



Novant Health Brunswick Medical Center

Community Health Needs Assessment

Brunswick County, North Carolina

2019-2021

Approved by the Novant Health Triad Region Board of Trustees on Tuesday, October 22, 2019

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I. Introduction

Novant Health Brunswick Medical Center (NHBMC), in partnership with Brunswick County Health Services conducted a community health needs assessment in 2019 to identify the most pressing health needs in our community. Novant Health Brunswick Medical Center will enhance the community's health by offering health and wellness programming, clinical services and financial support in response to the specific health needs identified.

a. Organization Overview

Novant Health Brunswick Medical Center is an integral part of the Novant Health system (collectively known as "Novant Health"). Novant Health (NH) is a non-profit integrated health care system of 15 medical centers and a medical group with over 575 clinic locations. Other facilities and programs include outpatient surgery and diagnostic centers, charitable foundations, rehabilitation programs, and community health outreach programs. Novant Health and its affiliates serve their communities with programs including health education, home health care, prenatal clinics, community clinics and immunization services. Novant Health's over 28,000 employees and 2,500 physician partners care for patients and communities in North Carolina, South Carolina, and Virginia.

Mission

Novant Health exists to improve the health of our communities, one person at a time.

Our employees and physician partners strive every day to bring our mission, vision and values to life. We demonstrate this commitment to our patients in many different ways. Our organization:

- Maintains an active community health outreach program.
- Demonstrates superior outcomes for many health conditions as indicated by our state and national quality scores.
- Creates innovative programs that address important health issues, with many of our programs and services being recognized nationally.
- Believes in its role as a socially responsible organization, working with community agencies and organizations to make our communities better places to live and work.

Novant Health Brunswick Medical Center (NHBMC), was opened in 1977 as Brunswick Community Hospital, an acute care facility in the heart of Brunswick County. In 2006, Novant Health was selected by Brunswick County Hospital Authority to provide healthcare services to counties in eastern North Carolina. In 2011, our new facility opened its doors to the community. NHBMC is a 74-bed facility that provides maternity care, emergency services, surgery, outpatient diagnostic testing and other community healthcare programs.

b. Our Defined Community

Primary Service Area

The Primary Service Area for Novant Health Brunswick Medical Center is defined by the zip codes that represent more than 75% of the hospital’s in-patient population as outlined below:

Zip Code	City	County
28462	Supply	Brunswick
28470	Shallotte	Brunswick
28469	Ocean Isle Beach	Brunswick
28422	Bolivia	Brunswick
28467	Calabash	Brunswick
28261	Southport	Brunswick
28251	Leland	Brunswick
28468	Sunset Beach	Brunswick

