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Division of Public Health

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State of North Carolina
Pat McCrory, Governor
www.nc.gov

The North Carolina Department of Health and Human Services

Richard O. Brajer, Secretary
www.ncdhhs.gov

Randall Williams, M.D.
State Health Director

Division of Public Health
Daniel Staley, Division Director
www.publichealth.nc.gov

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Background

General Statute 130A.33 requires the State Health Director to submit an annual report on public health at the general session of the annual meeting of the North Carolina Medical Society (NCMS) held conjointly with the Commission for Public Health meeting. This report serves this statutory requirement and is structured around North Carolina's state health improvement plan, **Healthy North Carolina 2020**.

Healthy North Carolina 2020: The State's Health Improvement Plan

According to the 2015 edition of *America's Health Rankings*, North Carolina ranked 31st in the nation.[1]

The burden of premature morbidity and mortality reflected in our ranking highlights the need for improvements in population health. More than two-thirds of all deaths annually in North Carolina are attributed to chronic diseases and injuries.[2] The North Carolina State Center for Health Statistics has listed the top five causes of death in 2014 as cancer, heart disease, chronic lung disease, stroke and Alzheimer's disease.[3]

Based on the latest *America's Health Rankings* report, North Carolina's challenges are large disparity in health status by education, low per capita public health funding and high infant mortality rate. Our state's low prevalence of excessive drinking, high immunization rates among adolescent females for HPV (human papillomavirus) and high immunization coverage among children are noted as strengths.[4]

The burden of diseases related to modifiable behaviors in our state has been high.

- The annual economic costs associated with unhealthy lifestyles are estimated at $57.4 billion in North Carolina, with $11.9 billion attributable to lack of physical activity, $15.5 billion due to excess weight, $3.1 billion associated with inadequate fruit and vegetable consumption and $3.7 billion related to adult-onset (Type II) diabetes.[5]
- North Carolina's direct medical costs from smoking are estimated at $3.81 billion each year, of which $931 million are Medicaid costs.[6]

A practical approach to address North Carolina's health care challenges has been to attempt to prevent these problems from occurring in the first place. Investing in prevention has been determined to save lives, reduce disability, and, in some cases, reduce health care costs as stated in the ***Prevention Action Plan for North Carolina***.[7] This statewide focus on prevention has been reflected in work by North Carolina's public health leaders, who began in 2008 to develop a vision and roadmap for focusing and improving public health efforts. The ***Prevention Action Plan for North Carolina* (2009)** also recognized evidence-based strategies as an important mechanism to improve population health.

North Carolina used this prevention framework to establish our state's **Healthy North Carolina 2020 (Healthy NC 2020)** objectives, the most recent iteration of decennial health objectives our state has set beginning in 1990. The primary aim of this objective-setting process is to mobilize the state to achieve a common set of health objectives. Healthy People 2020 (www.healthypeople.gov) is a federal initiative with science-based, 10-year national objectives for improving the health of all Americans. **Healthy NC 2020** is a state health improvement plan with state specific, measurable objectives that were developed with the best available data and evidence. North Carolina's objectives are well aligned with federal objectives, though they were developed separately.

Healthy North Carolina 2020: A Better State of Health **(2011)** identified 40 objectives necessary to improve population health by 2020 and recommended the use of evidence-based strategies.[8] **Healthy NC 2020** was designed to address and improve our state's most pressing health priorities. These objectives provided a common set of health indicators that organizations and individuals across the state can work to improve, knowing their efforts are designed to lead to a healthier population. Each **Healthy NC 2020** objective included a discrete quantifiable target that has enabled us to monitor progress toward achieving our goals. Appendix A provides a list of the 40 objectives, our state's baseline, targets and most current measures, as well as national measures for comparison (when available and applicable).

Steps Taken by State and Non-state Entities to Meet Healthy NC 2020 Goals

The mission of the North Carolina Department of Health and Human Services (DHHS) Division of Public Health (DPH) is to promote and contribute to the highest possible level of health for all North Carolinians. North Carolina's public health system is an integrated network of partnerships among DPH and the state's 85 local health departments, as well as other divisions in DHHS, other state agencies, universities and non-governmental entities. Programs and services touch citizens' lives in all 100 counties. Improving the health of our citizens requires a coordinated approach with ownership by and accountability from governmental and non-governmental entities as well as individuals themselves.

Local health departments and their community health partners complete health assessments every three or four years and develop local community health improvement plans to address the health needs of their citizens. Review of the most current community health assessments and improvement plans for local health departments indicated a core of **Healthy NC 2020** objectives has been selected by most local health departments as their most pressing health problems.

All DPH's programs and services have supported improvements in health as measured by the 40 **Healthy NC 2020** objectives. The following is a representative though not exhaustive summary of programs and services addressing some of the **Healthy NC 2020** objectives most frequently selected by local communities as their most pressing health issues. Appendix B provides disaggregated data by county, when available, for selected **Healthy NC 2020** objectives.

Tobacco Use
Healthy NC 2020 Objectives

- *Decrease the percentage of adults who are current smokers*
- *Decrease the percentage of high school students reporting current use of any tobacco product*
- *Decrease the percentage of people exposed to secondhand smoke in the workplace in the past seven days*

Tobacco use remains the number one preventable cause of early death and disease (480,000 deaths each year or one in five deaths) in the United States.[9] The 2014 Surgeon General's Report documents that for each death, there are 30 more people who are sick or disabled because of tobacco use. The Centers for Disease Control and Prevention (CDC) indicates that while U.S. adult cigarette smoking has declined, the use of emerging tobacco products (such as electronic cigarettes, hookahs and flavored little cigars) has increased.

Tobacco use remains a major concern among North Carolina's youth. North Carolina's high school smoking rate decreased from 27.3 percent in 2003 to 9.3 percent in 2015. However, progress has been confounded by the growing popularity of unconventional tobacco products such as electronic cigarettes and hookahs. And for the first time in a decade, overall tobacco use among high school students has increased.

- E-cigarette use among high school students increased by 888 percent, from 1.7 percent (2011) to 16.8 percent (2015).
- Use of any new tobacco product, including electronic cigarettes, hookah, and flavored little cigars, rose 27 percent between 2011 and 2015.

There are many myths about these popular new and emerging products that are in part responsible for the increased use. Here are some facts to dispel the myths:

- E-cigarette aerosol is NOT harmless water vapor. Studies have found nicotine, heavy metals, toxins and carcinogens in e-cigarettes and the aerosol.
- Nicotine is highly addictive. Because the adolescent brain is still developing, nicotine use during adolescence can disrupt the formation of brain circuits that control attention, learning and susceptibility to addiction.
- U.S. adolescents and young adults who had never smoked but used e-cigarettes at baseline were 8.3 times more likely to progress to cigarette smoking after one year than nonusers of e-cigarettes.
- Contrary to much of the promotional media about e-cigarettes, as currently being used, e-cigarettes are associated with significantly less quitting among smokers.

The 2014 Surgeon General's Report has provided continued strong evidence for the health risks associated with exposure to tobacco smoke, including new evidence that secondhand smoke

is causative for stroke. Secondhand smoke causes premature death and disease in children and adults who do not smoke, and there is no risk-free level of exposure to secondhand smoke.

- Workers in N.C. restaurants and bars have been protected by a state smoke-free law since 2010, and many government workers are protected from secondhand smoke under local action. Private worksites are not smoke-free by law.
- Those who work in blue collar jobs, those with lower incomes and African Americans have been more likely exposed to secondhand smoke. In fact, a CDC study found that nearly seven in 10 African American children were exposed to secondhand smoke in the home, particularly in multi-unit housing that is not smoke-free.[10]

The **DHHS' DPH's Tobacco Prevention and Control Branch** has worked with organizations and communities to build support for evidence-based policies and programs.

- **QuitlineNC** enrollments have continued to increase as tobacco users want to quit, and providers are increasingly referring to **QuitlineNC**. Insurers, employers, and local governments can partner with QuitlineNC to provide comprehensive services through QuitlineNC for their members, employees or residents. According to CDC, **for every dollar spent, QuitlineNC saves the state of North Carolina more than $6 in medical cost avoidance.**
- **Smoke-free and tobacco-free places** have become increasingly the norm. Local smoke-free and tobacco-free places increase healthy environments and supporting healthy behaviors, including preventing young people from starting to use tobacco products and helping tobacco users who want to quit.
  - Local governments have the authority to ban smoking and tobacco use in government buildings, on government grounds and in public places where the public is invited or permitted inside. An interactive map of such regulations in North Carolina, can be found at the N.C. Tobacco Prevention and Control Branch website.
  - North Carolina's Affordable Housing properties have increasingly gone smoke-free in order to protect health and property and save money. The **N.C. Housing Finance Agency** accepted the recommendations of the N.C. Alliance for Health, business owners and managers and has made North Carolina the second state in the nation to require smoke-free policies for properties receiving tax credit funding. The U.S. Department of Housing and Urban Development is expected to release a final rule for smoke-free public housing in 2016, and many N.C. organizations are commenting favorably about the proposed new rule. If your patients need assistance for smoke-free multi-unit housing, go to: www.smokefreehousingnc.com.
- **Mental Health and Substance Abuse Treatment state facilities** have successfully implemented tobacco-free buildings and grounds policies and have provided tobacco cessation support to patients and staff. The **DHHS' Divisions of Medical Assistance, State Operated Healthcare Facilities, Mental Health/Developmental Disabilities/**

Substance Abuse Services and **Public Health** have collaborated to make sure there is no wrong door for all tobacco users who want to quit, whether they are seen through medical or behavioral health clinics. These agencies have made tobacco cessation counseling along with U.S. Food and Drug Administration (FDA)-approved medications for tobacco treatment more readily available for tobacco users. The N.C. DHHS and partners have sponsored Breathe Easy NC Coalition, a statewide initiative to reduce tobacco use among behavioral health consumers and staff. Information about the Coalition can be found at http://breatheeasync.org.

- **DPH's Children and Youth Branch, Maternal, Infant and Early Childhood Home Visiting (MIECHV) Program** making progress on the Healthy NC 2020 objectives for tobacco use by implementing federally-funded, evidence-based home visiting (**Nurse-Family Partnership and Healthy Families America**) in 12 counties in North Carolina: Buncombe, Burke, Columbus, Durham, Edgecombe, Gaston, Halifax, Hertford, Mitchell, Northampton, Robeson and Yancey. Data for the most recent reporting period (FY 2014–2015) indicate that 50 percent of pregnant women using tobacco at program enrollment reduced their use of tobacco during pregnancy.

What Medical Providers Can Do

- For tobacco users who want to quit, use the standard of care, which is to provide 5A's counseling and FDA-approved tobacco treatment medications.
- For tobacco users ready to quit, promote clinical referrals to **QuitlineNC** (1-800-QuitNow or 1-800-784-8669) through fax referral, secured email or an electronic health records system.
- Educate patients and the public about the known health risks of secondhand and thirdhand smoke.
- Educate patients and the public about the known health risks for electronic cigarettes and secondhand aerosol.

Physical Activity and Nutrition
Healthy NC 2020 Objectives

- *Increase the percentage of high school students who are neither overweight nor obese*
- *Increase the percentage of adults getting the recommended amount of physical activity*
  - The **DHHS' DPH's Community and Clinical Connections for Prevention and Health Branch's (CCCPH)** programs have helped to make communities, worksites and schools healthier places to live, earn and learn. These services have encouraged changes to policies and environments to help community members eat smart, move more and achieve a healthy weight. The following are examples of efforts undertaken in our state.
    - Walking trails in communities have been created and promoted.
    - Access to farmers' markets have increased.
    - Supportive nutrition environments and quality physical education and physical activity in schools have been created.
    - Workplace policies to encourage employees to be more active and to eat healthy have been created.

    DPH has undertaken these activities with many state and local public health partners including the **N.C. Departments of Natural and Cultural Resources, Transportation, Commerce, Agriculture and Public Instruction; Extension at N.C. State University; universities; local school districts; and nonprofit organizations.**
  - To integrate the health needs of youth and adults with disabilities, the **N.C. Office on Disability and Health** in the **DPH's Children and Youth Branch** has worked with communities, schools and state and local public health partners to increase the accessibility of farmers' markets, open space and other health promotion environments, and to increase participation of students with disabilities in walking and biking to school programs.

What Medical Providers Can Do

- At the practice level, provide point-of-decision prompts to encourage use of stairs, drinking water and eating healthy (see www.eatsmartmovemorenc.com/StairwellGuide/StairwellGuide.html).

Injury and Violence
Healthy NC 2020 Objectives

Injury and violence are the leading causes of death for those aged 1–60 years old and remain leading causes of preventable death in the United States. Injury and violence were the third-leading overall causes of death for North Carolinians in 2014. The leading cause of injury death in North Carolina during 2014 was suicide, followed by unintentional motor vehicle crashes, unintentional poisoning, unintentional falls and homicide.

- **DPH's Injury and Violence Prevention Branch** has secured five-year collaborative agreement funding to address injury and violence through the CDC's Core State Violence and Injury Prevention Program. Core topics are sexual violence, child maltreatment, suicide, falls, motor vehicle crashes and traumatic brain injury.

