Health Profile of North Carolinians: 2005 Update

Department of Health and Human Services
Division of Public Health
State Center for Health Statistics
1908 Mail Service Center
Raleigh, NC 27699-1908
www.schs.state.nc.us/SCHS/

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EXECUTIVE SUMMARY

North Carolina has a diverse population. This diversity has increased significantly in the past 15 years as Latinos now constitute approximately seven percent of the population, six times the percentage in 1990. African-Americans are the largest minority group, accounting for more than 22 percent of the population. About one percent of North Carolinians are American Indians. North Carolina continues to lag the nation in several key health indicators, such as infant mortality, diabetes, stroke, life expectancy, and incidence of obesity. Minorities often have worse health indicators than whites. In this report we examine selected health indicators, offering a summary of health status in North Carolina. The goals of the Department of Health and Human Services are to increase quality years of life and eliminate health disparities.

CHRONIC DISEASES

✓ More than one million residents were age 65 and older, comprising about 12 percent of the population. Although life expectancy at birth has increased to 75.8 years, this is about one year lower than the nation’s average. People who died in 2003 lost an average of 9.4 years of expected life, an increase from 8.4 years in 2001. This may be due to a higher number of deaths from unintentional injuries, which occur mainly among younger people. The three leading causes of death, heart disease, cancer, and stroke, accounted for about 55 percent of all deaths in the state.

✓ The incidence of diabetes has continued to increase, with 8.1 percent of adults having diabetes, a significant jump from 4.5 percent in 1995 and 6.7 percent in 2001. Hospital charges for treatment of diabetic patients were more than $2.7 billion in 2003, over 30 percent more than the $2.0 billion charged in 2001. Obesity among adults has also seen a dramatic increase, from 13 percent in 1990 to 24 percent in 2003. Researchers estimate that medical expenditures associated with obesity in the state totaled over $2.1 billion during 2004, of which Medicaid paid $662 million. In 2003, 61 percent of adult North Carolinians reported being overweight or obese.

✓ Osteoporosis, a condition characterized by thin, weak bones, affects 1.27 million citizens in the state. In 2003, there were 7,828 hospital admissions of North Carolinians ages 65 and older with a primary diagnosis of hip fracture. More than half of these inpatients were discharged to a long-term care facility. In 2003, the total medical charges associated with osteoporosis in North Carolina were $455 million.

INFANT, CHILD, AND ADOLESCENT HEALTH

✓ Since 1989, the rate of child deaths in North Carolina has decreased more than 36 percent. During the same period, infant mortality decreased by 29 percent. In 2002, North Carolina had the eleventh highest infant mortality rate among states, an improvement over previous years. Over the past 15 years, there have also been improvements in the percentage of women receiving timely prenatal care and the percentage who did not smoke during pregnancy.
North Carolina has made improvements in identifying infants with special health care needs. All of the birthing facilities in the state participate in Universal Newborn Hearing Screening and 99.4 percent of all newborns are screened before discharge. Since 1995, the North Carolina General Assembly has appropriated funds to support the Birth Defects Monitoring Program, providing surveillance and follow up to almost 2,000 newborns with birth defects.

There were 93,561 students who received medications at school during the 2003-2004 academic year. A third of them received long-term psychotropic medications. Schools reported 8,837 serious injuries requiring medical attention. However, only 30 percent of school districts had a school nurse available. In 2003, the North Carolina General Assembly funded a plan to expand school nurse services to reach a 1 to 750 nurse-to-student ratio by 2014. The bill resulted in 145 new school nurse positions, lowering the overall nurse-to-student ratio in North Carolina from 1:1897 to 1:1568. Schools reported 62,075 students with asthma and 3,643 students with diabetes. The percentage of fifth graders with preventive dental sealants increased from 28 in 1996-1997 to 41 percent in 2003-2004.

In 2002 and 2003, 13 percent of children did not have any health insurance. Although more than 55 percent of all Medicaid recipients are children, 8.2 percent of children below the federal poverty level were still without health insurance. North Carolina Health Choice, designed to cover children whose families make too much income to qualify for Medicaid but too little to afford health insurance premiums, had more than 100,000 children enrolled in September 2003. Children in Health Choice had a 38 percent decrease in school absenteeism. In North Carolina more than 86 percent of children ages 19-35 months were receiving appropriate immunizations, the fifth largest percentage in the country.

In 2003, about 20 percent of children were overweight, with the percentage increasing with age. In middle and high school, 78 percent of children did not participate in sufficient moderate or vigorous physical activity. More than 50 percent of students reported having no physical education classes during their school week. In fiscal year 2003, there were 30,016 substantiated cases of abuse and neglect, representing a decrease of 2,867 from fiscal year 2002. Teen pregnancy rates have declined 42 percent since 1990. Minority and white teen pregnancy rates are at all-time lows of 83.0 and 50.9 per 1,000 girls (ages 15-19), respectively.

Mental Health

During fiscal year 2003, 16,141 people were served in state psychiatric hospitals, 3,757 in alcohol and drug treatment centers, and 316,904 were treated in Area Mental Health Centers. There were more than 52,000 general inpatient hospitalizations with mental illness or substance abuse listed as the primary diagnosis, resulting in more than $386 million in hospital charges. Among the 13,506 deaths due to injury during 1999-2001, over 26 percent tested positive for blood alcohol.

Injury/Violence

In 2003 there were 1,634 deaths from motor vehicle injuries, 2,152 deaths from other unintentional injuries, 949 deaths from suicide, and 592 deaths from homicide. Injury or poisoning accounted for more than 71,000 hospitalizations, resulting in $1.5 billion in...
hospital charges. African Americans and American Indians had the highest rates of death by homicide, while American Indians and Latinos had the highest rates for death due to motor vehicle injuries. Whites had more than twice the rate of suicide than any other racial/ethnic group.

✓ Since 1997, the number of deaths from unintentional poisoning has climbed from 228 to 690. This increase appears to be mainly due to abuse or misuse of prescription narcotics. During 2002, 1.4 percent of male adults and 8.7 percent of female adults reported that they had ever been sexually assaulted, while 4.4 percent of new mothers reported that they had been physically assaulted while pregnant.

HIV/SEXUALLY-TRANSMITTED DISEASE AND COMMUNICABLE DISEASES

✓ The rate of syphilis has declined 81 percent in the past five years, from 9.3 new cases per 100,000 population in 1998 to 1.8 in 2003. The 2003 North Carolina syphilis rate is now lower than the national rate of 2.5. In 2003, 1,086 new cases of AIDS were reported, an increase of seven percent from 2002. During the 2003-2004 flu season, about one-third of all adults in North Carolina received the flu shot. For those age 65 and over, 67 percent received the flu shot. However, during the 2004-2005 flu season a national shortage of flu vaccine has led to rationing flu shots.