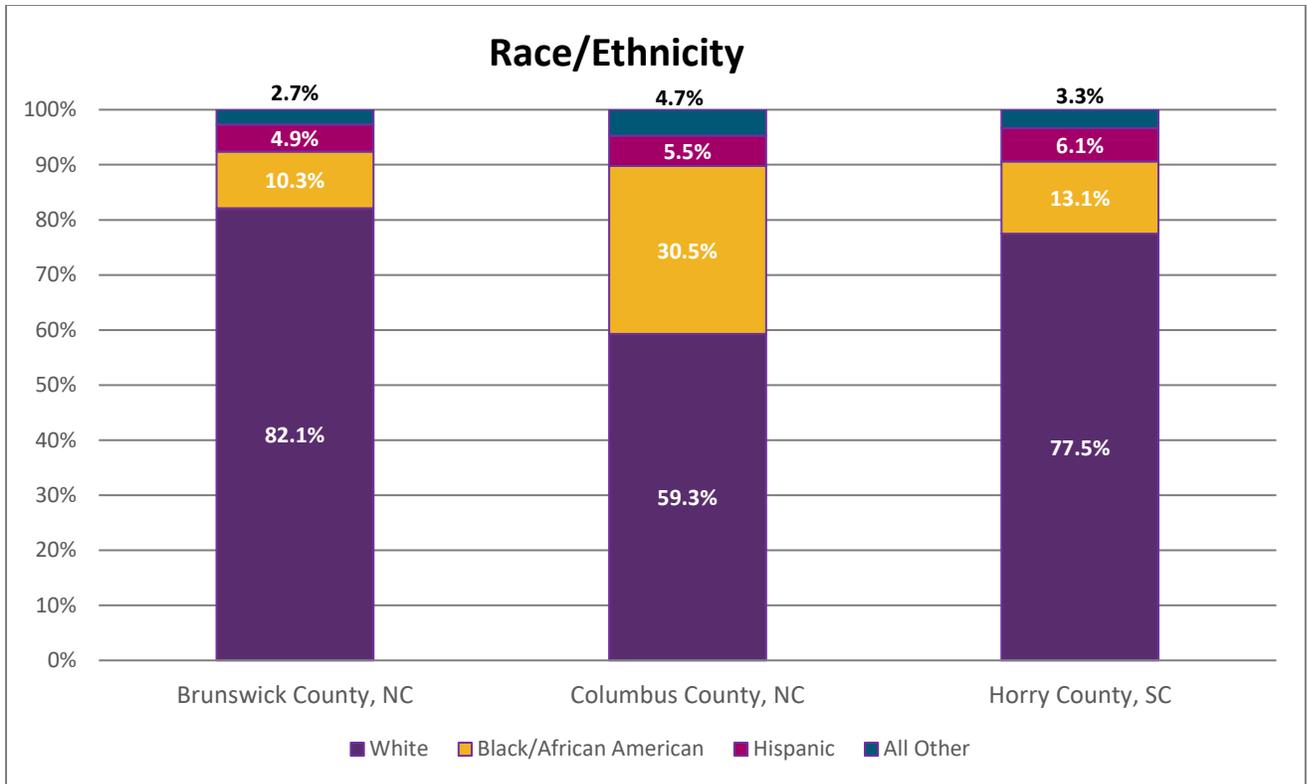
Brunswick County, NHBMC’s primary service area and defined community, includes the county seat of Bolivia. Based on 2018 estimates¹, Brunswick County has a population of 136,744 residents. Estimates indicate that Brunswick County’s population grew 27.3% since the 2010 US Census when there were an estimated 107,431 county residents. The County covers an 846.97 square mile area, with an average of 126.8 persons per square mile.

Novant Health Brunswick Medical Center’s Primary Service Area includes the Cities of Bolivia, Leland, Shallotte, Southport, Supply, Calabash, Sunset Beach, Ocean Isle Beach, which are all located in Brunswick County. 100% of the patients in the Primary Service Area (PSA) reside in Brunswick County and while 77.8% of the patients in the Primary and Secondary Service Areas reside in Brunswick County.

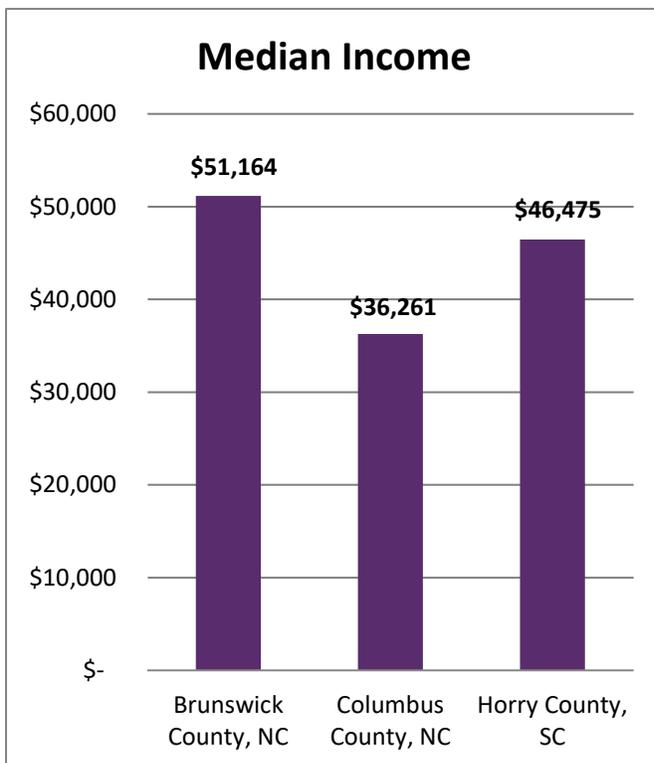
Secondary Service Area

The Secondary Service Area for Novant Health Brunswick Medical Center includes Brunswick County, NC, Columbus County, NC and Horry County, SC. According to 2018 Censuses Bureau data, the aforementioned counties include the following demographic profiles:

