

Health Profile of North Carolinians: 2007 Update



**NC Department of Health and Human Resources
Division of Public Health**

State Center for Health Statistics
1908 Mail Service Center
Raleigh, North Carolina 27699-1908
www.schs.state.nc.us/SCHS/

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EXECUTIVE SUMMARY

North Carolina has an increasingly diverse population. Hispanics now comprise approximately seven percent of the population, six times the percentage in 1990. African Americans are the largest minority group, accounting for 21 percent of the population. About one percent of North Carolinians are American Indian. North Carolina lags the nation in several key health indicators, such as infant mortality, diabetes, stroke, and obesity. Minorities often have worse health indicators than whites. In this report, we examine selected health measures, offering a summary of health status in North Carolina. The goals of the North Carolina Department of Health and Human Services are to increase quality years of life and eliminate health disparities.

Chronic Diseases

Heart disease, cancer, stroke, and chronic lung disease are the leading causes of death in North Carolina. These chronic diseases account for 58 percent of all deaths in the state. There have been dramatic increases in diabetes and obesity in the past decade; these conditions exacerbate many other health problems. In 2005, 37 percent of adult North Carolinians were overweight and another 26 percent were obese.

Infant, Child, and Adolescent Health

Infant mortality in North Carolina has decreased by more than one-third since 1989, though in the past couple of years the rate has shown a moderate increase. North Carolina still ranks among the ten worst states in the nation in infant mortality and large racial disparities persist. In 2003, the North Carolina General Assembly funded a plan to expand school nurse services in the state and progress is being made in improving nurse-to-student ratios in the state. In 2005, approximately 12 percent of children ages birth to 18 did not have health insurance. Teen pregnancy rates have declined markedly since 1990 and racial disparities in teen pregnancy have been reduced.

Mental Health and Substance Abuse

The problems that North Carolina faces with regard to mental health are difficult to document due to inadequate data on the prevalence of specific mental disorders. In 2005, 29 percent of North Carolina adults reported that there were one or more days during the past month when their mental health was not good (due to stress, depression, or emotional problems). One in ten North Carolinians reported engaging in binge drinking in the past month (defined as having five or more drinks on one occasion). During 2005, there were 52,866 inpatient hospitalizations in North Carolina with mental illness listed as the primary diagnosis, resulting in more than \$444 million in hospital charges.

Injury and Violence

In 2005, there were 1,636 deaths from motor vehicle injuries, 2,448 deaths from other unintentional injuries, 995 deaths from suicide and 655 deaths from homicide in North Carolina. Injury or poisoning accounted for 73,651 hospitalizations, resulting in \$1.8 billion in hospital charges. Nearly six percent of new mothers reported that they had been physically abused during their recent pregnancy.

Communicable Diseases

Syphilis has decreased by more than 80 percent in recent years due to public health efforts such as the North Carolina Syphilis Elimination Project. Gonorrhea rates have also declined, but North Carolina had the seventh highest gonorrhea rate in the country in 2005. Chlamydia rates have increased, but much of this increase can be attributed to better screening practices and more accurate diagnostic tests. Since 2001, an average of 1,700 new HIV cases have been identified each year in North Carolina. African Americans have much higher HIV case rates than whites. Despite impressive advances in drug treatments, in 2005 HIV was the seventh leading cause of death for residents ages 25-44 and the tenth leading cause of death for African Americans. The North Carolina Division of Public Health continues to prepare for a pandemic flu outbreak and for other public health emergencies.

Minority Health and Health Disparities

African Americans have higher death rates from heart disease, cancer, HIV, diabetes, homicide, and stroke, compared to whites. The African-American infant mortality rate is more than twice the rate for whites. Hispanics in North Carolina have higher death rates for motor vehicle injuries and homicide and a higher percentage with no health insurance, compared to non-Hispanic whites. Despite the mothers starting prenatal care later, Hispanics have an infant mortality rate almost equal to the rate for whites. American Indians in North Carolina have substantially higher death rates for homicide, diabetes, and motor vehicle injuries, compared to whites. These higher death rates for American Indians reflect their high percentage living in poverty and having problems with access to health care.

Health Risk Factors

Many deaths in North Carolina are preventable and involve risky behaviors or lifestyles. Among the leading causes of preventable death are tobacco use, unhealthy diet/physical inactivity, alcohol misuse, firearms, sexual behavior, motor vehicles, and illicit drug use. Compared with national rates, North Carolina adults are somewhat more likely to smoke, have sedentary lifestyles, and be obese.

Health Care Access

More than 1.3 million North Carolina residents, or 16 percent of the population, were without health insurance during 2004-2005. Approximately 33 percent of North Carolina adults did not visit a dentist within the last year. One in four children do not have a dentist or dental clinic they go to regularly. Problems in access to health care are especially acute among North Carolina's poor and minority populations.

Occupational and Environmental Health

Failure to meet air quality and particulate matter standards is associated with increases in emergency room visits and hospital admissions for heart and lung disease and an increased risk of premature mortality. In 2005, 56 percent of children enrolled in Medicaid were screened for lead exposure and of these children screened, one percent were found to have elevated blood lead levels. In 2005, there were 165 fatal occupational injuries in North Carolina. More than one-third of these deaths were attributable to transportation incidents and 13 percent were due to assaults and violent acts in the workplace. Approximately 17 percent of all fatal occupational injuries occurred among Hispanics. The industry associated with the most fatal occupational injuries was construction.

HEALTH PROFILE OF NORTH CAROLINIANS: 2007 UPDATE

Since 1914, when deaths were first centrally recorded in North Carolina by the state Vital Records program, data obtained from birth and death certificates have been analyzed by the State Center for Health Statistics in order to classify and determine the root causes behind public health threats such as birth defects, heart disease, SIDS, and cancer. Similarly, information regarding illness and injuries collected from hospital discharge data, registries, and health surveys can give us a more thorough idea of the prevalence and scope of public health problems such as asthma, osteoporosis, and mental illness. Through a combination of natality, mortality, and morbidity data, a portrait of the overall health of North Carolinians can emerge.

This report represents an update to the Health Profile last published in 2005. The main objective of this biennial report is to help state legislators and health agencies identify trends in death, illness, and injury, as well as the factors that may lead to these events. In a rapidly changing health care environment, this information should facilitate the targeting of health programs to improve the health status of North Carolinians.

In 2005, there were more than 8,600,000 residents of North Carolina. More than a million residents were age 65 or older, or approximately 12 percent of the total population. This represents an increase from 602,000, or ten percent, of our population in this older age group in 1980.¹ North Carolina's popularity as a retirement mecca and the aging of North Carolina's population have resulted in an increase in some health problems, particularly chronic diseases, and there has been an associated rise in deaths and medical care costs for these problems. North Carolina has a higher unadjusted mortality rate than the rest of the country. In 2005, 857 people died in North Carolina per 100,000 population compared to 817 nationally in 2004 (the latest year national data are available). North Carolina's overall age-adjusted death rate of 896 deaths per 100,000 for 2001-2005 was also considerably higher than the national rate of 801 per 100,000 population in 2004.^{2,3}

Life Expectancy and Years of Life Lost – The life expectancy at birth for North Carolinians is 75.8 years.⁴ This is about one year more than the life expectancy at birth in 1990 and two years more than the life expectancy in 1980.⁵ However, due to the higher overall death rates in North Carolina compared to the nation, residents of our state live approximately two years less than the U.S. average of 77.8 in 2004.³ Premature mortality not only affects individuals and their families; it also impacts the state's productivity. **Table 1** shows the total years of life lost

Table 1: 2005 NC Ten Leading Causes of Death: Total Deaths and Years of Life Lost

Rank Cause	Total Deaths	Average Years of Life Lost	Total Years of Life Lost
1 Heart disease	17,681	6.0	105,982
2 Cancer	16,675	8.7	145,219
3 Stroke	4,846	4.6	22,335
4 Chronic lower respiratory diseases.....	4,145	4.6	19,095
5 Other unintentional injuries.....	2,448	22.2	54,414
6 Alzheimer's disease	2,414	0.5	1,275
7 Diabetes	2,255	7.7	17,350
8 Pneumonia and influenza	1,820	4.0	7,359
9 Motor vehicle injuries	1,636	35.7	58,439
10 Nephritis, nephrotic syndrome, nephrosis...	1,549	5.5	8,523
Total Deaths – All Causes	74,376	9.5	703,302

and the average years of life lost for the leading causes of death. In 2005, North Carolinians who died lost an average of 9.5 years of life due to early death and a total of 703,302 total years of life. Motor vehicle injuries – which disproportionately involve younger people – had the highest average number of years of life lost per death (35.7 years).⁶

Chronic Diseases

Chronic diseases are responsible for approximately two-thirds of all deaths in North Carolina or about 50,000 deaths each year.² While death itself is unavoidable, it may often be postponed if chronic health conditions and risky behaviors are prevented or controlled. Many of the leading causes of death for North Carolinians – including heart disease and diabetes – can be prevented or forestalled.

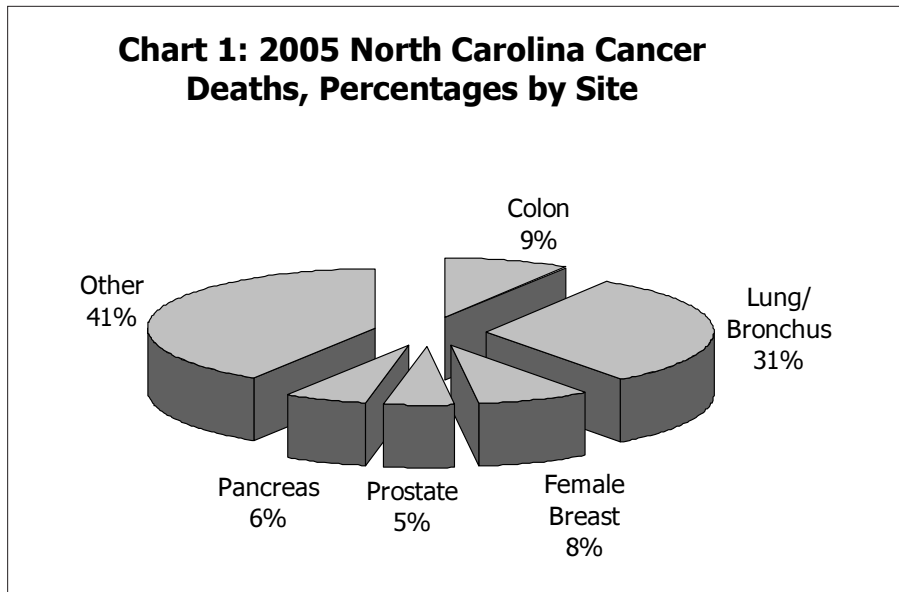
Cardiovascular Disease – In 2005, cardiovascular diseases (heart disease, stroke, and atherosclerosis) accounted for approximately one-third of all deaths in the state (32%). As shown in **Table 1**, heart disease was the leading cause of death in North Carolina in 2005, with 17,681 resident deaths, or approximately 24 percent of all deaths in the state. North Carolina's 2001-2005 age-adjusted heart disease rate of 226.8 deaths per 100,000 population was slightly above the national age-adjusted death rate of 217.0 per 100,000 in 2004. In addition, the state's 2001-2005 age-adjusted stroke death rate of 64.7 was substantially higher than the national rate of 50.0 in 2004.^{2,3} Cardiovascular and circulatory diseases were also the leading cause of hospitalization in North Carolina in 2005, accounting for more than 164,000 hospitalizations and over \$4.2 billion in hospital charges.⁷

According to the Kaiser Family Foundation, North Carolina has the fifth highest stroke death rate in the US. Only Arkansas, South Carolina, Tennessee, and Oklahoma have higher stroke mortality rates than North Carolina.⁸ North Carolina is part of what is known as the "Stroke Belt," an area in the Southeastern part of the U.S. with the highest stroke rates. Within the Stroke Belt, North Carolina is one of three states (known as the "Stroke Buckle") with death rates up to twice times the national average. In an effort to augment stroke research and prevention in this region, North Carolina began participating in the "Tri-State Stroke Network" in 2000 along with Georgia and Tennessee.⁹ In 2004 North Carolina began receiving federal funds to create an Acute Stroke Registry in the state. Data from the registry will be used to measure quality of care for acute stroke patients and aid in developing quality improvement strategies to address premature mortality due to stroke.¹⁰ In addition, in late 2006, the state legislature mandated the formation of the North Carolina Stroke Advisory Council charged with developing a statewide system of improved stroke care.¹¹

According to the 2005 North Carolina Behavioral Risk Factor Surveillance System (BRFSS), almost one in ten respondents (8.7 percent) indicated that they had a history of cardiovascular diseases (heart attack, coronary artery disease, or stroke). However, despite the prevalence of cardiovascular disease in North Carolina, only 17 percent of BRFSS respondents were able to identify all symptoms of a stroke and only ten percent were able to identify all symptoms of a heart attack.¹² Research suggests that delays in seeking treatment for acute coronary and stroke symptoms limits effective treatment options and results in a greater likelihood of permanent disability or death.¹³

Cancer – The second leading cause of death in North Carolina is cancer, which resulted in more than 16,600 deaths in 2005 (see **Table 1**). The state's 2001-2005 age-adjusted death rate for cancer of 197.7 was higher than the national rate of 185.8 per 100,000 population in 2004.^{2,3} The leading causes of cancer death in 2005 were lung cancer (5,253 deaths in 2005),

cancer of the colon and rectum (1,483 deaths), breast cancer (1,262 deaths), cancer of the pancreas (949 deaths), and prostate cancer (787 deaths).² Cancer deaths for 2005 by site are presented in **Chart 1**. An estimated 40 percent of North Carolinians will develop cancer during their lifetime. More than 40,800 North Carolinians were projected to receive a cancer diagnosis in 2006, which equates to approximately 112 new cases each day. The latest cancer data reveal an age-adjusted cancer incidence rate of 482.9 cancer cases per 100,000 population in 2004. The age-adjusted cancer incidence rate for males of 567.8 is higher than the rate for females of 427.7. By race, the overall age-adjusted cancer incidence rates for whites (480.3) and minorities (483.5) are not significantly different. However, looking at age-adjusted cancer incidence rates by race and sex reveals that minority males, with a rate of 623.3 per 100,000 population have the highest incidence rates and minority females have the lowest cancer incidence rate (395.2).¹⁴



Deaths from many cancers can be reduced if the cancer is diagnosed at an early stage. Breast, cervical, and colon/rectal cancer deaths in particular could be reduced with regular screening. Generally, North Carolinians mirror the national averages with regard to cancer screenings. According to the North Carolina BRFSS survey, 55 percent of North Carolina adults over age 50 report ever having had a sigmoidoscopy or colonoscopy (compared to a U.S. rate of 53 percent). The percentage of North Carolina women age 18 and older who reported having had a pap smear within the past three years was 88 percent, compared with the U.S. rate of 86 percent. The percentage of women age 40+ who reported having a mammogram within the past two years (77%) was slightly higher for North Carolina than for the U.S. as a whole (75%).¹⁵

