex-Specific Age-Adjusted Death Rates by County: County Health Data Book.* [Data tables]. Available from https://schs.dph.ncdhhs.gov/data/.

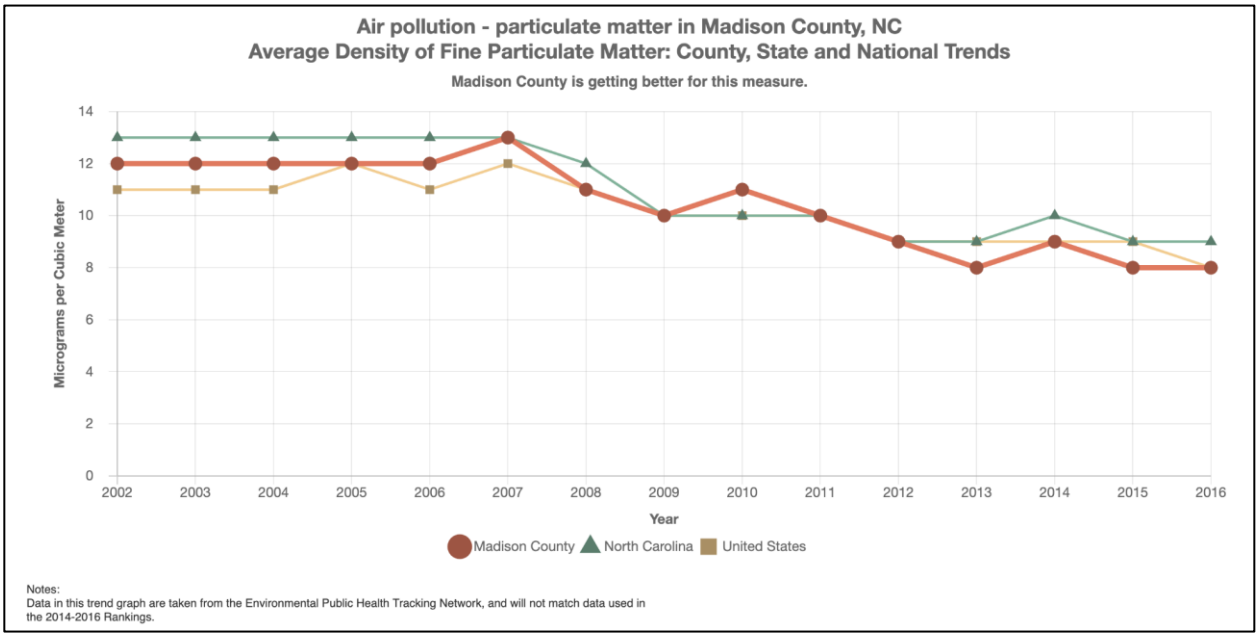
Chapter 5 – Physical Environment

Outdoor and Indoor Air 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." (County Health Rankings, 2021).

The following is a snapshot of data that tells us about the physical environment impacting health in Madison County. You can learn more data by visiting WNC Health Network's data center at www.WNCHN.org.

The relationship between elevated air pollution (especially fine particulate matter and ozone) and compromised health has been well documented. Negative consequences of ambient air pollution include decreased lung function, chronic bronchitis, asthma, and other adverse pulmonary effects. Long-term exposure to fine particulate matter increases premature death risk among people age 65 and older, even when exposure is at levels below the National Ambient Air Quality Standards. These harmful particles can be directly emitted from sources such as forest fires, or they can form when gasses emitted from power plants, industries, and automobiles react in the air. Almost 65,000 premature US deaths were related to adverse effects of outdoor fine particulate matter, and minority populations and those living in poverty are more likely to be exposed. (County Health Rankings, 2021).



The US Toxic Release 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.

County	Total On- and Off-Site Disposal or Other Releases, In Pounds	Compounds Released in Greatest Quantity	Quantity Released, In Pounds	Releasing Facility	Facility Location
Madison	178	Diisocyanates	178	Dynamic Systems Inc.	Leicester

Source - *TRI Release Reports: Chemical Reports, 2019.* Retrieved June 29, 2021, from US EPA TRI Explorer, Release Reports, and Chemical Reports website: https://enviro.epa.gov/triexplorer/tri_release.chemical

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

Environmental tobacco smoke is a mixture of two forms of smoke that come from burning tobacco: side stream smoke (smoke that comes from the end of a lighted cigarette, pipe, or cigar) and mainstream smoke (smoke that is exhaled by a smoker). When non-smokers are exposed to secondhand smoke it is called involuntary smoking or passive smoking. Non-smokers who breathe in secondhand smoke take in nicotine and other toxic chemicals just like smokers do. The more secondhand smoke that is inhaled, the higher the level of these harmful chemicals will be in the body (American Cancer Society, 2011).

Survey respondents were asked about their second-hand smoke exposure in their workplace. Specifically, they were asked, “During how many of the past 7 days, at your workplace, did you breath the smoke from someone who was using tobacco?”

% [of employed people] Breathed Smoke at Work in Past Week				
	2012	2015	2018	2021
Madison	17.2%	14.8%	16.3%	6.5%
WNC	14.2%	14.2%	17.0%	9.1%

Source: WNC Health Network. (2021). *2021 WNC Healthy Impact Community Health Survey: Data Workbook.* [Data set]. Available from https://www.wnchn.org/wnc-data/regional-data/.