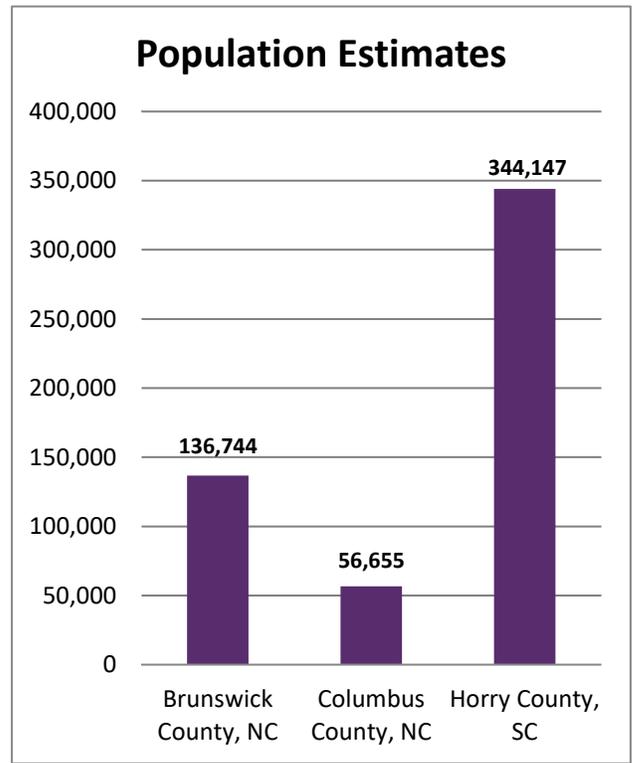
¹ US Census Bureau Population Estimates Program V
2018<https://www.census.gov/quickfacts/brunswickcountynorthcarolina>



Source: 2018 US Census Bureau Population Estimates



Source: American Community Survey 2013-2017



Source: 2018 US Census Bureau Population Estimates

Brunswick County Population: Demographics

As the majority of patients reside in Brunswick County, and all Primary Service area patients reside in Brunswick County, this county will be the sole focus of demographic, health and social indicators.

Brunswick County is more rural in nature, with 43% of the population living in rural areas. The county is home to 45 miles of south-facing beaches, which has opened the door to immense population growth since 2010. Based on 2018 estimates, Brunswick County remained one of the fastest growing counties in North Carolina over the last 20 years, with 136,744 residents². Much of the growth is centered in the eastern section of the county, the suburbs of Wilmington such as Leland, Belville and Southport. Census data. From 2020 to 2030, the population of Brunswick County is projected to grow by 23.0% which is down from 28.0% for the 2010-2020 period³. Demographic data is outlined below:

Brunswick County Population by Race & Ethnicity

	Brunswick County	North Carolina
		2
Population Estimate	136,744	10,383,620
Persons Under 5 Years	3.9%	5.9%
Persons Under 18 Years	15.3%	22.2%
Person 65 Years & Over	31.5%	16.3%
Female Persons	52.2%	51.4%
White Alone, Not Latino	82.1%	62.8%
Black/African-American Alone	10.3%	22.2%
American Indian & Alaska Native Alone	0.8%	1.6%
Asian Alone	0.8%	3.2%
Native Hawaiian & Other Pacific Islander Alone	0.1%	0.1%
Two or More Races	1.7%	2.3%
Hispanic or Latino	4.9%	9.6%

Adolescents (individuals 18 and younger) make up an estimated 15.3% of the population in Brunswick County, while seniors (individuals 65 and older) make up 31.5% of the population³. Median age continues to increase, and we can see a shift in the population from adolescents to seniors as our population continues to age. This trend may put a strain on healthcare services in Brunswick County because health care for older persons is different from that provided to other age groups in several respects: greater resource demands, the intertwining of professional health services with social services, the frequent occurrence of important ethical conundrums, and a higher prevalence of physical and mental disabilities.⁴ Non-white minorities currently make up less than one-fourth (17.9%) of the racial demographic in Brunswick County.