Chronic Lung Disease – Chronic lower respiratory diseases are the fourth leading cause of death in North Carolina, accounting for more than 4,100 deaths in 2005 (see **Table 1**). North Carolina had a slightly higher age-adjusted death rate due to chronic lung diseases during 2001-2005 – 46.9 per 100,000 population compared with a rate of 41.1 nationally in 2004.^{2,3} Age-adjusted chronic lung disease death rates for 2001-2005 were highest among North Carolina’s non-Hispanic white (50.4) and American Indian (34.0) populations. Hispanics had the lowest age-adjusted death rates from chronic lung diseases. During 2001-2005, North Carolina males had a much higher age-adjusted death rate from chronic lung diseases (61.0 per 100,000 population) than females (38.6).¹⁶

Diabetes – Diabetes is a major cause of death and disability in North Carolina and the nation. With a greater prevalence of obesity and an increasing elderly population, diabetes is approaching epidemic proportions in North Carolina. According to the BRFSS survey, the prevalence of diagnosed diabetes in North Carolina increased from 4.5 percent of the adult population in 1995 to 8.5 percent in 2005, an increase of 89 percent in the last decade. An additional 1.2 percent of North Carolina respondents indicated that they had been diagnosed with borderline or pre-diabetes.¹⁵ The actual prevalence may be twice as high given that it is estimated that there is one undiagnosed case of diabetes for every case that is diagnosed. In 2005, 38.5 percent of North Carolina adults responding to the BRFSS survey indicated that they had never had a blood test for diabetes.¹²

In 2005, diabetes was listed as the primary cause of more than 2,200 deaths in North Carolina, which represents a 24 percent increase in the number of deaths since 1996. North Carolina’s 2001-2005 age-adjusted diabetes death rate of 27.6 per 100,000 population is slightly higher than the 24.5 rate found nationally in 2004.^{2,3} Diabetes also significantly contributes to other causes of death, such as heart disease, stroke, and kidney failure. In 2005, approximately 6,000 additional North Carolinians died with diabetes mentioned on the death certificate as a contributing condition.⁶

Diabetes is the leading cause of non-traumatic lower limb amputation, kidney disease, and blindness in the state. In addition, people with diabetes are two to four times more likely to have cardiovascular disease.¹⁷ As presented in **Table 2**, diabetes was directly responsible for almost 15,000 hospitalizations in North Carolina in 2005, and contributed to or complicated approximately 181,000 hospitalizations. Diabetes was mentioned as a contributing condition in approximately one out of every five hospitalizations in 2005 (19%). The total hospital charges in 2005 for hospitalizations involving any diagnosis of diabetes was more than \$3.1 billion. In addition, 2005 North Carolina hospital discharge data reveal that diabetes was associated with 9,700 hospitalizations involving renal dialysis or transplant, and 2,903 discharges involving lower limb amputation.⁷

Table 2: 2005 North Carolina Resident Hospital Discharges Related to Diabetes

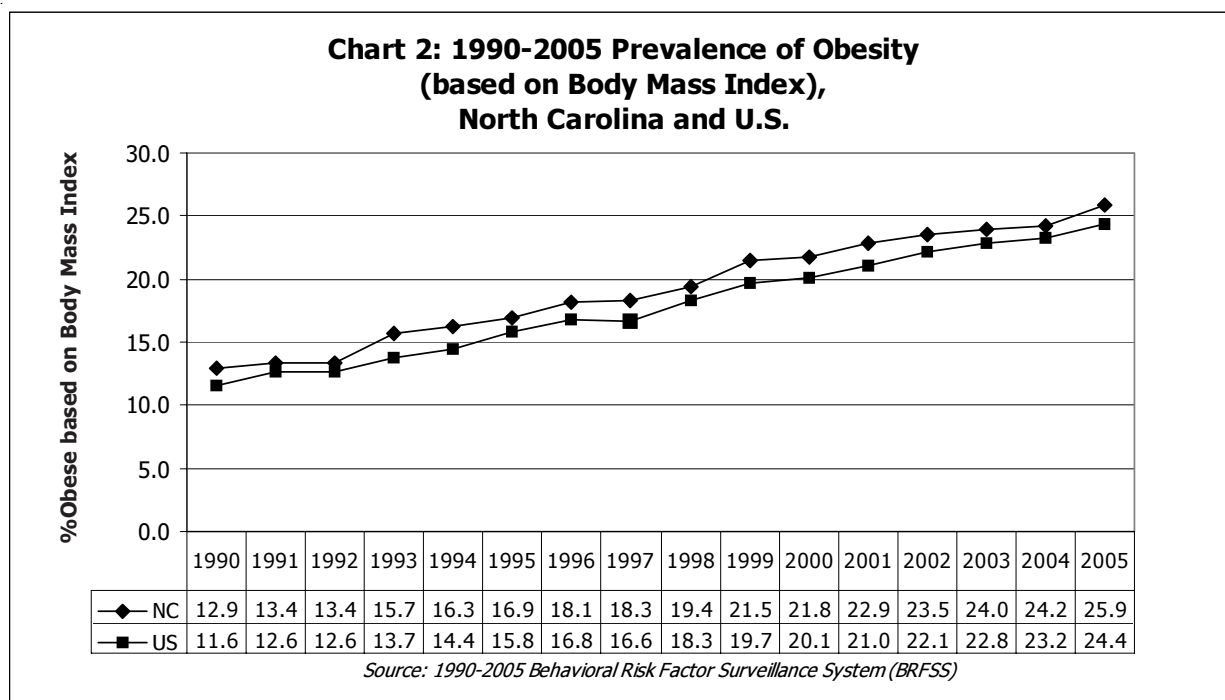
	Total Discharges	Total Charges	Average Charge	Average Length of Stay
Principal diagnosis of diabetes	14,973	\$196,662,497	\$13,134	5.2
Any diagnosis of diabetes	181,074	\$3,108,070,293	\$17,165	5.3
Lower limb amputation	2,903	\$86,429,896	\$29,772	11.0
Cardiovascular disease and diabetes	46,018	\$1,009,332,565	\$21,933	4.7
Renal dialysis/transplant and diabetes	9,700	\$221,551,157	\$22,840	7.2

*Note: Based on Provisional 2005 North Carolina hospital discharge data.

Overweight/Obesity – Overweight and obese individuals are at increased risk for a host of physical ailments including hypertension, Type II diabetes, coronary heart disease, stroke, osteoarthritis, asthma, and some types of cancer. The percentage of North Carolina adults who are obese has doubled from approximately 13 percent in 1990 to 26 percent of the population in 2005, consistently remaining slightly higher than the national average. **Chart 2** presents obesity percentages from 1990 through 2005 for North Carolina and the nation.¹⁵ The rate of obesity among African Americans (38.1%) is significantly higher than that of whites (23.6%). By age, the highest rates of obesity (32%) occurred among those between the ages of 45 and 64.¹²

Researchers reported that obesity-related medical costs for adults in North Carolina totaled 2.14 billion in 2003. Obesity-related expenditures represent approximately six percent of North Carolina’s health care bill. However, because the prevalence of obesity is estimated to be higher in the Medicaid population than in the state’s general population, the percent of state Medicaid expenditures attributable to obesity is nearly twice as high and totaled \$662 million.¹⁸ A 2005 study estimated the annual economic costs of unhealthy lifestyles in North Carolina at \$24.1 billion – with the risk factors of lack of physical activity costing \$9.1 billion; excess weight \$9.7 billion; type II diabetes \$3 billion; and inadequate fruit and vegetable consumption costing the state \$2.4 billion. According to the researchers, the state could save billions a year if adults were to lose weight and adopt healthier lifestyles.¹⁹

In all, approximately six in ten North Carolina BRFSS survey respondents (63%) indicated that they were overweight or obese based on their body mass index (calculated from reported height and weight) in 2005. Risk factors for obesity and overweight include being physically inactive and eating unhealthy foods. According to BRFSS, only 23 percent of North Carolina adults report consuming five or more servings of fruits and vegetables daily and more than one in every four (26%) report that they engage in no leisure time physical activity.¹²



Osteoporosis – Osteoporosis is a condition characterized by thin, weak bones that can lead to fractures of the spine, wrist, hip, or other bones. Eighty percent of all cases occur among women. The debilitating effects of osteoporosis include hip, wrist, and vertebral fracture. National studies suggest that the consequences of hip fractures include long-term convalescent care, immobility, and, in ten to 20 percent of cases, death.²⁰

According to the 2005 BRFSS survey, an estimated six percent of North Carolina adults report that they have been told by a doctor, nurse, or health professional that they have osteoporosis. Nearly one in ten women (9.9%) reporting having been diagnosed with osteoporosis compared to approximately one in 75 males (1.4%). Osteoporosis was more than twice as likely to be reported by whites (6.9%) as African-Americans (3.0%). Reports of osteoporosis increase with age, with more than one in five adults over the age of 75 (22.7%) reporting the condition in 2005. College graduates (4.6%) were significantly less likely to report being diagnosed with osteoporosis than those with a high school education (6.2%) or less than a high school education (7.0%). Adults with a body mass index (BMI) indicating that they were underweight were more than twice as likely to report being diagnosed with osteoporosis (17.1%) than adults in the recommended weight range (6.9%).¹²

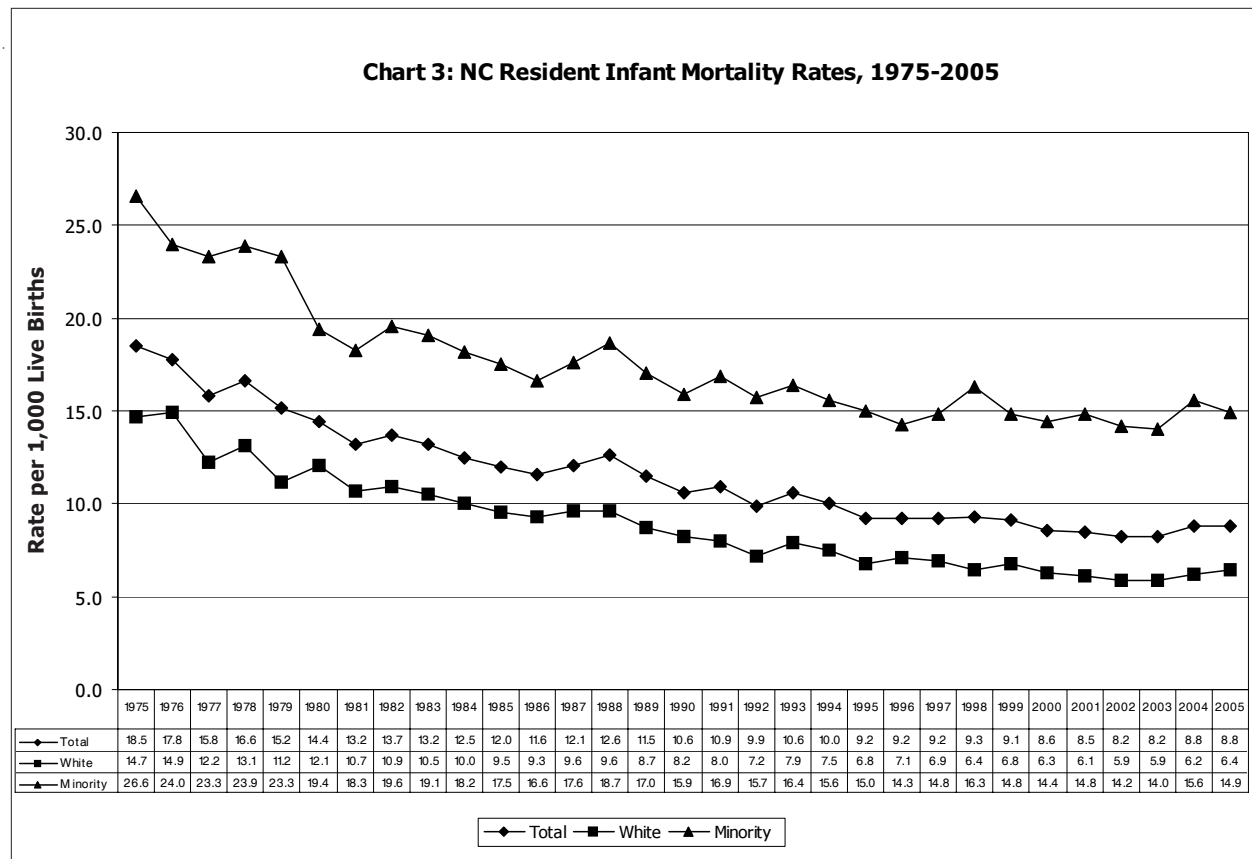
As the population continues to grow older, it is likely that osteoporotic fractures will increase. The prevalence of osteoporosis is projected to grow 76 percent by the year 2025. The total medical costs for treatment of osteoporosis were estimated to be more than \$514 million in North Carolina in 2005.²¹ In 2005, there were 7,726 hospital discharges of North Carolinians ages 65 and older with a primary diagnosis of hip fracture. Of those hospitalized with hip fractures, more than half (62%) were discharged to a skilled nursing facility.⁷

North Carolina statutes require insurers to provide coverage for scientifically approved bone mass measurement for the diagnosis and evaluation of osteoporosis or low bone mass.²² Despite this, many people with osteoporosis have not been properly diagnosed and do not receive treatment, including high-risk patients who have already suffered fractures. Some people consider osteoporosis an inevitable consequence of aging and do not know that it can be prevented. Regular weight-bearing exercise and increasing intake of calcium (which builds up bone mass) are some ways to prevent osteoporosis.²³ Several years ago, the North Carolina BRFSS survey asked respondents ages 45 and over questions about osteoporosis prevention. The majority (65%) of respondents indicated that their doctor had never spoken with them about preventing osteoporosis through lifestyle changes such as diet or exercise (in 2001 – the last time this question was asked). Only 63 percent of North Carolina women and 30 percent of men age 45 and over indicated that they are taking vitamin supplements that contain calcium to prevent or treat osteoporosis.¹² A study published in late 2006, which surveyed women over age 45 enrolled in a community-based family medicine research network in North Carolina, found that fewer than half had discussed osteoporosis preventive care with their primary care physician and only half of women age 65 and older had undergone bone density screening.²⁴

Infant, Child, and Adolescent Health

Child and Infant Mortality – The rate of child deaths (ages birth-17 years) in North Carolina has decreased significantly since 1990. In 1990, the child death rate was 105.2 deaths per 100,000 population, and by 2005 the rate had declined to 76.9.²⁵ Much of this decline can be attributed to a substantial reduction in infant mortality. As shown in **Chart 3**, the infant mortality rate in North Carolina has declined from 17.8 infant deaths per 1,000 live births in 1976 to 8.8 in 2005 – a reduction of 51 percent.²⁶ Yet, despite this progress, North Carolina’s infant mortality rate remains one of the highest in the country. According to a United Health Foundation 2005 report, North Carolina ranked among the ten worst in the nation in infant mortality.²⁷ Despite relatively steady declines over the last few decades, North Carolina’s infant mortality appears to be on the rise in recent years. In 2004, the state’s infant mortality rate rose more than seven percent to 8.8 infant deaths per 1,000 live births and this rate remained unchanged in 2005. In addition, the gap between minority and white infant mortality persists in North Carolina, with whites having an infant mortality rate of 6.4 per 1,000 live births, compared with a minority rate of 14.9 in 2005.²⁶

Some birth-related measures appear to be improving. During 1987-1991, the percentage of women receiving late or no prenatal care was 24 percent. By 2001-2005, this percentage was down to 16 percent. The percentage of women who reported smoking during pregnancy has also declined. During 1988-1991, approximately one in five births in North Carolina (21 percent) involved a mother who had smoked during pregnancy, compared with 12.9 percent during 2001-2005. Unfortunately, in recent years, some other birth outcome measures appear to be headed in the wrong direction. In 2001-2005, the percentage of North Carolina births classified as low birth weight (weighing less than 2,500 grams) was 9.0 compared with 8.1 in 1987-1991.²⁸



Identifying Infants with Special Health Care Needs – Infants with special health care needs who are diagnosed early and have early treatment have markedly better outcomes than children who are diagnosed later in infancy or childhood. The state has three programs for identifying infants with special needs: newborn metabolic screening, newborn hearing screening, and birth defects monitoring.