MINORITY HEALTH AND HEALTH DISPARITIES

✓ African Americans represent 22 percent of the total population in North Carolina. African Americans have higher death rates from heart disease, cancer, HIV, diabetes, homicide, and stroke, compared to whites. Minority males, most of them African American, have the lowest life expectancy at birth of any group, 68.0 years. The African American infant mortality rate, 14.0 infant deaths per 1,000 live births, is more than twice the rate for whites.

✓ Latinos now comprise more than seven percent of the population in North Carolina, a six-fold increase since 1990. More than 78 percent of Hispanics are less than 35 years old, compared to 49 percent for the total population. As a result, they have relatively high death rates due to motor vehicle injuries, homicide, and unintentional injuries.

✓ American Indians comprise 1.3 percent of the population in North Carolina. They have higher death rates than whites for diabetes, motor vehicle injuries, and homicide. These higher death rates reflect their high percentage living in poverty and having poor access to health care. Approximately 21 percent of American Indians live in poverty, compared to 17 percent for the state as a whole.

HEALTH RISK FACTORS

✓ According to a recent study, more than 53 percent of all deaths in North Carolina are premature. Of these, most were due to tobacco use or bad diet/physical inactivity. Alcohol misuse was the third most common cause of premature death. Compared to the national rates, adult North Carolinians are slightly more likely to smoke and to be obese.
HEALTH CARE ACCESS

✓ Almost 1.4 million citizens in North Carolina were without health insurance during 2002-2003. Overall, the percentage of North Carolinians without health insurance was similar to the national average (17 percent versus 16 percent). However, 22 percent of African Americans, 56 percent of Hispanics, and 21 percent of American Indians were without health insurance, versus 14 percent of whites.

✓ The average monthly Medicaid enrollment for fiscal year 2003 was 1,047,772, an increase of almost 14 percent over fiscal year 2001, and almost three times the number during fiscal year 1989. In fiscal year 2003, more than $6.6 billion was spent on health services for 1,454,661 Medicaid recipients. More than 70 percent of these costs occurred among elderly and disabled recipients, although they represent less than 30 percent of Medicaid enrollees.

✓ About 38 percent of North Carolina’s population lives in rural areas, compared with 20 percent nationwide. This often makes access to health care more difficult. In 2003, there were 16 counties without a single hospital, 26 counties (versus 14 counties in 2001) had no gynecologist or obstetrician, and 22 counties did not have a pediatrician.

✓ About 32 percent of adults in North Carolina reported not having seen a dentist during the last year. For Medicaid recipients ages 5-14, 66 percent had not seen a dentist during the last year. Changes in Medicaid dental reimbursement should result in a future increase in use of oral health services for the Medicaid population. More than 85 percent of North Carolina residents on public water systems were receiving fluoridated water in 2002, compared with 67 percent nationwide.

OCCUPATIONAL AND ENVIRONMENTAL HEALTH

✓ In 2004, North Carolina was cited by EPA as one of 20 states with counties that did not meet new, stricter air quality health standards. In 2003, 37 percent of all children ages 1-2 were screened for lead exposure. Two percent of those were found to have elevated blood levels. In 2003, there were 182 fatal occupational injuries in North Carolina. Approximately 38 percent of them were attributable to transportation incidents. Assaults and violent acts accounted for 16 percent of all occupational deaths in 2003.

SUMMARY

The health status of North Carolinians is varied and complex. The state has made progress in key areas but lags behind the nation in many other important aspects of health status and health care. There is an enduring disparity in many health indicators by race and ethnicity.
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 first published in 2003. The main objective of this 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 2003, there were more than 8,400,000 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 10 percent, of our population in this older age group in 1980. 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 2003, 870 people died in North Carolina per 100,000 population compared to 847 nationally in 2002 (the latest year national data is available). North Carolina’s overall age-adjusted death rate of 909.2 deaths per 100,000 for 1999-2003 was also considerably higher than the national rate of 845.3 per 100,000 population in 2002.

**Life Expectancy and Years of Life Lost** – The life expectancy at birth for North Carolinians is 75.8 years. This is about one year more than the life expectancy at birth in 1990 and two years more than the life expectancy in 1980. However, due to the higher overall death rates in North Carolina compared to the nation, residents of our state live approximately one year less than the U.S. average. Premature mortality not only affects individuals and their families; it also impacts on the state’s productivity. Table 1 shows the total years of life lost and the average

<table>
<thead>
<tr>
<th>Rank</th>
<th>Cause</th>
<th>Total Deaths</th>
<th>Average Years of Life Lost</th>
<th>Total Years of Life Lost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Heart disease</td>
<td>18,648</td>
<td>6.0</td>
<td>111,160</td>
</tr>
<tr>
<td>2</td>
<td>Cancer</td>
<td>16,107</td>
<td>9.0</td>
<td>144,244</td>
</tr>
<tr>
<td>3</td>
<td>Stroke</td>
<td>5,188</td>
<td>4.0</td>
<td>20,717</td>
</tr>
<tr>
<td>4</td>
<td>Chronic lung disease</td>
<td>3,856</td>
<td>4.4</td>
<td>17,042</td>
</tr>
<tr>
<td>5</td>
<td>Diabetes</td>
<td>2,384</td>
<td>7.6</td>
<td>18,236</td>
</tr>
<tr>
<td>6</td>
<td>Other unintentional injuries</td>
<td>2,152</td>
<td>21.7</td>
<td>46,691</td>
</tr>
<tr>
<td>7</td>
<td>Alzheimer’s disease</td>
<td>2,143</td>
<td>0.5</td>
<td>1,097</td>
</tr>
<tr>
<td>8</td>
<td>Pneumonia and influenza</td>
<td>1,988</td>
<td>4.0</td>
<td>7,985</td>
</tr>
<tr>
<td>9</td>
<td>Motor vehicle injuries</td>
<td>1,634</td>
<td>36.1</td>
<td>58,933</td>
</tr>
<tr>
<td>10</td>
<td>Nephritis, nephrotic syndrome, nephrosis...</td>
<td>1,386</td>
<td>5.5</td>
<td>7,575</td>
</tr>
<tr>
<td></td>
<td><strong>Total Deaths – All Causes</strong></td>
<td><strong>73,230</strong></td>
<td><strong>9.4</strong></td>
<td><strong>685,222</strong></td>
</tr>
</tbody>
</table>
years of life lost for the leading causes of death. In 2003, North Carolinians who died lost an average of 9.4 years of life due to early death and a total of 685,222 total years of life. Motor vehicle injuries – which disproportionately involve younger people – had the highest average number of years of life lost per death (36.1 years).