²U.S. Census Bureau (2018). State & County QuickFacts.

<https://www.census.gov/quickfacts/fact/table/brunswickcountynorthcarolina,US/PST045218>

³NC Office of State Budget and Management, Demographic and Economic Analysis Section

⁴National Center for Biotechnology Information (NCBI). The Health of Aging Populations. <https://www.ncbi.nlm.nih.gov/books/NBK98373/>

Brunswick County Population: Health Indicators

In the 2018 County Health Rankings¹, Brunswick County ranks 34 out of 100 counties for health outcomes. Areas where Brunswick County performs particularly poorly in quality of life and health behavior are below:

Quality of Life (Ranked 27 out of 100)	Brunswick County	Top U.S. Performers	North Carolina
Age-adjusted % of adults reporting fair or poor health	16%	12%	18%
Average number of physically unhealthy days reported in past 30 days (age-adjusted)	3.8	3.0	3.6
Average number of mentally unhealthy days reported in past 30 days (age-adjusted)	3.9	3.1	3.9
Percentage of live births with a low birthweight (<2500 grams)	9%	6%	9%
Health Outcomes & Behaviors (Ranked 34 out of 100)	Brunswick County	Top U.S. Performers	North Carolina
Teen Births	31	14	27
Adult obesity	32%	26%	30%
Alcohol-impaired driving deaths	35%	13%	30%
Sexually transmitted infections	283.5	152.8	577.6
Motor Vehicle Crash Deaths	16%	9%	14%
Drug overdose deaths	32	10	19

Source: County Health Rankings & Roadmaps <http://www.countyhealthrankings.org/app/north-carolina/2019/rankings/brunswick/county/outcomes/overall/snapshot>

Brunswick County’s leading cause of death in 2017 was cancer followed closely by diseases of the heart. Cancer, heart disease, and chronic lower respiratory disease have been the three leading causes of death for 9 of the last 10 years in Brunswick County:

Leading Causes of Death in Brunswick County in 2017			
Rank	Cause of Death	Number	%
1	Cancer	394	25.6
2	Diseases of heart	354	23.0
3	Chronic lower respiratory diseases	108	7.0
4	All other unintentional injuries	80	5.2
5	Cerebrovascular diseases	72	4.7
6	Alzheimer's disease	46	3.0
7	Diabetes mellitus	37	2.4
8	Motor vehicle injuries	32	2.1
9	Influenza and pneumonia	21	1.4
10	Nephritis, nephrotic syndrome and nephrosis	21	1.4
	All other causes (Residual)	376	24.2
	Total Deaths – All Causes	1,541	100.0

Source: NC State Center for Health Statistics

Brunswick County Population: Social Indicators

Brunswick County residents earn a median income that is slightly higher than the North Carolina state average. According to the U.S. Census 2013-2017 American Community Survey, more than one-fourth (28.0%) of Brunswick County residents have attained a bachelor’s degree or higher⁵. A key indicator to evaluate economic condition of Forsyth County is the poverty rate. The poverty rate for Brunswick County residents is lower than the North Carolina state average by 2% points, and the poverty rate for children (ages 0-17) in Brunswick County, is slightly higher than the NC State average⁷.