North Carolina has been a pioneer in the screening of newborns. In 1967, North Carolina first initiated a public health screening program for newborns. Every day, the State Laboratory for Public Health collects blood specimens from all newborns and screens them for more than 30 metabolic disorders – genetic defects that impair the way foods are digested or absorbed. Symptoms of metabolic abnormalities are often subtle, but without proper diagnosis the disorders can result in mental retardation or even death. If an abnormality is found, the lab notifies the hospital and the hospital can then direct the parents to the appropriate doctors for treatment. With appropriate treatment these children can grow and live a long and healthy life. In 2006, 127,177 newborn infant were screened and 227 disease cases were detected.²⁹

All North Carolina birthing facilities are now participating in Universal Newborn Hearing Screening. In calendar year 2005, 98.6 percent of infants born in North Carolina received a newborn hearing screening. Infants who do not receive hearing screening prior to discharge, who are not born in birthing facilities, or who require additional screening are identified so that screening services can be provided within 30 days of birth. In 2005, 161 infants were reported to the Newborn Screening program with confirmed hearing loss. Also, 144 infants were referred to the Early Intervention Program for Children who are Deaf or Hard of Hearing (EIDHH) and 85 of these were infants under 6 months of age.³⁰

In 1995, the North Carolina General Assembly passed legislation creating the North Carolina Birth Defects Monitoring Program (NCBDMP). With funds from the state, the March of Dimes, and the Centers for Disease Control and Prevention (CDC), this legislation allows trained NCBDMP staff to access and review hospital medical records and discharge reports to ensure more complete, accurate, and timely information for active birth defects surveillance. Each year, NCBDMP staff investigates more than 3,500 North Carolina resident infants with birth defects such as neural tube defects (approximately 200 cases per year), cleft lip and palate (130 cases per year), cardiovascular defects (1,000 cases per year), and chromosomal defects (180 cases per year). Many of the state's infant deaths can be attributed to birth defects. In 2003, of those infants that died within the first year of life, 263 (27.2%) had a diagnosed birth defect. Some of these birth defects can be detected through prenatal testing, ultrasound, amniocentesis, and genetic testing. The NCBDMP, in collaboration with the North Carolina Center for Birth Defects Research and Prevention and along with nine other birth defects programs, is participating in the National Birth Defects Prevention Study (NBDPS), which is sponsored by the CDC. The NBDPS is a nationwide effort to determine the causes of birth defects.³¹

Early Intervention – Early Intervention is a system of services designed to support children ages birth through five who have or are at risk for disabilities. The North Carolina Infant-Toddler Program provides services for children from birth to three years of age and their families. In state fiscal year 2005-2006, 17,319 children were referred to this program. Of these, 15,160 children (4.4 percent of the population) were enrolled in the program and some children are enrolled across multiple years. The state lead agency for the North Carolina Infant Toddler Program is the Department of Health and Human Services through the Division of Public Health, Early Intervention Branch.

The 18 Children's Developmental Services Agencies (CDSAs) of the Early Intervention Branch are the local lead agencies for the North Carolina Infant Toddler Program. Anyone can refer to the CDSA network and access the Infant Toddler Program, which is available in all 100 counties in North Carolina. When a child is referred to the early intervention program, the family of the child is contacted. Families receive a brief description of the early intervention program at this contact, and are offered an initial evaluation of the child. Some families decline the program and the initial evaluation. If the family decides to pursue eligibility and enrollment of their child, the early intervention program must evaluate the child, offer enrollment if the child is eligible, and develop an initial service plan within 45 calendar days from the date of referral.

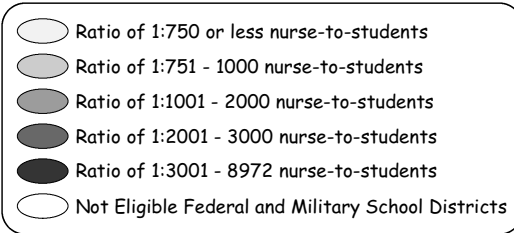
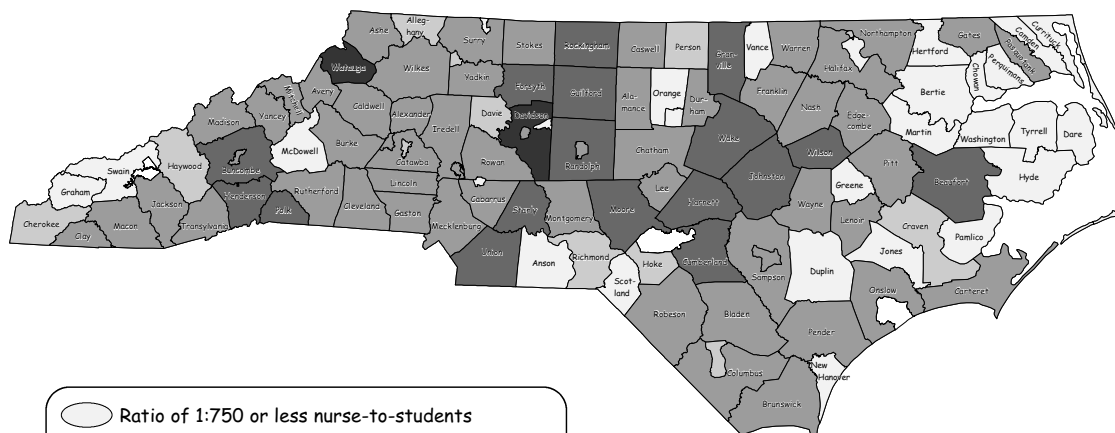
During the time period July 1, 2005 through June 30, 2006, the staff at the 18 CDSAs provided 50,702 evaluation services, 26,185 treatment services, and 221,514 service coordination and other services. Services are also authorized by the CDSAs to be provided by appropriately qualified community based early intervention service providers. The Child Service Coordination (CSC) Program, which works with families to obtain necessary preventive, specialized, and support services, served 34,598 children under the age of five years during Fiscal Year 2006 (5.9% of the population).³²

School Health – According to the School Health Services Report of the North Carolina Division of Public Health, 87,708 students received medications at school in 2005-2006. Most of these medications were daily, long term medications such as Ritalin, Dexedrine, Lithium, and other psychotropic controlled substances. Other health care procedures performed at North Carolina schools include Epi-pens, glucagon injections, nebulizer treatments, tube feedings, urinary catheterizations, shunt care, and stoma care. In addition, 611,339 minor injuries and illnesses were reported in school year 2005-2006; this is a 15.8 percent increase since 2003. More than 13,600 serious injuries were reported (a 54% increase since 2003), with 1,694 involving law enforcement intervention (a 123% increase since 2003).³³

Overall, the state had 932 school nurses employed both full-time and part-time in 2005-2006, of whom 868 were full-time. A 2003 North Carolina General Assembly Special Provision Budget Bill resulted in a plan to expand school nurse services to reach a one to 750 nurse-to-student ratio by 2014. The 2004 House Bill 1414 resulted in 80 new permanent school nurse positions and 65 two-year positions to be allocated based on need throughout the state. The 2006 budget made the 65 time-limited school nurse positions permanent. This increased the number of school districts meeting the one to 750 nurse-to-student ratio from ten to 18 in 2005 (out of a total of 115 school districts) and lowered the overall average school nurse-to-student ratio in North Carolina from 1:2047 (2001-2002) to 1:1571 (2005-2006).³³ **Chart 4** presents a map with FY 2005-2006 school nurse-to-student ratios by school district.

Chronic Diseases of Childhood – The Child Health Assessment and Monitoring Program (CHAMP) survey was developed by the State Center for Health Statistics in the fall of 2004 and implemented in January 2005. CHAMP is the first survey of its kind in North Carolina to measure the health characteristics of children ages birth to 17. Eligible children for the CHAMP survey are drawn each month from the Behavioral Risk Factor Surveillance System telephone survey of adults, ages 18 and older. All adult respondents with children living in their households are invited to participate in the CHAMP survey. CHAMP will serve as a comprehensive resource for assessing chronic diseases among children in North Carolina.³⁴

Chart 4: School Nurse/Student Ratio SFY 2005-2006



Source: NC Annual Survey of School Health Services, NC DHHS

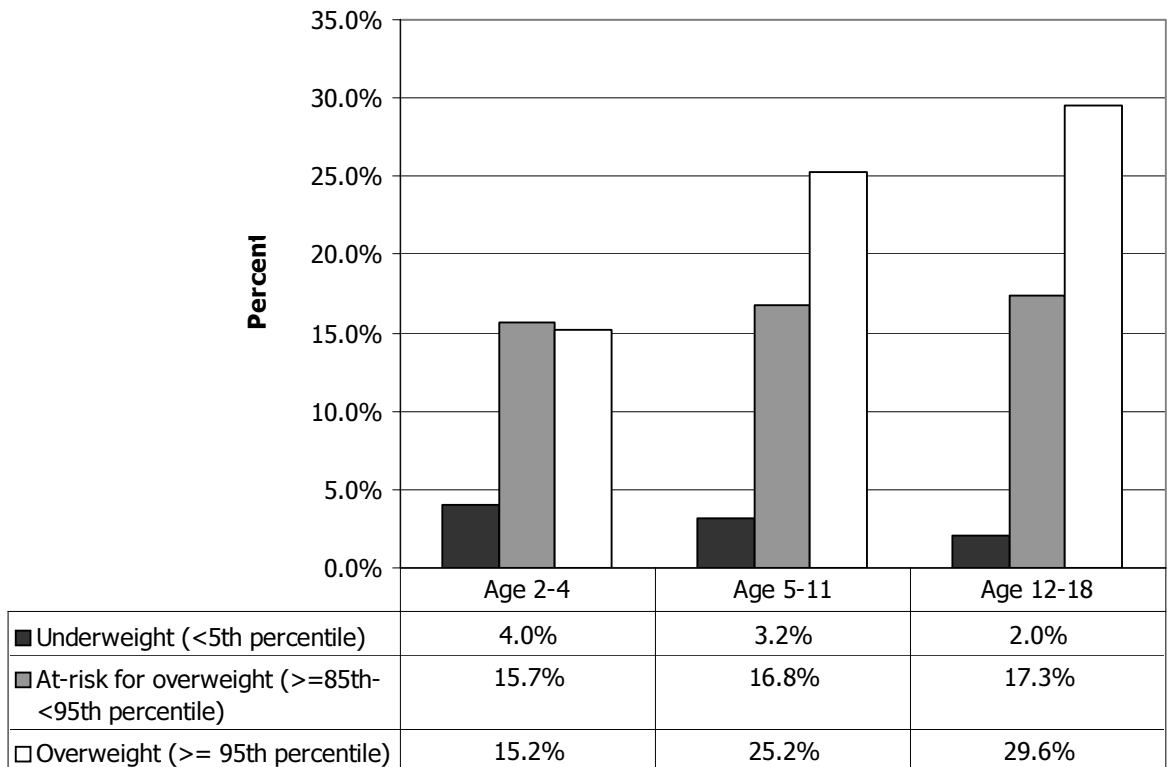
Note: The National Association of School Nurses recommends a SN/Student ratio of 1:750.



Asthma – While asthma is not a frequent cause of death among children in North Carolina, it is one of the most prevalent chronic diseases in our state, particularly among children. According to the School Health Services Report, a total of 80,886, or approximately six percent of North Carolina public school students had asthma in 2005-2006.³³ According to the 2005 CHAMP survey, 17.8 percent of parents reported that a doctor had ever diagnosed their child with asthma and 11.5 percent of parents reported that their child currently had asthma. Of those who reported that their child had asthma, one in four (24.9%) reported that their child had to visit a hospital emergency room or urgent care clinic in the last year because of their asthma and one in five (20.3%) reported that their child had missed five or more days of school in the last year due to asthma. Forty-three percent of children with asthma had never received an asthma management plan from a doctor or health professional.³⁴

Overweight – In many ways, children mirror the behaviors of their parents. Like adults, a high percentage of North Carolina children are overweight. The North Carolina Nutrition and Physical Activity Surveillance System (NC-NPASS) maintains a repository of data collected on children seen in North Carolina Public Health sponsored Women, Infants, and Children (WIC) nutrition programs, child health clinics, and some school-based health centers. As shown in **Chart 5**, 2006 NC-NPASS data shows that approximately one in seven low-income children ages two to four, one in four children ages five to 11, and nearly one in three children ages 12-18 were overweight based on their Body Mass Index (BMI). Further, between 15 and 18 percent more children in each age group were at risk for overweight based on their BMI-for-age.³⁵ According to the 2005 Youth Risk Behavior Survey (YRBS), 15.8 percent of all North Carolina middle school students and 13.5 percent of all high school students have a BMI that places them in the overweight category.³⁶

Chart 5: Body Mass Index for Age Percentiles by Age Group, North Carolina Nutrition and Physical Activity Surveillance System (NC-NPASS) Data 2006



High rates of overweight may be attributed to physical inactivity and poor nutritional habits among North Carolina youth. Proper nutrition and physical fitness is first learned at home. In the 2005 CHAMP survey, one-third of North Carolina parents who were surveyed (32.2%) reported that their child typically consumes one serving or less of vegetables a day. In addition, one in three parents reported that their child eats fast food two or more times per week. Sedentary lifestyles may also contribute to obesity among North Carolina's children. According to the 2005 CHAMP survey, more than half (53%) of the parents reported that their child watches more than two hours of television on a typical day. Of these, almost one in ten (9.3%) reported that their child watches more than four hours of television a day. However, approximately two-thirds of parents responding to the CHAMP survey stated that they are trying to encourage more physical activity and/or limit TV/video/computer game time for their child.³⁴

Schools can be another vehicle for teaching children the benefits of physical fitness. According to the 2005 North Carolina Youth Risk Behavior Survey, while more than 80 percent of middle school students report attending physical education (PE) classes on one or more days in an average school week, only about one-half of North Carolina high school students reported that they attend PE classes on one or more days a week. Daily PE classes are far less common. The percentage of middle school students who attend daily PE classes was 37.1 percent and for high school students it was 37.4 percent.³⁶

In the last few years, new plans have been initiated to help reduce the rates of childhood obesity in the state. Since 2004, North Carolina's Division of Public Health and Department of Public Instruction have collaborated to produce reports outlining recommended standards for both physical activity and nutrition in schools. In late 2005 they published "Move More" school standards. In order to meet the "superior" standard for physical activity, the report indicates that schools must provide more than the minimum 30 minutes each day of physical activity that is now required by the Healthy Active Children policy adopted by the N.C. State Board of Education in April 2005.³⁷