**Chronic Diseases**

Chronic diseases are responsible for 65 percent of all mortality in North Carolina, resulting in more than 47,000 deaths each year. 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 2003, cardiovascular diseases (heart disease, stroke, and atherosclerosis) accounted for 33 percent of all deaths in the state. As shown in Table 1, heart disease was the leading cause of death in North Carolina in 2003, with almost 19,000 resident deaths, or approximately one in four deaths in the state. North Carolina’s 1999-2003 age-adjusted heart disease rate of 243.2 deaths per 100,000 population was slightly above the national age-adjusted death rate of 240.8 per 100,000 in 2002. In addition, the state’s 1999-2003 age-adjusted stroke death rate of 70.7 was substantially higher than the national rate of 56.2 in 2002. Cardiovascular diseases were also the leading cause of hospitalization in North Carolina in 2003, accounting for more than 168,000 hospitalizations and over $3.6 billion in hospital charges.

A 2003 report from the Centers for Disease Control and Prevention (CDC) reveals that North Carolina has the nation’s fourth-highest rate of stroke deaths among men and women ages 35 and older. Only South Carolina, Arkansas, and Tennessee had higher stroke death rates than North Carolina. 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 two times as high as the rest of the nation.
According to the 2003 North Carolina Behavioral Risk Factor Surveillance System (BRFSS), 15 percent of North Carolinians between ages 55-64 report having being diagnosed with cardiovascular disease, and 24 percent of persons ages 65 and over. Among persons 18 and older, males were more likely (9.0 percent) to report being diagnosed with cardiovascular disease, heart attack, or stroke than females (7.3 percent), although this difference was not statistically significant. Those who reported having less than a high school education were approximately two times as likely to have a history of cardiovascular diseases (14.3 percent) as college graduates (6.0 percent).

Cancer – The second leading cause of death in North Carolina is cancer, which resulted in more than 16,000 deaths in 2003 (see Table 1). The state’s 1999-2003 age-adjusted death rate for cancer of 199.7 was close to the national rate of 193.5 per 100,000 population in 2002. An estimated 40 percent of North Carolinians will develop cancer during their lifetime. More than 39,800 North Carolinians were projected to receive a cancer diagnosis in 2004, which equates to approximately 109 new cases each day. The leading causes of cancer death are lung cancer (4,839 deaths in 2003), cancer of the colon and rectum (1,516 deaths), breast cancer (1,198 deaths), prostate cancer (894 deaths), and cancer of the pancreas (887 deaths). 2003 cancer deaths by site are presented in Chart 1.

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. With the exception of colorectal screening, a larger percentage of North Carolinians receive cancer screenings than the national average. Colon/rectum cancer is 90 percent curable if detected early. However, according to the North Carolina BRFSS survey, only about half of North Carolina adults over age 50 report ever having a colonoscopy or having used a home test to check for blood in their stool. In contrast, the percentage of North Carolina women age 40 and older who reported having had a mammogram within the past two years was 81 percent, similar to the U.S. rate of 76 percent.

Chronic Lung Disease – Chronic lower respiratory diseases are the fourth leading cause of death in North Carolina, accounting for more than 3,800 deaths in 2003 (see Table 1). North Carolina had a slightly higher age-adjusted death rate due to chronic lung diseases during 1999-2003 – 46.8 per 100,000 population compared with a rate of 43.5 nationally in 2002. 1999-2003 age-adjusted chronic lung disease death rates were highest among North Carolina’s White (50.5) and American Indian (38.8) populations. African Americans, Asian Americans, and Hispanics all had lower death rates from chronic lung diseases. During 1999-2003, North Carolina males had a much higher age-adjusted death rate from chronic lung diseases (62.8 per 100,000 population) than females (38.0).

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 number of older people, 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 8.1 percent in 2003, an increase of 80 percent in less than a decade. 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 2003, 38.1 percent of North Carolina adults indicated that they had never had a blood test for diabetes.

In 2003, diabetes was listed as the primary cause of almost 2,400 deaths in North Carolina, which represents a 50 percent increase in the number of deaths since 1994. North Carolina’s 1999-2003 age-adjusted diabetes death rate of 27.5 per 100,000 population is slightly higher than the 25.4 rate found nationally in 2002. Diabetes also significantly contributes to other

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causes of death, such as heart disease, stroke, and kidney failure. In 2003, nearly 5,900 additional North Carolinians died with diabetes mentioned on the death certificate as a contributing condition.

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. As presented in Table 2, in 2003 diabetes was directly responsible for almost 15,000 hospitalizations in North Carolina, and contributed to or complicated another 161,000. Diabetes was mentioned as a contributing condition in approximately 19 percent of all hospitalizations in 2003. The total cost in 2003 for hospitalizations involving any diagnosis of diabetes was more than $2.7 billion. In addition, 2003 North Carolina hospital discharge data reveal that diabetes was associated with 9,887 hospitalizations involving renal dialysis or transplant, and more than 3,000 discharges involving amputations.

**Table 2: 2003 North Carolina Resident Hospital Discharges Related to Diabetes**

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Total Discharges</th>
<th>Total Charges</th>
<th>Average Charge</th>
<th>Average Length of Stay</th>
</tr>
</thead>
<tbody>
<tr>
<td>Principal Diagnosis of Diabetes</td>
<td>14,837</td>
<td>$184,319,966</td>
<td>$12,423</td>
<td>5.3</td>
</tr>
<tr>
<td>Any Diagnosis of Diabetes</td>
<td>176,199</td>
<td>$2,776,022,050</td>
<td>$15,755</td>
<td>5.3</td>
</tr>
<tr>
<td>Lower Limb Amputation</td>
<td>3,053</td>
<td>$84,498,442</td>
<td>$27,677</td>
<td>10.9</td>
</tr>
<tr>
<td>Cardiovascular disease and diabetes</td>
<td>46,384</td>
<td>$925,542,452</td>
<td>$19,954</td>
<td>4.9</td>
</tr>
<tr>
<td>Renal dialysis/transplant and diabetes</td>
<td>9,887</td>
<td>$207,914,282</td>
<td>$21,029</td>
<td>7.1</td>
</tr>
</tbody>
</table>

*Note: Provisional 2003 North Carolina Hospital Discharges Files were used.

**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. Since 1990, the percentage of North Carolina adults who are obese has almost doubled, remaining slightly higher than the national average. **Chart 2** presents obesity percentages from 1990 through 2003 for North Carolina and the nation. In 2004, researchers estimated that medical expenditures associated with obesity in the...
state totaled $2.14 billion, with slightly over half ($1.11 billion) of this total being financed by Medicaid and Medicare. Obesity-related expenditures represent approximately 6 percent of North Carolina’s health care bill. However, because the prevalence of obesity is 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 in 2003. In all, approximately 6 in 10 North Carolina BRFSS survey respondents (61 percent) indicated that they were overweight or obese based on their body mass index in 2003.