Median Household Income		Population Educational Attainment (≥ 25 yrs. old) ⁵		Poverty Rate ⁷	
Brunswick County	\$51,164	< HS diploma/GED	10.9%	All ages (Brunswick County)	11.9%
		HS diploma/GED	27.4%	All ages (North Carolina)	14.0%
North Carolina	\$50,320	Some college or associate's degree	33.8%	Children (0-17) (Brunswick County)	21.5%
		Bachelor's degree	18.1%	Children (0-17) (North Carolina)	21.0%
		≥ Graduate degree	9.9%		

The Brunswick County unemployment rate snapshot from February 2019 shows a rate much higher than the NC overall rate³. According to Robert Wood Johnson Foundation (RWJF) County Health Rankings and Roadmaps, 6% of Brunswick County residents have limited access to healthy foods, which is slightly better than the state average of 7%.⁴ Additionally, more than half of renters in Brunswick County spend more than 30% of their household income on rent. Brunswick County residents have a lower than average percentage of households without access to a vehicle.

Unemployment Rate ³		Limited Access to Healthy Foods ⁴		Renters spending more than 30% Of Household Income on Rent ⁵		Percent of Households without a Vehicle ⁶	
Brunswick County	5.7%	Brunswick County	6%	Brunswick County	53.8%	Brunswick County	4.0%
North Carolina	3.9%	North Carolina	7%	North Carolina	48.7%	North Carolina	6.1%

³NC Bureau of Labor Statistics <https://www.bls.gov/eag/eag.nc.htm>

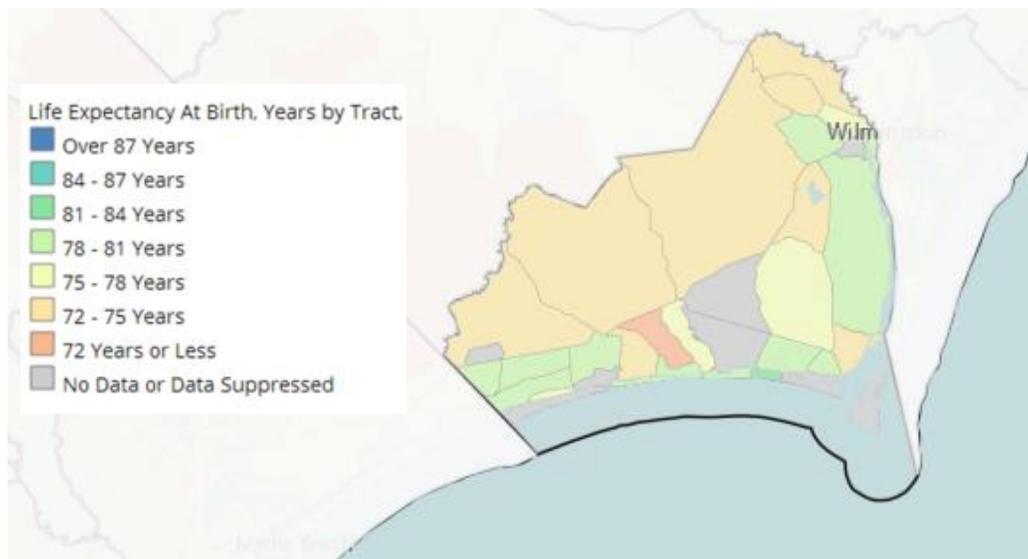
⁴ County Health Rankings and Roadmaps <http://www.countyhealthrankings.org/app/north-carolina/2018/rankings/brunswick/county/outcomes/overall/snapshot>

⁵ US Census Bureau American Community Survey 2013-2017 <http://factfinder.census.gov>

⁶ <http://nc.maps.arcgis.com/apps/MapSeries/index.html?appid=def612b7025b44eaa1e0d7af43f4702b>

⁷ U.S. Census Bureau, Small Area Income and Poverty Estimate Program. December 2017. <http://factfinder.census.gov/faces/tableservices/isf/pages/productview.xhtml?src=bkml>

Life expectancy varies widely in Brunswick County, from over 81 near Oak Island to 72 years or less in many of the inland census tracts.