Water Quality

The source from which the public gets its drinking water is a health issue of considerable importance. Water from all municipal and most community water systems is treated to remove harmful microbes and many polluting chemicals and is generally considered to be "safe" from the standpoint of public health because it is subject to required water quality standards. Municipal drinking water systems are those operated and maintained by local governmental units, usually at the city/town or county level. Community water systems are systems that serve at least 15 service connections used by year-round residents or regularly serve 25 year-round residents. This category includes municipalities, but also subdivisions and mobile home parks. As of April 2020, a regional mean of 55.9% of the WNC population was being served by community water systems and 31.7% in Madison County. The remaining presumably were being served by wells or by some other source, such as springs, creeks, rivers, lakes, ponds or cisterns.

Source: *Safe Drinking Water Search for the State of North Carolina,* (Results based on data extracted on January 18, 2021). Retrieved on June 29, 2021, from United States Environmental Protection Agency Envirofacts Safe Drinking Water Information System (SDWIS) website: https://www.epa.gov/enviro/sdwis-search

Access to Healthy Food

Food security, as defined by the United Nations' Committee on World Food Security, exists when all people, always, 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.

Madison County has 3 farmer's markets located across the county, Mars Hill, Marshall, and Hot Springs. There are 2 grocery stores in the county and two food pantries with one that has an initiative to provide fresh fruits and vegetables to clients. In addition, there is a non-profit mobile food delivery program that delivers basic staple food items throughout the county. Also, Madison Community services operate 8 senior adult meal sites 4 days weekly and coordinate homebound deliveries as well. There are three fast food restaurants and a variety of other individual restaurants throughout the county.

In the most recent survey, 16.6% of Madison respondents reported experiencing food insecurity.

% Food Insecure (Represents those who ran out of food at least once in the past year and/or worried about running out of food in the past year).		
	2018	**2021**
Madison	20.5%	16.6%
WNC	23.8%	19.0%
United States	27.9%	34.1%

Source: WNC Health Network. (2021). *2021 WNC Healthy Impact Community Health Survey: Data Workbook.* [Data set]. Available from https://www.wnchn.org/partner-resources/.

Chapter 6- Health Resources

Health Resources

Process

The Madison County Health Department received through WNC Healthy Impact a data set from United Way's 211. The data set listed health resources available for Madison County residents. The CHA team co-coordinators worked with Mars Hill University to develop a course project for students to review, sort and update 211 data as well as to identify resource gaps in the community. The CHA co-coordinators reviewed the student project results and any missing or incorrect information was shared back with 211 so that the community tool (211) continues to serve as the updated resource list accessible via phone and web 24/7. Our team found this to be more effective than compiling a printed directory.

You can access the 211 updated data set online here:
https://docs.google.com/spreadsheets/d/1ZFtX8eA9XSqw5o5XjQm1XiSfGZw4QGi9/edit?usp=sharing&ouid=100059294904808622173&rtpof=true&sd=true

Findings

There is no hospital located in Madison County. The Madison County Health Department offers WIC, immunizations, child health, dental services, family planning, maternity care, Breast and Cervical Cancer Control Program, health education, community outreach, employee health services and more.

There is one private non-profit medical practice, the Hot Springs Health Program, with four offices located throughout the county. They provide primary health care by a staff of family medicine, internal medicine, and pediatric physicians. They also manage a home health and hospice program along with an in-home rehabilitation program for Madison County residents.

The Madison County Emergency Medical Services offers ambulance transportation from all points in the county. Emergency medical helicopter transport is available from Mission Hospitals in Asheville.

Watauga Medics, Inc. manages emergency Medical Services and Madison Medics.

There are three dental offices in the county. The dental clinic at the health department has increased access to care for low-income individuals. Mental health services are available through RHA.

Optical and chiropractic services are also available. There is one fitness center in the county. Walking trails can be found across the county. The county has two licensed nursing home facilities, one retirement home, and several group homes.

Resource Gaps

Based on local review of available resources and collaborative discussions around availability of services specifically related to our priority health issues some resources that are needed but are currently lacking in our community were identified.

- Hot, healthy meals (Soup kitchens)
- Volunteers to deliver meals to homebound
- Exercise Facilities/Greenways/Classes
- Dieticians
- Diabetes Education Programs
- Transportation
- Specialty and Urgent Care
- Drop in or part time child care
- Internet connectivity
- Affordable housing
- Homeless shelters
- Mental health and substance use treatment options
- Mental Health Support Groups
- Employment for people with disabilities or substance use
- Sober living and treatment facilities
- Transition from incarceration
- Detox and inpatient substance use treatment programs

Chapter 7 – 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 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 fall 2021, 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 is related to past health priorities
- Data reflects a concerning trend related to size or severity
- Significant disparities exist
- Issue surfaced as a topic of 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. They considered the severity of the issue, the relevancy of the issue, and the feasibility in improving the issue.