**Osteoporosis** – Osteoporosis is a condition characterized by thin, weak bones which 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 10 to 20 percent of cases, death. A recent report states that 1.27 million people in North Carolina had osteoporosis or low bone mass in 2002. As the population continues to grow older, it is likely that osteoporotic fractures will increase. The prevalence of osteoporosis is projected to grow 53 percent by the year 2020. The total medical costs for treatment of osteoporosis are estimated to be more than $455 million per year. In 2003, there were 7,828 hospital admissions of North Carolinians ages 65 and older with a primary diagnosis of hip fracture. Of those hospitalized with hip fractures, more than half were discharged to a long-term care facility.

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. Despite this, most 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 exercise and increasing intake of calcium (which builds up bone mass) are some ways to prevent osteoporosis. According to the North Carolina BRFSS survey, among North Carolinians ages 45 and over, the majority (65 percent) indicated that their doctor had never spoken with them about preventing osteoporosis through lifestyle changes such as diet or exercise. Only 63 percent of North Carolina women ages 45 and over and 30 percent of men indicated that they are taking vitamin supplements that contain calcium to prevent or treat osteoporosis.

**Infant, Child, and Adolescent Health**

**Child and Infant Mortality** – The rate of child deaths (ages 0-17 years) in North Carolina has decreased significantly since 1989. In 1989, the child death rate was 115.4 deaths per 100,000 population, and by 2003 the rate was 73.3. Much of this decline can be attributed to a substantial reduction in infant mortality. The infant mortality rate in North Carolina has declined from 18.5 infant deaths per 1,000 live births in 1975 to 8.2 in 2003 – a reduction of 56 percent (Chart 3). Yet, despite this progress, North Carolina’s infant mortality rate remains one of the highest in the country. In 2002, North Carolina had the eleventh highest infant mortality rate in the country, with 8.2 deaths per 1,000 live births compared to a rate of 7.0 nationally. The gap between minority and white infant mortality persists in North Carolina, with whites having an infant mortality rate of 5.9 per 1,000 live births, compared with a minority rate of 14.0 in 2003.

Prenatal care appears to be improving. During 1987-91, the percentage of women receiving late or no prenatal care was 24 percent. By the 1999-2003 period, this percentage was down to 15 percent. Also, the percentage of women who reported smoking during pregnancy has also
declined. During 1988-91, approximately one in five births in North Carolina (20 percent) involved a mother who had smoked during pregnancy, compared with 13.6 percent during 1999-2003.

**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. Every day, the State Laboratory for Public Health collects blood specimens from all newborns and screens them for up to 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. Since the program was first adopted in North Carolina in 1997, no babies have died as a result of metabolic disorders.

All North Carolina’s birthing facilities are now participating in Universal Newborn Hearing Screening. As a result, 99.4 percent of all newborns born in North Carolina hospitals are screened before discharge. 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. As of December 31, 2003, the
Newborn Hearing Screening Program identified 196 infants born in 2002 with hearing loss. The Early Intervention Program for Children who are Deaf or Hard of Hearing provided services for more than 250 children, birth to three years old, during 2002.

In 1995, the North Carolina General Assembly passed legislation creating the 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 allowed 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. The staff ascertains all 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). 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.

**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 Infant-Toddler Program is for children from birth to three years of age and their families. In fiscal year 2003-2004, 10,977 children (3.2 percent of the population) were served in the program. The Preschool Program addresses the needs of three to five-year-olds who are not old enough for kindergarten. It served 21,018 children in the 2003-2004 school year.

The Children’s Developmental Services Agency (CDSA) network serves young children who are at risk for or suspected of having developmental delays. As of July 1, 2004, the 18 CDSAs are the local lead agencies for the NC Infant Toddler Program. During the 2003-2004 fiscal year, the CDSA network served a total of 24,731 children and delivered 56,570 evaluation services, 31,197 treatment services, and 77,645 other services. These services include tracking, provisional assessments, parent conferences, and consultation. The Child Service Coordination (CSC) Program, which works with families to obtain necessary preventive, specialized, and support services, served 49,675 children under the age of five years during fiscal year 2003-2004 (8.6 percent of the population).

**School Health** – According to the School Health Services Report, 93,561 students received medications at school in 2003-2004. About a third 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, shunt care, urinary catheterizations, and tracheostomy care. In addition, 527,935 minor injuries and illnesses were reported in school year 2003-2004. 8,837 serious injuries were reported, with 758 involving law enforcement intervention.

Despite the large number of students sustaining injuries at school, only 30 percent of districts had a school nurse available most of the time when student injuries occurred. Overall, the state had fewer than 700 school nurses in 2002-2003. A 2003 North Carolina General Assembly Special Provision Budget Bill resulted in a plan to expand school nurse services to reach a 1 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. This increased the number of school districts meeting the 1 to 750 ratio from 10 to 24
(out of a total of 115 school districts) and lowered the overall average school nurse to student ratio in North Carolina from 1:1897 to 1:1568.

While asthma does not cause many deaths among children in North Carolina, it is one of the most prevalent diseases in our state, particularly among children. According to the School Health Services Report, 62,075 North Carolina public school students had asthma in 2003-2004. An estimated 10 to 17 percent of children under age 18 have diagnosed asthma. The North Carolina School Asthma Survey suggests that another 17 percent of children may have undiagnosed asthma. Children with asthma are 37 times as likely to miss school as children without asthma symptoms.

Diabetes is a chronic disease which is becoming increasingly common among North Carolina children. The Centers for Disease Control and Prevention (CDC) predicts that 30 percent of all children born in 2002 will have diabetes in their lifetimes. According to the School Health Services Report, 3,643 North Carolina students had diagnosed diabetes in 2003-2004. More than 29,000 students had to monitor their blood glucose, 1,622 students received insulin injections, and 1,132 had insulin pumps at school.

Dental health is another initiative currently being addressed in North Carolina public schools. In 2003-2004, the state's Oral Health Section screened more than 81,000 kindergarten children and found that 23 percent had untreated dental decay. In addition, almost 77,000 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 41 percent. The goal in North Carolina is for 50 percent of fifth-grade children to have dental sealants.

**Health Insurance** – According to the Current Population Survey of the U.S. Census Bureau, 13 percent of North Carolina children ages 0-18 did not have health insurance during 2002-2003. For children at or below the poverty level during 2001-2003, 8.2 percent were without health insurance. Medicaid coverage is available to children in some families in poverty. According to the Division of Medical Assistance, in state fiscal year 2002-2003, more than half (55 percent) of all Medicaid recipients in the state were ages 0-20.

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.