Unintentional Poisoning

❖ *Reduce the unintentional poisoning mortality rate (per 100,000 population)*

According to the CDC, more people died from drug overdoses in 2014 than in any other year and the number of opioid overdose deaths quadrupled between 1999 and 2014.[11] In 2014, for every one poisoning death in North Carolina, there were 33 hospitalizations, 134 emergency department visits, an unknown, but likely higher, number of outpatient medical visits, and even more injuries unreported or unattended.

The **DHHS' DPH's Injury and Violence Prevention Branch** has worked with various organizations and communities to build support for and implement evidence-based policies and programs to prevent drug poisonings.

- The Branch has supported the adoption and implementation of, and clarifications to, the **N.C. 911 Good Samaritan/Naloxone Access Laws** that provide limited immunity from prosecution for reporting drug and alcohol overdoses and provide increased access to naloxone—an antidote for opioid overdose. Increasing community access to naloxone enables those most likely to witness an overdose access to the tools and skills to potentially save a life in the event of an opioid overdose.
  - The passage of legislation enabling the State Health Director to sign a statewide standing order for naloxone, which has increased the public's ability to access naloxone through pharmacies was facilitated. Since its June 2016 passage, over 1,000 pharmacies have signed on to dispense naloxone under the State Health Director's standing order.
  - The adoption and implementation of Local Health Departments' standing orders to authorize the dispensing of naloxone by public health nurses was supported.
  - The Branch has encouraged the state Emergency Medical Services (EMS) Medical Director to issue policy guidance for county EMS medical directors to authorize local EMS and law enforcement agencies to use and administer naloxone. Currently over

90 law enforcement agencies in North Carolina carry naloxone and have been trained to respond.

- Community education, training, and distribution of naloxone was supported by the Branch. Since August 2013, this effort has resulted in over 3,000 overdose reversals being reported.

- The Injury and Violence Prevention Branch has secured four-year funding for policy, programmatic and surveillance strategies to prevent prescription drug overdose through the **CDC's Prescription Drug Overdose Prevention for States** cooperative agreement.
- The **N.C. Prescription Drug Abuse Advisory Committee** has been established. It is a collaboration among **public health, mental health, healthcare systems, law enforcement, regulatory boards, local health departments, community coalitions** and **others** to plan, implement and evaluate comprehensive strategies to prevent drug overdose and treat opioid use disorders.
- The Branch has improved the timeliness of and has linked data systems (including emergency department, hospitalization and death certificate data) to improve drug poisoning surveillance in North Carolina, thereby better informing work in the prevention and surveillance communities.
- Has supported the securing of funding for **safe drug disposal** and for strengthening the **N.C. Controlled Substances Reporting System (CSRS)** in partnership with the **N.C. Child Fatality Task Force.**
- Co-hosted two **Injury-Free N.C. Poisoning and Overdose Prevention Summits** (in 2014 and 2015)

What Medical Providers Can Do

- Adhere to N.C. Board of Medicine and CDC prescribing guidelines for opioid prescribing and the treatment of chronic pain.
- Register and actively use the CSRS.
- Educate patients on the risks and benefits of analgesic opioids and on the availability of non-medication treatment alternatives when appropriate.
- Consider co-prescribing naloxone when prescribing high dose (>80 morphine milligram equivalents, or MME) analgesics.
- Educate patients and family members about the statewide standing order for naloxone.
- Screen patients' risk of addiction and refer to addiction treatment services when needed.

Unintentional Falls

❖ *Reduce the unintentional falls mortality rate (per 100,000 population)*

In 2014, more than 900 N.C. residents died as a result of an unintentional fall, many over the age of 65. One-third of senior citizens fall every year, and adults who fall once are two to three times more likely to fall again, thereby increasing their risk of injury and death.

The **DHHS' DPH's Injury and Violence Prevention Branch** has participated in and supported initiatives to prevent the incidence of fall injuries. Such efforts have included:

- Staffed the **North Carolina Falls Prevention Coalition**, a collaboration that supports the dissemination and implementation of evidence-based programming to support healthy aging and prevent falls across North Carolina.
- Supported the creation and launch of the **Falls Prevention Hub** (http://healthyagingnc.com), a centralized point of entry online for falls and falls-risk activities and programs.
- Co-hosted two **Injury Free N.C. Falls Prevention Summits** (in 2014 and 2015).

What Medical Providers Can Do

- Screen patients for fall risk and history.
- Review patients' medications for increased risk of falling.
- Encourage strength and balance training and physical activity to increase stability and endurance.
- Evaluate patients' vision and make referrals as necessary.
- Educate patients on strategies and resources to make home environments safer and reduce fall hazards.

Maternal and Infant Health Healthy NC 2020 Objectives

❖ *Reduce the infant mortality racial disparity between whites and African Americans*

❖ *Reduce the infant mortality rate (per 1,000 live births)*

DHHS released its 10-year **North Carolina Perinatal Health Strategic Plan** in March 2016 following a collaborative process to develop the plan in 2014 and 2015. This process included statewide private and public women's and children's health partners.

The following are **DHHS' DPH's** programs that have addressed infant mortality.

- The **North Carolina Child Fatality Task Force** has supported funding for the **You Quit Two Quit** program for perinatal tobacco cessation and prevention. Tobacco use during pregnancy is directly associated with the top four causes of infant mortality in North Carolina, and one in 10 babies in North Carolina are born to women reporting tobacco use during pregnancy.
- **Community Focused Infant Mortality** has provided services for women and their infants with a specific focus on African American and Native American families. Services have included outreach; case management; health education before, during and after pregnancy to improve the chances of a healthy birth; and supportive services for women and their children after delivery. These programs have included **Baby Love Plus** and **Healthy Beginnings** and have been housed in **local health departments** and **community-based organizations** across the state. Additional partners have included **The University of North Carolina at Greensboro** and **The University of North Carolina at Chapel Hill.**
- **Improving Community Outcomes for Maternal and Child Health (ICO4MCH)** has provided services for women and men of childbearing age and children ages birth to 5 with a comprehensive, multi-level initiative to address three aims: (1) improving birth outcomes; (2) reducing infant mortality and (3) improving the health status of children, ages birth to 5. Thirteen counties in North Carolina (Alleghany, Ashe, Avery, Cumberland, Durham, Hoke, Mecklenburg, Montgomery, Richmond, Robeson, Union, Watauga and Wilkes) utilizing evidence-based strategies to address the aforementioned aims. Evidence-based strategies have included: **long-acting reversible contraception (LARC), Tobacco Cessation and Counseling, Ten Steps for Successful Breastfeeding, Triple P (Positive Parenting Program), Family Connects Newborn Home Visiting Program** and **Clinical Efforts to Address Secondhand Smoke Exposure (CEASE).**
- **Maternal Health Services** has provided a wide range of maternal health services to encourage low-income pregnant women to begin early prenatal care and follow recommended perinatal care guidelines before and after giving birth. State and local public health partners in this effort have included **DHHS' Division of Medical Assistance, East Carolina University, The University of North Carolina at Chapel Hill, private universities** and **hospitals.**
- **Maternal Mortality Review (MMR)** legislation became effective December 2015. The nine-member MMR committee has been appointed and the full review will begin in September 2016. The committee's work is driven by recommendations from the World Health Organization (WHO) and the CDC in an effort to reduce maternal mortality in North Carolina and throughout the country by encouraging the establishment of multidisciplinary maternal death reviews, resulting in the development of recommendations for the prevention of future deaths.

- **Women's Health Public Education** has educated N.C. residents through maternal and child public education/information campaigns. Campaigns have included information about preventing birth defects by encouraging women to consume folic acid before pregnancy, preventing teen pregnancy, preparing for a healthy pregnancy, prenatal care, infant care and appropriate parenting and family planning skills. State and local public health partners in this effort have included **DHHS' Division of Medical Assistance** and **non-profit health organizations.**

- The **North Carolina Child Fatality Task Force** has continued its work to promote a package of programs to promote healthy births and first years of life to reduce infant mortality. Efforts have included promotion of preconception health, use of a drug to prevent second (or other) subsequent preterm pregnancies, education in best safe sleep practices and improvements in hospital practice.

- **State Genetics and Newborn Screening** and **Newborn Hearing Screening programs** have provided services to those infants who are at highest risk for certain birth defects and genetic conditions. This has included congenital heart disorders, hearing loss, cystic fibrosis, and metabolic and other genetic disorders that put infants at risk for physical, emotional, social and cognitive or developmental disabilities. Genetic and hearing screening, diagnosis and intervention improve the quality of life and decrease infant morbidity and mortality. State and local partners in this effort have included **the State Laboratory of Public Health, public and private hospitals, medical centers, medical specialists, local health departments, midwives** and **private audiologists** across the state.

  The N.C. General Assembly expanded the **DHHS' Newborn Screening program** in Session Law 2015-272 to include screening for Severe Combined Immunodeficiency (SCID). As a result of this legislation, the State Laboratory of Public Health will screen every neonate for the genetic mutation associated with SCID. State and local partners in this effort have included **nonprofit agencies, hospitals** and **universities** across the state.

- **Evidence-based Home Visiting programs** have provided services to strengthen family parenting skills by developing common practice across providers working with children and families. These programs have helped develop a framework for a prevention partnership, establish an understanding of what constitutes viable family support activities and provide a framework to measure progress in addressing family needs and providing proven tools for building family strengths.

- **The DHHS' DPH's Children and Youth Branch** has implemented **Nurse-Family Partnership (NFP) home visiting** in 17 counties using a combination of federal funding and state appropriations. These counties are Buncombe, Columbus, Edgecombe, Gaston, Graham, Halifax, Haywood, Hertford, McDowell, Macon, Northampton, Polk, Robeson, Rockingham, Rutherford, Swain and Wake. The NFP model has required that pregnant moms enroll by the 28th week of pregnancy and has encouraged moms to get regular prenatal care that results in reduction of infant mortality and better birth outcomes.

- **The DHHS' DPH's Nutrition Services Branch** has administered the Special

Supplemental Nutrition Program for Women, Infants and Children (WIC) serving all 100 counties. WIC has been shown to yield better birth outcomes, increase breastfeeding rates, increase key nutrients in the diet, and help ensure adequate growth and development.

What Medical Providers Can Do

- Provide recommendations for young patients and their parents about Sickle Cell Trait/ Disease:
  - For infants with abnormal hemoglobin, refer to specialty providers for follow-up care and genetic counseling; promote coordination of primary and specialty care services for patients.
  - Encourage parents of children with sickle cell trait to complete family genetic studies and educate and inform parents about the risk for having other children with sickle cell disease and/or sickle cell trait.
  - For children and adolescents, inform them at puberty about the genetic implications of having sickle cell trait and the limited medical complications associated with being a carrier.
- Promote assessment, counseling and referral for preconception health issues such as life planning, reproductive health goals and healthy weight.
- **Provide 17P treatment** (Hydroxyprogesterone Caproate) to pregnant women who have had a prior preterm birth.
- Screen pregnant and postpartum women for domestic violence, alcohol and illicit drug use and refer for services as indicated.
- Refer patients to WIC as appropriate.
- **Promote breastfeeding** through education and support.
- **Promote delivery at a minimum of 39 weeks** by eliminating early elective deliveries.
- Provide education on safe sleep practices including 1) back-to-sleep, 2) eliminating tobacco exposure, 3) eliminating bed sharing and 4) crib safety.
- Assess, counsel and refer pregnant and postpartum women for tobacco use using the **5 A's Method** (ask, advise, assess, assist and arrange).
- Refer high-risk patients to case management and home-based visiting programs.

Unintended Pregnancy
Healthy NC 2020 Objective

❖ *Decrease the percentage of pregnancies that are unintended*

DHHS' DPH has addressed unintended pregnancies through the following programs.

- **Teen Pregnancy Prevention Initiatives** have sought to prevent teen pregnancies by providing educational and health care services to teenagers. They also have sought to help current teenage parents prevent another unintended pregnancy. Services have been provided by **local health departments, community-based organizations, schools and local departments of social services.** Two federal grants are providing important additional funding for high-need, low-resourced communities to provide programs.

  Other Teen Pregnancy Prevention Initiatives partners have been **DHHS' Division of Social Services**, **SHIFT NC (Sexual Health Initiative for Teens; formerly the Adolescent Pregnancy Prevention Campaign of North Carolina, or APPCNC)** and **Appalachian State University.**

  Depending on the needs of the student, school nurses helping to manage a student's pregnancy as part of nursing case management or with physician orders. Nurses providing health education and health promotion through group teaching regarding care of the current pregnancy, anticipatory guidance of labor and delivery and infant and maternal care. With assistance from school nurses, the majority of students have managed their pregnancies well enough to remain enrolled in their normal school location. About 25 percent of students (at some time during either the prenatal or postpartum period, or both) have received home-bound instruction instead of school-located instruction.