This process, often called health issue prioritization, is an opportunity for various community stakeholders 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, we identified the following health issues or indicators:

- ***Issue 1*: Healthy Eating/Healthy Weight and Diabetes**
- ***Issue 2*: Substance Use and Mental Health**

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? *(Size of the problem; Severity of problem; Focus on equity; Aligned with HNC 2030; Urgency to solve problem; Linked to other important issues)*
- 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)*
- 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)*

Participants used a modified Hanlon method to rate the priorities using the criteria listed above. Then voting techniques were used to narrow down the top priority health issues.

Identified Priorities

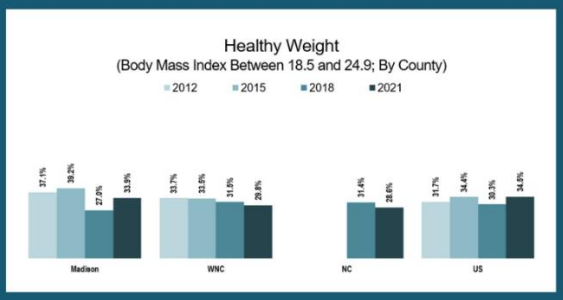
The following priority health issues are the final community-wide priorities for our county that were selected through the process described above:

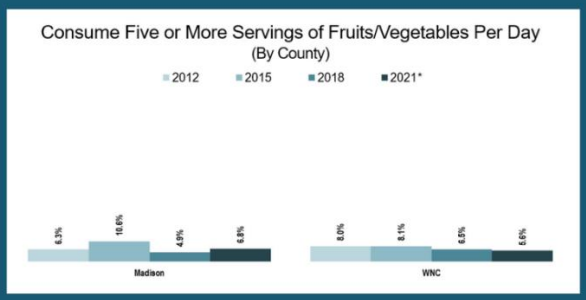
Health Priority 1: Healthy Eating/Healthy Weight and Diabetes
Health Priority 2: Substance Use and Mental Health

Healthy Eating and Healthy Weight

The set of data reviewed for our CHA process is comprehensive and includes publicly available secondary data, WNC Healthy Impact Community Health Survey data, Online Key Informant Survey data and Maps. During the review process obesity was discovered to be an issue of high concern in both the secondary and primary survey data.

WHAT THE NUMBERS SAY:





The prevalence of healthy weight in Madison County indicates a slight increase in 2021 (33.9%). The maximum error rate at the 95% confidence level is approximately ±5.1% for Madison county. If 33.9% of the sample answered a certain question, it can be asserted that between 28.8% and 39% (33.9% ± 5.1%) of the total population would offer this response.

The prevalence of individuals eating 5+ servings of fruit and vegetables per day is unchanged, meaning that the increase in 2021 (6.8%) is not statistically significant. This is consistent with the regional trend. The maximum error rate at the 95% confidence level is approximately ±5.1% for Madison county. If 6.8% of the sample answered a certain question, it can be asserted that between 1.7% and 11.9% (6.8% ± 5.1%) of the total population would offer this response.

MORE INFORMATION:

- The prevalence for individuals at a healthy weight (BMI 18.5 to 24.9) has increased from 27% ro 34% in 2021.
- The prevalence for individuals eating 5+ fruits and vegetables per day has increased from 5% to 7% in 2021.
- The prevalence of individuals meeting current physical activity recommendations is unchanged (21%) in 2021.
- Over half (56%) of children in grades K-8th are a healthy weight in 2019. The trend has continued to slightly increase every year since 2017.
- Regional data analysis indicates that low income, people who are unable to work and people who live in rural areas were more likely to be obese.
- This health issue is related to the HNC 2030 desired results and indicators for increase physical activity and reduce overweight and obesity. Sugar-sweetened beverage consumption for adults is 40% in 2021 with a 2030 target of 20%.
- Eighty-six percent of key informants selected obesity as a major problem in the community.

Healthy Eating and Healthy Weight

"We have many different outlets in our community that help with and supply healthy foods and fresh fruits and vegetables to people at no-cost"

WHO'S IMPACTED?

Older adults, Adults, Children and Teens
Low-income individuals
Uninsured
Houseless or individuals with inadequate/unsafe housing

WHAT'S HURTING?

Transportation/ access to healthy foods
Healthy food options at food banks
Pride and accepting assistance
Lack of referrals to local education/ interventions
Cost and continued rising cost (of food and living)
Mass media and perceptions of food
Lack of funding for interventions
Distance to physical activity options
COVID-19 pandemic

CURRENT ACTION

Active Healthy Eating Active Living (HEAL) Committee
Walk with Ease
Healthy Living Mobile Market
Healthy Living Programs at Library (MadCo Miles)
Youth food prep and healthy eating programs

CONSEQUENCES

The costs associated with obesity and obesity-related health problems are staggering, with obesity costing NC taxpayers upwards of $1.1 Billion.
(Eric A. Finkelstein, Ian C. Fiebelkorn, and Guijing Wang, 2004)

WHAT'S HELPING?

Availability of healthy foods at no cost
Food banks
TRACTOR program
YMCA Healthy Living Market
Lord's Harvest
Outdoor recreation
Town Parks
Active living centers for seniors

WHAT ELSE DO WE KNOW?

