Macon Community Health Assessment

2021

Macon County Public Health

Collaboration

This document was developed by Macon County Public Health in partnership with Angel Medical Center and Highlands-Cashiers Hospital as part of a local community health (needs) assessment process. We would like to thank and acknowledge several agencies and individuals for their contributions and support in conducting this health assessment:

Name	Agency & Role	Duration	Agency Website
Kathy McGaha	Public Health Director, Macon County Public Health	Ongoing	www.maconnc.org
Patrick Betancourt	Department of Social Services, Director	Ongoing	www.maconnc.org
Warren Cabe	Macon County Emergency Services, Director	Ongoing	www.maconnc.org
Clint Kendall	Angel Medical Center, CEO	Ongoing	https://missionhealth.org/member-hospitals/angel/
Tom Neal	Highlands-Cashiers Hospital, CEO	Ongoing	https://missionhealth.org/member-hospitals/highlands-cashiers/
Chris Baldwin	Macon County Schools, Superintendent	Ongoing	https://www.macon.k12.nc.us/
Yvonne Capo	NC Works of Macon County	Ongoing	www.ncworks.gov
David Garrett	Southwestern Commission Council of Government, Workforce Development Director	Ongoing	https://regiona.org
Chuck Sutton	Macon Program for Progress, Executive Director	Ongoing	https://mppnhc.org/
Mitchell Bishop	Macon County Board of Health, Chair	Ongoing	www.maconnc.org
Jennifer Knoepp	Macon County Board of Health	Ongoing	www.maconnc.org
Jerry Hermanson	Macon County Board of Health	Ongoing	www.maconnc.org
Ellen Shope	Macon County Board of Health	Ongoing	www.maconnc.org
Leigh Tabor	Macon County Veterans Services, Director	Ongoing	www.maconnc.org
Beau Bishop	Macon County Housing Department, Housing and Weatherization Coordinator	Ongoing	www.maconnc.org
Jennifer Turner	Reach of Macon County	Ongoing	www.reachofmaconcounty.org
Tara Raby	Macon County Public Health	Ongoing	www.maconnc.org
Sean Sullivan	Macon County Public Health	Ongoing	www.maconnc.org
Jimmy Villiard	Macon County Public Health	Ongoing	www.maconnc.org
Jennifer Garrett	Macon County Public Health	Ongoing	www.maconnc.org
Howard Dowdle	No Wrong Door of Macon County	Ongoing	https://www.nowrongdoorwnc.org

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Community Results Statement

Macon County's health matters.

Leadership and Partnership for the Community Health Assessment Process

During 2021-2022, Macon County Public Health, Angel Medical Center, and Highlands-Cashiers Hospital have facilitated the development of this comprehensive Community Health Assessment by engaging multiple organizations and community members; by outlining the need for certain decisions and interventions; and by creating a positive environment for discussion and change.

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

Macon 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 Coordinator 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 health issues of concern. 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 in May 2022. 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 health issues of concern and ask questions or provide input. Members then ranked the health issues based on impact and feasibility. The group then discussed benefits and downsides of combining issues into the 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: Access to Care
Health Priority 2: Affordable Housing
Health Priority 3: Substance Abuse
Health Priority 4: Obesity

Next Steps

CHA leadership and partners 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.

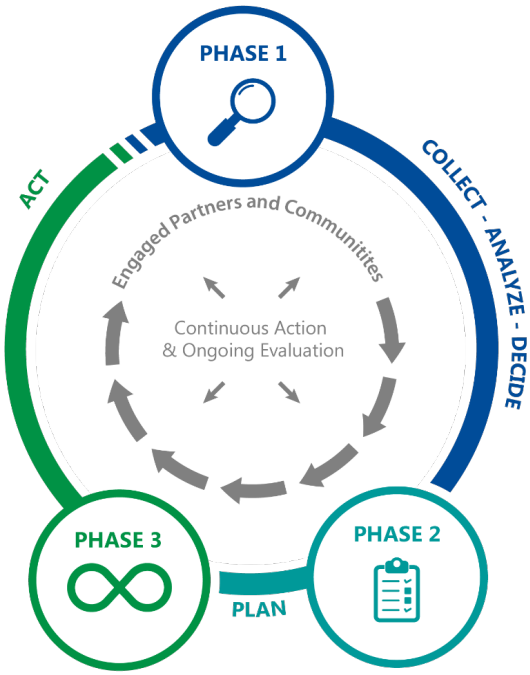
The Community Health Improvement plan will be developed as an electronic scorecard and published so that teams and the community at large can monitor progress.

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:

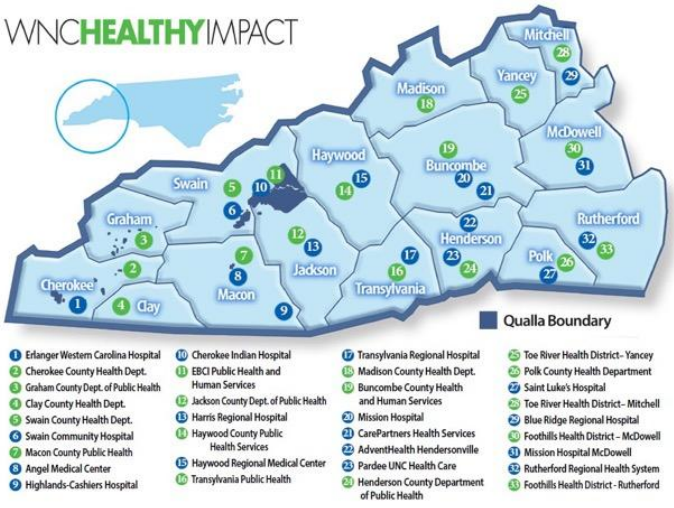


Definition of Community

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.



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, and 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.

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 (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 Prioritization Committee members in May 2022. Data handouts were given to members and discussed. 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:
Health Priority 1: Access to Care
Health Priority 2: Affordable Housing
Health Priority 3: Substance Abuse
Health Priority 4: Obesity

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 reports include:

- Health Priority 1: Access to Care
    - Older Adults
    - Veterans
    - Low-income, uninsured and/or underinsured
    - Hispanics/Latinx Population
    - Seasonal Residents
    - Those without transportation
- Health Priority 2: Affordable Housing
    - Low-income
    - People experiencing homelessness
    - Veterans and Veterans with disabilities
    - People who access housing through Section B (Subsidized Housing)
    - People with disabilities
- Health Priority 3: Substance Abuse
    - Veterans
    - People experiencing mental health issues
    - People experiencing chronic pain
- Health Priority 4: Obesity
    - Hispanics/Latinx Populations
    - Children, Youth, and Adolescents
    - Low-income, uninsured and/or underinsured

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 – Macon County

Location, Geography, and History of Macon County

Macon County is a diverse mixture of mountain living, small city hustle, rural landscapes and high-tech potential.

The 2019 US Census estimates the county has roughly 34,813 residents residing across 519 square miles, most of them mountainous and sparsely inhabited.

Macon County was formed in 1828 from the western part of Haywood County. It was named for Nathaniel Macon, who represented North Carolina in the United States House of Representatives from 1791 to 1915. In 1839 the western part of Macon County became Cherokee County. In 1851 parts of Macon County and Haywood County were combined to form Jackson County.