- **DPH's Family Planning** program has provided family planning services and preventive care to low-income women and men by funding **clinics in local health departments** and by funding **other community-based providers**. The aim has been to decrease the number of unplanned pregnancies and decrease the health problems associated with unplanned pregnancies. The service has benefitted the general population with an emphasis on low-income North Carolinians. State and local public health partners in this effort have included **DHHS' Divisions of Medical Assistance and Social Services** and **local social services offices.**

- **The Children and Youth Branch's Maternal, Infant and Early Childhood Home Visiting (MIECHV) Program** has provided family strengthening services in 12 counties in North Carolina through **Nurse-Family Partnership** (Buncombe, Columbus, Edgecombe, Gaston, Halifax, Hertford, Northampton and Robeson) and **Healthy Families America** (Burke, Durham, Mitchell and Yancey) **home visiting programs.** A targeted program outcome has been for women to reduce subsequent pregnancies within one year of a child's birth. The most recent report for October 2014–September 2015 has indicated that 90 percent of women did not become pregnant again within one year of the child's birth.

- The **DPH Children and Youth Branch's Innovative Approaches** initiative has worked

to incorporate sexual awareness resources for individuals with developmental disabilities into local primary care practices as well as local county school system curriculum which addresses the Healthy People 2020 Goal of reducing the proportion of people with disabilities who report physical or program barriers to local health and wellness programs.

What Medical Providers Can Do

- For teen pregnancy prevention, ensure:
  - Teens are informed of all contraceptive and reproductive health services available at the specific health center; and a referral is provided for any contraceptive or reproductive health services that are not available at the specific health center.
  - Teens' contraceptive and reproductive health needs are assessed at every visit.
  - **Promotion of "Dual-protection":** using a condom for Sexually Transmitted Infections and HIV prevention, and a highly effective birth control method for pregnancy prevention at the same time.
- For family planning services:
  - Provide counseling and education to family planning patients in order to assure that the best contraceptive method can be chosen by the patient for her particular circumstances. Use the tiered approach to contraceptive counseling: present the most effective methods before the less effective methods. Work interactively between patients and providers to assist patients in choosing their best contraceptive method.
  - **Ask each family planning patient "One Key Question"** regarding her pregnancy intentions: **Does she want to become pregnant in the next year?** Based on her answer, contraceptive options and other important health considerations can then be discussed.
- Learn about the availability of home visiting and parenting programs in a patient's community and actively refer families to them.

Sexually Transmitted Disease
Healthy NC 2020 Objectives

- *Reduce the percentage of positive results among individuals aged 15 to 24 tested for chlamydia*
- *Reduce the rate of new HIV infection diagnoses (per 100,000 population)*

DHHS' DPH's Sexually Transmitted Diseases (STD) Prevention activities have prevented the spread of sexually transmitted diseases through testing at the **State Laboratory of Public Health**, counseling and education and treatment.

- Has supported two **local health departments** (Guilford and Wake counties) to conduct gonorrhea and chlamydia testing and treatment among high risk populations.
- Successfully has interviewed and linked 96 percent of newly diagnosed HIV-positive individuals to HIV care in 2015. HIV medications are not only life-saving but completely suppress HIV viral replication, thus also eliminating their ability to transmit HIV.
- Successfully has addressed syndemics by using the occasion of a syphilis diagnosis to link people coinfected with HIV and syphilis to HIV care.
  - Prior to syphilis diagnosis, only 42 percent of this population were virally suppressed.
  - Following syphilis diagnosis, 71 percent were virally suppressed.
- Has promoted the **"Get Real Get Tested Get Treatment"** campaign and has conducted screenings for gonorrhea, chlamydia, syphilis and HIV at college campuses across North Carolina.
- Multiple updates on HIV and syphilis co-infection have been distributed to medical providers across the state.
- **Local health departments** have been provided free chlamydia laboratory testing for all women less than 25 years of age, all pregnant women and women with symptoms of chlamydia.
- Funding to all 85 **local health departments** in North Carolina has been provided for the procurement of medications used to treat sexually transmitted diseases.
- By testing for antibiotic resistant strains of gonorrhea have further supported gonorrhea screening and treatment efforts through **GISP (Gonococcal Isolate Surveillance Project)**. Guilford County is one of 26 federal sites collecting GISP data to assure successful treatment of this type of gonorrhea. The North Carolina GISP site is located at **Guilford County's health department locations in High Point and Greensboro**. A urethral sample is collected from the first 25 men per month who attend the clinics with a urethral gonococcal infection.

What Medical Providers Can Do

- Discuss sexual health and ask about STD-risk behaviors with ALL patients at every medical visit.
- Screen all sexually active individuals for STDs, including HIV and syphilis, at least annually.
- Screen all sexually active individuals with ongoing STD risk factors (i.e., report being in non-mutually monogamous relationships, inconsistent condom use, or anonymous sex partners) for STDs every three months.
- Assure that all people born between 1945 and 1964, or that have a history of injecting drug use, have been tested for Hepatitis C virus (HCV).
- Assure that people who actively inject drugs are screened frequently for HCV (i.e., every three to six months), referred for substance abuse services and counseled about safe injection practices.
- Assure that all people who test positive for HIV, other STDs or HCV are linked to appropriate care and treatment to reduce associated morbidity, mortality and transmission to others.

Substance Abuse
Healthy NC 2020 Objectives

- *Reduce the percentage of high school students who had alcohol on one or more of the past 30 days*
- *Reduce the percentage of traffic crashes that are alcohol-related*
- *Reduce the percentage of individuals aged 12 years and older reporting any illicit drug use in the past 30 days*

  - The **DDHHS' DPH's Forensic Tests for Alcohol Branch** has worked to reduce deaths, injuries and health care costs related to impaired driving in North Carolina.
    - The Branch has delivered comprehensive alcohol and drug training for **law enforcement officers and court personnel** to improve their ability to detect, apprehend and prosecute impaired drivers.
    - The Branch has been successful in procuring funding for four new **Breath Alcohol Testing (BAT) Mobile Units** (two additional and two replacements) and two full-time positions to staff the additional BAT Mobile Units. BAT Mobile Units have been used at Driving While Impaired (DWI) checking stations to deter impaired driving and promote the belief that DWI enforcement is likely to occur anywhere in the state at any time. These efforts have increased from five to seven the total number of BAT

coordinators working in assigned regions. BAT coordinators have worked on building relationships and increasing support of the program within the community.

- In addition to participating in checking stations, BAT coordinators have continued to provide educational programs for community groups and schools, stressing the dangers of drinking and driving. The program has provided and maintained 369 evidential breath alcohol testing instruments statewide located at 203 breath testing sites and used in-training law enforcement officers.

Additional state and local public health partners in these efforts have included the **N.C. Department of Public Safety/State Highway Patrol, N.C. Department of Transportation Division of Motor Vehicles/Governors Highway Safety Program** and **local law enforcement agencies** and **local health departments** across the state.

- The **DHHS' DPH's Injury and Violence Prevention Branch** has monitored injury and violence trends in the state, including events associated with excessive alcohol use and prescription and drug overdose.
- The **N.C. Child Fatality Task Force** has addressed these **Healthy NC 2020** objectives.
  - Has supported funding for safe drug disposal, and for strengthening the controlled substances reporting system, both which help to prevent illicit drug use.
  - Has continued to support increased access to the overdose reversal drug naloxone, stemming from the Good Samaritan legislation (2013) which provides limited immunity from prosecution for reporting overdoses and for the use of rescue drugs for opioid overdoses.
- The **N.C. Department of Transportation** has revised its five-year state highway safety plan. The plan includes updated impaired driving goals. The **DHHS' DPH's Injury and Violence Prevention Branch** has been an active participant in the development of the plan and its impaired driving goals.
- The **DHHS' DPH's Children and Youth Branch** has funded 32 **School Health Centers** which have provided primary and preventive medical care for adolescents. Imbedded in this care has been adolescent risk assessments with follow-up counseling and/or referral to reduce the students' risk for health problems caused by underage drinking, smoking, inadequate physical activity, dietary habits and overweight, intentional/unintentional injuries and unsafe reproductive health behaviors.

What Medical Providers Can Do

- Continue in their vital role in assessing patients for alcohol usage and encouraging them to drink in moderation and to be safe when drinking.
- Encourage patients to always use front and rear seatbelts in all motor vehicles.
- Help establish and promote safe opioid prescribing guidelines by attending existing training for providers who prescribe controlled substances.
- Encourage and promote registration in and use of the N.C. Controlled Substance Reporting System (CSRS).
- Promote policies in their practices that create a comprehensive overdose prescription model (e.g., universal CSRS use, knowledge of treatment options and Emergency Department policies).
- Assess patients for overdose risk from all types of medications and drugs.

Mental Health
Healthy NC 2020 Objectives

❖ *Reduce the suicide rate (per 100,000 population)*

In 2014, the leading cause of injury death in North Carolina was suicide. The **DHHS' DPH's Injury and Violence Prevention Branch** has worked to reduce the rate of suicide in the state.

- Has developed the **2015 N.C. Suicide Prevention Plan** to empower all North Carolinians with the knowledge of actions they can take to prevent suicide.
- Has created the **"It's OK 2 Ask" campaign** and website to promote suicide prevention trainings and crisis resources for youth suicide.
- The Branch has gathered comprehensive data on suicide in the DPH maintained **NC-Violent Death Reporting System (NC-VDRS).**
- In 2015, co-hosted an **Injury-Free N.C. Suicide Prevention Summit.**
- Has co-organized and led a cohort of 10 interdisciplinary teams through **Injury Free N.C. Academy** trainings to increase their capacity to plan, implement, and evaluate suicide prevention strategies in their communities.

To date, more than 25,000 citizens of North Carolina have been trained in **Mental Health First Aid (MHFA)** and more than 400 MHFA instructors have been trained since fall 2013. The **DHHS Division of Mental Health, Developmental Disabilities, and Substance Abuse Services (DMH/DD/SAS)** is currently in the planning phase to pilot MHFA for the higher education community and is planning to collaborate with the **Department of Public Instruction** to train staff within the public schools.

What Medical Providers Can Do

- Screen patients for depression and/or other mental illnesses.
- Monitor patients' history and use of alcohol or drugs.
- Ask about family history of suicide or violence.
- Ask about patients' risk of suicide and make appropriate referrals when necessary.
- Assess the patient's medications and consequent vulnerability to depression.
- Educate staff, patients and family members about the signs and symptoms of suicide.
- Encourage staff, patients and family members to complete Mental Health First Aid, QPR (Question, Persuade, and Refer), or Applied Suicide Intervention Skills Training *(*ASIST*)* gatekeeper trainings.

Infectious Disease
Healthy NC 2020 Objective

❖ *Increase the percentage of children aged 19–35 months who receive the recommended vaccines*

- The goal of the **DHHS' DPH's N.C. Immunization Branch (NCIB)** has been to reduce and ultimately eliminate vaccine preventable diseases by increasing and maintaining high immunization coverage levels. The **NCIB** has tracked trends in disease over time, monitored progress towards disease reduction and elimination goals, and served to educate healthcare providers and North Carolinians on appropriate and timely immunization.
- The **NCIB** has collaborated with immunization partners in the public and private sectors to promote evidence-based approaches towards increasing immunization coverage levels.
  - The most recent National Immunization Survey conducted by CDC's National Center for Immunization and Respiratory Diseases showed a significant increase in vaccine coverage among children 19–35 months who have received the Advisory Committee on Immunization Practices (ACIP) recommended doses of DTaP, polio, MMR, Hib, hepatitis B, varicella, and PCV vaccines.
  - North Carolina ranked second in the country for childhood immunizations.
  - In the past year, Human papillomavirus**,** or HPV immunization among females aged 13 to 17 years increased 64.6 percent from 32.8 percent to 54.0 percent.
- Immunization registries are confidential, population-based, computerized information systems that collect vaccination data about all children within a geographic area.
  - By providing complete and accurate information on which to base vaccination decisions, registries are key tools for increasing and sustaining high vaccination coverage.

- By consolidating vaccination records of children from multiple health-care providers, registries can identify children who are due or late for vaccinations, generate reminder and recall notices to ensure that children are vaccinated appropriately, and identify provider sites and geographic areas with low vaccination coverage.
- The **N.C. Immunization Registry (NCIR)** is a secure, web-based clinical tool for medical providers as well as an official certificate of immunization for all ages.
- By 2 years of age, over 20 percent of the children in the United States typically have seen more than one healthcare provider, resulting in scattered paper/electronic medical records.
- The NCIR has replaced handwritten charting and electronic health record documentation for many providers administering immunizations in the state. Immunization providers may access recorded immunizations administered in North Carolina, regardless of where the immunizations were given through the NCIR.

- The NCIR has utilized Provider Vendor Hubs, Organization's Hubs and the North Carolina Health Information Exchange (HIE) to connect to the NCIR. All of these methods use Web services to connect to the NCIR, and a provider can connect to the NCIR using any of these methods.
- The NCIR has also been utilized for the assessment of immunization coverage levels and to assist in identifying vulnerable populations to prevent disease and in outbreak situations.
- A continuous quality-improvement approach, known as **AFIX (Assessment, Feedback, Incentive, eXchange),** has been used to improve provider practices and raise immunization coverage rates.
  - Improving immunization practices in provider settings has been one of the most effective methods of increasing immunization coverage.
  - The role of the **NCIB** has been to oversee quality assurance of all immunization-related activities conducted by providers. Emphasis has been placed on populations at highest risk for under-immunization and disease.
- The NCIB has worked closely with the **N.C. Commission for Public Health** and **community stakeholders** on changes to North Carolina immunization requirements. On July 1, 2015, two new immunization requirements became effective (pneumococcal conjugate vaccine and meningococcal conjugate).