Current context: Overweight, obesity, or severe obesity, can make you more likely to get severely ill from COVID-19. The risk of severe COVID-19 illness increases sharply with elevated BMI.

WHAT WORKS TO DO BETTER?

Evidence-based examples:

- Chronic disease self-management programs
- Activity programs for older adults
- Community gardens
- School-based programs to increase physical activity

CHA team ideas:

- Healthy options for food sent home with children
- Affordable and local options for (indoor) exercise
- Senior, diabetic, or healthy (food) boxes available to everyone

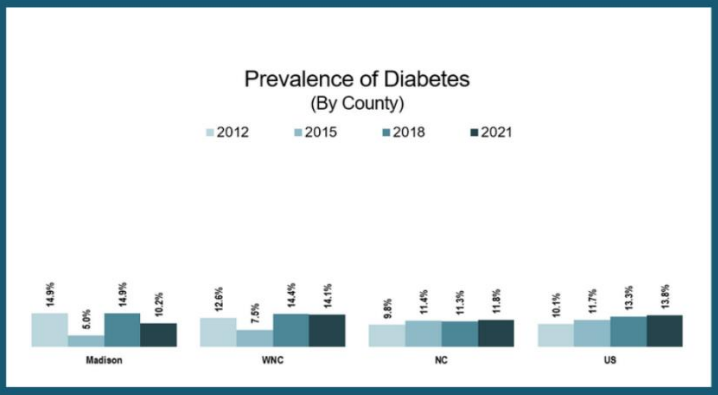
This is a collaborative document created by the Madison County Health Department and CHA Team_11.9

Tool adapted by WNC Health Network from Buncombe County CHIP data team –
Buncombe County Health and Human Services, MAHEC, and Mission Health, October 2018. Revised in Sept 2021.

Diabetes

The set of data reviewed for our CHA process is comprehensive and includes publicly available secondary data, WNC Healthy Impact Community Health Survey data, Online Key Informant Survey data and Maps. During the review process diabetes was discovered to be an issue of high concern in both the secondary and primary survey data.

WHAT THE NUMBERS SAY:



The prevalence of diabetes in Madison County is unchanged meaning that the decrease in 2021 (10.2%) is not statistically significant. This is consistent with the regional trend. The maximum error rate at the 95% confidence level is approximately ±5.1% for Madison county. If 10.2% of the sample answered a certain question with a "yes," it can be asserted that between 5.1% and 15.3% (10.2% ± 5.1%) of the total population would offer this response.

MORE INFORMATION:

- The prevalence for individuals at a healthy weight (BMI 18.5 to 24.9) has increased from 27% ro 34% in 2021.
- The prevalence of individuals meeting current physical activity recommendations is unchanged (21%) in 2021.
- The diabetes mortality rate trend remains elevated at 19 per 100,000 population in 2015-2019.
- Regional data analysis indicates that compared to whites, Hispanic/ Latinx were 39% more likely to have diabetes and Black/ African Americans were 79% more likely to have prediabetes.
- This health issue is related to the HNC 2030 desired results and indicators for increase physical activity and reduce overweight and obesity. Sugar-sweetened beverage consumption for adults is 40% in 2021 with a 2030 target of 20%.
- Eighty percent of key informants selected pre-diabetes/ diabetes as a major problem in the community.

Diabetes

"We have eight senior centers, now Active Living Centers, in our county that work hard to help with exercise and isolation for seniors."

WHO'S IMPACTED?

Older adults 65+
All age groups
Individuals with inadequate/unsafe housing

WHAT'S HURTING?

Transportation/ access to healthy foods
Pride and accepting assistance
Lack of education about healthy foods
Cost (of foods)
Mass media and perceptions of food
Lack of financial support (physical activity)
Distance between (activity) locations
Lack of dieticians
Lack of diabetes education classes
Getting annual check-ups and testing
Health literacy and access to resources

CURRENT ACTION

Active Healthy Eating Active Living (HEAL) Committee
Walk with Ease
Healthy Living Mobile Market
Healthy Living Programs at Library (MadCo Miles)
Youth food prep and healthy eating programs
Diabetes educator grant (Hot Springs Health Program)
Diabetes education available to un and under-insured via Health-e-Neighbors at Outland Family Clinic (telehealth and in-person)

CONSEQUENCES

Diabetes and pre-diabetes is expensive and cost an estimated $10.9 billion in North Carolina each year (Dall et al., 2019)

WHAT'S HELPING?

Availability of healthy foods at no cost
Outdoor recreation
Town Parks
Active living centers for seniors
Patients at HSHP are focusing on A1C >9

WHAT ELSE DO WE KNOW?

Current Context: Having either type 1 or type 2 diabetes can make you more likely to get severely ill from COVID-19 (CDC, 2021).

WHAT WORKS TO DO BETTER?