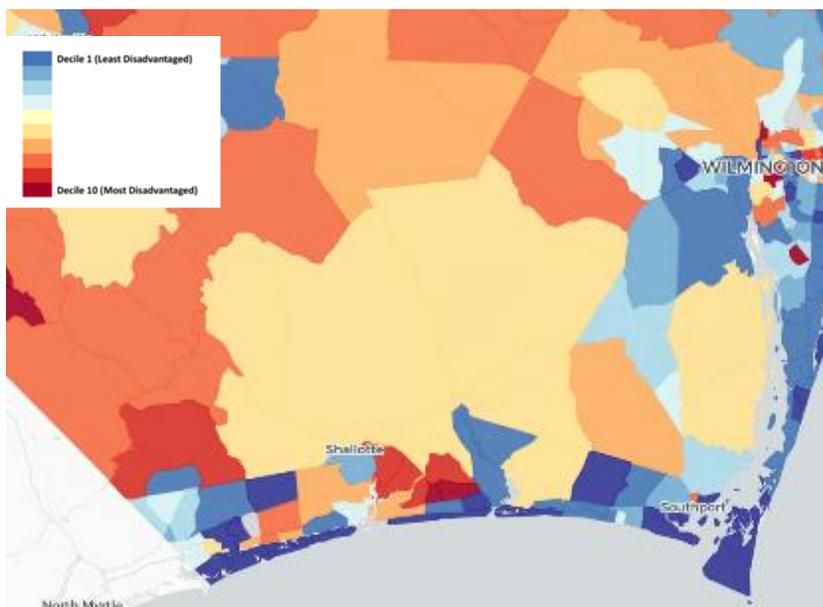


Source: engagementnetwork.org/map-room/ from CDC and NCHS 2010-2015

Brunswick County residents also display a wide range along the Area Deprivation Index (ADI). The ADI is a factor-based index which uses 17 US Census poverty, education, housing and employment indicators, including those above, to characterize census-based regions and has been correlated with a number of health outcomes including all-cause, cardiovascular, cancer and childhood mortality, and cervical cancer prevalence⁸.

The map below shows ADI scores from within NC that were ranked from lowest to highest, then divided into deciles (1-10). The least advantaged decile is represented by dark blue; the most disadvantaged in dark red. It's important to note the lower life expectancy census tracts overlap with the highest deprivation areas. These same deprivation areas are widely mirrored when looking at individual social factors, whether limited access to food, unemployment, limited transportation, or less than ideal housing circumstances. It's important to note the area with the most deprivation mirror the areas with lowest life expectancy.

⁸ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4251560/>



University of Wisconsin School of Medicine and Public Health. Area Deprivation Index. 5/1/2018. Available at: <https://www.neighborhoodatlas.medicine.wisc.edu>

II. Assessment process

a) Collaborative community partners

Local Health Departments in North Carolina are required to conduct a comprehensive community health needs assessment to maintain local health department accreditation. The 2019 Brunswick County Community Health Assessment (CHA) is a collaborative effort of Brunswick County Health Services (BCHS), Novant Health Brunswick Medical Center, Doshier Memorial Hospital, and numerous community agencies and organizations. As part of this assessment process, special attention was paid to the needs of the underserved. The process emphasized collaboration among community partners to improve the overall health of the community.

The assessment process was initiated by BCHS, community not-for-profits, and other city/county agencies and community members. Novant Health Brunswick Medical Center and Doshier Memorial Hospital were jointly involved as collaborative partners in the process. To ensure input from public health professionals, leaders of medically underserved communities, and persons with broad knowledge of the community, invitations were distributed to a large number of individuals and community groups to form the CHA Advisory Committee to oversee the process.

The CHA was strengthened by the collaborative nature and engagement of the Advisory Committee and Work Group. The efforts of the CHA team and other community agencies and individuals were instrumental in ensuring diversity during the CHA process (See Appendix A for a complete list of agencies that were represented on the advisory and data groups. Please see the Brunswick County Community Health Assessment Report at <http://www.brunswickcountync.gov/health/> for a listing of individual participant names).

b) Solicitation

We solicited input from persons who represent the broad interest of Brunswick County, NC including Hispanics, persons living in poverty and those without a high school degree. Through stratified convenience sampling methodology that was employed for the Community Health Opinion Survey, this ensured broad input from Brunswick's diverse community was sought after, including the underserved.

c) Data collection and analysis

Primary Data

The Community Health Opinion Survey

In an effort to maximize resources and minimize duplication of efforts and impact on the community, BCHS used the same survey instrument that was used by Doshier Memorial Hospital (Doshier) for their 2019 Community Health Needs. A sample of the Brunswick County population was identified using a stratified convenience sampling approach. The Doshier survey data was heavily weighted by Doshier's primary service area (Southport and surrounding areas), so the CHA's survey focused on other areas of Brunswick County in an attempt to improve representativeness.