What Medical Providers Can Do

- Establish and maintain a practice-wide commitment to communicating effectively about vaccines and maintaining high vaccination rates.
- Follow the **Advisory Committee for Immunization Practices (ACIP)** recommendations for vaccinating children and adolescents.
- Make a strong recommendation to parents and supplement with vaccine educational materials.
- Utilize reminder recall systems to decrease missed opportunities.
- Implement systems to evaluate patient vaccination status at each visit.
- Participate in **Childhood and Adolescent AFIX** visits from the N.C. Immunization Branch.
- Give parents a copy of the immunization record every time you vaccinate.
- Become a **N.C. Immunization Registry** user.

Chronic Disease
Healthy NC 2020 Objectives

Cardiovascular Disease

❖ *Reduce the cardiovascular disease mortality rate (per 100,000 population)*

This **Healthy NC 2020** objective has been addressed by several different programs.

- The **DHHS' DPH's Community and Clinical Connections for Prevention and Health Branch (CCCPH)** has utilized a multipronged approach to address heart disease and stroke that encompasses policy, system and environmental changes. This approach has been guided by several programs including the legislatively appointed **Justus-Warren Heart Disease and Stroke Prevention Task Force (JWTF)** and the **CDC's** funded State Public Health Actions to Prevent and Control Diabetes, Heart Disease, Obesity and Associated Risk Factors and Promote School Health. The CCCPH has continued to partner with other stakeholders on shared cardiovascular goals and objectives.
- Many of the strategies have been reflected in the national **Millions Hearts® campaign** to prevent one million heart attacks and strokes nationwide by 2017.
    - **The focus has been on evidence-based practices to address the ABCS of cardiovascular prevention** (**A**spirin therapy when appropriate; **B**lood pressure control [including sodium reduction]; **C**holesterol control; and **S**moking cessation).

- This work has recognized the important role of community (including lifestyle modification) and clinic-based programs and the need to link these programs in addressing population health.
- An additional focus area is the prevention and management of hypertension, a leading risk factor for heart disease and stroke. **Alliant Quality** has coordinated and convened North Carolina stakeholders to improve cardiac health and reduce cardiac healthcare disparities among North Carolinians**.**

What Medical **Providers** Can Do

- Use clinical decision-support systems which are computer-based information systems often incorporated within electronic medical records to assist evidence-based treatment approaches to implementing ABCS.
- Use a multi-disciplinary team-based care approach to improve cardiovascular health of patients whereby team members provide support, share responsibilities and complement the activities of the primary care provider.
- Use self-measured blood pressure monitoring interventions with clinical support, often in combination with the team-based care approach.
- Discuss weight, nutrition and physical activity with each patient.
- At the practice level, provide point-of-decision prompts to encourage use of stairs, drinking water and eating healthy (see www.eatsmartmovemorenc.com/StairwellGuide/StairwellGuide.html)

Diabetes

❖ *Decrease the percentage of adults with diabetes*

- The **DHHS' DPH's Community and Clinical Connections for Prevention and Health Branch (CCCPH)** has facilitated diabetes prevention and management using a systematic approach that increases access to behavior management education and supports quality care for people who are at risk of and who have diabetes.
  - Diabetes self-management education has been a recognized strategy to improve quality of life, reduce diabetes' complications and reduce costs associated with diabetes care. The **CCCPH Branch** and the **N.C. Public Health Foundation** have supported **local health departments** and health organizations to offer North Carolinians with diabetes self-management education recognized by the American Diabetes Association and reimbursed by Medicare, Medicaid and private insurance.
  - While secondary prevention is important, primary diabetes prevention is vital to reducing the incidence of diabetes. The **CCCPH Branch**, along with a statewide

group of stakeholders, has developed a diabetes prevention plan that includes activities to promote the awareness of pre-diabetes, to strategically locate diabetes prevention lifestyle programs, to facilitate referrals to such programs and to prepare for diabetes prevention program sustainability.

- Promotion of quality diabetes care, particularly for the uninsured and underinsured, has been another focus of the CCCPH Branch. In conjunction with partners, CCCPH has distributed nationally-accepted clinical guidelines and has promoted team-based care and electronic health record use to meet meaningful use and quality standards. CCCPH also will develop trainings for providers about referral to evidenced-based, self-management programs. As of May 2016, providers can access the www.diabetesfreenc.com website for information regarding onsite and online diabetes prevention program classes that will be offered statewide.

- To increase access to diabetes screening opportunities, the **N.C. Office on Disability and Health** in the **DPH's Children and Youth Branch** has worked with child health nurses, pediatricians and dental professionals to increase the accessibility of health care facilities, including local health departments. Improvements made have included purchase of more accessible exam tables and scales, as well as other simple environmental changes to promote access to care. Effective communication strategies for people with disabilities have been incorporated into accessibility reviews and the N.C. Office on Disability and Health will provide more comprehensive training for interested medical professionals

- The **School Nursing Program** in the **DPH's Children and Youth Branch** has monitored and reported compliance with The Care of Students with Diabetes Act, which was passed in 2009 as Senate Bill 738. All public schools, including charter schools, have been required to provide diabetes care training to school staff when they have students with diabetes enrolled. **School nurses** also have provided Individual Health Plans for students with diabetes to assure they receive appropriate diabetes management while in school and in collaboration with their medical home.

  - For diabetic students who have received School Nurse Case Management (an evidence-informed model of school nursing case management), 89 percent have demonstrated improved ability to self-administer insulin, 74 percent have had improved HgA1C, 73 percent have shown improved grades and 78 percent have had a decrease in school absences (2012–2013 School Health Services Report).

What Medical Providers Can Do

- Increase referrals to the evidence-based **Diabetes Self-Management** programs and the **Diabetes Prevention Lifestyle** programs that are available across the state (contact the N.C. Division of Public Health for a list of referral sites).
- Conduct diabetes screenings for people who are 45 and older and who are overweight or obese.
- Conduct an internal accessibility assessment of your office to ensure easy access to screening and treatment service for people with disabilities.
- Become active on your local **School Health Advisory Council** to advance school health services and healthy school environments.

Colorectal Cancer

❖ *Reduce the colorectal cancer mortality rate (per 100,000 population)*

The **DPH's Cancer Prevention and Control Branch** and **American Cancer Society (ACS),** in conjunction with the **Mecklenburg County Health Department,** have created the North Carolina Colorectal Cancer Roundtable initiative for North Carolina. The **N.C. Colorectal Cancer Roundtable (N.C. CRCRT)** is a state coalition of public, private and voluntary organizations and invited individuals dedicated to reducing the incidence of, and mortality from, colorectal cancer (CRC) in North Carolina, through coordinated leadership, strategic planning and advocacy. The Roundtable is supporting the national goal of reaching 80 percent Screened for Colorectal Cancer by 2018. To date, over 1,000 organizations have signed the pledge nationally. Strategies specific to North Carolina:

- Colorectal cancer is one of six cancers that has been and will continue to be the focus of the new **North Carolina Comprehensive Cancer Control Plan 2014 through 2020.** Consensus has been that, to prevent cancer, we must change behaviors around the risks of cancer through education and the adoption of healthy policies at home, work and in the community. The **N.C. DHHS** has led the effort by pledging to support the goal of having 80 percent of adults aged 50 and older screened for CRC by 2018.
  - With the N.C. CRCRT initiative and its associated task groups, 33 organizations have committed to partnering on the goal of to address the incidence and mortality of CRC in North Carolina.
  - Three task groups (Provider, System and Policy Improvement; Public Education and Outreach; and Access to Care) have formed to move the initiative forward in North Carolina. Health disparities have been incorporated into the work of each task group. The Public Education and Outreach Task Group will pilot evidence-based strategies

in five counties (Cleveland, Halifax, Hertford, Robeson and Vance) across North Carolina.

- Leaders from **Medicaid, Blue Cross Blue Shield of North Carolina, Community Care of North Carolina, Area Health Education Centers, ACS, University of North Carolina at Chapel Hill, the State Health Plan, the N.C. Community Health Center Association, the N.C. Society of Gastroenterologists, the N.C. Quality Improvement Organization, health systems, local health departments** and many others are included in this effort.

- A **N.C. Colorectal Cancer Blue Kit Awareness Distribution Campaign** has been initiated with **local health departments** and **senior centers** to promote prevention, early detection and treatments.
  - Health promotion resources and public service announcements were provided to 70 local agency representatives in 2016 and resulted in approximately 26,605 Colorectal Cancer educational resources being distributed for local programs and services.
  - Having 24 local health departments commit to incorporate a CRC strategy into their services and at least six counties hosting a CRC awareness event.
- The **CDC's "A Tip from a Former Smoker" Quit Tobacco Campaign** has been adopted, including the launch of a small digital media campaign collaborative for Colorectal Cancer and Quitting Tobacco (a major risk factor for colon cancer).

What Medical Providers Can Do

- Help support this effort through collaborative efforts in the medical community to raise awareness, increase provider and public education, seek funding and in-kind services for colorectal cancer screenings and follow-up treatment.
- Adopt the goal of reaching 80 percent Screened for Colorectal Cancer by 2018. Increase collaborative partnerships with health systems and community-based organizations to help promote and support prevention, early detection and access to care.

Other Key or Emerging Health Issues

Oral Health

- The **DHHS' DPH's Oral Health Section (OHS)** has convened a **Perinatal Oral Health Task Force** to address dental needs in North Carolina's pregnant population. Membership to the task force includes leaders and educators from **both the state's medical and dental schools, community providers**, as well as other programs in the Division of Public Health. Much progress has been made toward developing practice guidelines for our medical and dental providers to ensure women obtain better oral health during pregnancy.
  - The OHS will soon pilot a program to increase the number of medical providers asking pregnant women about their oral health and referring those in need to dental providers for care.
  - Many pregnant women with Medicaid are covered for dental services while they are pregnant. The goal for this program is to help women take advantage of this window of dental coverage.
- The **OHS** has early childhood medical-dental collaborations focused on preventing dental caries and finding dental homes for Medicaid-insured children. Recent changes in private dental insurance coverage in North Carolina have made this a particularly good time to focus on growth.
- The **OHS** has initiated a dialogue with those focusing on providing services and ensuring optimal care to patients with special health care needs. The OHS has hired a coordinator to develop and implement a **new Special Care in Dentistry program** which will center on supporting the oral health of those with intellectual and developmental disabilities and the frail elderly.

What Medical Providers Can Do

- Continue encouraging your patients to make oral health a priority as it is intimately related to overall health.
- Ask pregnant women and parents about their oral health and the oral health of their children.
- Refer patients needing oral treatment to partnering dentists or dental clinics in your community.

Hepatitis C Virus

Hepatitis C virus (HCV) is a blood-borne virus most commonly transmitted through injection drug use. Although HCV infection can be acute and self-limiting, approximately 75 percent to 85 percent of infected individuals develop chronic disease. A rule change to require reporting of all positive laboratory results for HCV cases will be considered by the Commission for Public Health in August 2016.

- In 2015, 128 acute HCV cases were reported to the **Communicable Disease Branch (CDB)** of the **N.C. DHHS' DPH.**
  - Based on CDC national prevalence projections and United States census data, the CDB has estimated that 110,000 people (range: 80,000–150,000 people) in North Carolina are living with chronic HCV infection.
  - However, this might be an underestimation considering the nearly three-fold increase in the number of reported acute HCV infections in North Carolina from 2010 to.
  - Although effective treatments for HCV infection have been available, most individuals are unaware of their infection and have not received needed care and treatment.
- North Carolina has deployed its latest campaign to address HCV, **N.C. Hepatitis C: Test, Link, Cure (TLC).** The campaign was launched to combat the acute hepatitis C and injection drug use epidemics.
  - **N.C. Hepatitis C: Test, Link, Cure (TLC)** aims to establish new partnerships with health care providers and stakeholders in the state with a focus on hepatitis C screening, prevention education and linkage to care and treatment.
  - Initial activities will be implemented through **local health departments, community-based organizations, substance use disorder treatment centers, and federally qualified health centers in the western and southeast coastal regions of the state.**
  - The goal is to eventually advance the program statewide.
- North Carolina now has a standing order for naloxone and approval for clean syringe programs. These are critical tools in addressing the health of people who use injecting drugs and in reducing the transmission of hepatitis C and HIV.
- **DPH's Communicable Disease Branch** in partnership with the **State Laboratory of Public Health, local health departments, Duke University** and **The University of North Carolina at Chapel Hill** have been further addressing HCV.
  - The partnership has worked to assure that screening and treatment for HCV are performed according to national standards.

- It has developed HCV treatment best-practice algorithms and referral networks across North Carolina.
- It has established an academic mentorship program with Duke University and The University of North Carolina at Chapel Hill which will allow providers to network with content experts from academic centers to build a hepatitis C provider care network in their region.
- It has increased health care provider understanding of current HCV testing and linkage to care recommendations through continuing medical education initiatives.
- The partnership has increased screening and surveillance for populations at-risk for HCV infection.
- It has increased public knowledge of current HCV testing recommendations through public outreach campaigns.
- It has addressed drug user health.