In recent years, more attention has been directed towards regulating nutrition standards in North Carolina's public schools. In 2005, the state banned the use of cooking oils containing trans-fatty acids in their school nutrition programs as well as in commercially prepared processed foods sold in public schools. The Youth Risk Behavior Survey (YRBS) shows that 47 percent of middle school students and 58 percent of high school students reported that they bought food and/or drinks from vending machines at school one or more times a week in 2005.³⁶ In 2005, North Carolina passed statutes regulating the sales of snack food and beverages offered in vending machines available in public schools.³⁸ Research shows that these efforts are supported by most North Carolina parents. Eighty-six percent of parents responding to the 2005 CHAMP survey reported that they believe schools should require only healthy options in all food service settings, such as the cafeteria, snack bars, vending machines, and concession stands.³⁴

Diabetes is a chronic disease that is projected to become increasingly common among North Carolina children in the future due to high rates of overweight. The Centers for Disease Control (CDC) predicts that one in three children will develop diabetes in their lifetimes.³⁹ According to the School Health Services Report, 4,437 North Carolina public school students had diagnosed diabetes in 2005-2006, 3,419 students had to monitor their blood glucose, 1,918 students received insulin injections, and 1,414 had insulin pumps at school.³³

Dental Health is another issue currently being addressed in North Carolina public schools. In 2005-2006, the state's Oral Health Section screened more than 95,000 kindergarten children and found that 21 percent had untreated dental decay. In addition, more than 80,000 fifth graders were screened and five percent were found to have untreated tooth decay. Since 1996-1997, the number of fifth-grade children with preventive dental sealants has increased from 28 percent to 44 percent. The goal in North Carolina is for 50 percent of fifth-grade children to have dental sealants.^{33,40} According to the 2005 CHAMP survey, more than one in five North Carolina parents reported that they do not have dental insurance that helps pay for routine dental care for their child and one in four parents reported that their child did not have a regular dental clinic. Further, 24 percent of parents reported that it had been more than one year since their child had last seen a dentist, with 16 percent reporting that their child had never seen one.³⁴

Health Insurance – According to North Carolina CHAMP survey data, 12 percent of parents reported that their child currently does not have or at some point in the past 12 months did not have health insurance. Among Hispanic children, 39 percent reported a lack of health insurance sometime in the past year.³⁴ Similarly, the Current Population Survey (CPS) of the U.S. Census Bureau estimates that 12 percent of North Carolina children ages birth to 18 did not have health insurance during 2004-2005. For children at or below the poverty level during 2004-2005, 20 percent were without health insurance. Among North Carolina children ages birth to 18 living near poverty (100-199% of the federal poverty level), the CPS estimates that 19 percent are uninsured.⁸ According to the 2005 CHAMP survey, approximately half of parents

(48%) who reported that their child did not have health insurance at some point in the year said that the main reason for this was that it was too expensive.³⁴

Medicaid coverage is available to children in some families in poverty. According to the Division of Medical Assistance, in state fiscal year 2005, more than half (56%) of all Medicaid recipients in the state were ages birth to 20 years.⁴¹ Beginning in October 1998, families who made too much money to qualify for Medicaid but too little to afford rising health insurance premiums were able to get free or reduced price comprehensive health care for their children (ages 0-18) through the "North Carolina Health Choice for Children" program. North Carolina Health Choice (NCHC) is a fee-for-service program providing free or low-cost health insurance for children and teens up to their 19th birthday. The benefits covered by NCHC are the same as coverage provided for the children of state employees and teachers, plus vision, hearing, and dental benefits.⁴²

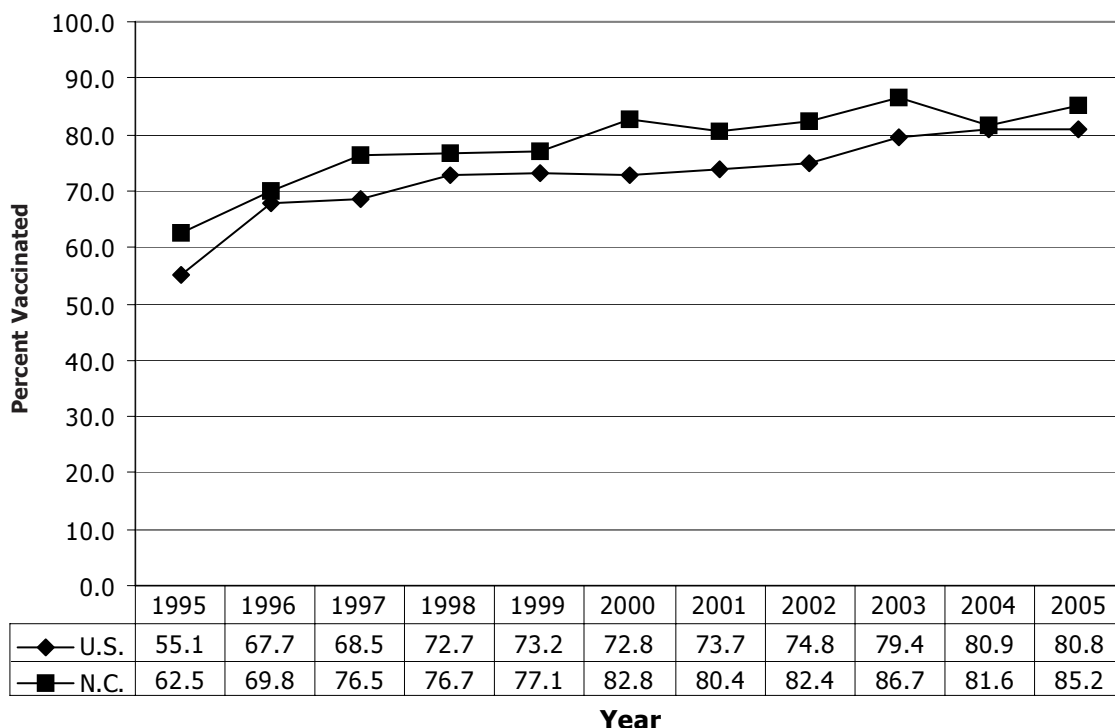
While many states were less than successful in enrolling children in programs like Health Choice, North Carolina was one of several states that exceeded their projected enrollment goals during the first years of operation. As a result, Health Choice was forced to freeze enrollments in 2001 due to inadequate funding to meet the unanticipated need. After the program was reopened in late 2001, enrollment grew at more than five percent per month before enrollment had to be frozen again in 2002. The General Assembly appropriated additional non-recurring funds in order to avoid capping the program again.⁴² The program continued to increase by one to three percent per month and by March 2007, there were nearly 110,000 children enrolled in the program.⁴³ From State Fiscal Year 2004 to 2005 alone, the NCHC program grew by 12.4 percent. The Division of Medical Assistance attributes this increase to the continued increase in the migrant population with children eligible for NCHC, as well as the rising costs of private health insurance. Since outreach for both the Health Choice and Medicaid programs target the same populations and the application forms for Medicaid and Health Choice can be combined in one form, 181,775 children have been added to the state's Medicaid program since 1998.⁴⁴

In May of 2005, the North Carolina General Assembly requested that the Department of Social Services track the number of Health Choice children whose parents worked in different types of employment. The survey revealed that 13.3 percent of Health Choice children had parents employed in factories, 12.4 percent had parents employed in the health care sector, and 8.9 percent of Health Choice children had parents employed in state, federal, or local government positions. Fewer than five percent (4.4%) of NCHC children had parents who were self-employed and more than 36 percent had parents employed in other occupations not accounted for by the survey.⁴⁵

Immunization – North Carolina has made a concerted effort to ensure that all children receive age-appropriate immunizations. The statewide North Carolina Immunization Registry (NCIR) has been in place in all 100 local health departments since 1996. Health departments record all state-supplied immunizations in the NCIR, as well as immunization histories on children seen at the health department for other services (including WIC). These efforts have paid off, with North Carolina consistently recognized as having one of the highest percentages of immunized two year olds in the country. As shown in **Chart 6**, 85 percent of children ages 19-35 months were appropriately immunized in 2005, which was slightly higher than the national average of 81 percent.⁴⁶

The General Assembly has determined that providing all vaccines required by the state free of charge to all children, regardless of family income, is sound public policy. All North Carolina children are now eligible to receive at no cost all vaccines required to enter the public school system. Since the implementation of North Carolina's universal vaccine program, the

Chart 6: Estimated Vaccination Coverage Among Children 19-35 Months of Age (4:3:1:3:3): 1995-2005



vaccination rate among two year olds has increased from 58 percent to 81 percent. Currently, there are six childhood vaccines recommended by the CDC which are not provided under North Carolina's universal vaccine program due to insufficient funding: influenza vaccine, pneumococcal (PCV7) vaccine, rotavirus vaccine, meningococcal (MCV4) vaccine, hepatitis A vaccine, and human papillomavirus (HPV) vaccine.⁴⁷

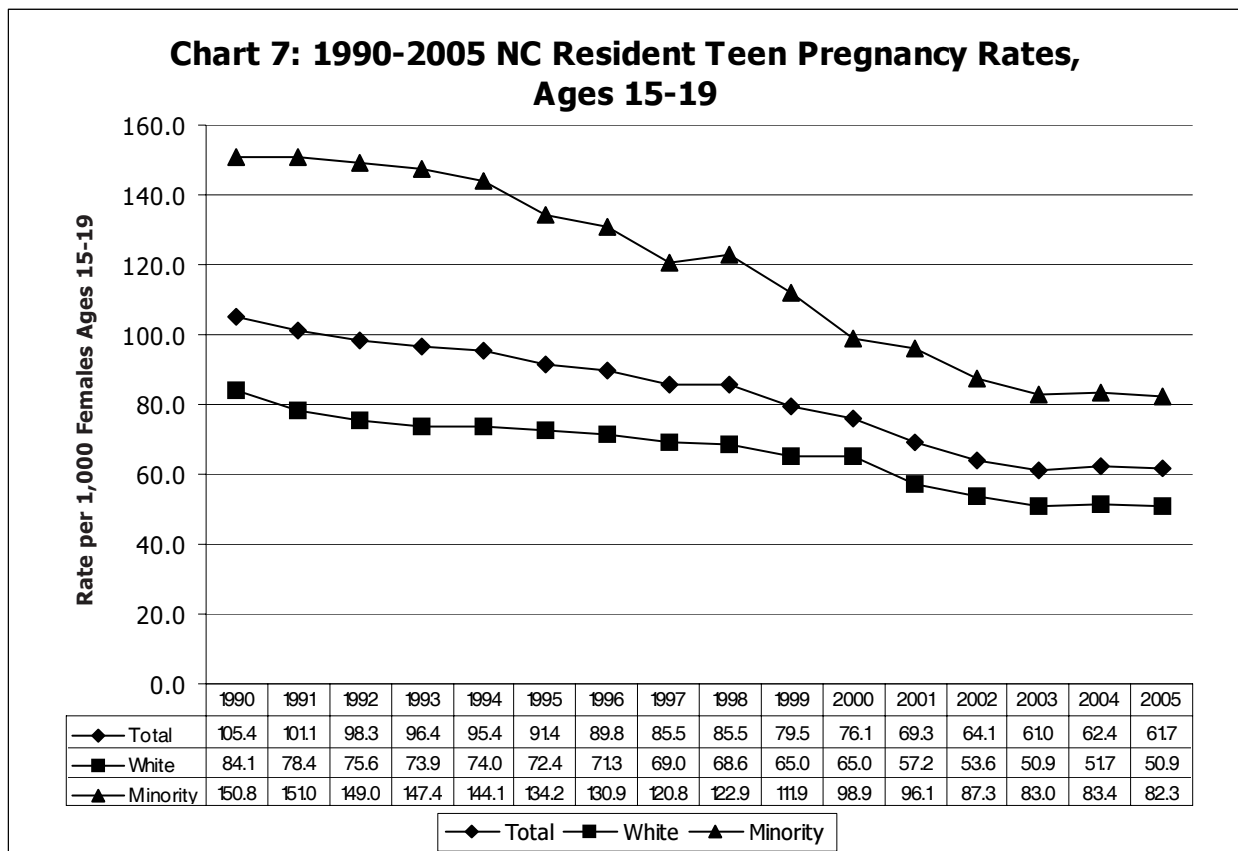
In an effort to facilitate better reporting and surveillance of childhood immunizations, the Division of Public Health is expanding the North Carolina Immunization Registry (NCIR). The electronic registry is designed to have a single consolidated immunization record for each child in the state, regardless of how many immunization providers have seen the child. This system allows providers to look up the immunization status of a child and determine what additional immunizations may be needed. It will also provide quick access in the event of an outbreak, vaccine recall, or other situation that requires rapid identification of immunizations administered. Currently, all local public health departments are participating in the North Carolina Immunization Registry. In addition, more than 300 private medical providers are participating. Overall, 59 percent of all immunization providers are either participating in the system or are in the process of being added. By the end of 2008, the NCIR hopes to have 75 percent or more of providers using the registry. An interface with the forthcoming electronic birth certificate system is also being tested as that system is being developed. The goal is to import all birth certificate information directly into the immunizations database to provide a complete registry of children from birth forward in North Carolina.⁴⁸

Child Abuse and Neglect – According to the North Carolina Division of Social Services, in state fiscal year 2005-2006, 111,150 children were assessed for child abuse and neglect, a slight decrease from the previous year. Of those cases, approximately one in five (22%) were

found to be substantiated or otherwise in need of services: 16,753 (15%) were found to be substantiated cases of abuse or neglect, and 7,844 (7%) were found to be in need of social services.⁴⁹ When warranted, social workers are able to immediately engage families to ensure the safety of the child. Under a new Multiple Response System which was implemented statewide in January 2006, the Division of Social Services is employing practices such as child and family teams, more coordination with law enforcement, and a “family assessment” to replace investigations when children are obviously not in imminent danger. These pilot programs will help some families to receive needed services, even though child abuse or neglect is not substantiated.⁵⁰

In 2005, 37 children died as a result of child abuse – a 20 percent increase from the number of child abuse deaths in 2004. According to 2005 data collected by the North Carolina Child Fatality Prevention Team, 90 percent of child abuse deaths occurred to children under age four and more than half were a result of blunt force or abusive trauma to the head (60%). In slightly more than half of these cases, medical examiners determined that the child showed signs of having suffered prior non-fatal abuse.⁵¹

Teen Pregnancy – As shown in **Chart 7**, North Carolina’s teen pregnancy rates have declined significantly (41%) since 1990. In 1990, there were 105.4 pregnancies per 1,000 girls ages 15 to 19. In 2005, the teen pregnancy rate was 61.7 per 1,000 girls ages 15-19. Of the more than 18,000 reported North Carolina resident teen pregnancies in 2005, 77 percent resulted in live births and 23 percent resulted in abortions. Racial disparities in white and minority teen pregnancy rates persist, but are showing signs of narrowing. Minority teen pregnancy rates have fallen dramatically since 1990, and are now at an all-time low of 82.3, compared with a white rate of 50.9.⁵²



Mental Health and Substance Abuse

The problems that North Carolina faces with regard to mental health are difficult to document due to inadequate data on the prevalence of specific mental disorders. In 2005, 2,442 North Carolinians who died had a mental health or substance abuse diagnosis listed as the underlying cause of death. These figures included 1,901 deaths attributed to unspecified dementia (not including Alzheimer's, which is classified as a disease of the nervous system) and 207 deaths attributed to the use of alcohol (not including accidental alcohol overdose).⁵³ According to 2004-2005 National Survey on Drug Use and Health (NSDUH) estimates, 12 percent of North Carolinians experienced serious psychological distress in the past year. Estimates are higher among younger adults ages 18-25, with 19.2 percent of North Carolinians in this age group suffering from serious psychological distress in 2004-2005. With regard to depression, NSDUH estimates that 7.7 percent of North Carolinians ages 12 and over had at least one major depressive episode in the past year. Again, the 18-25 age group was most likely to suffer from depressive episodes with an estimated one in ten reporting that they had experienced major depression in 2004-2005. Nearly one in five (17.4%) North Carolinians ages 18-25 reported illicit drug use in the past month, compared with an overall illicit drug use rate of 7.3 percent. Similarly, 6.9 percent of North Carolinians surveyed reported alcohol dependence or abuse in the past year.⁵⁴