BCHS staff and collaborators strived to solicit input from all factions of the community, including the most vulnerable populations. To fulfill this endeavor, invitations to complete the survey were distributed widely throughout the community in a variety of fashions, which included print, online, television/media outlets, email lists of community members, homeowner associations, mail, employers, government agencies, the public school system, the community college and health care providers. The BCHS survey was open from April 2019 through June 2019.

Secondary Data

Along with the outlined primary data, secondary data was collected from other sources and reviewed. Health data was gathered and analyzed from the following sources:

- North Carolina State Center for Health Statistics
- The US Census Bureau
- 2019 County Health Rankings
- Data from Brunswick County agencies, organizations and businesses

III. Identifying and Prioritizing Health Needs

From participant responses, several social, behavioral, and clinical health needs were identified based on highest rank in responses after analyzing and interpreting Brunswick County's primary and secondary data. Overall findings included the following:

- Results from the Community Health Opinion Survey suggest that Brunswick County residents are most concerned about drug misuse and chronic disease (heart disease, high blood pressure, cancer, etc.).
- The top seven leading causes of death among Brunswick County residents in 2019 include cancer, heart disease, chronic lower respiratory disease, cerebrovascular disease, unintentional injury, diabetes and Alzheimer's disease.

a) Prioritization

Upon completion of the primary and secondary analyses, community members who responded to the Community Health Assessment prioritized their following issues as the top priorities for Brunswick County:

- 1) Drug misuse
- 2) Chronic diseases, heart disease and high blood pressure.
- 3) Other
- 4) Cancer
- 5) Unsafe driving
- 6) Environmental health exposures
- 7) Obesity
- 8) Mental health
- 9) Malnutrition / Lack of food
- 10) Alcohol misuse
- 11) Tobacco use
- 12) Prenatal care
- 13) Gangs / Violence
- 14) Dental health
- 15) Asthma / Lung disease

County Prioritized Health Outcomes

The Brunswick County Health Department will be conducting additional priority setting meetings in Spring 2020 to identify additional specific health priorities for the BCHD.

Facility prioritization

In addition to the community rankings, Novant Health Brunswick Medical Center reviewed the top five diagnosis codes for inpatient and outpatient hospital emergency room visits year-to-date July to December 2018.

Novant Health Brunswick Medical Center Emergency Department
Top 5 Diagnoses July – December 2018

Inpatient		Outpatient	
Diagnosis	Volume	Diagnosis	Volume
Sepsis, unspecified organism	127	Urinary tract infection, site not specified	293
Chronic obstructive pulmonary disease w (acute) exacerbation	75	Acute upper respiratory infection, unspecified	258
Pneumonia, unspecified organism	61	Chest pain, unspecified	238
Hypertensive heart disease with heart failure	46	Other chest pain	193
Acute kidney failure, unspecified	43	Headache	191

A review of the hospital emergency room visits indicated that many of the top inpatient diagnosis codes are correlated with chronic issues affecting the aging population. Upon analysis of the outpatient

diagnosis codes, it was apparent that many of the patients seen had symptoms that could be related to a number of chronic conditions, including (but not limited to) heart disease, obesity, diabetes, chronic stress, and chronic issues related to aging.