What Medical Providers Can Do

- Review CDC guidelines for HCV testing, diagnosis and management at www.cdc.gov/hepatitis/hcv/hcvfaq.htm.
- Provide one-time HCV testing for adults born during 1945–1965 without prior ascertainment of HCV risk.
- For HCV-infected patients, provide a brief alcohol screening and intervention, as clinically indicated, followed by referral to appropriate care and treatment services for HCV infection and related conditions.

Zika Virus

Zika virus is a mosquito-borne disease with the primary vectors being *Aedes aegypti* and *Aedes albopictus* mosquitoes. The major mode of transmission is through the bite of an infective mosquito. There are limited reports of sexual transmission and blood transfusion. Zika virus can be found in blood, semen, urine and saliva.

- Zika virus can be spread from a pregnant woman to her unborn baby. There have been reports of a serious birth defect of the brain called microcephaly and other adverse pregnancy outcomes in babies of mothers who were infected with Zika virus while pregnant.
- At this time, the main risk is for people who travel to areas with active transmission. Only about one in five people infected with Zika virus will become sick. Among those who do

get sick, Zika usually causes mild symptoms including rash, red eyes, fever, joint pains and muscle aches. These symptoms are similar to dengue fever and chikungunya.

- **DPH's Communicable Disease Branch, Environmental Health Section** and the **State Laboratory of Public Health** have been addressing the Zika virus.
  - They have provided guidance to **obstetricians** and **other health care providers** on Zika virus diagnosis and management.
  - Have made Zika virus infection reportable to public health by clinicians and laboratories.
  - Have recruited for two public health Zika specialists to work in the Division of Public Health.
  - They have worked with mosquito experts at **state universities** to formulate mosquito surveillance and control trainings for selected **local health departments**.
  - They have developed a statewide education campaign including a Zika tool kit with provider guidance and educations materials.
  - They have conducted multiple conference calls and webinars with **local health departments and medical directors** to discuss updates on Zika virus and mosquito management.
  - They have provided funding to local health departments to enhance local mosquito surveillance and control efforts including public awareness campaigns.
  - They have established at the **State Laboratory of Public Health** testing for the Zika virus in North Carolina (as of July 2016, North Carolina was one of only 13 states testing for the Zika virus).

What Medical Providers Can Do

- Review CDC guidelines for Zika virus testing, diagnosis and management at www.cdc.gov/zika/hc-providers/clinical-guidance.html.
- Provide Zika virus testing to symptomatic and asymptomatic pregnant women who have traveled to an endemic area.
- Provide Zika virus testing to symptomatic men and non-pregnant women who have traveled to an endemic area.
- Talk with patients about what they can do to protect themselves when traveling to an endemic area.

Child Maltreatment Prevention

- **DPH's Children and Youth Branch** has been funding **Triple P (Positive Parenting Program)** in 33 North Carolina counties (Alamance, Alleghany, Ashe, Beaufort, Bertie, Buncombe, Cabarrus, Camden, Chowan, Currituck, Durham, Edgecombe, Gates, Greene, Halifax, Hertford, Hyde, Jones, Lenoir, Madison, Martin, Mecklenburg, Nash, Northampton, Pasquotank, Perquimans, Pitt, Tyrrell, Vance, Wake, Warren, Washington and Watauga). Triple P's purpose has been:
  - A multi-level preventive intervention system of strategies to invoke personal responsibility in families has been developed.
  - Triple P has drawn on social learning, cognitive-behavior and development theory, as well as researching risk and protective factors associated with the development of social and behavioral problems in children.
  - As of March 2016, a total of 2,766 of practitioners had been trained in **Triple P,** serving 18,233 caregivers and impacting 31,854 children.

What Medical Providers Can Do

- Promote Triple P for parents of children who present with behavioral health problems. Parents can be directed to the North Carolina Triple P for Parents website at www.triplep-parenting.net/nc-en/home. In addition to local trained practitioners, parents across North Carolina can access Triple P online at the same website.
- Train staff in your practice to provide Triple P as part of your client services.

Death Certification

The **N.C. Medical Examiner System** consists of approximately 400 appointed medical examiners, slightly less than half of them physicians (42%). Medical examiners may be contacted at any time they are on call to investigate sudden, unexpected apparently natural deaths, or deaths due to violence or other external means.

When the medical examiner has assumed jurisdiction of a case, multiple processes with associated costs to the county and state are initiated. When physicians have declined to sign death certificates for their patients—who they knew and had been caring for and treating for ultimately fatal conditions—the medical examiner is contacted, many times after already appropriately declining a case.

The treating physician, by law, must certify the death. Many misconceptions about this responsibility have been addressed by the N.C. Medical Board in Forum articles from Fall 2013 (Physician obligation to complete death certificates) and Spring 2014 (More problems with death certificates).

However, little change in behavior has been recognized by the Medical Examiner System. In response, reform of the N.C. Medical Examiner System has occurred.

- New legislation, as part of the reform of the N.C. Medical Examiner System, has been ratified (Session Law 2015-211) stating that each county must have at least two appointed medical examiners. The Chief Medical Examiner appoints county medical examiners, and may also revoke appointments if necessary. Other legislative changes have been:
  - Qualified medically-trained and licensed professionals who may be appointed as county medical examiners are: physicians (MD/DO), physician extenders (PA/FNP), nurses, and EMT-Paramedics.
  - The **Office of the Chief Medical Examiner (OCME),** has worked with **County Managers, Local Health Directors,** and **County EMS Directors** to identify and appoint qualified individuals to serve as county medical examiners.
  - The legislation also has required **mandatory introductory/orientation training and continuing education for all current and newly appointed medical examiners.** Since September 23, 2015, there have been 16 one-day orientation training sessions held in 13 locations across North Carolina, with 405 participants, 25 percent of whom were not yet appointed as medical examiners. Trainings continue until September 2016, followed by expansion of the training into two-day sessions.
  - Medical examiner and autopsy fees were increased effective October 1, 2015, (from $100 to $200 per medical examiner investigation and external examination, and from $1,250 to $2,800 per autopsy). More than 80 percent of these fees are paid by North Carolina counties; the remainder is paid by the state.

What Medical Providers Can Do

- Become familiar with death certification laws in North Carolina and certify deaths in a timely manner by signing the death certificate for patients who you know and have been caring for and treating for ultimately fatal conditions.
- Consider serving as a medical examiner in your community, or help to identify qualified individuals who are willing to perform this valuable community service.

Carbon Monoxide Exposure

Carbon monoxide (CO) exposure and release in the workplace has become a growing problem in North Carolina.

From 2002 through 2014, a total of 48 occupational CO exposure incidents have occurred, resulting in 249 total injured workers reported over the 13-year period (mostly in the manufacturing industry sector, followed by the retail trade and accommodation/food services industry sectors).

- **DPH's Occupational and Environmental Epidemiology Branch (OEEB)** investigated eight occupational CO exposures in 2015. These exposures sent 28 employees to the emergency department, including four police officers exposed while responding to a call. The exposures occurred in a variety of locations, including a middle school, a pharmacy, a shopping mall, a wine store and a manufacturing facility.
- **OEEB** has considered proposing a rule amendment to the Commission for Public Health in 2016 to add work-related carbon monoxide poisoning to the list of reportable conditions in North Carolina. The amendment would require health care providers to report all cases of work-related carbon monoxide poisoning to the Carolinas Poison Center, who would then provide the case data to OEEB.
- **OEEB** has provided educational outreach materials (in English and Spanish and targeting the agricultural and manufacturing industries) to increase awareness about workplace injuries and deaths related to CO poisoning.

What Medical Providers Can Do

- Promote health in all phases of a patient's life, including the workplace.
- Incorporate a brief occupational and environmental history to assist in determining if the workplace is contributing to negative health outcomes.

Proposed or Planned Steps

North Carolina has prepared to take additional steps toward continuing to improve the health of our citizens.

- Most of the programs already highlighted in this report are ongoing and will be continued in efforts to meet the state's **Healthy NC 2020** objectives.
- As part of its DHHS' priorities for State Fiscal Year 2016–2017, DPH is working with multiple community partners to assess the state's high infant mortality levels. Details are described in the section of this report for **Maternal and Infant Health Healthy NC 2020** objectives.

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Appendix A: Healthy North Carolina 2020 Objectives Compared to North Carolina Goals* and the United States

*The State Goal is the Healthy North Carolina 2020 target as established in 2011.

	North Carolina Baseline	North Carolina Current	State Goal	United States
Tobacco Use				
Decrease the percentage of adults who are current smokers	21.8% (2011)	19.0% (2015)	13.0%	18.1% (2014)
Decrease the percentage of high school students reporting current use of any tobacco product	25.8% (2009)	27.5% (2015)	15.0%	31,4% (2015)
Decrease the percentage of people exposed to secondhand smoke in the workplace in the past seven days	9.2% (2011)	8.3% (2015)	0%	Not available
Physical Activity and Nutrition				
Increase the percentage of high school students who are neither overweight nor obese	72.0% (2009)	67.7% (2015)	79.2%	70.1% (2015)
Increase the percentage of adults getting meeting CDC Aerobic Recommendations	46.8% (2011)	48.1% (2015)	60.6%	50.8% (2013)
Increase the percentage of adults who consume fruit one or more times per day.	59.2% (2011)	56.7% (2015)	69.7%	60.8% (2013)
Increase the percentage of adults who consume vegetables one or more times per day.	78.1% (2011)	78.4% (2015)	84.7%	77.1% (2013)
Injury and Violence				
Reduce the unintentional poisoning mortality rate (per 100,000 population)	11.0 (2008)	12.5 (2014)	9.9	13.1 (2014)
Reduce the unintentional falls mortality rate (per 100,000 population)	8.1 (2008)	10.0 (2014)	5.3	8.8 (2014)
Reduce the homicide rate (per 100,000 population)	7.5 (2008)	5.6 (2014)	6.7	5.1 (2014)
Maternal and Infant Health				
Reduce the infant mortality racial disparity between whites and African Americans	2.45 (2008)	2.39 (2014)	1.92	2.24 (2014)
Reduce the infant mortality rate (per 1,000 live births)	8.2 (2008)	7.1 (2014)	6.3	5.82 (2014)
Reduce the percentage of women who smoke during pregnancy	10.9% (2011)	9.3% (2015)	6.8%	Not available

	North Carolina Baseline	North Carolina Current	State Goal	United States
Sexually Transmitted Disease and Unintended Pregnancy				
Decrease the percentage of pregnancies that are unintended	39.8% (2007)	42.7% (2011)	30.9%	Not available
Reduce the percentage of positive results among individuals aged 15 to 24 tested for chlamydia	9.7% (2009)	10.8% (2014)	8.7%	Not available
Reduce the rate of new HIV infection diagnoses (per 100,000 population)	24.7 (2008)	14.3 (2014)	22.2	13.8 (2014)
Substance Abuse				
Reduce the percentage of high school students who had alcohol on one or more of the past 30 days	35.0% (2009)	29.2% (2015)	26.4%	32.8% (2015)
Reduce the percentage of traffic crashes that are alcohol-related	5.7% (2008)	4.6% (2015)	4.7%	Not available
Reduce the percentage of individuals aged 12 years and older reporting any illicit drug use in the past 30 days	7.8% (2007–08)	8.6% (2013–14)	6.6%	9.8% (2013–14)
Mental Health				
Reduce the suicide rate (per 100,000 population)	12.4 (2008)	13.0 (2014)	8.3	13.0 (2014)
Decrease the average number of poor mental health days among adults in the past 30 days	3.7 (2011)	3.7 (2015)	2.8	Not available
Reduce the rate of mental health-related visits to emergency departments (per 10,000 population)	92.0 (2008)	104.5 (2012)	82.8	Not available
Oral Health				
Increase the percentage of children aged 1–5 years enrolled in Medicaid who received any dental service during the previous 12 months	46.9% (2008)	59.3% (2015)	56.4%	45.2% (2015)
Decrease the average number of decayed, missing or filled teeth among kindergartners	1.5 (2008–09)	1.5 (2009–10)	1.1	Not available
Decrease the percentage of adults who have had permanent teeth removed due to tooth decay or gum disease	48.3% (2012)	49.1% (2014)	38.4%	43.4% (2014)
Environmental Health				
Increase the percentage of air monitor sites meeting the current ozone standard of 0.075 ppm	62.5% (2007–09)	100.0% (2012–14)	100.0%	Not available
Increase the percentage of the population being served by community water systems (CWS) with no maximum contaminant level violations (among persons on CWS)	92.2% (2009)	95.3% (2015)	95.0%	91.1% (2015)
Reduce the mortality rate from work-related injuries (per 100,000 equivalent full-time workers)	3.9 (2008)	3.1 (2014)	3.5	3.4 (2014)

	North Carolina Baseline	North Carolina Current	State Goal	United States
Infectious Disease and Foodborne Illness				
Increase the percentage of children aged 19–35 months who receive the recommended vaccines	77.3% (2007)	83.0% (2014)	91.3%	74.6% (2014)
Reduce the pneumonia and influenza mortality rate (per 100,000 population)	19.5 (2008)	17.1 (2014)	13.5	15.1 (2014)
Decrease the average number of critical violations per restaurant/food stand	6.1 (2009)	6.5 (2011)	5.5	Not available
Social Determinants of Health				
Decrease the percentage of individuals living in poverty	16.9% (2009)	17.1% (2014)	12.5%	14.8% (2014)
Increase the four-year high school graduation rate	71.8% (2008–09)	85.6% (2014–15)	94.6%	81.0% (2012–13)
Decrease the percentage of people spending more than 30 percent of their income on rental housing	41.8% (2008)	46.3% (2014)	36.1%	47.9% (2014)
Chronic Disease				
Reduce the cardiovascular disease mortality rate (per 100,000 population)	256.6 (2008)	216.5 (2014)	161.5	218.6 (2014)
Decrease the percentage of adults with diabetes	10.9% (2011)	10.7% (2015)	8.6%	10.0% (2014)
Reduce the colorectal cancer mortality rate (per 100,000 population)	15.7 (2008)	14.2 (2014)	10.1	14.1 (2014)
Cross-cutting				
Increase average life expectancy (years)	77.5 (2008)	78.3 (2014)	79.5	78.8 (2014)
Increase the percentage of adults reporting good, very good or excellent health	80.4% (2011)	80.8% (2015)	90.1%	83.2% (2014p)
Reduce the percentage of non-elderly uninsured individuals (aged less than 65 years)	20.4% (2009)	15.2% (2014)	8.0%	13.5% (2014)
Increase the percentage of adults who are neither overweight nor obese[1]	34.9% (2011)	34.3% (2015)	38.1%	35.2% (2014)

Appendix B: Additional County/Regional Data for Selected Healthy North Carolina 2020 Objectives

Note: All data tables in Appendix B are the most recent available as of July 26, 2016, and are unchanged since the 2015 Annual Report.