The Macon County seat is Franklin, with a population of around 4,000. Franklin is also the location of Macon County Public health, Angel Medical Center and most of the county's physicians, dentists and other professionals. Franklin is home to most of Macon County's industry and non-service employment. In the past Macon County boasted prominent manufacturing, but in recent years most of those have closed and/or relocated out of state. A software development business, small manufacturing and a floor finishing business provide most of the county's employment opportunities.

Macon County is the home of the Nantahala River. The Nantahala is one of the most popular whitewater rafting destinations in the nation. Highlands is the county's second largest community. At 4,118 feet above sea level, Highlands is known for its ability to attract tourists and vacation/secondary homeowners. Highlands is home to a small, yet modern, hospital and medical/dental staff.

Population

Understanding the growth patterns and age, gender, and racial/ethnic distribution of the population in Macon 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 Macon 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	% Males	% Females	Median Age	% Under 5 Years Old	% 5-19 Years Old	% 20 - 64 Years Old	% 65 and Older
Macon	34,813	48.4	51.6	50.1	4.8	15.3	51.5	28.3
WNC (Regional)	10,264,876	48.4	51.6	46.8	4.8	16.4	56.1	15.9
State	102,649	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 Macon County population has a slightly higher proportion of females than males.

The median age (50.1) is 3.3 years "older" than the western NC regional average, and 11.4 years "older" than the North Carolina state average. Macon County has lower proportions of "younger persons" and higher proportions of "older persons" than NC as a whole.

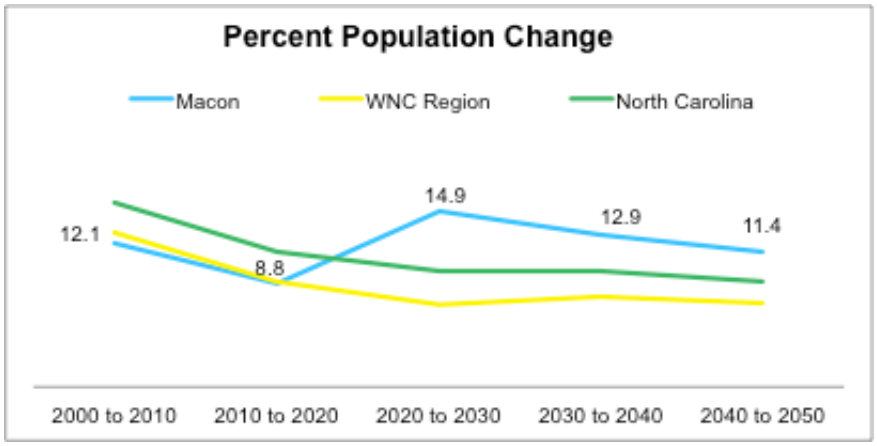
Population Distribution by Race/Ethnicity
2019 American Community Survey Estimates

County	Total Population	% 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)
Macon	34,813	93.5	1.7	0.7	0.9	0.0	2.7	0.6	7.0
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/

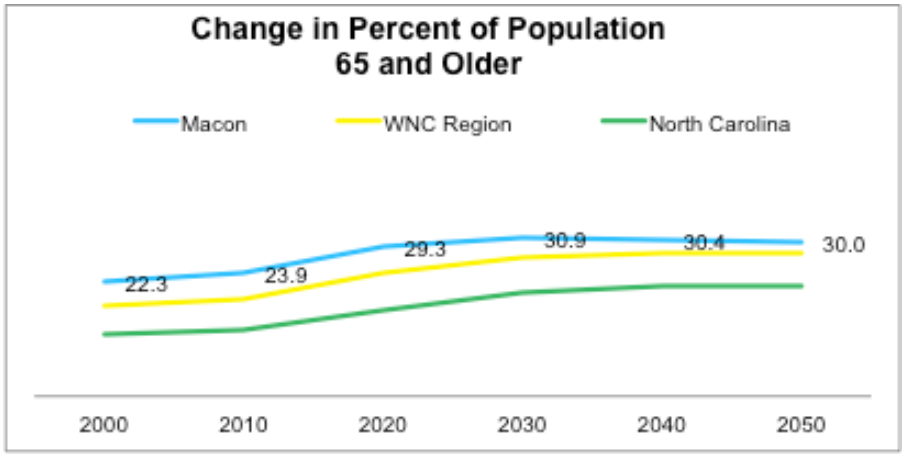
Macon County has significantly lower proportions of all minority racial and ethnic groups than NC as a whole.

The recent rate of growth in Macon County is expected to slow over the next two decades, though is expected to remain higher than the region and state.



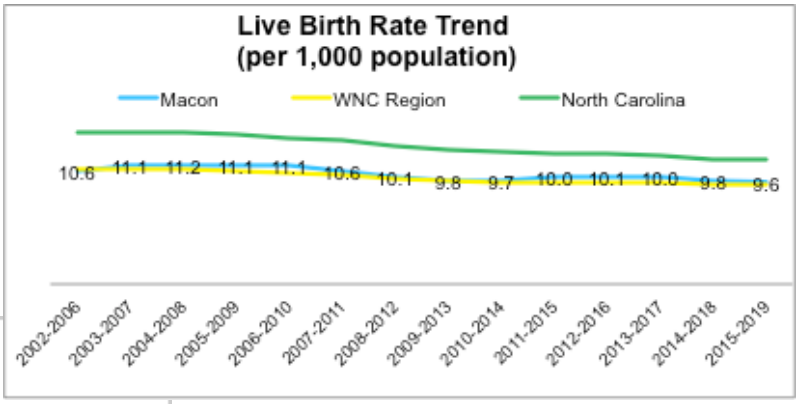
Source: *Annual County Populations 2020-2029 and 2030-2030 and 2040-2050,* last updated February 18, 2021. Retrieved April 15, 2021, from North Carolina Office of State Budget and Management County/State Population Projections website: https://www.osbm.nc.gov/demog/county-projections

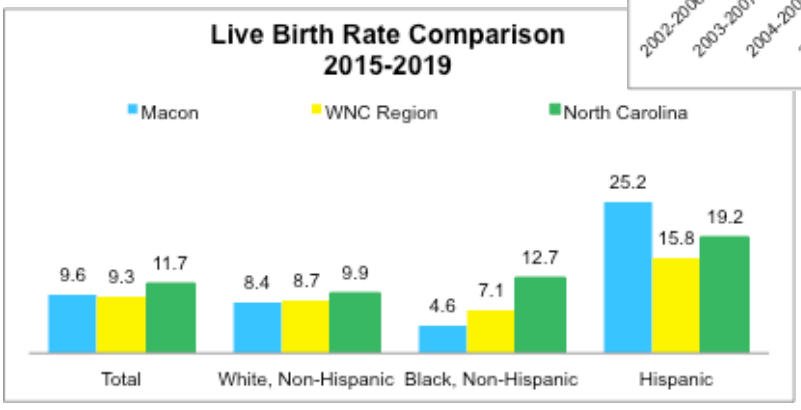
The "65 and older" population projection continues to trend higher in Macon and the WNC region than the state projections.



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 Macon and the WNC region than that state's, and varies by race.