Upon a comprehensive review of the community’s recommended prioritized outcomes and NHBMC’s ED top 5 diagnosis codes, the Novant Brunswick Medical Center leadership team and Board of Trustees evaluated this information based on the scope, severity, health disparities associated with the need, and the estimated feasibility and effectiveness of possible interventions. Through this thorough evaluation, the team agreed on the following health priorities for Novant Health Brunswick Medical Center:

1. Drug misuse and substance use
2. Chronic Disease, including cancer, heart disease and high blood pressure.

V. Addressing needs

Novant Health Brunswick Medical Center is committed to working to address each of the identified areas of need through resource allocation and support of the following programs:

1. Drug misuse and Substance Use
2. Chronic Disease

In addition to the programs and services offered to the community through Novant Health Brunswick Medical Center, there are several existing community assets available throughout the Brunswick County community that have additional programs and resources tailored to meet all of the identified health needs. The following is a list of those existing community assets:

<u>IDENTIFIED PRIORITY:</u>	<u>PROGRAM:</u>	<u>ACTION:</u>	<u>INTENDED OUTCOME:</u>
1. Drug misuse and Substance Use	Opioid Intervention	Implement a post-overdose response team	Increase the number of individuals connected to substance use disorder treatment and services within the community.
2. Chronic Disease – Management and Prevention	Wellness Education and Screenings	Working in collaboration with community partners, offer free health education and subject matter expertise regarding healthy behaviors, chronic disease management and access to care.	Increase awareness of chronic disease prevention management and strategies.

		Provide free community screenings including BMI, blood pressure, & heart issues.	
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VI. Impact Evaluation of 2016-2018 Community Health Needs Assessment

Based on the previously reported health data from the 2016-2018 Community Health Needs Assessment, the Novant Health Brunswick Board of Trustees did a collective review of community feedback, prioritization and determined the top health priorities for Novant Health Brunswick Medical Center as **diabetes and obesity**.

No written comments were received from the most recently conducted CHNA and implementation strategy.

To address these priorities, Novant Health Brunswick Medical Center committed to providing community education, screenings and support groups to address these needs, as well as youth-focused physical activity and nutrition programs. From 2016-2018, Novant Health Brunswick Medical Center was successful in implementing selected outreach programs for each of the defined priority areas while meeting the goals established for each program. The major program goal that was set for each priority area was to increase the number of community members reached through screenings and health education. Specific objectives and measures achieved are described below:

Priority Area	Program	Intended Outcome	Actual Outcome
Chronic Disease - including Diabetes	Community Screenings: Remarkable You community screening initiative including BMI, blood pressure, & diabetes	Early detection of undiagnosed prediabetic and diabetic participants will increase	230 community members received free Remarkable You screenings at 3 community events. 200 additional community members received free blood pressure screenings at 2 community events. Among the 230 individuals surveyed at Remarkable You screenings, 88% stated they were previously aware of their risk factors. 99% of individuals indicated they were more aware of their risk factors as a result of the screening.
Chronic Disease - including Diabetes	Community health education: Community education lectures on chronic disease	Knowledge level of participants will increase, and participants will learn	Free health education was provided to 950 community members through lectures and support groups. Outreach included 6 community education lectures on heart health, nutrition/weight management diabetes and

	prevention and general health education	new skills to change unhealthy behaviors	general health education. Education occurred on the campus of NHBMC and in senior centers, faith communities and community gatherings.
Maternal and Infant Health - Smoking While Pregnant	Community pledge initiative and community education: Community education on healthy pregnancy, smoking cessation, reducing risk factors and infant care	Knowledge level of participants will increase, and participants will learn new skills and decrease risk factors	1,052 women and their families received free health education regarding healthy pregnancy, smoking cessation, reducing risk factors and improving infant care through annual community baby showers, pediatric education and breastfeeding support groups. Education occurred on the campus of NHBMC and in the community.
Mental Health	Recruit a licensed mental health professional to provide mental health treatment: Mental health social and environmental improvement	Increase the number of underserved community members receiving mental health treatment and decrease barriers of access to mental health services	In addition, 690 community members received mental health education at 8 community events including collaboration with the Brunswick Consortium on Mental Health and the Opioid Task Force. Education occurred on the campus of NHBMC and in the community.

VII. Appendix A

Steering Committee Members

1. Brunswick County Health Services
2. Novant Health Brunswick Medical Center
3. Doshier Memorial Hospital