Percentage of North Carolina Adults Who Are Current Smokers by Region for the North Carolina Association of Local Health Directors and the Area Health Education Centers—BRFSS Survey Results, 2014

	Percent	C.I. (95%)*
North Carolina	**19.1**	**17.9–20.3**
North Carolina Association of Local Health Directors		
Region 1 and 2	23.0	19.6–26.8
Region 3	16.8	13.6–20.6
Region 4	19.3	16.8–22.0
Region 5	16.4	13.7–19.4
Region 6	24.3	20.1–29.0
Region 7	17.2	14.5–20.4
Region 8	19.2	15.9–23.0
Region 9 and 10	19.0	15.6–23.0
Area Health Education Centers		
Mountain AHEC	22.8	18.9–27.3
Northwest	19.6	16.9–22.7
Charlotte	18.3	15.7–21.3
Greensboro	17.7	14.6–21.1
Southern Regional	22.2	18.4–26.5
Southeast	17.3	13.4–22.0
Wake	16.5	13.8–19.5
Area L and Eastern	20.4	17.5–23.6

Current smoking prevalence represents the percent of survey respondents who report that they currently smoke "every day" or "most days" and have smoked at least 100 cigarettes in their lifetime.

* C.I. (95%) = Confidence Interval (at 95% probability level).

North Carolina Association of Local Health Directors

Region 1: Cherokee, Clay, Graham, Haywood, Jackson, Macon, Swain, Transylvania

Region 2: Buncombe, Burke, Caldwell, Cleveland, Henderson, Madison, Rutherford-Polk-McDowell, Yancey-Mitchell-Avery

Region 3: Davidson, Davie, Forsyth, Stokes, Surry, Watauga-Ashe-Alleghany, Wilkes, Yadkin

Region 4: Alexander, Cabarrus, Catawba, Gaston, Iredell, Lincoln Mecklenburg, Rowan, Stanly, Union

Region 5: Alamance, Caswell, Chatham, Durham, Guilford, Orange, Person, Randolph, Rockingham

Region 6: Anson, Cumberland, Harnett, Hoke, Lee, Montgomery, Moore, Richmond, Scotland

Region 7: Edgecombe, Franklin, Granville-Vance, Halifax, Johnston, Nash, Wake, Warren, Wilson

Region 8: Bladen, Brunswick, Columbus, Duplin, New Hanover, Onslow, Pender, Robeson, Sampson

Region 9: Bertie, Currituck, Dare, Hertford-Gates, Hyde, Martin-Tyrell-Washington, Northampton, Pasquotank-Perquimans-Camden-Chowan

Region 10: Beaufort, Carteret, Craven, Greene, Jones, Lenoir, Pamlico, Pitt, Wayne

Area Health Education Centers

Mountain: Buncombe, Cherokee, Clay, Graham, Haywood, Henderson, Jackson, Macon, Madison, McDowell, Mitchell, Polk, Rutherford, Swain, Transylvania, Yancey

Northwest: Alexander, Alleghany, Ashe, Avery, Burke, Caldwell, Catawba, Davidson, Davie, Forsyth, Iredell, Rowan, Stokes, Surry, Watauga, Wilkes, Yadkin

Charlotte: Anson, Cabarrus, Cleveland, Gaston, Lincoln, Mecklenburg, Stanly, Union

Greensboro: Alamance, Caswell, Chatham, Guilford, Montgomery, Orange, Randolph, Rockingham

Southern Regional: Bladen, Cumberland, Harnett, Hoke, Moore, Richmond, Robeson, Sampson, Scotland

Southeast: Brunswick, Columbus, Duplin, Pender, New Hanover

Wake: Durham, Franklin, Granville, Johnston, Lee, Person, Vance, Wake, Warren

Area L: Edgecombe, Halifax, Nash, Northampton, Wilson

Eastern: Beaufort, Bertie, Camden, Carteret, Chowan, Craven, Currituck, Dare, Gates, Greene, Hertford, Hyde, Jones, Lenoir, Martin, Onslow, Pamlico, Pasquotank, Perquimans, Pitt, Tyrrell, Washington, Wayne

Data Source: Behavioral Risk Factor Surveillance System, State Center for Health Statistics.

Percentage of North Carolina Women Smoking During Pregnancy, 2014

County	Percentage
State Total	**9.8**
Alamance	12.0
Alexander	19.1
Alleghany	30.3
Anson	16.9
Ashe	19.7
Avery	16.7
Beaufort	17.0
Bertie	12.8
Bladen	16.0
Brunswick	16.6
Buncombe	4.2
Burke	19.9
Cabarrus	9.3
Caldwell	23.3
Camden	11.2
Carteret	17.6
Caswell	20.5
Catawba	15.8
Chatham	6.4
Cherokee	25.2
Chowan	17.7
Clay	30.8
Cleveland	21.7
Columbus	17.3
Craven	10.9
Cumberland	9.5
Currituck	15.0
Dare	10.8
Davidson	17.9
Davie	12.7
Duplin	10.1
Durham	4.9
Edgecombe	15.0
Forsyth	5.1
Franklin	12.2
Gaston	20.0
Gates	11.5
Graham	34.4
Granville	11.8
Greene	15.3
Guilford	6.3
Halifax	14.0
Harnett	11.4
Haywood	18.5
Henderson	9.8
Hertford	11.7
Hoke	9.3
Hyde	5.4
Iredell	12.3
Jackson	17.3
Johnston	9.0
Jones	13.3
Lee	14.9
Lenoir	17.6
Lincoln	13.5
McDowell	23.0
Macon	21.6
Madison	9.2
Martin	18.5
Mecklenburg	3.5
Mitchell	26.8
Montgomery	16.4
Moore	10.9
Nash	11.3
New Hanover	8.8
Northampton	15.8
Onslow	6.9
Orange	4.2
Pamlico	13.2
Pasquotank	11.0
Pender	13.1
Perquimans	16.1
Person	14.5
Pitt	10.2
Polk	14.7
Randolph	14.7
Richmond	23.8
Robeson	18.6
Rockingham	15.0
Rowan	17.1
Rutherford	21.6
Sampson	11.7
Scotland	21.8
Stanly	13.8
Stokes	14.2
Surry	21.4
Swain	29.0
Transylvania	15.6
Tyrrell	9.8
Union	6.8
Vance	17.1
Wake	2.8
Warren	16.2
Washington	12.1
Watauga	9.7
Wayne	9.7
Wilkes	19.7
Wilson	10.7
Yadkin	16.4
Yancey	18.5

Data Source: Vital Statistics, State Center for Health Statistics.

Percentage of North Carolina Adults Who Are Overweight or Obese* by Region for the North Carolina Association of Local Health Directors and the Area Health Education Centers—BRFSS Survey Results, 2014

	Percent	C.I. (95%)**
North Carolina	**65.6**	**64.1–67.0**
North Carolina Association of Local Health Directors		
Region 1 and 2	66.6	62.6–70.3
Region 3	67.8	63.2–72.1
Region 4	62.1	58.8–65.2
Region 5	62.0	58.1–65.7
Region 6	71.6	66.7–76.0
Region 7	66.1	62.2–69.8
Region 8	67.8	63.6–71.8
Region 9 and 10	67.6	63.0–71.9
Area Health Education Centers		
Mountain AHEC	64.1	59.4–68.6
Northwest	67.4	64.0–70.7
Charlotte	61.5	57.9–65.0
Greensboro	65.2	60.8–69.3
Southern Regional	70.2	65.6–74.5
Southeast	65.6	60.4–70.5
Wake	62.6	58.8–66.3
Area L and Eastern	70.2	66.5–73.6

*Body mass index is computed as weight in kilograms divided by height in meters squared :(kg/m2). Underweight=BMI less than 18.5, Recommended Range=BMI 18.5 to 24.9, Overweight=BMI 25.0 to 29.9 and Obese=BMI 30 or greater.

** C.I. (95%) = Confidence Interval (at 95% probability level).

North Carolina Association of Local Health Directors

Region 1: Cherokee, Clay, Graham, Haywood, Jackson, Macon, Swain, Transylvania

Region 2: Buncombe, Burke, Caldwell, Cleveland, Henderson, Madison, Rutherford-Polk-McDowell, Yancey-Mitchell-Avery

Region 3: Davidson, Davie, Forsyth, Stokes, Surry, Watauga-Ashe-Alleghany, Wilkes, Yadkin

Region 4: Alexander, Cabarrus, Catawba, Gaston, Iredell, Lincoln Mecklenburg, Rowan, Stanly, Union

Region 5: Alamance, Caswell, Chatham, Durham, Guilford, Orange, Person, Randolph, Rockingham

Region 6: Anson, Cumberland, Harnett, Hoke, Lee, Montgomery, Moore, Richmond, Scotland

Region 7: Edgecombe, Franklin, Granville-Vance, Halifax, Johnston, Nash, Wake, Warren, Wilson

Region 8: Bladen, Brunswick, Columbus, Duplin, New Hanover, Onslow, Pender, Robeson, Sampson

Region 9: Bertie, Currituck, Dare, Hertford-Gates, Hyde, Martin-Tyrell-Washington, Northampton, Pasquotank-Perquimans-Camden-Chowan

Region 10: Beaufort, Carteret, Craven, Greene, Jones, Lenoir, Pamlico, Pitt, Wayne

Area Health Education Centers

Mountain: Buncombe, Cherokee, Clay, Graham, Haywood, Henderson, Jackson, Macon, Madison, McDowell, Mitchell, Polk, Rutherford, Swain, Transylvania, Yancey

Northwest: Alexander, Alleghany, Ashe, Avery, Burke, Caldwell, Catawba, Davidson, Davie, Forsyth, Iredell, Rowan, Stokes, Surry, Watauga, Wilkes, Yadkin

Charlotte: Anson, Cabarrus, Cleveland, Gaston, Lincoln, Mecklenburg, Stanly, Union

Greensboro: Alamance, Caswell, Chatham, Guilford, Montgomery, Orange, Randolph, Rockingham

Southern Regional: Bladen, Cumberland, Harnett, Hoke, Moore, Richmond, Robeson, Sampson, Scotland

Southeast: Brunswick, Columbus, Duplin, Pender, New Hanover

Wake: Durham, Franklin, Granville, Johnston, Lee, Person, Vance, Wake, Warren

Area L: Edgecombe, Halifax, Nash, Northampton, Wilson

Eastern: Beaufort, Bertie, Camden, Carteret, Chowan, Craven, Currituck, Dare, Gates, Greene, Hertford, Hyde, Jones, Lenoir, Martin, Onslow, Pamlico, Pasquotank, Perquimans, Pitt, Tyrrell, Washington, Wayne

Data Source: Behavioral Risk Factor Surveillance System, State Center for Health Statistics.

Percentage of North Carolina Adults Reporting Good, Very Good or Excellent Health by Region for the North Carolina Association of Local Health Directors and the Area Health Education Centers—BRFSS Survey Results, 2014

	Percent	C.I. (95%)**
North Carolina	**81.0**	**80.0–92.1**
North Carolina Association of Local Health Directors		
Region 1 and 2	75.9	72.4–79.0
Region 3	78.5	74.8–81.8
Region 4	83.3	81.0–85.4
Region 5	82.3	79.5–84.9
Region 6	77.5	72.9–81.6
Region 7	83.7	80.9–86.1
Region 8	78.7	75.2–81.7
Region 9 and 10	82.8	79.3–85.9
Area Health Education Centers		
Mountain AHEC	78.5	74.6–82.0
Northwest	78.5	75.8–81.1
Charlotte	82.7	80.2–85.0
Greensboro	81.4	78.2–84.3
Southern Regional	77.1	72.9–80.9
Southeast	77.7	73.4–81.6
Wake	84.9	82.2–87.2
Area L and Eastern	81.6	78.8–84.2

* C.I. (95%) = Confidence Interval (at 95% probability level).