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. Macon County has experienced an influx of new residents from urban areas. Although this has had a positive impact on the economy, it has placed additional strains on the current healthcare infrastructure and housing costs.

For example, **15.3% of Macon County survey respondents reported losing their job due to the pandemic, and 26.7% stated that they chose to go without needed medical care during the pandemic.**

(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/.)

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/

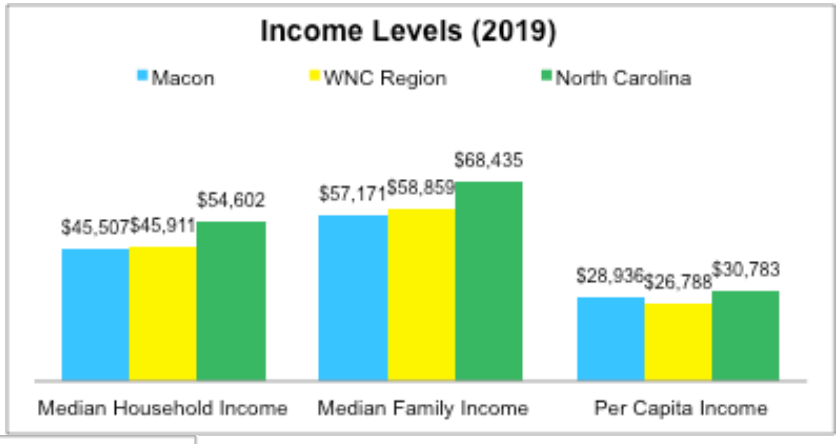
Chapter 3 – Social & Economic Factors

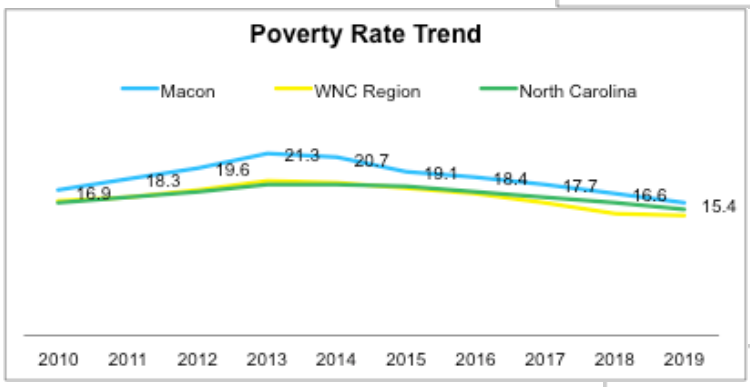
As described by Healthy People 2030, economic stability, education access and quality, healthcare access and quality, neighborhood and built environment, and social community and context are five important domains of social determinants of health. Social determinants of health (SDOH) are the conditions 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 Macon 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.

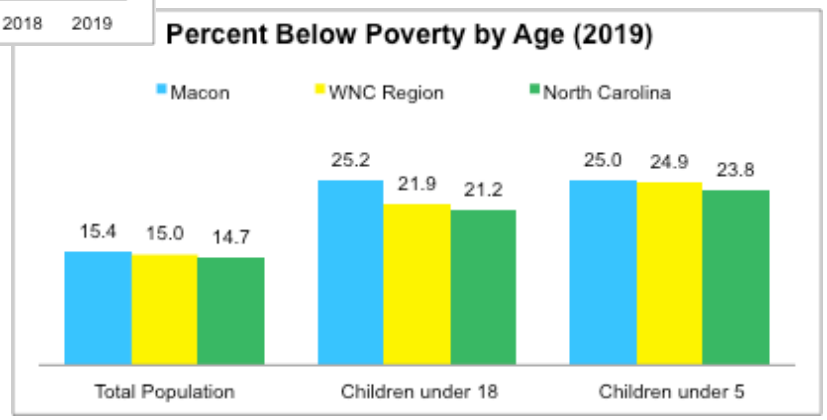
Income & Poverty

"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 levels in Macon County trend above the region and state on average, and poverty in Macon County is also unevenly distributed with families with children and minorities facing greater burden.



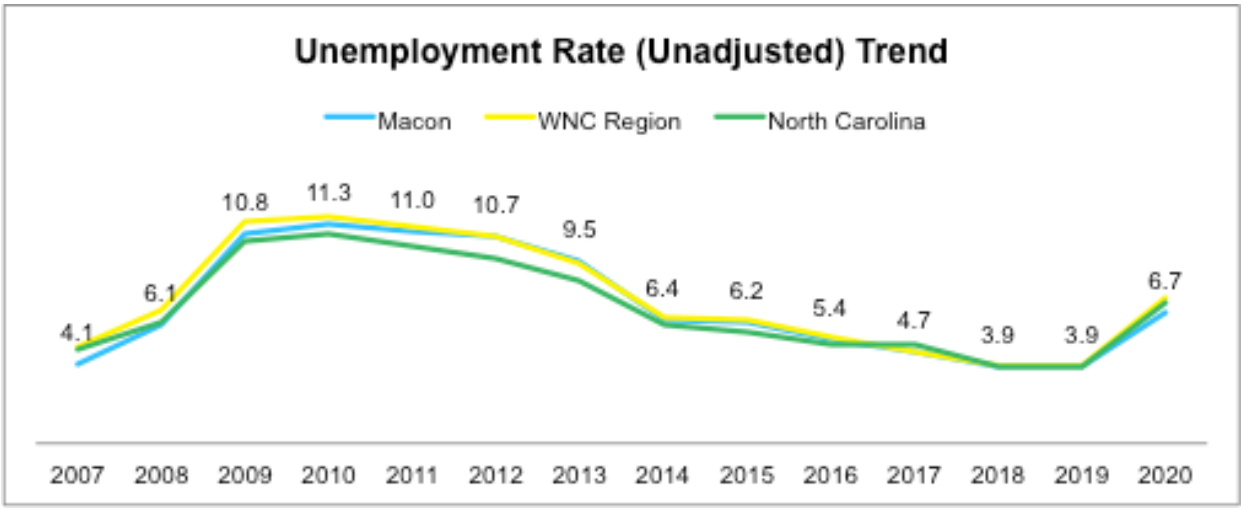
Source: *Selected Economic Characteristics, 2015-2019 American Community Survey 5-Year Estimates (DP03). Retrieved April 28, 2021 from U.S. Census Bureau Explore Census Data website: http://census.data.gov*

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).

Macon County's unemployment rate is largely in line with the region and state in recent years, increasing in 2020.