While many states were less than successful in enrolling children, North Carolina was one of only 13 states to exceed its projected enrollment goals during its first years of operation. In fact, North Carolina surpassed its original projection by 64 percent. 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. The program continued to increase by one to three percent per month and by the end of September 2003, there were more than 100,000 children enrolled in North Carolina’s Health
Choice program. Despite continuing funding issues, a study by the University of North Carolina shows that the program has been successful in improving access to health care for low-income children. Parents of younger children said they had 25 percent fewer absences from work because their children were sick less often, and there was a 38 percent decrease in absenteeism for children in child care.

**Immunization** – North Carolina has made a concerted effort to ensure that all children receive age-appropriate immunizations. The current statewide North Carolina Immunization Registry (NCIR) has been used by 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 top five highest percentages of immunized two year-olds in the country. In 2002-2003, 86 percent of North Carolina children ages 19-35 months were receiving the appropriate series of immunizations, compared to an average of 78 percent nationally.

**Overweight** – In many ways, children mirror the behaviors of their parents. Like adults, a high percentage of North Carolina children are overweight. According to the 2003 North Carolina Nutrition and Physical Activity Surveillance System, one in seven children ages 2-4, one in five children ages 5-11, and one in four children ages 12-18 were overweight based on their Body Mass Index (BMI). Approximately 15 percent more children in each age group are at risk for overweight based on their BMI-for-age. High rates of being overweight can largely be attributed to physical inactivity and poor nutritional habits among North Carolina youth. The 2003 Youth Risk Behavior Survey of middle and high school students reports that 78 percent of students did not participate in sufficient moderate or vigorous physical activity. In addition, more than 50 percent of students reported that they had no physical education classes during their school week.

**Child Abuse and Neglect** – While child abuse was reported just as often in 2003 as in 2002, investigators are finding fewer cases of actual abuse and neglect. According to the North Carolina Department of Social Services, in state fiscal year 2002-2003, 107,157 children were assessed for child abuse and neglect, a decrease of about one percent from the previous year. Of those cases, 30,016 children were found to be substantiated cases of abuse or neglect, representing a decrease of 2,867 children from fiscal year 2001-2002. However, in pilot programs in ten counties in the state, another 1,121 children were found to be in need of child welfare services. In these ten counties, which will increase to 52 counties in the future, new practices are being employed, 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 help some families to receive needed services, even though child abuse or neglect is not substantiated.

**Teen Pregnancy** – As shown in Chart 4, North Carolina’s teen pregnancy rates have declined significantly (42 percent) since 1990. In 1990, there were 105.4 pregnancies per 1,000 girls ages 15 to 19. In 2003, the teen pregnancy rate was 61.0 per 1,000 girls ages 15-19. 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 83.0 compared with a white rate of 50.9. Of the more than 17,000 reported North Carolina resident teen pregnancies in 2003, 75 percent resulted in live births and 24 percent resulted in abortions.
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 mental disorders in the state. In 2003, 1,965 North Carolinians who died had a mental health or substance abuse diagnosis listed as the underlying cause of death. These figures included 1,511 deaths attributed to unspecified dementia (not including Alzheimer's, which is classified as a disease of the nervous system) and 215 deaths attributed to the use of alcohol (not including accidental alcohol overdose). This is just the tip of the iceberg. We currently have no way to document the prevalence of major mental diseases in the general population of North Carolina. According to one estimate, 10-12 percent of North Carolina’s 9 to 17 year-olds (170,000-208,000) have serious emotional disturbances. Nationally, about 40 million (22 percent) of non-elderly adults are estimated to have a diagnosed mental health disorder.

The North Carolina Behavioral Risk Factor Surveillance System (BRFSS) telephone survey asks a general question related to mental health. In 2003, one in four North Carolina adults who responded to this survey (25.2 percent) 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 29 percent of female adults reporting that their mental health was not good, compared to 21 percent of males. In 2003, 17 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.

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The Division reports that 16,141 people were served in psychiatric hospitals in the state during state fiscal year 2002-2003. Another 3,757 people were served in North Carolina Alcohol and Drug Treatment Centers and 316,904 people were treated by Area Mental Health Programs. 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 2003, there were more than 52,000 general inpatient hospitalizations in North Carolina with mental illness or substance abuse listed as the primary diagnosis, resulting in more than $386 million in hospital charges. Among North Carolina BRFSS survey respondents, five percent reported having ever received treatment for an alcohol or substance abuse problem.

Alcohol also contributes significantly to premature deaths in North Carolina. The North Carolina Medical Examiners office measures blood alcohol levels for most deaths in the state due to injury and violence. Among the 13,506 suicide, homicide, motor vehicle, and other injury deaths occurring during 1999-2001, more than one-quarter of the decedents (26.4 percent) tested positive for blood alcohol.

Illicit drug use is also a problem in North Carolina, especially among the young. According to the 2002 National Household Survey on Drug Use and Health, 15 percent of North Carolinians ages 12-17, 20 percent of 18-25 year-olds, and 5 percent of those age 26 and older reported illicit drug use in the past month.

**Injury and Violence**

In 2003, more than 5,400 North Carolinians died from injury or violence, including 1,634 deaths from motor vehicle injuries, 2,152 deaths from other unintentional injuries, 949 deaths from suicide, and 592 deaths from homicide. In 2003, there were more than 71,000 inpatient hospitalizations with an injury or poisoning (intentional or unintentional) listed as the primary diagnosis, resulting in $1.5 billion in hospital charges, with an average charge of almost $21,000 per discharge. Chart 5 presents 1999-2003 age-adjusted death rates for three injury and violence categories by race and ethnicity.
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 tripled in the state. In 1997, there were 228 fatal unintentional poisonings in the state. By 2003, that number had risen dramatically to 690. In North Carolina, the increase appears to be mainly explained by abuse or misuse of prescription narcotics. In response, public health officials, substance abuse services, and law enforcement officials are now working together to oversee a new statewide initiative to prevent unintentional drug overdoses in North Carolina. In 2004, the Department of Justice/Department of Health and Human Services Leadership Committee on Unintentional Drug Deaths was established to monitor unintentional drug overdoses. The joint committee will draft legislation to help establish a controlled substances reporting system to examine the illicit use of prescription narcotics and assist in the referral of patients in need of substance abuse treatment. In addition, they will develop appropriate programs and recommend policies and regulations to prevent deaths from unintentional drug overdoses.

Motor Vehicle Injuries – In 2003, for every motor vehicle injury death that occurred there was a loss of approximately 36.1 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 2003 (based on the number of deaths), but not one of the ten leading causes of deaths for females. In 2003, motor vehicle injuries were the leading cause of death for North Carolina youth, ages 1 through 24. American Indians have the highest age-adjusted rate of motor vehicle deaths – 39.5 per 100,000 population in 1999-2003. The American Indian motor vehicle death rate was double the rate for whites during this period (see Chart 5).