North Carolina Association of Local Health Directors

Region 1: Cherokee, Clay, Graham, Haywood, Jackson, Macon, Swain, Transylvania

Region 2: Buncombe, Burke, Caldwell, Cleveland, Henderson, Madison, Rutherford-Polk-McDowell, Yancey-Mitchell-Avery

Region 3: Davidson, Davie, Forsyth, Stokes, Surry, Watauga-Ashe-Alleghany, Wilkes, Yadkin

Region 4: Alexander, Cabarrus, Catawba, Gaston, Iredell, Lincoln Mecklenburg, Rowan, Stanly, Union

Region 5: Alamance, Caswell, Chatham, Durham, Guilford, Orange, Person, Randolph, Rockingham

Region 6: Anson, Cumberland, Harnett, Hoke, Lee, Montgomery, Moore, Richmond, Scotland

Region 7: Edgecombe, Franklin, Granville-Vance, Halifax, Johnston, Nash, Wake, Warren, Wilson

Region 8: Bladen, Brunswick, Columbus, Duplin, New Hanover, Onslow, Pender, Robeson, Sampson

Region 9: Bertie, Currituck, Dare, Hertford-Gates, Hyde, Martin-Tyrell-Washington, Northampton, Pasquotank-Perquimans-Camden-Chowan

Region 10: Beaufort, Carteret, Craven, Greene, Jones, Lenoir, Pamlico, Pitt, Wayne

Area Health Education Centers

Mountain: Buncombe, Cherokee, Clay, Graham, Haywood, Henderson, Jackson, Macon, Madison, McDowell, Mitchell, Polk, Rutherford, Swain, Transylvania, Yancey

Northwest: Alexander, Alleghany, Ashe, Avery, Burke, Caldwell, Catawba, Davidson, Davie, Forsyth, Iredell, Rowan, Stokes, Surry, Watauga, Wilkes, Yadkin

Charlotte: Anson, Cabarrus, Cleveland, Gaston, Lincoln, Mecklenburg, Stanly, Union

Greensboro: Alamance, Caswell, Chatham, Guilford, Montgomery, Orange, Randolph, Rockingham

Southern Regional: Bladen, Cumberland, Harnett, Hoke, Moore, Richmond, Robeson, Sampson, Scotland

Southeast: Brunswick, Columbus, Duplin, Pender, New Hanover

Wake: Durham, Franklin, Granville, Johnston, Lee, Person, Vance, Wake, Warren

Area L: Edgecombe, Halifax, Nash, Northampton, Wilson

Eastern: Beaufort, Bertie, Camden, Carteret, Chowan, Craven, Currituck, Dare, Gates, Greene, Hertford, Hyde, Jones, Lenoir, Martin, Onslow, Pamlico, Pasquotank, Perquimans, Pitt, Tyrrell, Washington, Wayne

Data Source: Behavioral Risk Factor Surveillance System, State Center for Health Statistics.

North Carolina Infant Mortality Rate (per 1,000 Live Births) by County of Residence, 2010–2014

Residence	Infant Deaths	Infant Mortality Rate
State Total	**4,295**	**7.1**
Alamance	75	8.5
Alexander	8	4.5
Alleghany	1	2.2
Anson	12	9.2
Ashe	7	5.7
Avery	9	12.4
Beaufort	26	10.5
Bertie	10	10.8
Bladen	16	8.8
Brunswick	34	6.5
Buncombe	86	6.6
Burke	29	6.7
Cabarrus	54	4.7
Caldwell	42	10.4
Camden	3	6.6
Carteret	25	8.1
Caswell	9	8.6
Catawba	53	6.0
Chatham	26	8.3
Cherokee	11	10.0
Chowan	6	7.9
Clay	2	4.9
Cleveland	49	9.0
Columbus	35	10.9
Craven	56	7.0
Cumberland	242	8.4
Currituck	10	8.3
Dare	10	5.5
Davidson	53	6.1
Davie	11	5.8
Duplin	28	7.3
Durham	147	6.8
Edgecombe	27	8.2
Forsyth	195	8.5
Franklin	22	6.6
Gaston	97	7.7
Gates	2	3.7
Graham	2	4.3
Granville	20	7.1
Greene	7	6.2
Guilford	252	8.3
Halifax	32	10.9
Harnett	77	8.4
Haywood	12	4.4
Henderson	27	5.1
Hertford	18	15.1
Hoke	23	4.9
Hyde	4	15.6
Iredell	64	7.3
Jackson	12	6.1
Johnston	69	6.2
Jones	7	13.8
Lee	36	8.8
Lenoir	31	9.2
Lincoln	22	5.7
McDowell	12	5.2
Macon	11	6.7
Madison	9	9.7
Martin	6	5.0
Mecklenburg	409	5.9
Mitchell	2	2.9
Montgomery	22	13.5
Moore	23	4.7
Nash	42	7.6
New Hanover	44	3.9
Northampton	11	11.7
Onslow	143	6.6
Orange	28	4.5
Pamlico	7	15.2
Pasquotank	15	6.0
Pender	22	7.3
Perquimans	7	10.6
Person	15	7.2
Pitt	115	10.8
Polk	3	4.3
Randolph	47	5.8
Richmond	24	8.7
Robeson	115	12.0
Rockingham	45	9.6
Rowan	61	7.9
Rutherford	24	7.0
Sampson	38	8.9
Scotland	27	11.7
Stanly	20	6.1
Stokes	17	8.4
Surry	24	6.2
Swain	10	10.2
Transylvania	10	7.4
Tyrrell	4	18.8
Union	65	5.5
Vance	28	9.7
Wake	370	5.9
Warren	10	10.7
Washington	6	9.2
Watauga	5	2.8
Wayne	64	7.5
Wilkes	31	9.2
Wilson	40	8.3
Yadkin	15	7.7
Yancey	6	7.0

Note: Rates based on less than 10 deaths are unreliable and should be interpreted with caution.

Data Source: Vital Statistics, State Center for Health Statistics.

North Carolina Infant Mortality Racial Disparity between Whites and African Americans by County of Residence, 2010–2014

	White, Non-Hispanic		African American, Non-Hispanic		
Residence	Infant Deaths	Infant Mortality Rate	Infant Deaths	Infant Mortality Rate	Disparity Ratio
State	**1,811**	**5.4**	**1,858**	**12.9**	**2.39**
Alamance	38	7.7	28	15.1	1.96
Alexander	6	3.9	1	14.1	3.62
Alleghany	1	2.7	0	0.0	0.00
Anson	4	7.9	8	10.9	1.38
Ashe	6	5.4	0	0.0	0.00
Avery	9	14.0	0	0.0	0.00
Beaufort	12	9.2	14	17.8	1.93
Bertie	0	0.0	10	15.5	*
Bladen	7	8.3	7	10.7	1.29
Brunswick	27	6.8	6	9.2	1.35
Buncombe	62	6.1	17	15.9	2.61
Burke	22	6.7	2	10.0	1.49
Cabarrus	33	4.6	13	6.6	1.43
Caldwell	34	9.9	3	14.3	1.44
Camden	3	8.0	0	0.0	0.00
Carteret	20	7.8	2	10.7	1.37
Caswell	2	3.0	6	20.3	6.77
Catawba	29	4.9	16	17.6	3.59
Chatham	15	8.4	4	11.1	1.32
Cherokee	8	8.2	0	0.0	0.00
Chowan	2	5.3	3	9.1	1.72
Clay	2	5.5	0	0.0	0.00
Cleveland	23	6.3	25	17.7	2.81
Columbus	9	5.4	19	17.4	3.22
Craven	40	7.8	13	8.0	1.03
Cumberland	84	6.1	132	13.2	2.16
Currituck	7	6.7	0	0.0	0.00
Dare	6	4.2	0	0.0	0.00
Davidson	33	5.1	14	16.7	3.27
Davie	9	5.9	2	18.5	3.14
Duplin	12	8.1	12	14.0	1.73
Durham	32	4.0	96	13.2	3.30
Edgecombe	6	6.8	21	9.7	1.43
Forsyth	67	6.3	94	14.2	2.25
Franklin	13	6.6	8	8.8	1.33
Gaston	50	5.7	44	18.5	3.25
Gates	1	2.7	1	6.6	2.44
Graham	2	5.1	0	0.0	0.00
Granville	10	6.4	6	7.0	1.09
Greene	2	4.4	5	13.3	3.02

North Carolina Infant Mortality Racial Disparity between Whites and African Americans by County of Residence, 2010–2014

	White, Non-Hispanic		African American, Non-Hispanic		
Residence	Infant Deaths	Infant Mortality Rate	Infant Deaths	Infant Mortality Rate	Disparity Ratio
Guilford	68	5.5	152	12.6	2.29
Halifax	6	6.7	26	14.5	2.16
Harnett	37	6.6	33	17.8	2.70
Haywood	10	4.0	1	26.3	6.58
Henderson	21	5.2	1	4.8	0.92
Hertford	5	15.0	13	16.3	1.09
Hoke	8	3.4	8	7.0	2.06
Hyde	3	17.0	1	21.7	1.28
Iredell	26	4.2	31	24.1	5.74
Jackson	10	7.1	0	0.0	0.00
Johnston	37	5.3	18	10.5	1.98
Jones	0	0.0	6	42	*
Lee	12	6.2	16	19.3	3.11
Lenoir	10	7.5	20	13.0	1.73
Lincoln	14	4.4	7	32.9	7.48
McDowell	10	5.1	0	0.0	0.00
Macon	11	8.3	0	0.0	0.00
Madison	9	10.2	0	0.0	0.00
Martin	0	0.0	6	10.6	*
Mecklenburg	102	3.5	220	9.9	2.83
Mitchell	2	3.4	0	0.0	0.00
Montgomery	6	7.7	9	27.5	3.57
Moore	11	3.2	7	8.7	2.72
Nash	7	3.1	32	12.9	4.16
New Hanover	22	2.9	19	9.0	3.10
Northampton	1	3.6	10	16.5	4.58
Onslow	79	5.1	37	13.6	2.67
Orange	12	3.3	11	12.4	3.76
Pamlico	5	14.6	2	25.0	1.71
Pasquotank	5	3.7	10	10.6	2.86
Pender	6	2.8	13	28.1	10.00
Perquimans	3	6.3	3	19.5	3.10
Person	3	2.3	12	19.7	8.57
Pitt	33	6.6	74	16.9	2.56
Polk	2	3.5	0	0.0	0.00
Randolph	33	5.7	5	9.6	1.68
Richmond	8	5.7	14	15.0	2.63
Robeson	20	10.9	33	15.1	1.39
Rockingham	23	7.1	21	23.2	3.27
Rowan	38	7.4	18	13.0	1.76
Rutherford	16	5.8	4	10.1	1.74

North Carolina Infant Mortality Racial Disparity between Whites and African Americans by County of Residence, 2010–2014

	White, Non-Hispanic		African American, Non-Hispanic		
Residence	Infant Deaths	Infant Mortality Rate	Infant Deaths	Infant Mortality Rate	Disparity Ratio
Sampson	14	8.6	14	13.7	1.59
Scotland	10	12.8	14	13.3	1.04
Stanly	8	3.2	11	24.1	7.53
Stokes	16	8.5	1	14.1	1.66
Surry	21	7.1	1	7.5	1.06
Swain	4	7.8	0	0.0	0.00
Transylvania	9	7.7	1	18.9	2.45
Tyrrell	3	26.5	0	0.0	0.00
Union	21	2.7	27	15.7	5.81
Vance	4	4.7	21	12.8	2.72
Wake	138	4.1	167	11.8	2.88
Warren	2	7.0	8	14.6	2.09
Washington	2	9.0	4	10.8	1.20
Watauga	3	1.9	1	31.3	16.5
Wayne	23	5.8	37	13.4	2.31
Wilkes	24	8.6	2	14.2	1.65
Wilson	10	5.6	23	11.0	1.96
Yadkin	11	7.4	1	15.9	2.15
Yancey	6	8.2	0	0.0	0.00

*Disparity exists, however, ratio cannot be calculated because there were zero infant deaths to non-Hispanic whites.
Note: Rates based on less than 10 deaths are unreliable and should be interpreted with caution.
Data Source: Vital Statistics, State Center for Health Statistics.