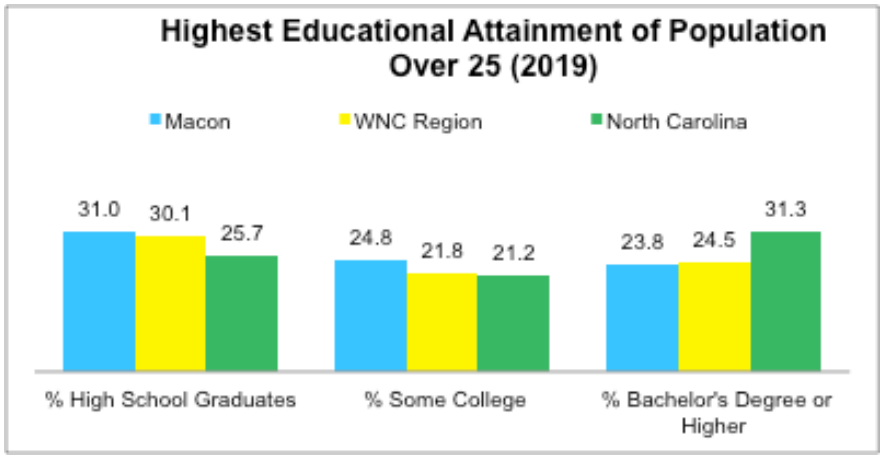
Source: *Local Area Unemployment Statistics (LAUS) - Unemployment Rate, 2020 and 2021. Retrieved May 21, 2021, from North Carolina Department of Commerce, Labor and Economic Analysis Division (LEAD), D4 - Demand Driven Data Delivery System website: d4.nccommerce.com*

Education

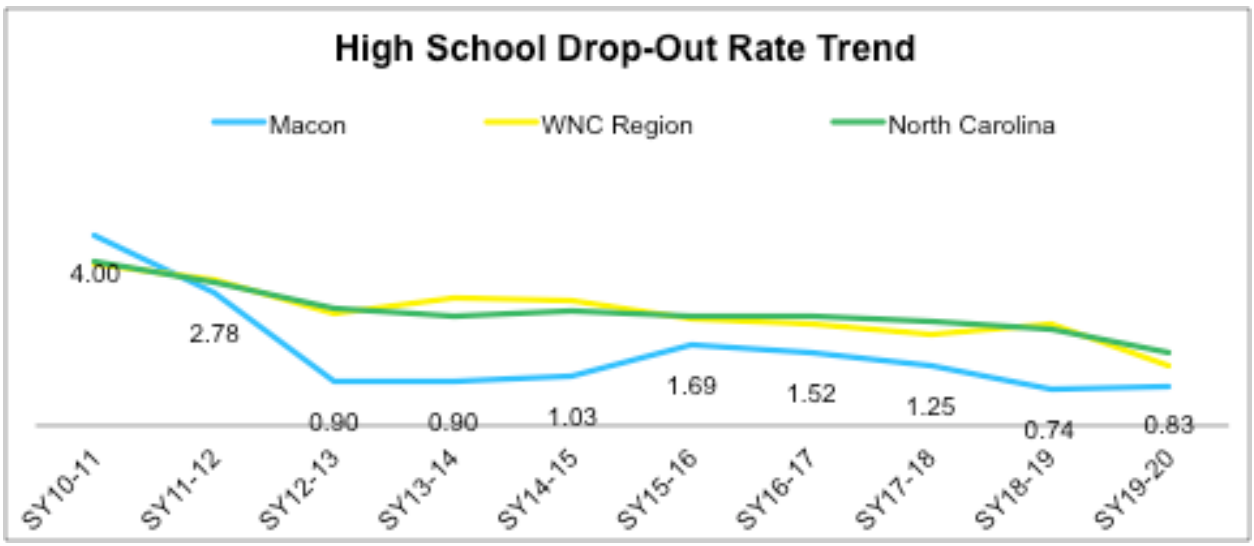
"Better educated individuals live longer, healthier lives than those with less education, and their children are more likely to thrive. This is true even when factors like income are taken into account" (County Health Rankings, 2021).

Macon County has a higher rate of college graduates than the region, though slightly lower than the state average.

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



Sources: - *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



Source: NC Department of Public Instruction. (2021). Consolidated Data Reports: High School Dropout Counts and Rates. [Data tables]. Available from http://www.ncpublicschools.org/research/dropout/reports/.

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, 16.9% of Macon County respondents *disagreed* with the statement that "the Community is a Welcoming Place for People of All Races and Ethnicities," which is similar to the regional WNC average of 16.8%. In the same survey, 15.3% of Macon respondents reported that they had been often or sometimes threatened or harassed due to their race/ethnicity, which is higher than the regional WNC average of 9.7%.

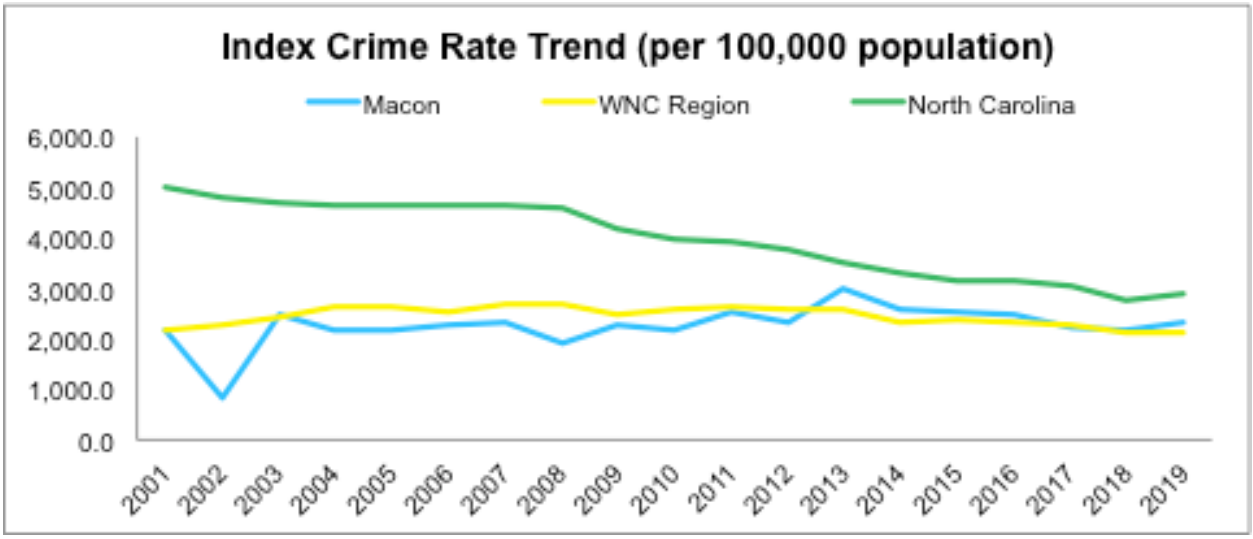
Source: WNC Health Network. (2021). *2021 WNC Healthy Impact Community Health Survey: Data Workbook.* [Data set]. Available from https://www.wnchn.org/wnc-data/regional-data/.

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 Macon County is lower than the state throughout the period cited and recently similar to the regional average. The property and violent crime rates in Macon County are consistently lower than the state average.

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



In FY2019-2020, 165 persons in Macon County were identified as victims of sexual assault. The most frequently reported type of sexual assault by individuals in Macon County during this period is in the "other" category (60 persons) followed by human trafficking (38 persons).