Evidence-based examples:

- Community Health Worker model for diabetes education
- National diabetes prevention program
- Community awareness campaign
- Faith-based model for rural diabetes prevention and management
- Living Healthy program

CHA team ideas:

- Provide community screenings
- Playground with walking trail at Medical Park Dr.
- Education on hidden sugars and how some foods that are "healthy" convert to sugar

This is a collaborative document created by the Madison County Health Department and CHA Team_11.9

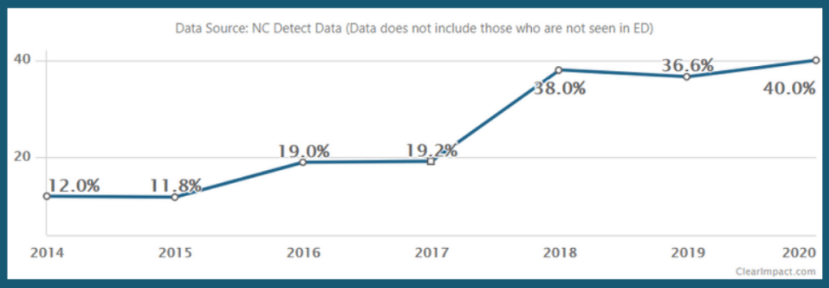
Tool adapted by WNC Health Network from Buncombe County CHIP data team –
Buncombe County Health and Human Services, MAHEC, and Mission Health, October 2018. Revised in Sept 2021.

Substance Misuse

The set of data reviewed for our CHA process is comprehensive and includes publicly available secondary data, WNC Healthy Impact Community Health Survey data, Online Key Informant Survey data and Maps. During the review process substance misuse was discovered to be an issue of high concern in both the secondary and primary survey data.

WHAT THE NUMBERS SAY:

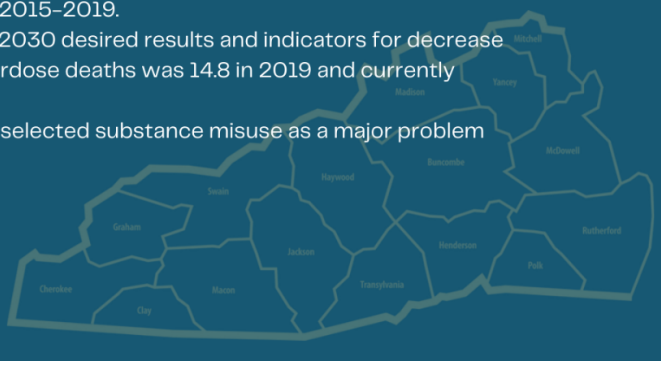
Percent of Overdoses Due to Opioids Per Year



The percent of overdoses due to opioids per year has continued to increase from 2010 to present. The current data point for 2020 (40%) is a 108% increase from 2017.

MORE INFORMATION:

- The percent of child abuse and neglect cases that were substantiated was 18% in 2019.
- Madison county had 5 overdose deaths due to opioid overdose in 2019.
- The prevalence of individuals who used prescription opioids or opiates in the past year with or without a prescription decreased to 10% in 2021.
- The prevalence of individuals whose life has been negatively affected by Substance Abuse (by Self or Someone Else) increased to 57% in 2021.
- The rate of hospital discharges with infant drug withdrawal diagnosis has decreased from 32.6 to 27 per 1,000 live births in 2015-2019.
- This health issue is related to the HNC 2030 desired results and indicators for decrease overdose deaths. The rate of drug overdose deaths was 14.8 in 2019 and currently meets the 2030 target of 18.
- Eighty-two percent of key informants selected substance misuse as a major problem in the community.



Substance Misuse

WHO'S IMPACTED?

Low-income residents
Incarcerated individuals
Individuals with mental health issues
Adults aged 18-50
Males and females
Individuals with family history of substance use
Houseless or individuals with inadequate/unsafe housing

WHAT'S HURTING?

Access/ Lack of providers
Lack of affordable programs
Lack of sober living homes
Lack of detox or inpatient treatment programs
Lack of education and programs in schools
Lack of counseling and support
Lack of funding to support treatment/ medications
Transportation
Poverty
Stigma and lack of understanding
COVID-19 pandemic

CURRENT ACTION

Madison Substance Awareness Coalition
Medicated Assisted Treatment
Telehealth availability in schools and jail
Triple P
DFC/Opioid Grants
Narcan Education/Distribution
Lock Box Education/Distribution
Drug Take Back Events
Promotion of permanent drop boxes
Madison Patriot Prevention Partners (MP3) Youth Empowerment Group
Teen Intervene at Middle School
Education classes (middle school)
Combating stigma by using different words
Health-e-Release grant at MCSO

CONSEQUENCES

In 2016, the total estimated economic burden of opioid use disorder and overdose deaths in North Carolina exceeded 21 billion dollars.
(Hospital Industry Data Institute, 2018)

Important characteristics or qualities of a healthy community include, "Ready access to healthcare, including behavioral health."

WHAT'S HELPING?

Schools and MP3
Local health department
Telehealth
4H Program
MSAC
MAT Providers
Funding for substance use disorder costs

WHAT ELSE DO WE KNOW?

Current context: Having a substance use disorder can make you more likely to get severely ill from COVID-19. People who use drugs may also have underlying medical conditions that put them at increased risk for severe illness from COVID-19. Additionally, recent data and reports show that fatal drug overdoses in the United States have been increasing before and during the COVID-19 pandemic (CDC, 2021).

WHAT WORKS TO DO BETTER?