The North Carolina Behavioral Risk Factor Surveillance System (BRFSS) telephone survey asks general questions related to mental health, alcohol, and substance use. In 2005, one in four North Carolina adults who responded to this survey (28.7%) reported that there were one or more days during the past month when their mental health was not good (due to stress, depression, or emotional problems). More women than men reported mental health disturbances, with 33.8 percent of female adults reporting that their mental health was not good, compared to 23.3 percent of males. In 2005, 18.7 percent of adults in the state reported having a physical or mental health problem that prevented them from doing their usual activities for one or more of the last 30 days. One in ten North Carolinians (10.5%) reported engaging in binge drinking in the past month (defined as having five or more drinks on one occasion). Among men, 16.4 percent of BRFSS respondents admitted to binge drinking in the past month, compared with 5.1 percent of women.¹²

The Division of Mental Health, Developmental Disabilities, and Substance Abuse Services maintains information on patients who receive mental health services in state-operated facilities. The Division reports that 18,292 people were served in state psychiatric hospitals during state fiscal year 2006.⁵⁵ Another 4,003 people were served in North Carolina Alcohol and Drug Treatment Centers and 322,397 people were treated by Local Management Entities (LMEs).^{56,57} Unfortunately, we cannot document the number of people receiving mental health treatment in the private sector, except for inpatient hospitalizations in non-federal hospitals in the state. During 2005, there were 52,866 inpatient hospitalizations in North Carolina with mental illness listed as the primary diagnosis, resulting in more than \$444 million in hospital charges. In addition, there were 10,958 hospital discharges with alcohol or drug abuse listed as a primary diagnosis, resulting in over \$77 million in hospital charges.⁷

Despite rapid population growth in North Carolina over the last decade, the state's supply of psychiatrists has remained unchanged. According to a 2006 report from the University of North Carolina Cecil B. Sheps Center for Health Research, North Carolina had a limited number of psychiatrists available statewide – just 1.2 psychiatrists per 10,000 population. In 2004, there were 17 North Carolina counties with no psychiatrists and another 27 counties had fewer than .33 psychiatrists per 10,000 population. Between 1999 and 2004, nearly two-thirds of North Carolina counties experienced a decline in their psychiatric supply or had no psychiatrists. The

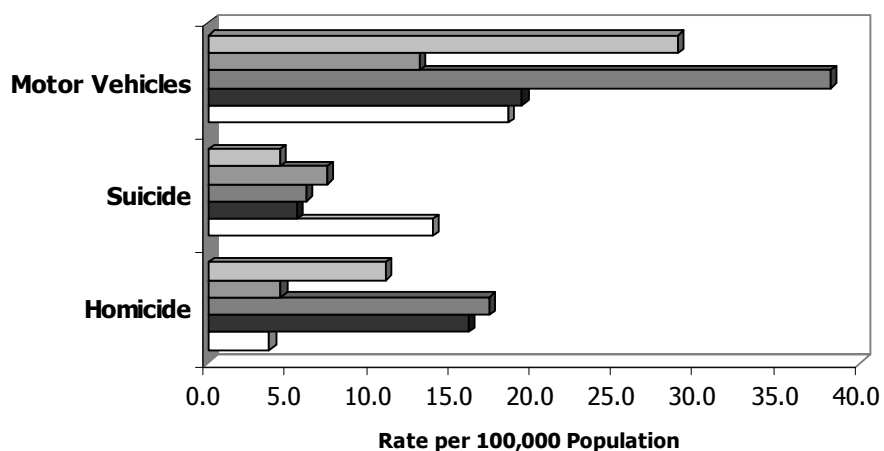
supply of psychiatrists is particularly acute in the state’s rural counties, with 84.4 percent of all psychiatrists practicing in metropolitan counties. The supply of child psychiatrists is particularly dire – declining 24 percent over the last decade. The report revealed that in 2004, 43 counties had no child psychiatrists and 42 more had less than one child psychiatrist per 10,000 population under age 18.⁵⁸

Injury and Violence

In 2005, 5,734 North Carolinians died from injury or violence, including 1,636 deaths from motor vehicle injuries, 2,448 deaths from other unintentional injuries, 995 deaths from suicide, and 655 deaths from homicide.² In 2005, there were 73,651 inpatient hospitalizations with injury or poisoning (intentional or unintentional) listed as the primary diagnosis, resulting in \$1.8 billion in hospital charges, with an average charge of \$24,785 per discharge.⁷ **Chart 8** presents 2001-2005 age-adjusted death rates for three injury and violence categories (motor vehicle, suicide, and homicide) by race and ethnicity.¹⁶

Unintentional Poisonings – Fatal poisonings occur from the damaging effects of ingestion, inhalation, or other exposure to a range of pharmaceuticals, illicit drugs, and chemicals including pesticides, heavy metals, gases like carbon monoxide, and household substances such as bleach and ammonia. Since 1997, the number of deaths from unintentional poisonings has more than tripled in the state, whereas the number of deaths from intentional poisonings has remained relatively constant. In 1997, there were 228 fatal unintentional poisonings in the state. By 2005, that number had swelled to 872.⁶ In North Carolina, the increase appears to be explained by abuse or misuse of prescription narcotics to treat severe pain, such as methadone (and to a much lesser degree, hydrocodone and oxycodone), and abuse of cocaine. In response, public health officials, substance abuse professionals, and law enforcement officials are working together to oversee a statewide initiative to prevent unintentional drug overdoses in North Carolina. In 2004, the N.C. Department of Justice/Department of Health and Human

Chart 8: 2001-2005 North Carolina Resident Age-Adjusted Death Rates for Injury and Violence by Race/Ethnicity



	Homicide	Suicide	Motor Vehicles
Latino/Hispanic	10.9	4.4	28.9
Non-Hispanic, Asian/Pacific Islander	4.5	7.3	13.0
Non-Hispanic, American Indian	17.3	6.1	38.2
Non-Hispanic, African-American	16.0	5.5	19.3
Non-Hispanic, White	3.8	13.8	18.4

Services Leadership Committee on Unintentional Drug Deaths was established to monitor unintentional drug overdoses and to develop programs and policies to reduce drug-related deaths. The joint committee is working with law enforcement, medical care providers, and substance abuse professionals to increase awareness of the role of prescription drugs in the annually increasing number of fatal drug overdoses in the state. In 2005, the committee helped enact legislation that establishes a controlled substances reporting system that will detect the illicit use of prescription narcotics and assist medical care providers in the referral of patients in need of pain management and substance abuse treatment.⁵⁹

Motor Vehicle Injuries – In 2005, for every motor vehicle injury death that occurred there was a loss of approximately 35.7 years of life (see **Table 1**). This is the highest average years of life lost of any of the major causes of death. Motor vehicle injuries were the sixth leading cause of death for North Carolina males in 2005 (based on the number of deaths), but not one of the ten leading causes of deaths for females. In 2005, motor vehicle injuries were the leading cause of death for North Carolina youth, ages one through 24 years, amounting to approximately one-third of all deaths in this age group. Motor vehicle deaths were among the ten leading causes of death for all racial groups in 2005. With regard to ethnicity, motor vehicle injuries were the leading cause of death among Hispanics in 2005, while it was ranked as the tenth leading cause of death among non-Hispanics.² This is largely a reflection of the younger age-distribution of the Latino population in North Carolina, putting them at greater risk for motor vehicle injury. After adjusting for age, American Indians had the highest age-adjusted rate of motor vehicle deaths – with an age-adjusted rate of 38.2 per 100,000 population during 2001-2005 (see **Chart 8**).¹⁶ Alcohol contributes to many motor vehicle deaths and injuries in North Carolina. According to the University of North Carolina Highway Safety Research Center, one in 20 car crashes involved alcohol in 2005. Among fatal car crashes, more than one-quarter involved alcohol. In addition, injury was 1.6 times more likely in car crashes where alcohol was involved.⁶⁰

Homicide – In 2005, there were 655 homicides in North Carolina, which represent less than one percent of all deaths in the state. However, North Carolina's age-adjusted homicide mortality rate of 7.2 is much higher than the national age-adjusted rate of 5.9.^{2,3} While homicide is not a leading cause of death in general, it was the second leading cause of death among persons ages 15-24 years in 2005 (165 deaths). In addition, homicide was the third leading cause of death for North Carolina Hispanics, accounting for ten percent of all Hispanic deaths in 2005.² The high number of homicides is likely attributable to the younger demographics of the Hispanic population. After adjusting for age, North Carolina's non-Hispanic African American and American Indian populations had the highest homicide rates in 2001-2005 when compared with other racial and ethnic groups (see **Chart 8**).¹⁶

Suicide – In 2005, 995 North Carolina residents died from suicide, accounting for just over one percent of all resident deaths in that year. Suicide was the fourth leading cause of death to North Carolina residents ages 15-24 years (111 deaths), and the fifth leading cause of death to residents ages 25-44 years (346 deaths). Suicide was the ninth leading cause of death for North Carolina males, while it did not appear as one of the leading causes of death for women in 2005.² As shown in **Chart 8**, during 2001-2005, non-Hispanic whites have an age-adjusted suicide death rate (13.8) that is twice as high as all other racial/ethnic groups. North Carolina's 2001-2005 age-adjusted suicide mortality rate of 11.6 was somewhat higher than the U.S. age-adjusted rate in 2004 of 10.9.^{2,3} Reliable data on suicide attempts is not available. However, we do have information regarding the percent of North Carolina youth experiencing suicidal thoughts or feelings. According to the 2005 Youth Risk Behavior Survey, 21 percent of North Carolina

middle-school students and 16 percent of high school students report that they have seriously considered attempting suicide. Approximately 13 percent of high school students surveyed reported actually attempting suicide one or more times over the past 12 months.³⁶

Sexual Assault, Physical Assault, and Emotional Abuse – According to statistics compiled by the State Bureau of Investigation, there were 24,893 cases of aggravated assault and 2,265 cases of rape reported in North Carolina in 2005. From 2004 to 2005, reported cases of rape decreased by 2.5 percent and aggravated assault increased by 2.7 percent.⁶¹ However, it is known that many victims of rape, assault, and abuse do not report the crime to authorities. Some sexual assault victims are served in emergency departments. Of North Carolina's 115 hospitals, 102 responded to the 2004-2005 North Carolina Emergency Care for Sexual Assault Survivors survey. The number of rape survivors cared for in these hospitals ranged from none to more than 200 per year. Slightly more than half of the hospitals (52%) reported that they have a sexual assault nurse examiner on staff who is specifically trained to handle rape cases. Ninety-one percent of the hospitals reported providing referrals for counseling to all victims of sexual assault – typically to their local rape crisis center.⁶²

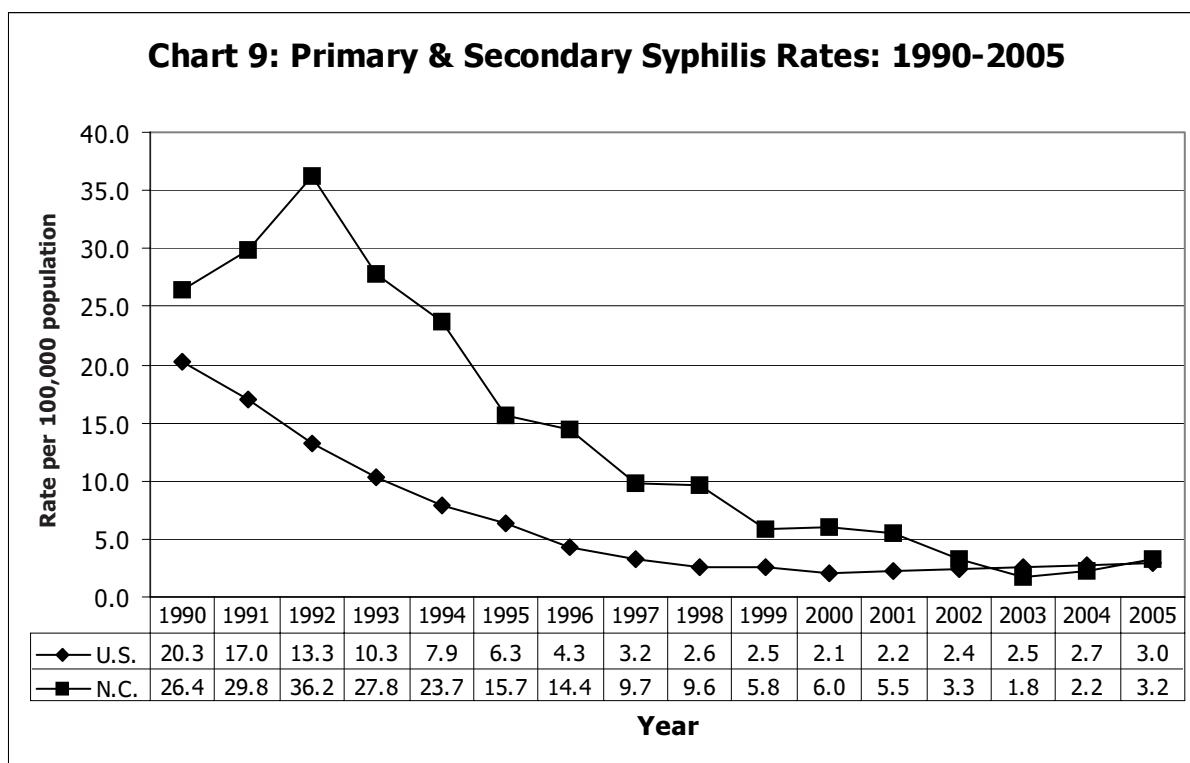
The North Carolina Council for Women distributes state funds to local domestic violence programs in all 100 North Carolina counties. In 2005-2006, the domestic violence programs in the state served 48,173 clients, which represented a five percent decrease from 2004-2005. Over half (54%) of the clients served were ages 35-54, 18 percent were ages 55 and over, and another 18 percent were ages 34 or younger. In addition, the local programs received 115,124 calls to their 24-hour crisis lines, which was an increase of 11 percent from the previous year. The majority (87%) of the clients served by domestic violence programs were females. In 2005-2006, 6,083 children ages birth to 17 years and 6,846 adults ages 18 and over received domestic violence shelter services. The North Carolina Council for Women also distributes state funds to 75 county programs for victims of sexual assault. During 2005-2006 the local sexual assault programs received 25,849 crisis calls and served 8,721 clients, representing a two percent increase from 2004-2005. Women accounted for 89 percent of their clients, with 11 percent of their clients being male. Of the sexual assaults reported in 2005-2006, more than one in five were child sex offenses (22%), one in five (23%) were cases of adult rape, nearly one in ten were marital rape, and seven percent involved date rape. Where the relationship to the offender was reported, the majority of clients reported that the offender was known to them – either a relative, acquaintance, or a boy/girl friend.⁶³