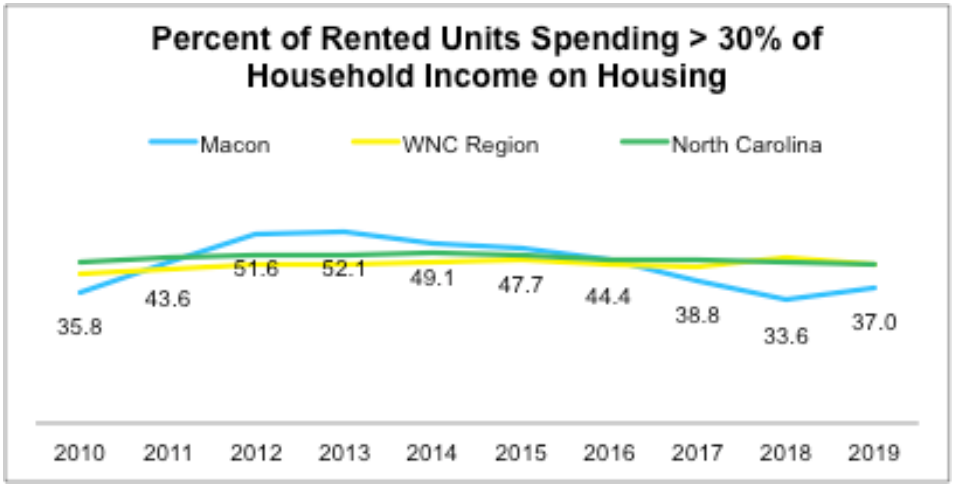
Regionally in western NC on average, the most frequently reported type was rape followed by adult survivor of child sexual assault.

Source: North Carolina Department of Administration. (2021). *County Statistics - Sexual Assualt: 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).

In a recent survey of WNC residents, 32.4% of Macon respondents were "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, 18% of Macon 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.

In Macon County, 10% of renter-occupied households have no vehicle available for use, compared to 3.5% of owner-occupied households. This is similar than the regional WNC average of 10.6% of renter-occupied households having no vehicle available, but higher than the state average of 2.4%.

Sources:
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

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/.

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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 Macon County, 66% of respondents reported that they "always/usually get the needed social/emotional support," which is lower than the regional average of 69.8% and down from previous years (69.6% in 2018, 83.2% in 2015, and 81.8% in 2012).

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/.

Chapter 4 – Health Data Findings Summary

The following is a snapshot of data that tells us about the health of Macon 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 data regarding the health behaviors and morbidities that relate to the priority health issues can be found in the corresponding chapters of this report and are not repeated here.

Mortality

Rank	Cause of Death	Macon	
		# Deaths	Death Rate
1	Cancer	503	152.4
2	Diseases of Heart	447	139.0
3	Chronic Lower Respiratory Diseases	187	52.6
4	All Other Unintentional Injuries	114	50.7
5	Cerebrovascular Disease	113	34.3
6	Alzheimer's disease	101	28.9
7	Unintentional Motor Vehicle Injuries	40	23.3
8	Diabetes Mellitus	67	21.7
9	Suicide	39	20.2
10	Pneumonia and Influenza	57	16.6
11	Chronic Liver Disease and Cirrhosis	41	16.0
12	Nephritis, Nephrotic Syndrome, and Nephrosis	43	13.9
13	Septicemia	25	7.3
14	Homicide	9	7.2
15	Acquired Immune Deficiency Syndrome	3	2.6
	All Causes (some not listed)	2,365	777.3

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

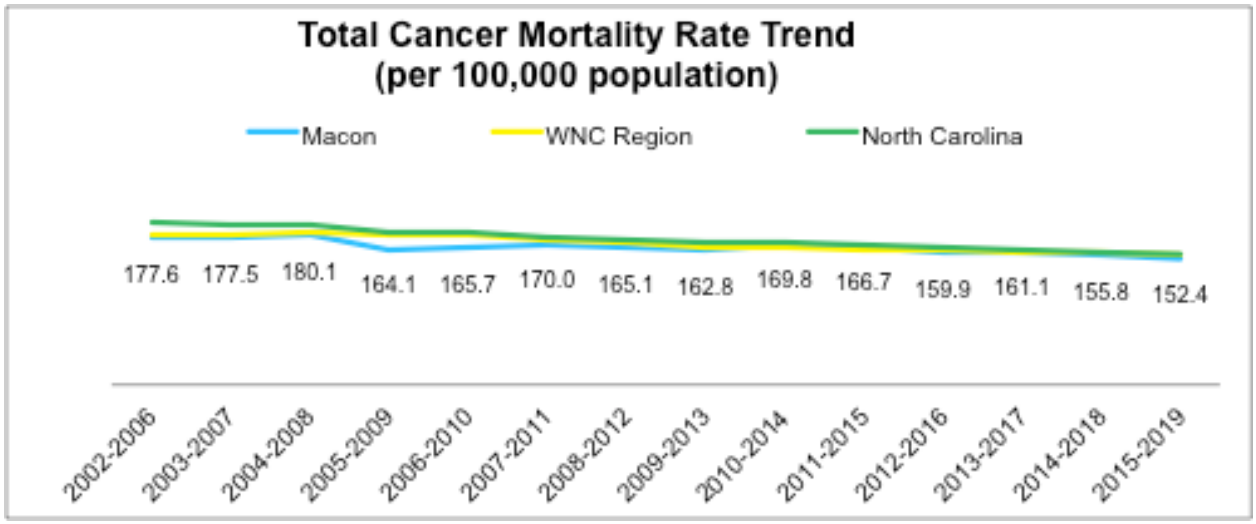
Cause of Death	Macon		Comparison to WNC Regional Average Rate		Comparison to NC Rate	
	# Deaths	Death Rate	Regional Rate	% Difference	NC Rate	% Difference
Acquired Immune Deficiency Syndrome	**3**	**2.6**	0.9	181.1%	1.8	44.4%
All Other Unintentional Injuries	114	50.7	50.7	0.0%	39.3	29.0%
Alzheimer's disease	101	28.9	33.0	-12.4%	36.9	-21.7%
Cancer	503	152.4	157.3	-3.1%	158.0	-3.5%
Cerebrovascular Disease	113	34.3	39.6	-13.3%	42.7	-19.7%
Chronic Liver Disease and Cirrhosis	41	16.0	15.2	5.4%	10.6	50.9%
Chronic Lower Respiratory Diseases	187	52.6	53.5	-1.6%	44.0	19.5%
Diabetes Mellitus	67	21.7	22.2	-2.4%	23.8	-8.8%
Diseases of Heart	447	139.0	164.0	-15.2%	157.3	-11.6%
Homicide	**9**	**7.2**	4.2	69.9%	6.8	5.9%
Nephritis, Nephrotic Syndrome, and Nephrosis	43	13.9	15.1	-8.2%	16.5	-15.8%
Pneumonia and Influenza	57	16.6	17.8	-6.5%	16.7	-0.6%
Septicemia	25	7.3	10.8	-32.3%	12.7	-42.5%
Suicide	39	20.2	19.8	2.3%	13.4	50.7%
Unintentional Motor Vehicle Injuries	40	23.3	16.1	45.2%	14.7	58.5%
All Causes (some not listed)	2,365	777.3	805.5	-3.5%	780.0	-0.3%

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

Macon County				
Age Group	**Rank**	**Leading Cause of Death**	**# Deaths**	**Death Rate**
00-19	1	Motor vehicle injuries	5	13.9
	2	Congenital anomalies (birth defects)	4	11.1
	3	Conditions originating in the perinatal period	3	8.3
20-39	1	Other Unintentional injuries	15	44.5
	2	Suicide	7	20.8
	3	Motor vehicle injuries	6	17.8
40-64	1	Cancer - All Sites	104	187.0
	2	Diseases of the heart	81	145.6
	3	Other Unintentional injuries	34	61.1
65-84	1	Cancer - All Sites	312	720.3
	2	Diseases of the heart	196	452.5
	3	Chronic lower respiratory diseases	121	279.3
85+	1	Diseases of the heart	168	3149.6
	2	Cancer - All Sites	85	1593.6
	3	Alzheimer's disease	62	1162.4

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/.