North Carolina Pneumonia and Influenza Mortality Rate (per 100,000 Population) by County of Residence, 2010–2014

Residence	Age-Adjusted* Death Rate
State Total	17.6
Alamance	15.1
Alexander	21.0
Alleghany	**
Anson	19.0
Ashe	21.5
Avery	37.3
Beaufort	11.9
Bertie	**
Bladen	16.4
Brunswick	13.4
Buncombe	15.4
Burke	21.7
Cabarrus	22.7
Caldwell	25.3
Camden	**
Carteret	14.1
Caswell	17.8
Catawba	22.1
Chatham	11.2
Cherokee	14.3
Chowan	**
Clay	**
Cleveland	28.0
Columbus	21.0
Craven	17.8
Cumberland	19.6
Currituck	97.2
Dare	59.8
Davidson	20.6
Davie	20.9
Duplin	17.0
Durham	14.4
Edgecombe	19.7
Forsyth	18.8
Franklin	20.5
Gaston	27.9
Gates	**
Graham	**
Granville	14.3
Greene	**
Guilford	15.5
Halifax	18.8
Harnett	14.6
Haywood	18.5
Henderson	16.5
Hertford	13.4
Hoke	17.9
Hyde	**
Iredell	20.1
Jackson	18.4
Johnston	16.4
Jones	**
Lee	16.8
Lenoir	17.2
Lincoln	18.7
McDowell	20.8
Macon	14.1
Madison	23.2
Martin	12.3
Mecklenburg	14.0
Mitchell	20.2
Montgomery	23.3
Moore	12.5
Nash	23.4
New Hanover	11.2
Northampton	12.8
Onslow	13.4
Orange	13.7
Pamlico	**
Pasquotank	18.8
Pender	15.7
Perquimans	**
Person	22.3
Pitt	10.6
Polk	17.1
Randolph	20.4
Richmond	12.0
Robeson	14.6
Rockingham	31.0
Rowan	31.4
Rutherford	16.6
Sampson	14.2
Scotland	12.1
Stanly	18.8
Stokes	21.0
Surry	20.0
Swain	25.0
Transylvania	11.4
Tyrrell	**
Union	16.7
Vance	28.2
Wake	10.6
Warren	20.0
Washington	**
Watauga	13.4
Wayne	13.3
Wilkes	30.9
Wilson	21.1
Yadkin	25.2
Yancey	17.5

*An age-adjusted death rate is a death rate that controls for the effects of differences in population age distributions.
**Death rates with a small number (<50) of deaths in the numerator should be interpreted with caution.
Data Source: Vital Statistics, State Center for Health Statistics.

North Carolina Traffic Crashes That Are Alcohol-Related By County of Crash, 2014

County	Percentage
State Total	**4.8**
Alamance	5.2
Alexander	4.4
Alleghany	8.3
Anson	5.5
Ashe	5.4
Avery	5.4
Beaufort	4.9
Bertie	4.5
Bladen	4.3
Brunswick	5.5
Buncombe	5.0
Burke	4.2
Cabarrus	4.0
Caldwell	5.4
Camden	4.8
Carteret	4.8
Caswell	7.0
Catawba	4.3
Chatham	5.6
Cherokee	7.2
Chowan	4.2
Clay	5.7
Cleveland	4.6
Columbus	5.0
Craven	4.4
Cumberland	4.0
Currituck	9.6
Dare	4.5
Davidson	4.5
Davie	4.2
Duplin	7.6
Durham	3.4
Edgecombe	6.8
Forsyth	4.5
Franklin	7.8
Gaston	4.8
Gates	3.8
Graham	1.6
Granville	4.2
Greene	4.2
Guilford	5.1
Halifax	5.3
Harnett	5.5
Haywood	5.2
Henderson	5.4
Hertford	5.4
Hoke	4.7
Hyde	4.6
Iredell	4.4
Jackson	7.4
Johnston	6.2
Jones	5.3
Lee	4.2
Lenoir	6.4
Lincoln	4.9
McDowell	4.2
Macon	5.5
Madison	6.1
Martin	6.8
Mecklenburg	4.0
Mitchell	4.0
Montgomery	7.0
Moore	4.2
Nash	6.4
New Hanover	4.5
Northampton	7.9
Onslow	6.4
Orange	6.1
Pamlico	4.9
Pasquotank	4.8
Pender	7.0
Perquimans	5.2
Person	5.7
Pitt	4.0
Polk	2.4
Randolph	5.0
Richmond	5.3
Robeson	6.6
Rockingham	6.1
Rowan	4.8
Rutherford	5.2
Sampson	4.8
Scotland	5.1
Stanly	4.5
Stokes	5.0
Surry	6.3
Swain	7.3
Transylvania	6.2
Tyrrell	3.3
Union	4.4
Vance	5.1
Wake	4.1
Warren	6.6
Washington	4.7
Watauga	5.1
Wayne	7.2
Wilkes	4.1
Wilson	5.3
Yadkin	6.3
Yancey	7.0

Data Source: Highway Safety Research Center, University of North Carolina at Chapel Hill.

North Carolina Cardiovascular Disease Mortality Rate (per 100,000 Population) by County of Residence, 2010–2014

Residence	Age-Adjusted* Death Rate
State Total	**224.4**
Alamance	225.2
Alexander	208.9
Alleghany	202.9
Anson	309.8
Ashe	216.2
Avery	210.6
Beaufort	264.7
Bertie	268.9
Bladen	296.8
Brunswick	215.1
Buncombe	198.2
Burke	257.4
Cabarrus	219.2
Caldwell	262.6
Camden	233.9
Carteret	229.9
Caswell	231.4
Catawba	238.9
Chatham	165.6
Cherokee	249.7
Chowan	243.5
Clay	196.9
Cleveland	283.5
Columbus	335.6
Craven	226.9
Cumberland	256.9
Currituck	239.4
Dare	215.5
Davidson	252.7
Davie	191.2
Duplin	232.4
Durham	185.3
Edgecombe	307.7
Forsyth	201.5
Franklin	218.6
Gaston	259.1
Gates	229.0
Graham	257.5
Granville	198.1
Greene	256.1
Guilford	200.3
Halifax	281.5
Harnett	255.8
Haywood	239.0
Henderson	189.2
Hertford	249.3
Hoke	253.1
Hyde	234.5
Iredell	245.6
Jackson	203.8
Johnston	259.8
Jones	299.1
Lee	243.2
Lenoir	290.7
Lincoln	259.0
McDowell	247.3
Macon	217.3
Madison	248.6
Martin	334.1
Mecklenburg	183.5
Mitchell	255.6
Montgomery	200.4
Moore	174.5
Nash	259.5
New Hanover	216.7
Northampton	231.7
Onslow	213.9
Orange	163.2
Pamlico	220.7
Pasquotank	280.7
Pender	210.4
Perquimans	246.1
Person	255.5
Pitt	236.0
Polk	175.9
Randolph	236.7
Richmond	327.4
Robeson	273.4
Rockingham	257.0
Rowan	257.6
Rutherford	293.5
Sampson	252.0
Scotland	279.4
Stanly	287.7
Stokes	246.2
Surry	235.1
Swain	297.1
Transylvania	187.9
Tyrrell	258.7
Union	220.8
Vance	257.5
Wake	183.6
Warren	228.0
Washington	314.3
Watauga	183.6
Wayne	242.0
Wilkes	211.3
Wilson	243.2
Yadkin	262.8
Yancey	226.2

*An age-adjusted death rate is a death rate that controls for the effects of differences in population age distributions.

Data Source: Vital Statistics, State Center for Health Statistics.

Percentage of North Carolina Adults with Diabetes by Region for the North Carolina Association of Local Health Directors and the Area Health Education Centers—BRFSS Survey Results, 2014

	Percent	C.I. (95%)*
North Carolina	**10.8**	**10.1–11.6**
North Carolina. Association of Local Health Directors		
Region 1 and 2	10.9	8.9–13.4
Region 3	13.3	10.7–16.3
Region 4	10.8	9.2–12.6
Region 5	9.9	8.2–12.0
Region 6	11.9	9.1–15.5
Region 7	9.3	7.5–11.5
Region 8	12.3	10.1–14.8
Region 9 and 10	10.1	8.1–12.7
Area Health Education Centers		
Mountain AHEC	8.9	7.0–11.3
Northwest	13.5	11.5–15.8
Charlotte	10.5	8.7–12.6
Greensboro	11.3	9.2–13.9
Southern Regional	13.1	10.4–16.4
Southeast	12.8	10.1–16.1
Wake	7.5	6.0– 9.4
Area L and Eastern	10.6	8.8–12.7

Current diabetes prevalence represents the percentage of survey respondents who report "yes" to the survey question: "Has a doctor, nurse, or other health professional EVER told you that you had diabetes?"

* C.I. (95%) = Confidence Interval (at 95% probability level).

North Carolina Association of Local Health Directors

Region 1: Cherokee, Clay, Graham, Haywood, Jackson, Macon, Swain, Transylvania

Region 2: Buncombe, Burke, Caldwell, Cleveland, Henderson, Madison, Rutherford-Polk-McDowell, Yancey-Mitchell-Avery

Region 3: Davidson, Davie, Forsyth, Stokes, Surry, Watauga-Ashe-Alleghany, Wilkes, Yadkin

Region 4: Alexander, Cabarrus, Catawba, Gaston, Iredell, Lincoln Mecklenburg, Rowan, Stanly, Union

Region 5: Alamance, Caswell, Chatham, Durham, Guilford, Orange, Person, Randolph, Rockingham

Region 6: Anson, Cumberland, Harnett, Hoke, Lee, Montgomery, Moore, Richmond, Scotland

Region 7: Edgecombe, Franklin, Granville-Vance, Halifax, Johnston, Nash, Wake, Warren, Wilson

Region 8: Bladen, Brunswick, Columbus, Duplin, New Hanover, Onslow, Pender, Robeson, Sampson

Region 9: Bertie, Currituck, Dare, Hertford-Gates, Hyde, Martin-Tyrell-Washington, Northampton, Pasquotank-Perquimans-Camden-Chowan

Region 10: Beaufort, Carteret, Craven, Greene, Jones, Lenoir, Pamlico, Pitt, Wayne

Area Health Education Centers

Mountain: Buncombe, Cherokee, Clay, Graham, Haywood, Henderson, Jackson, Macon, Madison, McDowell, Mitchell, Polk, Rutherford, Swain, Transylvania, Yancey

Northwest: Alexander, Alleghany, Ashe, Avery, Burke, Caldwell, Catawba, Davidson, Davie, Forsyth, Iredell, Rowan, Stokes, Surry, Watauga, Wilkes, Yadkin

Charlotte: Anson, Cabarrus, Cleveland, Gaston, Lincoln, Mecklenburg, Stanly, Union

Greensboro: Alamance, Caswell, Chatham, Guilford, Montgomery, Orange, Randolph, Rockingham

Southern Regional: Bladen, Cumberland, Harnett, Hoke, Moore, Richmond, Robeson, Sampson, Scotland

Southeast: Brunswick, Columbus, Duplin, Pender, New Hanover

Wake: Durham, Franklin, Granville, Johnston, Lee, Person, Vance, Wake, Warren

Area L: Edgecombe, Halifax, Nash, Northampton, Wilson

Eastern: Beaufort, Bertie, Camden, Carteret, Chowan, Craven, Currituck, Dare, Gates, Greene, Hertford, Hyde, Jones, Lenoir, Martin, Onslow, Pamlico, Pasquotank, Perquimans, Pitt, Tyrrell, Washington, Wayne

North Carolina Life Expectancies at Birth by County of Residence, 2012–2014

Residence	Life Expectancy at Birth
State Total	**78.3**
Alamance	77.3
Alexander	78.4
Alleghany	79.8
Anson	75.1
Ashe	77.5
Avery	79.5
Beaufort	76.1
Bertie	76.6
Bladen	75.3
Brunswick	78.4
Buncombe	79.1
Burke	76.4
Cabarrus	78.4
Caldwell	75.8
Camden	80.3
Carteret	78.7
Caswell	76.5
Catawba	76.8
Chatham	82
Cherokee	76.5
Chowan	78.7
Clay	78.2
Cleveland	74.7
Columbus	73.6
Craven	77.9
Cumberland	76.3
Currituck	77.2
Dare	79.6
Davidson	76.5
Davie	79
Duplin	78.4
Durham	79.9
Edgecombe	75.2
Forsyth	78.3
Franklin	77.7
Gaston	75.6
Gates	79.4
Graham	75.1
Granville	78
Greene	78.2
Guilford	79
Halifax	74.6
Harnett	76.6
Haywood	78.1
Henderson	79.5
Hertford	76.3
Hoke	77.5
Hyde	80
Iredell	77.4
Jackson	79.2
Johnston	78.2
Jones	77.3
Lee	77.7
Lenoir	75.2
Lincoln	77.8
McDowell	76.6
Macon	78.3
Madison	77.9
Martin	75.6
Mecklenburg	80.4
Mitchell	77.4
Montgomery	77.6
Moore	80
Nash	76.7
New Hanover	79.7
Northampton	76.2
Onslow	78.3
Orange	82
Pamlico	77.5
Pasquotank	77.5
Pender	78.4
Perquimans	78.6
Person	76.9
Pitt	78.2
Polk	79.7
Randolph	76.9
Richmond	74.8
Robeson	73.9
Rockingham	75.8
Rowan	75.4
Rutherford	75.8
Sampson	76.4
Scotland	74.8
Stanly	76.9
Stokes	78
Surry	77.1
Swain	73.6
Transylvania	80.6
Tyrrell	79.4
Union	79.5
Vance	74.9
Wake	81.5
Warren	78.1
Washington	78.7
Watauga	82.2
Wayne	77.3
Wilkes	76.4
Wilson	77.1
Yadkin	76.8
Yancey	77.8

Life expectancy is the average number of additional years that an infant born between 2012–2014 would be expected to live if current mortality conditions remained constant throughout his or her lifetime.

Data Source: Vital Statistics, State Center for Health Statistics.