According to the 2004 North Carolina Pregnancy Risk Assessment Monitoring System (PRAMS) survey, 5.6 percent of new mothers reported that they had been physically abused during their recent pregnancy. Women between the ages of 20 and 24 were most likely to report abuse, with 8.3 percent reporting that they were physically abused during pregnancy. Physical abuse during pregnancy was also more common among women who were not married (9.6%), had less than a high school education (9.2%), were on Medicaid (8.4%), or who had incomes less than \$14,999 per year (11.9%). Emotional abuse was also common among new mothers. Of the mothers surveyed in 2002 (the last year this question was asked), 33 percent reported that their partner had insulted or swore at them, 6.7 percent reported that their partner had destroyed something belonging to them, and 5.4 percent revealed that their partner threatened to hit or throw something at them in the last year. The PRAMS survey also reveals that many women are not being counseled about physical or emotional abuse during prenatal care. Among 2004 PRAMS respondents, only half (50.8%) reported that emotional abuse was discussed with them by a prenatal health care provider and slightly more than half (57.1%) reported that physical abuse was discussed.⁶⁴

Communicable Diseases

Sexually Transmitted Diseases – In North Carolina sexually transmitted diseases (STDs) must be reported to local health departments and, in turn, to the state. In general, North Carolinians experience a higher rate of many sexually transmitted diseases when compared with the rest of the country. In 2005, North Carolina had higher rates of gonorrhea, chlamydia, primary and secondary syphilis, and HIV disease.^{65,66}

Syphilis is an STD that has decreased dramatically in recent years due to public health efforts such as the North Carolina Syphilis Elimination Project.⁶⁷ Since the Syphilis Elimination Project began in 1998, North Carolina's primary and secondary syphilis rate has decreased 81 percent, from 9.3 new cases per 100,000 population in 1998 to a rate of 3.2 in 2005. However, as shown in **Chart 9**, despite such dramatic decreases, North Carolina's primary and secondary syphilis rate continues to be higher than the national 2005 primary and secondary syphilis rate of 3.0 cases per 100,000. In 2005, North Carolina had the twelfth highest primary/secondary syphilis rate in the country. Consistent with gonorrhea rates across the South, North Carolina's gonorrhea rate has been on the decline since 1998, with a rate of 246.5 in 1998 and 176.5 in 2005. Even with this decline, North Carolina's gonorrhea rate is substantially higher than the national average of 115.6 cases per 100,000 population in 2005. North Carolina had the seventh highest gonorrhea rate in the country in 2005. In contrast, after years of decline, chlamydia rates have been on the rise recently, with a 2005 state chlamydia rate of 365.1 new infection cases per 100,000 population. The North Carolina chlamydia rate was higher than the national rate of 332.5 in 2005. This rising trend is consistent with national chlamydia rates in recent years.⁶⁵ Both males and females, as well as nearly all racial/ethnic groups, have seen an increase in chlamydia rates from 2001 to 2005. Much of the increase in chlamydia rates nationwide and in North Carolina can be attributed to better screening practices and more accurate diagnostic tests that are finding and treating more cases of this STD. A number of



other common STDs are not reportable in North Carolina, including genital herpes, bacterial vaginosis, trichomoniasis, and the human papilloma virus (HPV).⁶⁸ Recently, national attention has been given to a new FDA-approved vaccine to prevent the HPV infection that can cause certain types of cervical cancer. Since this is not an STD that is currently tracked in North Carolina, we do not have reliable estimates for the state. However, national estimates published in 2007 suggest that more than one in four women ages 14-59 are currently infected with the HPV virus.⁶⁹

HIV/AIDS – According to the HIV/STD Prevention and Control Branch, 1,806 new HIV diagnosis cases were reported to the state in 2005. Since 2001, an average of 1,700 new HIV cases have been identified each year in North Carolina. Since reporting began, more than 28,000 HIV disease cases have been reported to the state through 2005. It is estimated that approximately 18,900 persons in North Carolina are living with HIV disease. Many more individuals do not yet have symptoms and are living with HIV disease without knowing it. The HIV/STD Branch estimates that if these individuals are taken into account, the true prevalence numbers of individuals living with HIV/AIDS would be approximately 29,500 people. In 2005, 43 percent of new HIV cases were among African-American males, 23 percent among white/non-Hispanic males, and 20 percent among African-American females. Health disparities are apparent in HIV/AIDS rates. The 2005 HIV disease rate for African-American males was 88.6 per 100,000 persons, compared with a rate of 14.4 for white males. African-American females had an HIV infection rate of 37.3 per 100,000 population, compared with 3.0 for white females. While some HIV cases are reported without a transmission mode, 40 percent of all new cases reported in 2005 indicated heterosexual transmission. Among adolescent and adult females, heterosexual contact accounted for 83 percent of all HIV disease reports.⁶⁸ Given that people of all sexual orientations and lifestyles are at risk for contracting HIV disease, new efforts, such as the "Get Real, Get Tested" campaign, are underway to encourage the general public to get tested for HIV.⁷⁰

Despite impressive advances in drug treatment regimes for individuals living with HIV/AIDS, there are still many deaths due to HIV disease. Between 2001-2005, more than 2,200 North Carolina residents died of HIV disease. In 2005, HIV was the seventh leading cause of death for residents ages 25-44 and the tenth leading cause of death among African-American residents. Overall, North Carolina's HIV death rates have steadily declined since 1996. In 1995, the unadjusted HIV death rate was 14.1 per 100,000 population compared with 4.8 in 2005.² During the 2001-2005 period, the age-adjusted rate of HIV deaths was 19.8 per 100,000 population for North Carolina's African Americans and 3.0 for Hispanics, compared with an age-adjusted death rate of 1.4 among whites.⁶ National HIV death rates have also been decreasing and this may be due to improved drug treatments. Unfortunately, AIDS drugs are costly and consequently many low-income North Carolinians have not been able to experience their benefits. North Carolina is making strides toward improving access in the state. In 2004, the North Carolina General Assembly appropriated \$2.75 million toward eliminating the waiting list for enrollment in the state's AIDS Drug Assistance/HIV Medications Program (ADAP) for low-income North Carolinians.⁷¹ In 2005, North Carolina ranked last in the nation with regard to ADAP program financial eligibility criteria, which required that individuals be under the 125 percent of the federal poverty level before qualifying for the program.⁸ In 2006, the North Carolina legislature passed legislation that expanded eligibility for the ADAP program to individuals up to a maximum of 250 percent of the federal poverty level, based on the availability of additional federal funds.⁷²

Other Communicable Diseases – North Carolina also faces health threats related to other emerging and re-emerging communicable diseases. Some of these diseases have posed dangers for centuries, while others surfaced only recently. North Carolina tuberculosis (TB) cases and rates have been declining for many years, although the disease has not been eliminated. In 1950, North Carolina had 89.9 cases of TB for every 100,000 people. By 2005, a total of 329 cases were reported to the state (the fewest number of cases ever reported), resulting in an overall rate of 3.8 cases per 100,000 population – a decrease of 13.9 percent from 2004. Cases of drug resistant TB have also declined. Tuberculosis rates are higher for North Carolina’s African-American population than for its white population. In 2005, the TB incidence rate was 9.1 per 100,000 population for African Americans, compared with a rate of 2.2 for whites. Disparities are even greater by ethnicity, with a 2005 Hispanic TB case rate of 14.2, compared with a non-Hispanic rate of 3.3 per 100,000 population. Overall, since 2001, TB rates have improved among all racial and ethnic groups. North Carolina’s TB case rate ranked 25th in the nation in 2005.⁷³

In recent years, the threat of an influenza (flu) pandemic has become a chief concern for public health officials nationwide and in North Carolina. The epidemiology and ecology of the influenza virus are such that, several times in a century, a new genetic variant is born capable of causing severe and deadly pneumonia in widespread global pandemics. Recent events overseas, with human deaths and disease from the H5N1 strain of influenza virus, have heightened anxiety related to a pandemic.⁷⁴ In North Carolina, it is estimated that pandemic influenza could result in almost 8,000 deaths if it is a moderate outbreak and more than 65,000 deaths if it is a severe outbreak like the flu outbreak of 1918. The North Carolina Division of Public Health’s General Communicable Disease Control Branch has released the second version of a comprehensive “Pandemic Influenza Response Plan” in an effort to proactively prepare for a widespread flu outbreak. This plan includes the new World Health Organization Pandemic Phases announced in 2005 and integration with the National Pandemic Influenza Response Plan. This plan is designed so that members of the public health community, medical providers, and others can be ready to respond if an influenza pandemic strikes.⁷⁵

While preparations are being made for a future pandemic flu threat, current strains of the flu and pneumonia continue to claim the lives of North Carolinians today. From 2001 through 2005, 9,163 North Carolina residents died of pneumonia and influenza. Pneumonia and influenza were the eighth leading cause of death in North Carolina in 2005.² It is known that people who receive flu shots greatly reduce their chances of getting the flu and infectious complications of the flu. According to the BRFSS survey, 27.6 percent of North Carolina adults received a flu shot in 2005. Among the elderly, ages 65 and over, 65.5 percent received the influenza vaccine. The pneumonia vaccine is recommended for most adults ages 65 and over. According to the 2005 BRFSS, 60 percent of respondents ages 65-74 and 74 percent of those ages 75 and over reported having ever had a pneumonia shot.¹²

Other emergent communicable diseases such as Severe Acute Respiratory Syndrome (SARS), tick-borne diseases, and mosquito-borne arboviruses such as West Nile virus, Eastern equine encephalitis, and La Crosse encephalitis are being closely monitored by the North Carolina Department of Health and Human Services and the Centers for Disease Control in an effort to safeguard the public against infection.

Foodborne Illness – Recent foodborne illness outbreaks related to lettuce, spinach, and peanut butter have heightened public attention to this problem in North Carolina and across the nation. The number of North Carolinians affected by foodborne illness continues to grow each year. During the five-year period 2001-2005 there were more than 16,000 cases of foodborne illness reported in North Carolina. It is well recognized that foodborne illness is under-reported by up to 38-fold. CDC estimates that, in the United States, if all foodborne illnesses were reported there would be more than 76 million cases each year and more than 5,000 hospitalizations and 3,000 deaths. During 2005 alone in North Carolina, there were more than 3,000 reported cases of foodborne illness. The economic impact of these illnesses is tremendous. It is estimated that the total cost of foodborne illness in North Carolina in 2005 was greater than \$5.6 million. In November 2001, the North Carolina Food Safety and Defense Task Force was formed to increase communication and collaboration between all the local, state, and federal regulatory agencies, as well as academia and industry. This Task Force has sponsored four large tabletop exercises to help ensure North Carolina is ready for any accidental or deliberate attacks on the food chain, has several active committees working on commodity-specific issues, and members of the Task Force serve on many federal-level food safety and defense committees.⁷⁶

Bioterrorism and Disease Surveillance – In 2002, North Carolina created the Office of Public Health Preparedness and Response (PHP&R). To make efficient and effective use of the funds, the PHP&R office created seven Public Health Regional Surveillance Teams (PHRSTs) to provide support to local health agencies serving all 100 counties. The North Carolina Health Alert Network was also created. This system provides secure, tiered health alerts to North Carolina's state and local health departments, hospital emergency departments, and law enforcement officials through the simultaneous use of phone, fax, email, and pagers to communicate urgent health information. The North Carolina Division of Public Health also increased and updated its technological capacity to facilitate electronic disease reporting. Coordinated by the CDC through a program titled National Electronic Disease Surveillance System, this effort fosters the electronic exchange of health data among federal, state, and local health agencies.⁷⁷

In 2004, the North Carolina Division of Public Health and the North Carolina Hospital Association established a new partnership to improve the state's ability to recognize and respond to acts of bioterrorism, disease outbreaks and emerging infections, and other public health emergencies. The North Carolina Emergency Department Database⁷⁸ (NCEDD) electronically collects, reports, monitors, and investigates emergency department and hospital clinic data in near real-time from all participating hospitals in the state. The North Carolina Disease Event Tracking and Epidemiologic Collection Tool (NC DETECT) and the North Carolina Electronic Disease Surveillance System (NC-EDSS) are components of the North Carolina Public Health Information Network (PHIN). NC DETECT is the early event detection system and uses information from several data streams: hospital emergency department data, data from the Carolina's Poison Control Center, data from ambulance runs, NCSU vet school lab data, and animal health data from the Piedmont Wildlife Consortium. This "syndromic surveillance" system allows early detection of disease outbreaks and other public health threats.⁷⁹

NC-EDSS will allow local health departments, laboratories, hospitals, and individual health care providers to electronically notify the N.C. Division of Public Health whenever a case of a reportable disease or condition occurs in the state. The NC-EDSS will improve significantly the timeliness, reliability, and accuracy of reportable disease data in North Carolina. NC-EDSS is being fully integrated with the state's Health Alert Network (HAN). The system is to be implemented in all local public health departments for all communicable diseases by 2008.

Minority Health and Health Disparities

With many health status measures being worse for minority populations compared to whites, both in North Carolina and nationally, the higher proportion of minorities in North Carolina partly accounts for the relatively low national ranking of North Carolina on many health measures. A report based on North Carolina mortality and BRFSS survey data indicated that while the life expectancy at birth for North Carolina's white population is 76.8 years, the life expectancy for minorities is 72.1 years. Minority males fare even worse. Life expectancy is only 68.0 years for minority males, compared to 75.8 years for minority females.⁸⁰

African Americans/Blacks – In 2005, 21 percent of North Carolina's population was African American/Black. This compares with only 12 percent of the population nationally. In 2005, North Carolina had the eighth highest percentage of the population that was African American of all the states. North Carolina's African Americans are more likely to live in poverty (33%) and more likely to have no health insurance (18%) than whites.⁸ Poverty and a lack of access to health care are two main reasons why North Carolina's African Americans are generally in poorer health than whites based on mortality and disease incidence patterns. As shown in **Table 3**, North Carolina's African Americans have a much higher infant mortality rate than do whites (15.5 deaths per 1,000 live births for African Americans compared to 6.2 for non-Hispanic whites in 2001-2005).^{6,28} African Americans also have higher death rates from HIV, homicide, cancer, diabetes, cerebrovascular disease (stroke), and heart disease, compared to whites.⁶ According to the 2005 North Carolina BRFSS, African Americans are less likely to smoke and binge drink compared with whites, but are more likely to be obese, have high blood pressure, be physically inactive, and have inadequate fruit and vegetable consumption.¹²

Hispanics – According to Current Population survey estimates from the U.S. Census Bureau, the total Hispanic population of North Carolina was 563,160 in 2005, representing approximately seven percent of the total population.⁸ Although the percentage of North Carolinians that are Hispanic is much lower than the national average of 15 percent, North Carolina's Hispanic population grew at the highest rate of any state in the nation in the 1990s, increasing almost five-fold from 1990 (76,726) to 2000 (378,963), compared with an average national rate of growth for the Hispanic population of 58 percent.⁸¹ Since 2000, North Carolina's Hispanic population has increased by an additional 44 percent.⁸ Moreover, because North Carolina's Hispanic population is disproportionately young and most of the female Hispanic newcomers are in their peak childbearing years, the potential for continued growth of the state's Hispanic population is great. Seventy-three percent of North Carolina's 2005 Hispanic population is age 35 or younger whereas only 49 percent of the state's non-Hispanic population is in this age range.⁸² According to the U.S. Census Bureau's 2005 American Community Survey, the median age of the state's Hispanic population was 25.6 years, compared to 39.5 years for the white non-Hispanic population of the state.⁸³ Given the younger age distribution of the Hispanic population, there are unique health issues for this group.