Evidence-based examples:

- Public awareness campaign (i.e. decreasing stigma)
- Increase access to Naloxone
- Family treatment drug courts
- Standardization of opioid prescription practices in emergency setting

CHA team ideas:

- Needs funding and resources to improve health outcomes of SUD
- Support groups

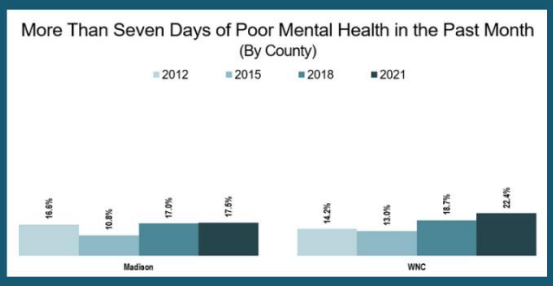
This is a collaborative document created by the Madison County Health Department and CHA Team_11.9

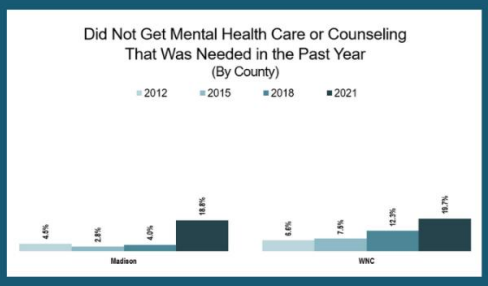
Tool adapted by WNC Health Network from Buncombe County CHIP data team –
Buncombe County Health and Human Services, MAHEC, and Mission Health, October 2018. Revised in Sept 2021.

Mental Health

The set of data reviewed for our CHA process is comprehensive and includes publicly available secondary data, WNC Healthy Impact Community Health Survey data, Online Key Informant Survey data and Maps. During the review process mental health was discovered to be an issue of high concern in both the secondary and primary survey data.

WHAT THE NUMBERS SAY:





The prevalence of individuals with 7+ days of poor mental health in Madison County is unchanged, meaning that the increase in 2021 (17.5%) is not statistically significant. The maximum error rate at the 95% confidence level is approximately ±5.1% for Madison county. If 17.5% of the sample answered a certain question, it can be asserted that between 12.4% and 22.6% (17.5% ± 5.1%) of the total population would offer this response.

The prevalence of individuals who did not get needed mental healthcare or counseling in Madison County indicates a significant increase in 2021 (18.8%). The maximum error rate at the 95% confidence level is approximately ±5.1% for Madison county. If 18.8% of the sample answered a certain question, it can be asserted that between 13.7% and 23.9% (18.8% ± 5.1%) of the total population would offer this response.

MORE INFORMATION:

- The prevalence for individuals who are currently taking medication or receiving treatment for mental health is 22% in 2021.
- The prevalence of individuals who "always or usually" get needed social/ emotional support has decreased from 83% to 72% in 2021.
- The prevalence of individuals whose typical day is "extremely/ very stressful" is 15% in 2021.
- Eighty-six percent of individuals are confident in their ability to manage stress and 88% are able to stay hopeful in difficult times in 2021.
- This health issue is related to the HNC 2030 desired results and indicators for improve access and treatment for mental health needs. The suicide rate was 9.2 in 2019 and currently meets the 2030 target of 11.1.
- The prevalence for individuals who have considered suicide in the past year is 5% in 2021.
- Seventy-seven percent of key informants selected mental health as a major problem in the community.

Mental Health

WHO'S IMPACTED?

Older adults, adults, children and teens
Low-income residents
Incarcerated individuals
Individuals with substance use disorders
Isolated individuals
Houseless or individuals with inadequate/unsafe housing

WHAT'S HURTING?

Access/ Lack of providers
Barriers to obtaining care and treatment
Lack of available, quality and needed resources
Lack of funding for un or under-insured
Response time to crisis calls
Wait time to see providers
Difficulty in treating clients with complex mental health/ Substance use disorder needs
Transportation
Need more student support within the schools
NC has not expanded Medicaid
Poverty
Lack of supportive community
Lack of community education about Medication Assisted Treatment (MAT)
Stigma

CURRENT ACTION

Schools Resilience Training, suicide prevention training and mindfulness/ mental health classes
Triple P Parenting
Telehealth available in schools and jails
Expansion of internet and public hot spots
Sesame Street in Communities grant
Expansion of Healthy Families program
Child Fatality and Protection teams interested in helping families and children

CONSEQUENCES

"Nearly one in five North Carolinians experience a mental illness and more than 1 in 7 of those mentally ill people lack health insurance. Even for patients with health insurance, difficulties may still arise in accessing mental or behavioral health care."
(North Carolina Health News, 2019)

Important characteristics or qualities of a healthy community include, "Health education for all areas, including substance misuse, mental health and nutrition."

WHAT'S HELPING?

Schools
Local health department
Social workers
Broadband
Transportation to Asheville specialists
Churches
Mental health training for school system

WHAT ELSE DO WE KNOW?

Current context: The COVID-19 pandemic has had a major effect on everyone's lives. Many are facing challenges that can be stressful, overwhelming, and cause strong emotions in adults and children.

WHAT WORKS TO DO BETTER?