Homicide – In 2003, there were 592 homicides in North Carolina, which represents less than one percent of all deaths in the state. However, North Carolina’s age-adjusted mortality rate for homicide is higher than the national rate. 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 2003 (174 deaths). North Carolina’s African American and American Indian populations have higher age-adjusted homicide rates than other racial and ethnic groups.

Suicide – In 2003, suicide accounted for 1.3 percent of all deaths in North Carolina (949 deaths). Suicide was the fourth leading cause of death to North Carolina residents ages 15-24 years (133 deaths), and the fifth leading cause of death to residents ages 25-44 years (349 deaths). As shown in Chart 5, whites have an age-adjusted suicide death rate (13.2) that is twice as high as all other racial/ethnic groups. North Carolina’s 1999-2003 age-adjusted suicide rate of 11.5 was somewhat higher than the U.S. suicide rate in 2002 of 10.9. 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 2003 Youth Risk Behavior Survey, 20 percent of North Carolina middle school students and 18 percent of high school students report that they have seriously considered attempting suicide.

Sexual Assault, Physical Assault, and Emotional Abuse – According to the 2002 North Carolina BRFSS telephone survey, 5.1 percent of adult respondents reported that they had ever been sexually assaulted, 1.4 percent of males and 8.7 percent of females. Approximately 20 percent reported that they had ever been physically assaulted, defined as being pushed, hit, slapped, kicked, or physically hurt in any other way. In the majority of cases, the sexual or physical assault was perpetrated by an intimate partner or someone else known by the person who was assaulted. Of the 1,572 BRFSS respondents who indicated that they had suffered
violence in the past year, 84 percent reported that the violence was committed by a partner, ex-partner, relative, or acquaintance. According to the 2002 North Carolina Pregnancy Risk Assessment Monitoring System (PRAMS) survey, 4.4 percent of new mothers reported that they had been physically abused during their recent pregnancy. Among women under the age of 20, 11 percent reported physical abuse during pregnancy. Physical abuse during pregnancy was also more common among women who were not married (8.9 percent), had less than a high school education (8.8 percent), or were on Medicaid (8 percent). Emotional abuse was also common among new mothers. Of the mothers surveyed, 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.

Communicable Diseases

Sexually Transmitted Diseases – Except for syphilis, North Carolinians experience a higher rate of most sexually transmitted diseases compared with the rest of the country. North Carolinians have higher rates of gonorrhea, chlamydia, and HIV disease.

The syphilis rate in North Carolina has been steadily declining over the last few years. Since 1998, the syphilis rate has decreased 81 percent, from 9.3 new cases per 100,000 population in 1998 to a rate of 1.8 in 2003. The number of syphilis cases has been cut in half for all race and ethnic groups in the state. North Carolina’s syphilis rate was lower than the national 2003 syphilis rate of 2.5 per 100,000 in 2003. Consistent with rates across the South, North Carolina’s gonorrhea rate has also been on the decline since 1998, with a rate of 246.5 in 1998 and 181.3 in 2003. Even with this decline, North Carolina’s gonorrhea rate is substantially higher than the national average of 116.2 cases per 100,000 population in 2003. In contrast, after years of decline, chlamydia rates have been on the rise recently, with a 2003 state chlamydia rate of 314.7 new cases per 100,000 population. The North Carolina chlamydia rate was higher than the national rate of 304.3 in 2003. National chlamydia rates have also been rising recently. Both males and females, as well as nearly all racial/ethnic groups, have seen an increase in chlamydia rates.

AIDS/HIV – For several years the number of new AIDS cases in North Carolina was on the decline. However, since 2001, the number of AIDS cases reported has been rising. North Carolina recently ranked tenth in the nation in the number of new AIDS cases. In 2003, 1,086 new AIDS cases were reported in the state, representing a seven percent increase from 2002. However, the 2003 North Carolina AIDS rate of 12.9 cases per 100,000 population was lower than the 15.2 cases per 100,000 rate for the nation. The North Carolina HIV/STD Prevention and Care Branch estimates that there are currently at least 17,000 North Carolina residents living with HIV/AIDS as of December 31, 2003. In 2003, approximately 42 percent of new HIV cases were among African American males, 24 percent among African American females, and 21 percent among White, non-Hispanic males. While many cases are reported without a transmission mode, almost a third of all new cases indicate heterosexual transmission.

HIV death rates are higher among African Americans and Hispanics in North Carolina. During the 1999-2003 period, the age-adjusted rate of HIV deaths was 21.0 per 100,000 population for North Carolina’s African Americans and 4.2 for Hispanics, compared with an age-adjusted rate of 1.6 among whites. Overall, North Carolina’s HIV death rates have been steadily declining since 1996. In 1995, the unadjusted HIV death rate was 14.1 per 100,000 population compared with a rate of 5.4 in 2003. This mirrors national trends and may be due to the use of improved drug treatments. Unfortunately, AIDS drugs are costly and consequently many low-
income North Carolinians have not been able to reap their benefits. 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 Program (ADAP) for low-income North Carolinians.

**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 2003, a total of 374 cases were reported to the state (the fewest number of cases ever reported) – resulting in an overall rate of 4.6 cases per 100,000 population. 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 2003, the TB incidence rate was 2.3 per 100,000 population for African Americans, compared with a rate of 1.8 for whites. However, while TB cases among African Americans have declined 31.5 percent since 1999, new TB cases for whites have increased 32 percent.

The influenza (flu) virus continues to be an annual public health threat 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 in Southeast Asia, with human deaths and disease from an avian influenza A virus, have heightened the level of concern for a pandemic. In North Carolina, the General Communicable Disease Control Branch has developed a “Pandemic Influenza Response Plan” in an effort to proactively prepare for a widespread flu outbreak. 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, approximately one in three North Carolina adults received the flu shot in 2003. Among the elderly, age 65 and over, 67 percent received the vaccine. In 2004, a national flu vaccine shortage led to rationing of flu shots to only the most vulnerable populations, including infants and the elderly.

Other emergent communicable diseases such as Severe Acute Respiratory Syndrome (SARS), tick-borne viruses, 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.

**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 (NEDSS), this effort fosters the electronic exchange of health data among federal, state, and local health agencies.

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 Hospital Emergency Surveillance System (NCHESS) will electronically collect, report, monitor, and investigate emergency department and hospital clinic data in near real-time from all participating hospitals in the state. Based on North Carolina’s bioterrorism efforts, in December of 2004, the non-profit, non-partisan group “Trust for America’s Health” recognized North Carolina as a national leader in bioterrorism preparedness.