The leading causes of death among North Carolina Hispanics are consistent with the young age of the population. Approximately 40 percent of North Carolina's 627 Hispanic deaths in 2005 were due to fatal injuries – either intentional or unintentional. Motor vehicle injuries topped the list of leading causes of death in 2005, representing 19 percent of all Hispanic deaths (122 deaths). Cancer (83 deaths), homicide (63 deaths), and heart disease (60 deaths) were the second, third, and fourth leading causes of death, respectively, and comprised another 33

percent of all Hispanic deaths in 2005. Suicide was the ninth leading cause of death among Hispanics in 2005 (15 deaths).²

Despite relatively low socio-economic status and delayed prenatal care services, Latina women – especially first generation Latinas from Mexico – have birth outcomes as good as non-Hispanic whites.⁸⁴ In 2005, 68 percent of Hispanic mothers received prenatal care in the first trimester, compared with 90 percent of white, non-Hispanic mothers.²⁸ However, during 2001-2005, the Hispanic infant death rate of 6.1 was slightly lower than the non-Hispanic white infant death rate of 6.2, and both were much lower than the rate of 15.5 for non-Hispanic African Americans.^{6,28}

Among Hispanics, Spanish-speaking Hispanics in North Carolina may have elevated risks of poor health outcomes. NC BRFSS data reveals that North Carolina’s Spanish-speaking Hispanics were more likely to report inadequate nutrition, physical inactivity, and a lack of health insurance compared to English-speaking Hispanics.¹² The persistence of these problems among Spanish-speakers could lead to an excess of burden of chronic disease and morbidity as that population ages.⁸⁵

Table 3: North Carolina Mortality Rates and Risk Factor Percentages by Race/Ethnicity

	White, Non-Hispanic	African American, Non-Hispanic	American Indian, Non-Hispanic	Other Races, Non-Hispanic	Latino/Hispanic	TOTAL
Mortality Rates¹ 2001-2005:						
Infant deaths per 1,000 live births ²	6.2	15.5	10.5	5.8	6.1	8.4
Heart disease	219.7	268.7	258.2	88.6	76.2	226.8
Cerebrovascular disease	60.0	87.8	71.5	43.4	27.0	64.7
Diabetes (primary cause of death)	21.9	55.8	53.9	13.0	12.7	27.6
Chronic lower respiratory diseases	50.4	30.8	34.0	9.6	10.2	46.9
HIV	1.4	19.8	*	*	3.0	5.2
Total Cancer	191.9	233.5	165.2	95.0	84.0	197.7
Prostate cancer	23.8	66.8	35.8	*	*	29.9
Lung cancer	60.6	59.2	53.7	23.4	19.6	59.9
Colorectal cancer	17.5	24.7	14.7	10.0	9.3	18.6
Breast cancer	23.8	34.2	23.4	9.7	11.3	26.0
Homicide	3.8	16.0	17.3	4.5	10.9	7.2
Suicide	13.8	5.5	6.1	7.3	4.4	11.6
Unintentional motor vehicle injury	18.4	19.3	38.2	13.0	28.9	19.3
Other unintentional injury	27.6	21.5	24.5	9.4	16.2	26.0
Behavioral Risk Factors³ (percentages) 2003-2005:						
Adults with high blood pressure	28.5	39.3	35.4	17.5	10.7	28.9
Adults who smoke	23.9	23.0	34.9	20.9	17.5	23.3
Adults who are obese	22.6	36.7	33.5	14.3	22.1	25.1
Adults with no leisure time physical activity	21.7	31.4	31.3	25.6	44.3	25.3
Percent of adults in fair/poor health	16.9	23.2	25.8	13.6	30.0	19.0

¹Except for the infant death rate, mortality rates are age-adjusted and expressed per 100,000 population. Denominators for the mortality rates (except for infant deaths) are based on the 2005 National Center for Health Statistics Bridged Population Estimate files.

²The infant mortality data is derived from the consolidated infant death file which matches all infant deaths to their live birth records. Figures presented here may not match those published in other reports due to the use of the matched infant death file.

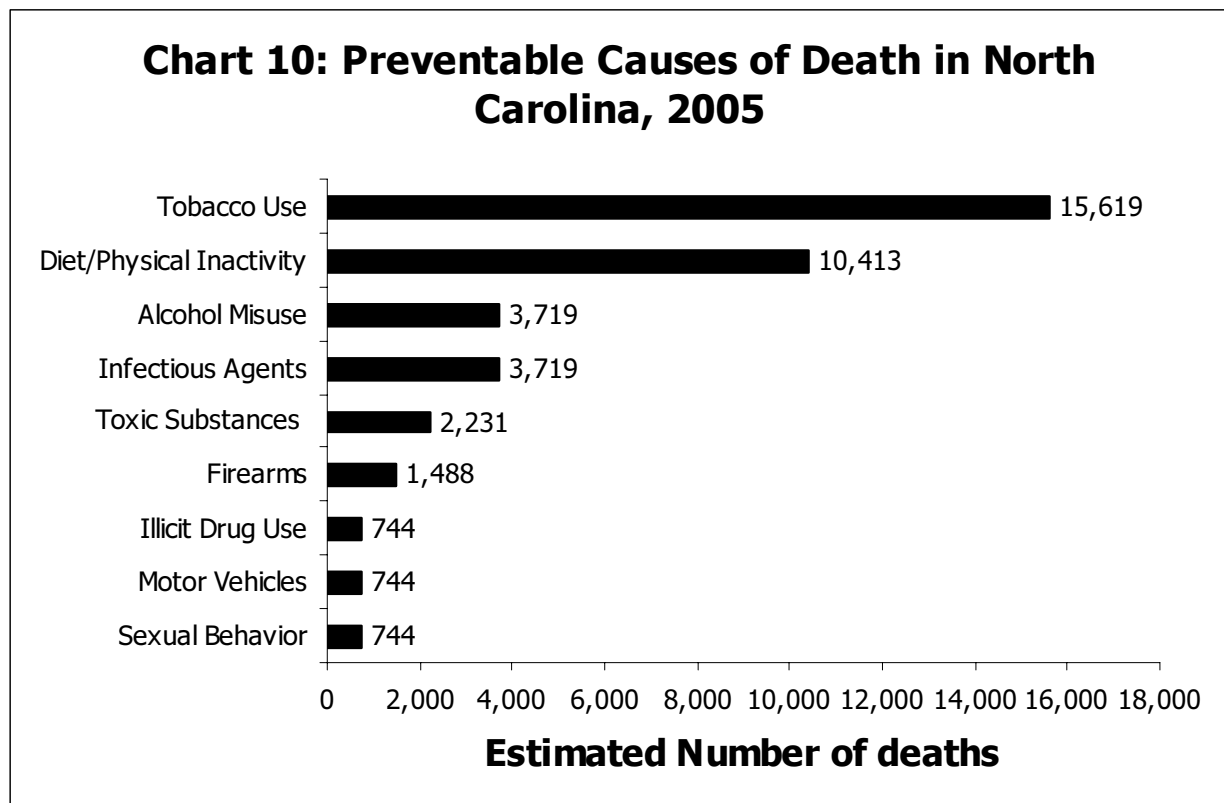
³NC Behavioral Risk Factor Surveillance System (BRFSS), State Center for Health Statistics. BRFSS is an ongoing, monthly telephone survey through which data are collected from randomly selected, non-institutionalized NC adults (age 18 and older) in households with telephones. Survey responses are weighted to represent the demographics of all adults in the state.

*Rates based on small numbers (fewer than 20 deaths) are statistically unstable and are not presented here.

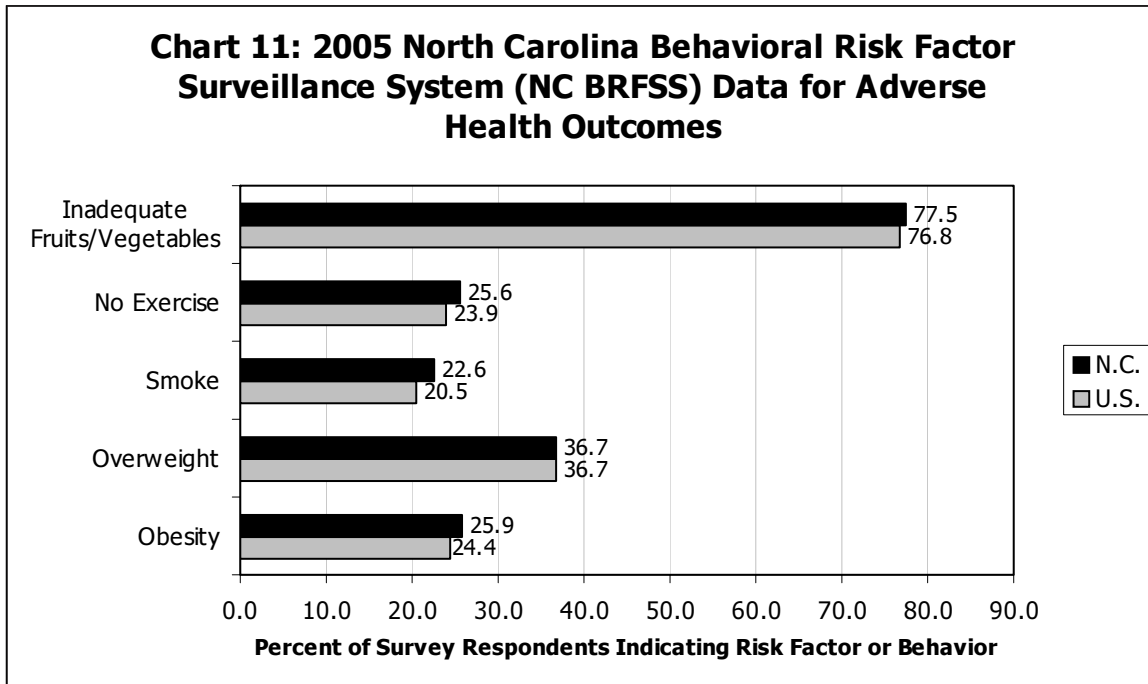
American Indians – North Carolina has one of the largest American Indian populations in the country. In 2005, American Indians numbered more than 115,000, or a little more than 1.3 percent of the population in the state.⁸² As with other minority populations, North Carolina’s American Indian population is generally in poorer health than whites. As shown in **Table 3**, North Carolina’s non-Hispanic American Indian population has higher death rates from homicide, diabetes, and motor vehicle injuries, as well as a substantially higher infant death rate than non-Hispanic whites.⁶ During 2005, American Indians had higher percentages of women who smoked during pregnancy (25.3%) and women with late or no prenatal care (19.2%) compared to non-Hispanic white women.²⁸ Much of the poor health outcomes for this population are likely related to the fact that they have one of the highest poverty rates (27%) of any racial group in the state, and a high rate of persons who are uninsured (29.8%).^{12,83} North Carolina BRFSS data for 2005 reveal that American Indians were more likely to report being in poor health (13.5%) and more likely to report being unable to see a doctor in the past year due to cost (27.5%) than whites.¹²

Health Risk Factors

According to a recent study, more than half (53%) of all deaths of North Carolinians are preventable. Most of the leading causes of preventable deaths in North Carolina involve risky behaviors or lifestyles. Among the leading causes of preventable death were tobacco use, unhealthy diet/physical inactivity, alcohol misuse, firearms, sexual behavior, motor vehicles, and illicit drug use. The direct medical costs to North Carolina related to tobacco use, physical inactivity, and poor nutrition alone are estimated to be at least \$6 billion per year. This does not include indirect costs such as lost productivity due to time off work or increased recruitment and hiring costs. **Chart 10** presents information on preventable deaths in 2005.⁸⁶

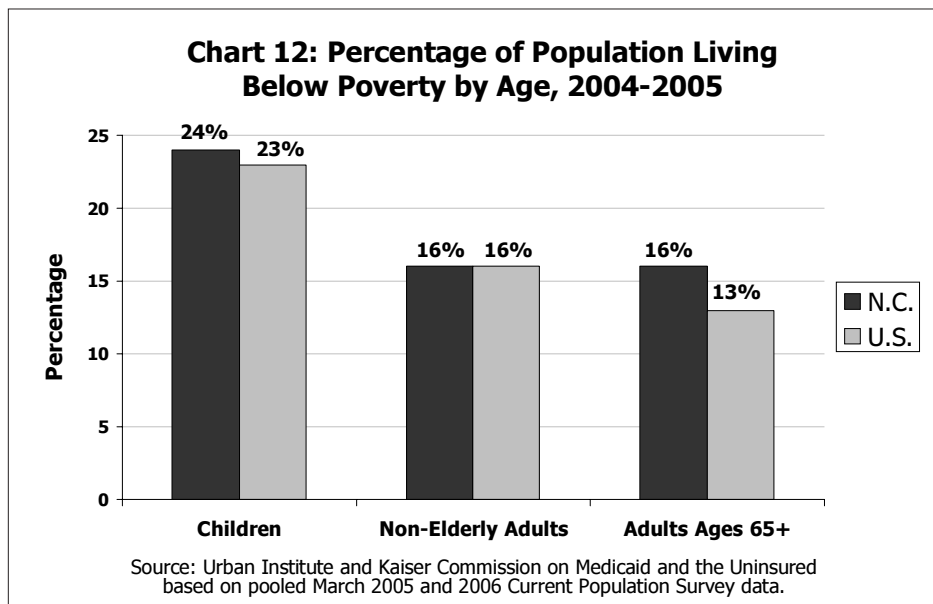


As shown below in **Chart 11**, North Carolina adults are somewhat more likely to smoke, have sedentary lifestyles, and be obese, compared with all U.S. adults.