Evidence-based examples:

- Prevention and community education
- Community Adverse Childhood Experiences (ACEs) and trauma awareness education
- Community health worker programs
- School-based violence and bullying prevention programs
- Mental health and faith community partnership

CHA team ideas:

- Awareness and education on mental health issues

This is a collaborative document created by the Madison County Health Department and CHA Team_11.9

Tool adapted by WNC Health Network from Buncombe County CHIP data team –
Buncombe County Health and Human Services, MAHEC, and Mission Health, October 2018. Revised in Sept 2021.

Chapter 8 - Next Steps

Collaborative Planning

Collaborative planning with community partners will result in the creation (and in some cases, continuation) 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

2021 Madison Community Health Assessment findings will be shared with stakeholders, community partners, and the general population in the following ways:

- presentations to Board of Health and County Commissioners
- presentations to health department staff and Madison Community Health Consortium
- article in the local newspaper
- placing copies of the assessment at local libraries and on the health department website

Where to Access this Report

The 2021 Madison Community Health Assessment can be accessed in person and online at the following locations:

- Madison County Health Department Website- www.madisoncountyhealth.org
- WNC Health Network Website- www.WNCHN.org
- Madison County Public Libraries

For More Information and to Get Involved

For more information or to get involved visit www.madisoncountyhealth.org or call 828-649-3531

WORKS CITED

Data sources are cited in-text throughout the report. Additional sources are as follows:

CDC. (2018). CDC Community Health Improvement Navigator. Retrieved from www.cdc.gov/chinav.

County Health Rankings. (2021). Health Factors. Retrieved from https://www.countyhealthrankings.org/explore-health-rankings/measures-data-sources/county-health-rankings-model/health-factors.

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WNC Health Network. (2021). *2021 WNC Healthy Impact Community Health Survey: Data Workbook*. [Data set].

PHOTOGRAPHY CREDITS

WNC CHA Cycle Graphic: Co-designed by WNC Healthy Impact, graphic design by Jessica Griffin, 2021

All WNC landscape photos used in the cover page and headers courtesy of Ecocline Photography and Flying Horse Creative.

APPENDICES

For more information on appendices or links contact dstephens@madisoncountync.gov or call 828-649-3531 ext. 240.

Appendix A – Data Collection Methods & Limitations

Appendix B – Data

- Data Presentation Slides (PDF of slides) – *click link to access document*
- Secondary datasets prepared by NC DHHS– *click link to access document*

Appendix C – County Data Maps – *click link to access document*

Appendix D – Survey Findings

- WNC Healthy Impact Key Informant Interview Findings– *click link to access document*

APPENDIX A - DATA COLLECTION METHODS & LIMITATIONS

Secondary Data Methodology

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; NC Department of Health and Human Services; NC Office of State Budget and Management; NC Department of Commerce; UNC-CH Jordan Institute for Families; NC Department of Public Instruction; NC Department of Justice; NC Division of Health Benefits; 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 WNC Healthy Impact Data Workbook was prepared. It is not possible to continually update the data past a certain date; in most cases that end-point is September 2021. Secondary data is updated every summer in between Community Health Assessment (CHA) years.

The principal source of secondary health data for the WNC Healthy Impact Data Workbook is 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 were 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 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.

The WNC Healthy Impact data workbook contains only secondary data that are : (1) retrieved directly from sources in the public domain or by special request; and (2) are available for all 16 counties in the WNC Healthy Impact region. All secondary data included in the workbook are the most current available, but in some cases may be several years old. Names of organizations, facilities, and geographic places presented in the tables and graphs 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.

Gaps in Available Information

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 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.

WNC Healthy Impact Community Health Survey (Primary Data)

Survey Methodology

The 2021 WNC Healthy Impact Community Health Survey was conducted from March to June 2021. The purpose of the survey was to collect primary data to supplement the secondary core dataset and allow individual counties in the region to collect data on specific issues of concern. 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 mixed-mode survey methodology, which included a combination of telephone (both landline and cell phone) interviews, online survey, as well as a community outreach component promoted by WNC Health Network and its local partners through social media posting and other communications. 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 up to three additional questions of particular interest to their county, which were asked only of their county's residents.

The two additional county questions included in the 2021 survey were:

1) I believe it is important for government buildings and grounds in Madison County to be 100% tobacco-free.
2) Medicine is kept in a locked place so that no one else can access it.

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 poststratification, to further decrease sample bias and account for underrepresented groups or nonresponses in the population. Poststratification 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.

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 56 (56.4) percent cell phone-based survey respondents and 44 (43.6) 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 worked with a third-party provider to identify and invite potential respondents for an online survey for a small proportion (3.5%) 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.

PRC also created a link to an online version of the survey, and WNC Health Network and its local partners promoted this online survey link throughout the various communities to drive additional participation and bolster overall samples. This yielded an additional 1,717 surveys, and locally an additional 161.

About the Madison County Sample

Size: The total regional sample size was 4,861 individuals age 18 and older, with 362 from our county. PRC conducted all analysis of the final, raw dataset.

Sampling Error: For county-level findings, the maximum error rate at the 95% confidence level is approximately ±4.0% (Buncombe and Henderson counties), ±4.6% (Polk county), ±5.1% (Jackson and Madison counties), or ±6.9% (all other counties).