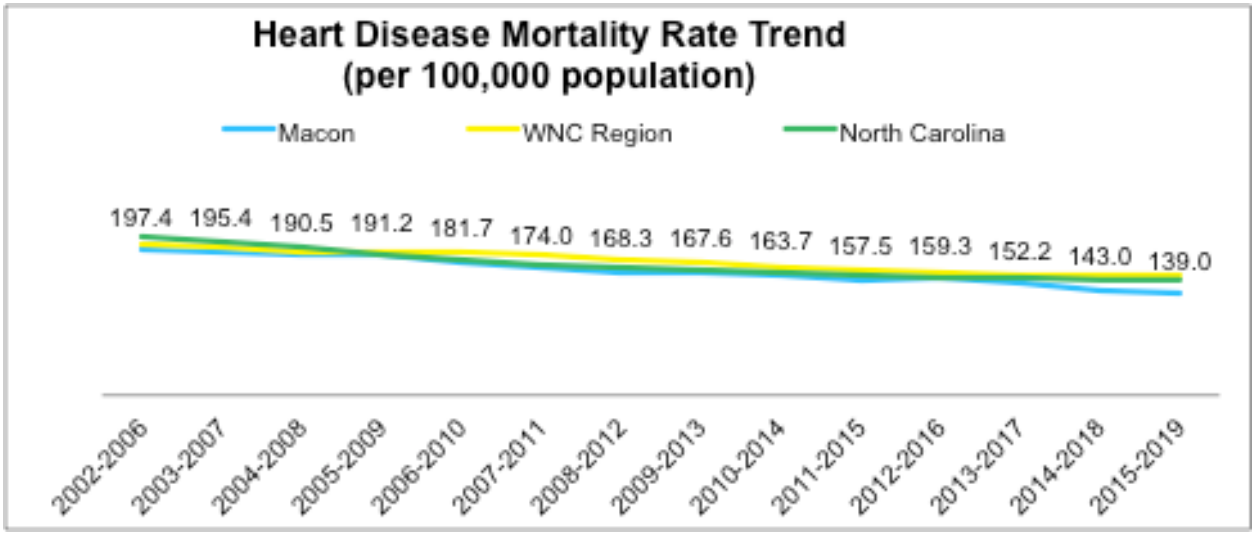
Cancer is the leading cause of death in Macon County, though the rate has trended down steadily over the time period observed.



As with heart disease, Macon County males have a historically higher cancer mortality rate than females. Lung cancer is the leading site-specific cancer mortality followed by prostate cancer.

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/.

Heart disease is the second leading cause of death in Macon County, though the rate has trended down steadily and is recently lower 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/.

Chapter 5 – Physical Environment

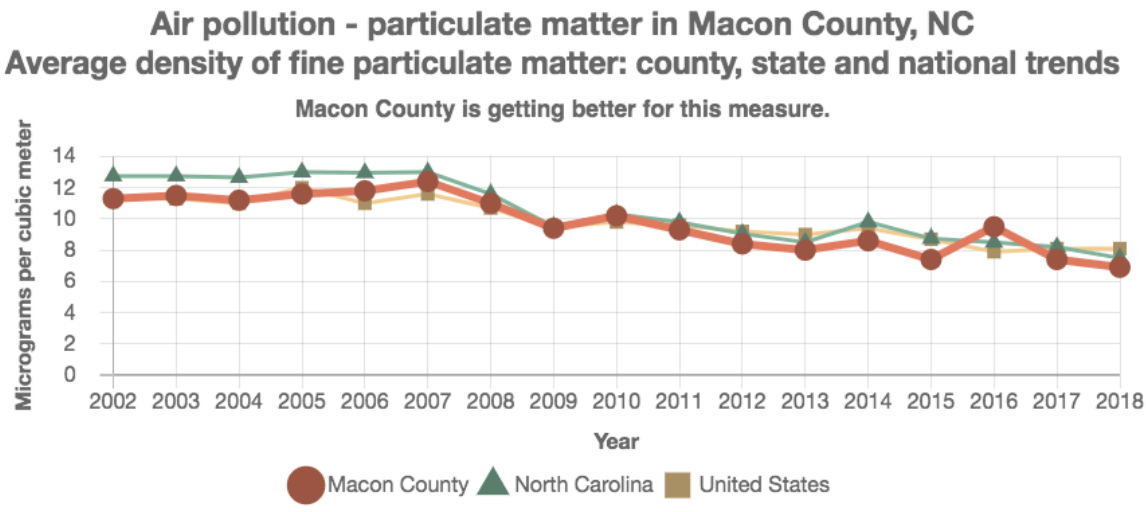
Outdoor and Indoor Air Quality

"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 Macon 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).



Notes:
Data in this trend graph are taken from the Environmental Public Health Tracking Network, and will not match data used in the 2014-2016 Rankings.

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).

% [of employed people] Breathed Smoke at Work in Past Week				
	2012	**2015**	**2018**	**2021**
Macon	14.7%	6.1%	21.2%	6.2%
WNC	14.2%	14.2%	17.0%	9.1%

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?”

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, 55.9% of western NC’s regional population on average was being served by community water systems, compared to 60.4% in Macon County. The remaining residents are presumably 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

Chapter 6- Health Resources

Health Resources

Process

Macon County Public Health received through WNC Healthy Impact a data set from United Way's 211. The data set listed health resources available for Macon County residents. The CHA co-coordinators review the results and share any missing or incorrect information 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 and explore the North Carolina 211 data here: https://nc211.org/

Macon County's Department of Social Services has established a Community Resource Center, a single point of access for information and assistance on services offered in the county. The Community Resource Center serves young adults, families, people with disabilities and older adults. Consumer-focused staff provide an unbiased source of information and options, allowing the individual to choose from a wide range of programs available. Community Resource Center's phone number is 828-349-0211.

Resource gaps related to priority health areas are discussed in chapter seven.

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 of the current data from our county that reflects the health of our community. We then use this information to help us assess how well we're doing, and what actions we need to take moving forward.

Beginning in 2021, following delays due to the ongoing COVID pandemic, our team reviewed the newly available data to uncover 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:

1. Access to Care
2. Affordable Housing
3. Income Inequality, Labor Shortage and Living Wage
4. Obesity
5. Substance Abuse

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: Access to Care
Health Priority 2: Affordable Housing
Health Priority 3: Substance Abuse
Health Priority 4: Obesity

ACCESS TO CARE

Community Health Assessment-Priority Setting Data Summary

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 access to care (comprehensive health services) was discovered to be an issue of high concern in both the secondary and primary survey data.