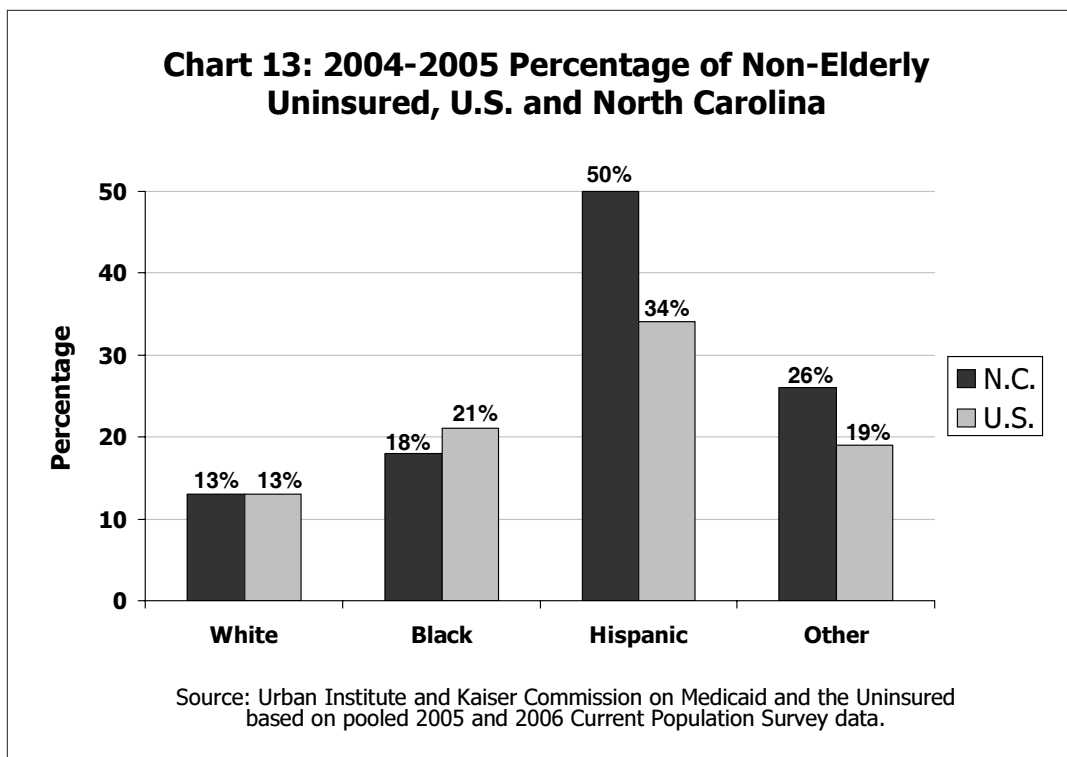
Health Care Access

Poverty – An individual’s socio-economic status has a strong link to overall health status. Individuals living in poverty have higher death rates and more health problems than individuals with higher socio-economic status. As shown in **Chart 12**, North Carolina poverty rates are higher than the national average for children and the elderly, and the poverty rate for non-elderly adults is the same for North Carolina and the U.S. In 2004-2005, the poverty rate for North Carolina African Americans (33%) and Hispanics (29%) were both more than twice that for non-Hispanic whites (12%).⁸



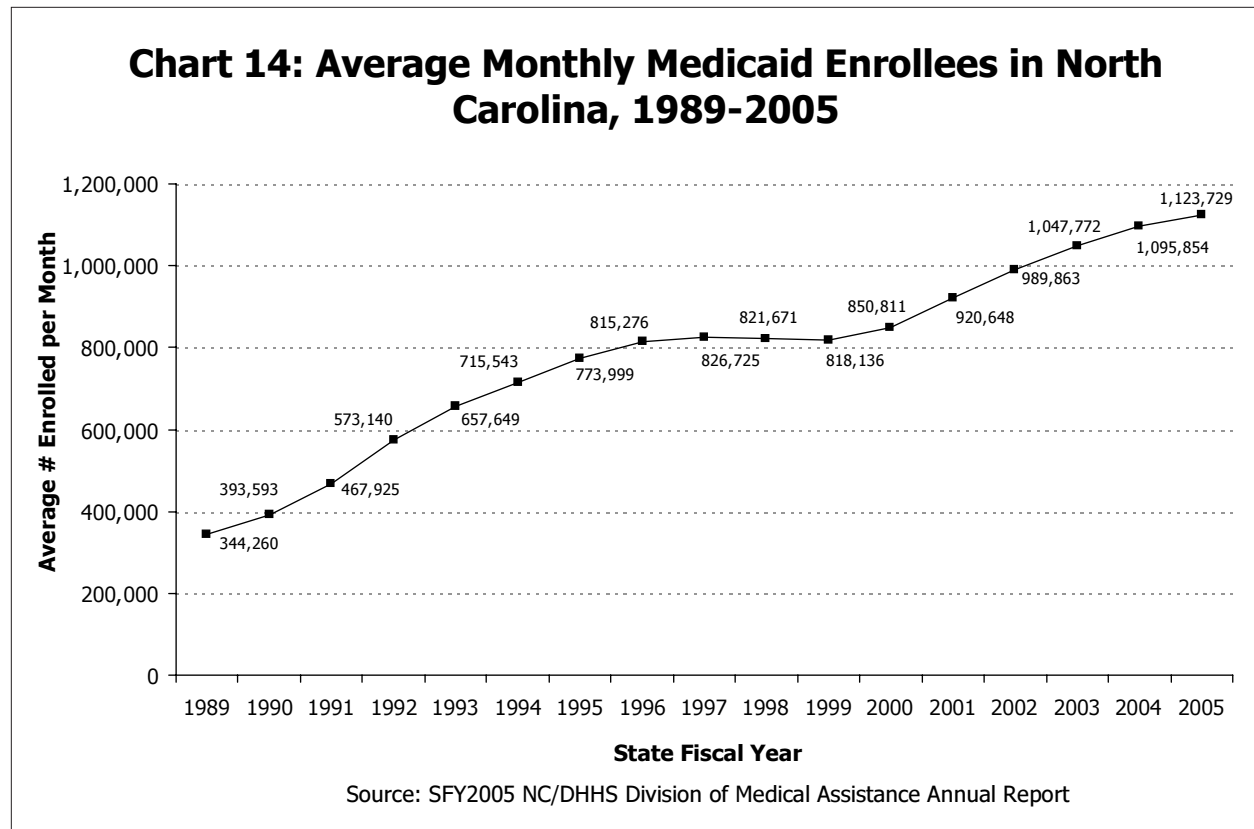
Health Insurance Coverage – North Carolinians living without health insurance experience greater difficulty accessing effective primary and specialized health care. When they do get treatment, they are typically in a later and more dangerous stage of their illness. It is not surprising, then, that we see more serious levels of chronic disease and illness among North Carolina’s uninsured population. According to a recent study using North Carolina BRFSS survey data, North Carolinians with chronic health conditions were more likely to report having limited access to health care.

More than 1.3 million North Carolina residents, or 18 percent of the population, were without health insurance during 2004-2005. The percentage of North Carolinians without health insurance has been similar to the national average for at least two decades. Persons of a minority race in North Carolina were much more likely to be uninsured. As shown in **Chart 13**, while 13 percent of non-elderly North Carolina whites were without health insurance during 2004-2005, 18 percent of African Americans, and half of all Hispanics lacked health insurance during this same time period. The percentage of uninsured children in North Carolina is 12 percent, the same percentage for children nationally.⁸ North Carolina’s rate of uninsured children may be lower than some other states due to its successful implementation of the State Child Health Insurance Program (SCHIP), known as “Health Choice” in North Carolina.



North Carolina was one of the last states to initiate a Medicaid program, which was accomplished in 1970. Largely as a result of the Medicaid eligibility expansions for children and pregnant women adopted in the late 1980s, there has been a large increase in the number of Medicaid enrollees. As shown in **Chart 14**, between state fiscal year 1988-1989 (the first year of major expansions) and state fiscal year 2004-2005, the average monthly Medicaid enrollment climbed from 344,260 to 1,123,729. The Division of Medical Assistance estimates that 18 percent of North Carolinians were eligible for enrollment in the state’s Medicaid program at some time during state fiscal year 2004-2005 (SFY 2005). In SFY 2005, \$8.2 billion was spent on health services and premiums for Medicaid recipients or \$5,154 per recipient during the year. Families and children make up the largest percentage of Medicaid recipients by eligibility

category, accounting for 70 percent of all Medicaid recipients in SFY 2005. The majority of expenditures (approximately 70%) occurred among elderly and disabled recipients, although they represented only 29 percent of all Medicaid recipients in the state in SFY 2005.⁴³



Rural Health – According to 2006 United States Department of Agriculture estimates, approximately 30 percent of North Carolina’s population lives in rural areas, compared with 17 percent nationwide.⁸⁷ Populations living in North Carolina’s rural areas face more barriers to accessing health care, due in part to a lack of health care providers in close proximity to their home. North Carolinians living in rural areas are more likely to be living in poverty than those in urban areas, and thereby less likely to have access to transportation. This is particularly true for rural racial minority and Hispanic populations. The geographic availability of physicians and the distance to hospitals pose unique problems for North Carolina’s rural residents. Almost half of the state’s population lives in a county with just one hospital (60 counties) and there are 16 North Carolina counties without any hospital. Lack of access to obstetrical and pediatric care in rural areas is also a growing problem. According to the North Carolina Health Professions Data System, approximately one-quarter of North Carolina counties did not have a single gynecologist or obstetrician and 20 percent of counties did not have a pediatrician practicing in their county in 2005.⁸⁸

Oral Health – According to the North Carolina BRFSS survey, approximately 32 percent of North Carolina adults reported not having visited a dentist within the last year. The lack of dental care is especially acute among North Carolina’s poor and minority populations. Thirty-nine percent of Native Americans and 42 percent of African Americans reported that they had not visited the dentist in the past year. More than half (56%) of Hispanics reported that they did not visit the dentist in the past year and one in five Hispanics (22%) reported that it had been five or more years since their last dental visit. Nearly one in ten Hispanics reported that

they had never visited the dentist and this figure was slightly higher for Spanish-speaking Hispanics (13.4%). Among respondents making less than \$15,000 a year, 57 percent reported not having an annual dental check-up, compared with less than 20 percent of those making more than \$50,000 a year.¹²

According to the 2005 North Carolina CHAMP survey, one in four children (25.5%) do not have a dentist or dental clinic they go to regularly. Among children enrolled in Medicaid, the number of children without a regular dentist is almost one in three (31.5%) and nearly one in five have never visited a dentist (19.8%).³⁴ In the past, one explanation for this was the low number of dentists who participated in the Medicaid program due to low reimbursement rates – an average of only 62 percent of their customary charges. However, a lawsuit against the Division of Medical Assistance was settled in 2003 which resulted in increased reimbursement rates (now set at 73% of customary charges) for 36 dental procedures and improved participation by dentists. Today, 41 percent of all North Carolina dentists are enrolled in the Medicaid program.⁸⁹

The U.S. Surgeon General maintains that water fluoridation continues to be the most safe, effective, and inexpensive way to prevent tooth decay in a community. Fluoridation benefits North Carolinians of all ages and socio-economic status. According to the Centers for Disease Control and Prevention, 85 percent of all North Carolina populations on public water systems are receiving optimally fluoridated water, compared to a 67 percent nationwide average.⁹⁰

Occupational and Environmental Health

Environmental health concerns are gaining more attention in North Carolina and the nation. Baseline data are still being collected for most indicators such as air, water, and soil quality and their impact on health. According to the North Carolina Department of Environment and Natural Resources, ozone levels have risen in recent years due to increased traffic, industry, and warmer weather. The state's air and water quality has also received increased attention due to concerns resulting from the fact that North Carolina is one of the largest hog producing states in the nation. However, North Carolina data on adverse health effects associated with poor air and water quality are difficult to obtain.

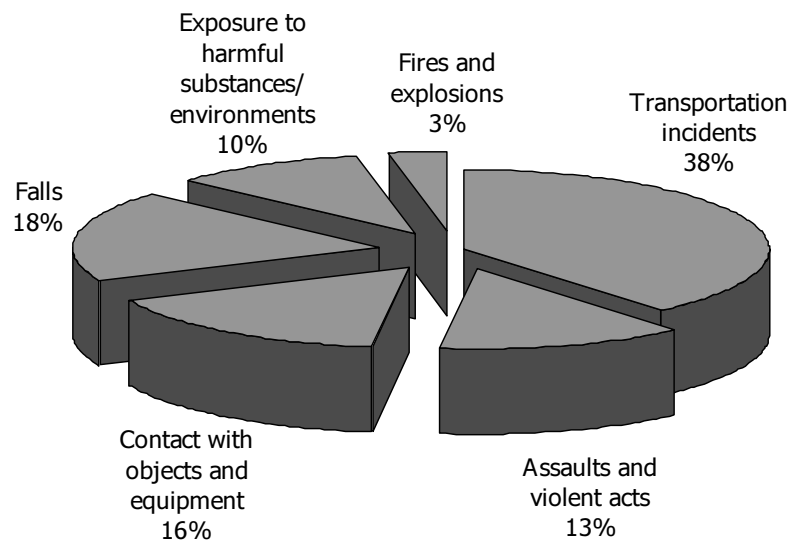
According to the U.S. Environmental Protection Agency (EPA), failure to meet air quality/particulate matter standards is associated with increases in emergency room visits and hospital admissions for heart and lung disease and an increased risk of premature mortality.⁹¹ In addition, a recent U.S. study found that mother's exposure to air pollution was associated with a higher risk of having a small-for-gestational-age baby.⁹² Ozone levels vary depending on the season, the time of day, and the locale. Summer afternoons are typically when ozone levels rise in North Carolina. Children, the elderly, and those with respiratory diseases and compromised immune systems are particularly susceptible to the effects of ozone.⁹³ Achievement of EPA standards for particulate matter could substantially reduce the negative health consequences of ozone in North Carolina. In addition, air emissions from other sources, such as swine feeding operations, may also have a detrimental health impact on North Carolinians. A 2006 study of North Carolina middle school students attending school in close proximity to swine facilities found that asthma and asthma-like symptoms were more prevalent among students with the most exposure to airborne pollutants from swine facilities.⁹⁴

Lead poisoning is an environmental health hazard that is preventable. In 1997, the North Carolina General Assembly adopted the Childhood Lead Exposure Control Act establishing a voluntary program designed to reduce childhood lead exposure in pre-1978 rental housing. In

2005, the North Carolina Lead Screening Program screened 41 percent (96,623) of children ages one and two. Among Medicaid recipients, more than half (56.1%) were screened. Of all children screened, 873 (0.9%) were found to have elevated blood lead levels.⁹⁵ Hispanic children have a greater chance of having elevated blood lead levels than non-Hispanic children. In 2005, a lead poisoning prevention radio campaign was launched, with the goal of teaching Latino parents about the dangers of lead exposure to children.⁹⁶ In 2006, North Carolina received a \$3 million grant to remove household lead dangers in seven counties: Beaufort, Durham, Greene, Pitt, Wake, Wayne, and Wilson.⁹⁷

Occupational exposures and hazards also pose health threats to North Carolinians. Occupational health threats include traumatic injuries as well as exposure to toxic substances such as silica, asbestos, and lead. According to the U.S. Bureau of Labor Statistics, there were 165 fatal occupational injuries in North Carolina in 2005. As shown in **Chart 15**, 38 percent of these deaths were attributable to transportation incidents. Assaults, falls, exposure to harmful chemicals/environments, and fires account for most of the rest of these deaths. Assaults and violent acts in the workplace accounted for 13 percent of all occupational deaths in 2005. Approximately 17 percent of all fatal occupational injuries occurred among Hispanic/Latino workers. The industry associated with the most fatal occupational injuries was construction, which accounted for 22 percent of all occupational fatalities in North Carolina in 2005.⁹⁸ A study of 43,900 North Carolina death records revealed that construction workers face increased risk of death due to a variety of occupational injuries including falls, transportation injuries, respiratory tuberculosis, and electrocutions.⁹⁹ Recent investigations of birth defects among North Carolina farm workers have highlighted the potential occupational hazards farm workers face.¹⁰⁰

Chart 15: Fatal Occupational Injuries in North Carolina, 2005



Source: Bureau of Labor Statistics, U.S. Department of Labor
 Census of Fatal Occupational Injuries, 2005

Conclusion

North Carolina faces a myriad of health challenges. The health of North Carolinians is compromised by poverty, risky behaviors, environmental problems, and insufficient access to adequate health care. There is very limited data in some areas, such as mental health and environmental health. Ensuring that its citizens have an equal opportunity to be healthy is a difficult, but attainable goal.

In 1988, North Carolina had the worst infant death rate in the nation. Since that time, the state has reduced the infant death rate by one-third. North Carolina has also been tremendously successful in expanding insurance coverage to uninsured children with the implementation of North Carolina Health Choice. While there is room for improvement, the success in these areas should reaffirm that with collaborative efforts we can work to tackle even our most complex health problems. Despite limited state resources, a strong commitment to health improvement programs will result in better health for the citizens of our state.

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