**Food-borne Illness** – Food-borne illness impacts the health of thousands of North Carolinians each year. It is well recognized that food-borne illness is vastly under-reported. Yet, during the 5-year period 1999-2003 there were more than 14,700 cases of food-borne illness and 70 outbreaks reported. For the year 2003 alone, there were 3,800 cases and 15 outbreaks reported in the state. The cost of food-borne illness can be considerable because not only are there medical costs, but there can be loss of work, hospitalization, or death. North Carolina must also be concerned about food security. In November of 2001, the North Carolina Food Safety and Security Task Force was formed due to heightened concerns about bioterrorist attacks on food sources.

**Minority Health and Health Disparities**

According to population estimates, one-quarter of North Carolinians are of a minority race. This is approximately double the proportion for the United States as a whole. 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 recent report based on mortality and North Carolina BRFSS survey data indicates 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.

**African Americans** – In 2003, 22 percent of North Carolina’s population was African American. This compares with only 12 percent of the population nationally. North Carolina’s African Americans are more likely to live in poverty (32 percent) and more likely to have no health insurance (22 percent) than whites. 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. North Carolina’s African Americans, for example, have a much higher infant mortality rate than do whites (15.0 deaths per 1,000 live births for African Americans compared to 6.0 for non-Hispanic whites in 2001-2003). African Americans have higher death rates from heart disease, cancer, HIV, diabetes, homicide, and stroke, compared to whites. According to the 2003 North Carolina BRFSS, African Americans are less likely to smoke and binge drink than most other racial/ethnic groups, but are more likely to be obese, have high blood pressure, and have inadequate fruit and vegetable consumption.

**Hispanics** – According to the Current Population Survey, the total Hispanic population of North Carolina was 539,750 during 2002-2003, representing seven percent of the total population. Although the percentage of North Carolinians that are Hispanic is much lower than the national average of 14 percent, North Carolina’s Hispanic population grew at the highest rate of any state in the nation in the 1990s, almost 400 percent from 1990 to 2000, compared with a national rate of growth for the Hispanic population of 58 percent. 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-eight percent of North Carolina’s Hispanic population is age 35 or younger whereas only 49 percent of the state’s non-Hispanic population is in this age group. 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 half of North Carolina’s 616 Hispanic deaths in 2003 were due to fatal injuries – either intentional or unintentional. Motor vehicle injuries topped the list of leading causes of death in 2003, representing 25 percent of all Hispanic deaths (157 deaths). Cancer (64 deaths), homicide (59 deaths), and other unintentional injuries (53 deaths) were the second, third, and fourth leading causes of death, respectively, and comprised another 28 percent of all Hispanic deaths in 2003. Suicide was the ninth leading cause of death among Hispanics in 2003 (18 deaths).

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. In 2003, only 68 percent of Hispanic mothers received prenatal care in the first trimester, compared with 90 percent of white, non-Hispanic mothers. However, during 2001-2003, the Hispanic infant death rate of 6.0 was identical to the non-Hispanic white infant death rate, compared to a rate of 15.0 for non-Hispanic African Americans.

Recent research suggests that Spanish-speaking Hispanics in North Carolina may have elevated risks of poor health outcomes. A report based on North Carolina BRFSS data revealed that North Carolina’s Spanish-speaking Hispanics were more likely to report inadequate nutrition, low levels of leisure-time physical activity, and a lack of health insurance, compared to English-speaking Hispanics and whites. The persistence of these problems among Spanish-speakers could lead to an excess of burden of chronic disease and morbidity as that population ages.

**American Indians** – North Carolina has one of the largest American Indian populations in the country. In 2003, American Indians numbered more than 112,000, or a little over 1.3 percent of the population in the state. As with other minority populations, North Carolina’s American Indian population is generally in poorer health than whites. North Carolina’s American Indian population has higher death rates from diabetes, motor vehicle injuries, and homicide, as well as a substantially higher infant death rate than whites. The incidence rate for HIV, syphilis, gonorrhea, and chlamydia are also higher among the American Indian population in North Carolina. During 2003, American Indians had higher percentages of women who smoked during pregnancy (24 percent) and women with late or no prenatal care (19.7 percent) compared to white women. Much of the poor health outcomes for this population are likely related to the fact that they have one of the highest poverty rates of any racial group (21 percent), and a high rate of persons who are uninsured (21 percent). North Carolina BRFSS data reveals that American Indians had significantly higher rates of chronic health conditions and risk factors, less access to health care, and a lower quality of life compared to whites in 2002-03.
Health Risk Factors

According to a recent study, more than half (53 percent) of all deaths of North Carolinians are preventable. Most of the leading causes of preventable deaths in North Carolina involved risky behavior or lifestyle choices. 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 6 presents information on preventable deaths in 2003.

<table>
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<th>Mortality Rates¹ 1999-2003:</th>
<th>White</th>
<th>African/ American</th>
<th>Black</th>
<th>American Indian</th>
<th>Asian/ Pacific Islander</th>
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<td>53.2</td>
<td>17.4</td>
<td>27.5</td>
<td>17.9</td>
<td></td>
</tr>
<tr>
<td>Chronic obstructive lung disease</td>
<td>50.5</td>
<td>31.5</td>
<td>38.8</td>
<td>8.4</td>
<td>46.8</td>
<td>9.8</td>
<td></td>
</tr>
<tr>
<td>HIV</td>
<td>1.6</td>
<td>21.0</td>
<td>3.4</td>
<td>0.5</td>
<td>5.6</td>
<td>4.2</td>
<td></td>
</tr>
<tr>
<td>Prostate cancer</td>
<td>26.0</td>
<td>75.2</td>
<td>41.8</td>
<td>3.5</td>
<td>32.7</td>
<td>2.4</td>
<td></td>
</tr>
<tr>
<td>Lung cancer</td>
<td>60.4</td>
<td>60.8</td>
<td>45.1</td>
<td>20.5</td>
<td>59.9</td>
<td>20.2</td>
<td></td>
</tr>
<tr>
<td>Colorectal cancer</td>
<td>18.3</td>
<td>26.2</td>
<td>12.4</td>
<td>9.8</td>
<td>19.4</td>
<td>10.1</td>
<td></td>
</tr>
<tr>
<td>Breast cancer</td>
<td>23.6</td>
<td>33.9</td>
<td>24.8</td>
<td>8.2</td>
<td>25.6</td>
<td>6.5</td>
<td></td>
</tr>
<tr>
<td>Homicide</td>
<td>4.6</td>
<td>16.5</td>
<td>17.0</td>
<td>4.1</td>
<td>7.5</td>
<td>13.1</td>
<td></td>
</tr>
<tr>
<td>Suicide</td>
<td>13.2</td>
<td>5.5</td>
<td>6.5</td>
<td>5.8</td>
<td>11.5</td>
<td>4.1</td>
<td></td>
</tr>
<tr>
<td>Motor vehicle injury</td>
<td>19.3</td>
<td>20.3</td>
<td>39.5</td>
<td>11.9</td>
<td>19.5</td>
<td>30.8</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Behavioral Risk Factors² (percentages):</th>
<th>White</th>
<th>African/ American</th>
<th>Black</th>
<th>American Indian</th>
<th>Asian/ Pacific Islander</th>
<th>TOTAL</th>
<th>Latino/ Hispanic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adults with high blood pressure</td>
<td>26.8</td>
<td>37.8</td>
<td>26.4</td>
<td>7.0</td>
<td>28.1</td>
<td>9.1</td>
<td></td>
</tr>
<tr>
<td>Adults who smoke</td>
<td>26.5</td>
<td>22.7</td>
<td>36.0</td>
<td>12.7</td>
<td>25.7</td>
<td>20.8</td>
<td></td>
</tr>
<tr>
<td>Adults who are obese</td>
<td>20.9</td>
<td>36.0</td>
<td>26.6</td>
<td>3.5</td>
<td>23.5</td>
<td>19.8</td>
<td></td>
</tr>
<tr>
<td>Adults with no leisure time physical activity</td>
<td>23.9</td>
<td>33.9</td>
<td>38.1</td>
<td>25.7</td>
<td>26.9</td>
<td>48.8</td>
<td></td>
</tr>
<tr>
<td>Percent of adults in fair/poor health</td>
<td>17.2</td>
<td>22.5</td>
<td>26.1</td>
<td>11.0</td>
<td>18.7</td>
<td>31.6</td>
<td></td>
</tr>
</tbody>
</table>