THE NUMBERS

Rate of primary care physicians per 10,000 population

7.12

Percent of primary care physicians over the age of 65 in 2019

38.5%

The rate of primary care physicians per 10,000 population is 7.12 in 2019. This rate is slightly higher than both the region (6.27) and the state (7.06). Macon County has the highest percent of primary care physicians over the age of 65 (35.8%) in the region.

WHAT DOES THIS MEAN FOR MACON?

- The percent of adults who were unable to get needed medical care at some point in the past year slightly increased to 17% in 2021.
- The percent of adults who did not have healthcare insurance slightly decreased to 23.2% in 2021.
- Approximately, 37% of adults chose to go without needed care during the pandemic.
- This health issue is related to the HNC 2030 desired results and indicators for Increase the primary care workforce. The current rate of primary care physicians per 10,000 population is 7.12.

Revised June, 2022

Tool adapted by WNC Health Network from Buncombe County CHIP data team

ACCESS TO CARE

WHAT'S HELPING?

- County Health Department
- Local Healthcare Facilities (Angel Medical and Harris Regional)
- Free-clinics
- VA Clinic
- Private practices
- Telehealth

WHAT'S HURTING?

- Transportation
- Education
- Seasonal Residents
- High cost of living
- COVID-19
- Lack of Medicaid Expansion
- Difficult Insurance Requirements
- Aging providers
- Housing costs
- Lack of urgent cares - Highlands
- Lack of comprehensive care (physical and mental health)
- Lack of child/ adolescent specialty care
- Labor shortage

WHO'S MOST IMPACTED?

- Older adults
- Veterans
- Low income, uninsured and/ or underinsured
- Hispanic/ Latinx population
- Seasonal residents

WHAT ELSE DO WE KNOW?

Access to care typically begins with affordable and comprehensive health insurance. Beyond that, geographic proximity to health care providers is key to ensuring that people can physically access the care they need. Within the health care system, quality care means the provision of safe, effective treatment in a timely manner. (HNC 2030 Report, 2020).

What Works to Do Better?

Examples identified by CHA Prioritization attendees:

- Telemedicine (New NC law requires insurance to cover it)
- Remote clinic locations
- Programs that target "whole health" approach and pair both physical and mental health

AFFORDABLE HOUSING

Community Health Assessment-Priority Setting Data Summary

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 affordable housing was discovered to be an issue of high concern in both the secondary and primary survey data.

THE NUMBERS

Have Had to Live With a Friend/Relative
in the Past Three Years Due to a Housing Emergency
(Western North Carolina, 2021; By County)

The percent of adults who have had to live with a friend/ relative in the past three years (CHA cycle) due to a housing emergency was 21% (21.2%) in 2021. This percentage is significantly higher than the region (9.3%).

WHAT DOES THIS MEAN FOR MACON?

- Thirty-seven percent of rental units were spending >30% of their household income on housing and 14.3% were spending >50% of their household income on housing.
- The percent of adults who were worried or stressed about paying rent or mortgage in the past year was 32.4% in 2021.
- The percent of adults who lived on the street, in a car, or in a temporary shelter in past three years was 4.6% in 2021.
- Nearly one in five adults (18.0%) had a time in the past year when their home was without electricity, water or heating.
- This health issue is related to the HNC 2030 desired results and indicators for Improve housing quality.

Revised June, 2022

Tool adapted by WNC Health Network from Buncombe County CHIP data team

AFFORDABLE HOUSING

WHAT'S HELPING?

- Subsidized housing/ apartment complexes

WHAT'S HURTING?

- High cost of housing
- Lack of affordable housing
- Lack of housing in general
- Long commutes from communities with more affordable housing
- Impact of short-term rentals
- Increased building costs

WHO'S MOST IMPACTED?

- Low income
- People experiencing homelessness
- Veterans and veterans with disabilities
- People who access housing through section B
- People with disabilities

WHAT ELSE DO WE KNOW?

Housing quality is an important determinant of overall health and well-being. Studies show that there is a direct link between housing quality and physical and mental health (HNC 2030 Report, 2020).

WHAT WORKS TO DO BETTER?

Examples identified by CHA Prioritization attendees:

- Government role in affordable housing

SUBSTANCE ABUSE

Community Health Assessment-Priority Setting Data Summary

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 abuse was discovered to be an issue of high concern in both the secondary and primary survey data.

THE NUMBERS

Used Prescription Opiates/Opioids in the Past Year, With or Without a Prescription
(By County, 2021)

The use of prescription opiates/ opioids in Macon County has slightly decreased in 2021 to 19.7% or approximately one in five adults.

WHAT DOES THIS MEAN FOR MACON?

- The percent of child abuse and neglect cases that were substantiated was 9% in FY19-20.
- Macon county had 5 overdose deaths due to opioid overdose in 2019.
- The prevalence of individuals whose life has been negatively affected by Substance Abuse (by Self or Someone Else) decreased to 50.1% in 2021.
- The rate of hospital discharges with infant drug withdrawal diagnosis has decreased from 31.6 to 28.1 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 18.3 in 2019 and is close to meeting the 2030 target of 18.
- Sixty-six percent of key informants selected substance misuse as a major problem in the community.

Revised June, 2022

Tool adapted by WNC Health Network from Buncombe County CHIP data team

SUBSTANCE ABUSE

WHAT'S HELPING?

- No wrong door approaches
- Peer Support
- Opioid Settlement Funds
- Harm reduction intervention

WHAT'S HURTING?

- Unintended consequences of restrictions on prescribing Rx opioids (e.g., people turning to illicit substances)
- Lack of mental health resources
- Lack of long term programs
- Access to comprehensive healthcare
- Stigma

WHO'S MOST IMPACTED?

- Veterans
- People experiencing mental health issues
- People experiencing chronic pain

WHAT ELSE DO WE KNOW?

One in 14 Americans reports experiencing a substance use disorder. There is not one single driving factor that leads to addiction. Some people may use drugs to help cope with stress, trauma, or to help with mental health issues. Some may even develop opioid use disorder after misusing opioids they are prescribed by doctors. In any case, using drugs over time makes it easier to become addicted (CDC, 2022).

WHAT WORKS TO DO BETTER?

Examples of Evidence-based Interventions:

- Promoting alternatives to prescription pain management through advocacy & patient education
- Public awareness campaign
- Screening for substance use disorder (SUD)

Examples identified by CHA Prioritization attendees:

- Peer Support (e.g., peer support for veterans)
- Long-term rehabilitation facilities

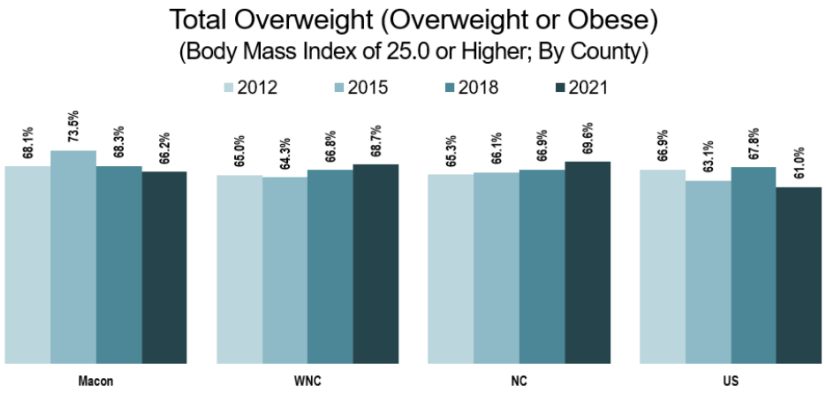
This is a collaborative document created by the Macon County Public Health and CHA Prioritization Attendees_5.16.22

OBESITY

Community Health Assessment-Priority Setting Data Summary

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.