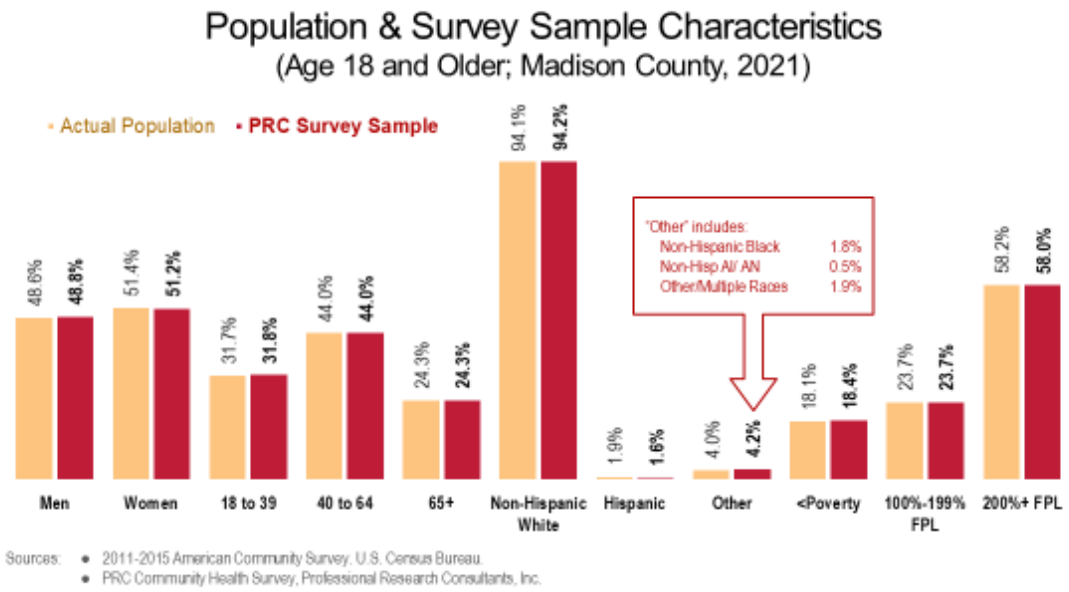
Expected error ranges for a sample of 362 respondents at the 95% confidence level.

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 a sample of 200 respondents answered a certain question with a "yes," it can be asserted that between 6.0% and 14.0% (10% ± 4.0%) 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 Madison 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 2020 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 2030

Since 1980, the Healthy People initiative has set goals and measurable objectives to improve health and well-being in the United States. The initiative's fifth edition, Healthy People 2030, builds on knowledge gained over the past 4 decades to address current and emerging public health priorities and challenges.

An interdisciplinary team of subject matter experts developed national health objectives and targets for the next 10 years. These objectives focus on the most high-impact public health issues and reflect an increased focus on the social determinants of health — how the conditions where people live, work, and play affect their health and well-being.

Survey Limitations and Information Gaps

Limitations

The survey methodology included a combination of telephone (both landline and cell phone) interviews, as well as an online survey. Limitations exist for these methods. For example, potential respondents must have access to a landline or a cell phone to respond to the telephone survey. In addition, the telephone survey sample included landlines (versus cell phones), which may further skew responses to individuals or households with landlines.

The PRC online survey component also has inherent limitations in recruitment and administration. Respondents were recruited from a pre-identified panel of potential respondents. The panel may not be representative of the overall population.

Additionally, PRC created an online survey link, which was promoted by WNC Health Network and its local partners through social media posting and other communications. The online survey link respondents might not be representative of the overall population.

A general limitation of using online survey technology is that respondents must interpret survey questions themselves, rather than have them explained by a trained, live interviewer. This may change how they interpret and answer questions.

Lastly, the technique used to apply post stratification weights helps preserve the integrity of each individual's responses while improving overall representativeness. However, this technique can also exaggerate an individual's responses when demographic variables are under-sampled.

Information Gaps

This assessment was designed to provide a comprehensive and broad picture of the health of the community overall. It does not measure all possible aspects of health in the community, nor does it represent all possible populations of interest. For example, due to low population numbers, members of certain racial/ethnic groups (e.g., Black, AI/AN, Hispanic/ Latinx, etc.) may not be identifiable or represented in numbers sufficient for independent analyses. In these cases, information gaps may limit the ability to assess the full array of the community's health needs.

Online Key Informant Survey (Primary Data)

Online Survey Methodology

Survey Purpose and Administration

The 2021 Online Key Informant Survey was conducted in June and July 2021. 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.

Survey instrument

The survey provided respondents the opportunity to identify important health issues in their community, what is supporting or getting in the way of health and wellbeing in their community, and who in their community is most impacted by these health issues.

Participation

In all, 22 community stakeholders took part in the Online Key Informant Survey for our county, as outlined below:

Local Online Key Informant Survey Participation		
Key Informant Type	**Number Invited**	**Number Participating**
Community Leader	22	10
Other Health Provider	9	6
Physician	1	1
Public Health Representative	8	5
Social Services Provider	2	0

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

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 generalize 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.

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. 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 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.