THE NUMBERS



The prevalence of Overweight and Obese adults in Macon County has slightly decreased in 2021 to 66.2% or approximately two thirds of the adult population.

WHAT DOES THIS MEAN FOR MACON?

- The prevalence of individuals meeting current physical activity recommendations has increased (28.9%) in 2021.
- 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 39.6% in 2019 with a 2030 target of 20%.
- Sixty-six percent of key informants selected obesity as a major problem in the community.

Revised June, 2022

Tool adapted by WNC Health Network from Buncombe County CHIP data team

OBESITY

WHAT'S HELPING?

- "Strong network of non-profits that fill in for many of the needs related to health and wellbeing" - Health Provider
- Free physical activities
- Mountain Wise programs
- Minority Diabetes Prevention Program
- Double Up Food Bucks
- Worksite Wellness programs

WHAT'S HURTING?

- Health habits
- Lack of education & value on cooking and gardening
- Fast food is easy/ convenient
- Cost of healthy foods
- Lack of mental health services

WHO'S MOST IMPACTED?

- Hispanic/ Latinx population
- Children, youth and adolescents
- Low income, uninsured and/or underinsured

WHAT ELSE DO WE KNOW?

People who have obesity, compared to those with a healthy weight, are at increased risk for many serious diseases and health conditions. In addition, obesity and its associated health problems have a significant economic impact on the US health care system (CDC, 2022).

WHAT WORKS TO DO BETTER?

Examples of Evidence-based Interventions:

- School-based nutrition and physical activity programs
- Worksite obesity prevention programs
- Community-wide physical activity campaigns

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

Results of the 2021 Community Health Assessment will be widely disseminated throughout Macon County. Plans include the public library, newspaper, media press releases, web postings, and presentations to hospital, health, Board of Health and other boards/committees. We anticipate these results will be used for strategic planning purposes for our local hospitals, health department, as well as other health and human service agencies in the county.

- The 2021 Community Health Assessment will be available online for anyone to access and review. Available here: http://maconnc.org/healthy-carolinians.html.
- The Community Health Assessment will also be available by request at Macon County Public Health.
- A Community Health Improvement Plan (CHIP) on an electronic Scorecard will be available for anyone to access to monitor progress. Available here: http://maconnc.org/healthy-carolinians.html.
- A State of the County Health (SOTCH) report will be available for anyone to access and monitor progress. Available here: https://maconnc.org/healthy-carolinians.html.

For More Information and to Get Involved

Visit Macon County Public Health online or in- person for more information. Contact Macon County Public Health if you are interested in volunteering, coordinating, or collaborating with the community health assessment priorities.

WORKS CITED

Data sources are cited in-text throughout the report. Key resources 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 Jessicca Griffin, 2021

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

APPENDICES

Appendix A – Data Collection Methods & Limitations

Appendix B – Data – Please contact Macon County Public Health for additional data and appendix items such as:

- Data Presentation Slides
- Secondary datasets prepared by NC DHHS
- WNC Healthy Impact Key Informant Interview Findings

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 of the community's health needs.

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

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

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, Macon, 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.

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.

In order to determine WNC regional estimates, county responses were weighted in proportion to the actual population distribution to appropriately represent Western North Carolina as a whole. Since the sample design and quality control procedures used in the data collection ensure that the sample is representative, the findings may be generalized to the region with a high degree of confidence.

Survey Administration
PRC piloted the survey through 30 interviews across the region and consulted with WNC Health Network staff to resolve substantive issues before full implementation. PRC used trained, live interviewers and an automated computer-aided telephone interviewing system to administer the survey region-wide. Survey interviews were conducted primarily during evening and weekend hours, with some daytime weekday attempts. Interviewers made up to five call attempts per telephone number. Interviews were conducted in either English or Spanish, as preferred by respondents. The final sample included 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 in order to drive additional participation and bolster overall samples. This yielded an additional 1,717 surveys, and locally an additional 161.

About the 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% (Macon 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.

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 make generalizations or statistical inferences from the sample to the entire population, but to gather in-depth insights into health issues from a group of individuals with a specific perspective.

Data Definitions

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

Error

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

Age-adjusting

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

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

Rates

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

While rates help make data comparable, it should be noted that small numbers of events tend to yield rates that are highly unstable, since a small change in the raw count may translate to a large change in rate. To overcome rate instability, another convention typically used in the presentation of health statistics is data aggregation, which involves combining like data gathered over a multi-year period, usually three or five years. The practice of presenting data that are aggregated avoids the instability typically associated with using highly variable year-by-year data, especially for measures consisting of relatively few cases or events. The calculation is performed by dividing the sum number of cases or deaths in a population due to a particular cause over a period of years by the sum of the population size for each of the years in the same period.

Health data for multiple years or multiple aggregate periods is included in this report wherever possible. Sometimes, however, even aggregating data is not sufficient, so the NC SCHS recommends that rates based on fewer than 20 events—whether covering an aggregate period or not—be considered unstable. In fact, in some of its data sets the NC SCHS no longer calculates rates based on fewer than 20 events. To be sure that unstable data do not become the basis for local decision-making, this report will highlight and discuss primarily rates based on 20 or more events in a five-year aggregate period, or 10 or more events in a single year. Where exceptions occur, the text will highlight the potential instability of the rate being discussed.

Regional arithmetic mean

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

Describing difference and change

Fifthly, in describing differences in data of the same type from two populations or locations, or changes over time in the same kind of data from one population or location—both of which appear frequently in this report—it is useful to apply the concept of percent difference or change. While it is always possible to describe difference or change by the simple subtraction of a smaller number from a larger number, the result often is inadequate for describing and understanding the scope or significance of the difference or change. Converting the amount of difference or change to a percent takes into account the relative size of the numbers that are changing in a way that simple subtraction does not, and makes it easier to grasp the meaning of the change.

For example, there may be a rate of for a type of event (e.g., death) that is one number one year and another number five years later. Suppose the earlier figure is 12.0 and the latter figure is 18.0. The simple mathematical difference between these rates is 6.0. Suppose also there is another set of rates

that are 212.0 in one year and 218.0 five years later. The simple mathematical difference between these rates also is 6.0. But are these same simple numerical differences really of the same significance in both instances? In the first example, converting the 6-point difference to a percent yields a relative change factor of 50%; that is, the smaller number increased by half, a large fraction. In the second example, converting the 6-point difference to a percent yields a relative change factor of 2.8%; that is, the smaller number increased by a relatively small fraction. In these examples the application of percent makes it very clear that the difference in the first example is of far greater degree than the difference in the second example. This document uses percentage almost exclusively to describe and highlight degrees of difference and change, both positive (e.g., increase, larger than, etc.) and negative (e.g., decrease, smaller than, etc.).

Data limitations

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