¹Except for the infant death rate, mortality rates are age-adjusted and expressed per 100,000 population.
²Most of these data are for the period 2001-2003.
As shown below in **Chart 7**, North Carolina adults are somewhat more likely to smoke, lead sedentary lifestyles, and be obese, compared with all U.S. adults.

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>N.C.</th>
<th>U.S.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inadequate Fruits/Vegetables</td>
<td>76.9</td>
<td>76.5</td>
</tr>
<tr>
<td>No Exercise</td>
<td>25.0</td>
<td>24.6</td>
</tr>
<tr>
<td>Smoke</td>
<td>37.0</td>
<td>36.6</td>
</tr>
<tr>
<td>Overweight</td>
<td>40.0</td>
<td>36.0</td>
</tr>
<tr>
<td>Obesity</td>
<td>40.0</td>
<td>36.0</td>
</tr>
</tbody>
</table>

**Health Care Access**

*Poverty* – An individual’s socioeconomic status has a strong link to overall health status. Poorer people have higher death rates and more health problems than individuals with higher socioeconomic status. As shown in **Chart 8**, 2002-2003 poverty rates in North Carolina were higher than the national average for all age groups. In 2002-2003, the poverty rate for North Carolina African Americans (32 percent) was more than twice that for whites (13 percent).
Health Insurance Coverage – North Carolinians living in poverty and 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 healthcare.

More than one million (1,395,610) North Carolina residents were without health insurance during 2002-2003. The percentage of North Carolinians without health insurance has been similar to the national average for at least two decades. According to the U.S. Census Bureau’s Current Population Survey, the 2002-2003 percentage of North Carolinians without health insurance coverage was 17 percent compared to 16 percent for the U.S. for this same time period. Persons of a minority race in North Carolina were much more likely to be uninsured in 2002-2003. As shown in Chart 9, while 14 percent of North Carolina whites were without health insurance during 2002-2003, one in five Blacks (22 percent) and more than one-half of all Hispanics (56 percent) lacked health insurance during this same time period. The percentage of uninsured children is 13 percent in North Carolina compared to 12 percent for children nationally. 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). This program is called “Health Choice” in North Carolina.

Chart 9: 2002-2003 Percentage of Non-Elderly Uninsured, U.S. and North Carolina

North Carolina was one of the last states to initiate a Medicaid program, 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 10, between state fiscal year 1988-1989 (the first year of major expansions) and state fiscal year 2002-2003, the average monthly Medicaid enrollment climbed from 344,260 to 1,047,772. The Division of Medical Assistance estimates that 17 percent of North Carolinians were eligible for enrollment in the state’s Medicaid program at some time during state fiscal year 2002-2003, or roughly one in eight residents of the state. In state fiscal year 2002-2003, $6.6 billion was spent on health services and premiums for 1,454,661 Medicaid recipients, or $4,530 per recipient during the year. The majority of service expenditures (approximately 70 percent) occurred among elderly and disabled recipients, although they represent only 30 percent of all Medicaid recipients in the state.

Rural Health – Approximately 38 percent of North Carolina’s population lives in rural areas, compared with 20 percent nationwide. 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 also more likely to be living in poverty, 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, one-quarter (26) of North Carolina’s counties did not have a single gynecologist or obstetrician and 22 counties did not have a pediatrician practicing in their county in 2003.
Oral Health – According to the 2002 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. For American Indians, almost half (49 percent) reported that they had not visited the dentist in 2002. More than half (57 percent) of Hispanics reported that they did not visit the dentist in the past year and one in four reported that it had been more than five years since their last dental visit. Among respondents making less than $15,000 a year, 62 percent reported not having an annual dental check-up, compared with less than 20 percent of those making more than $50,000 a year.

A study of Medicaid recipients ages 5-14 showed that on average, only 34 percent of recipients had any dental services during the year. Younger children were the least likely to use dental services. 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 percent of customary charges) for 36 dental procedures. Although it is too early to tell the impact of these changes, this settlement should help improve access to dental care for North Carolina’s entire Medicaid population.

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 socioeconomic status. According to the Centers for Disease Control and Prevention, 85 percent of all North Carolina populations on public water systems were receiving optimally fluoridated water in 2002, compared to a 67 percent nationwide average.

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 the second largest hog producing state 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. In addition, a recent U.S. study found that a mother’s exposure to air pollution was associated with a higher risk of having a small-for-gestational-age baby. Achievement of EPA standards for particulate matter could substantially reduce these negative health consequences in North Carolina. A 2004 report from the EPA revealed that North Carolina was among 20 states with counties that did not meet new, stricter air quality health standards. Three counties in North Carolina – Catawba, Guilford, and Davidson – were cited as exceeding the federal benchmark in their three-year average for particulate matter.
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 2003, the North Carolina Lead Screening program screened 37 percent (87,993) of children ages 1-2. Among Medicaid recipients, more than half (55.9 percent) were screened. Of those children screened, two percent were found to have elevated blood lead levels.

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 182 fatal occupational injuries in North Carolina in 2003. As shown in Chart 11, 38 percent of these deaths were attributable to transportation incidents. Assaults, contact with objects and equipment, falls, exposure to harmful chemicals/environments, and fires and explosions account for the rest of these deaths. Assaults and violent acts in the workplace accounted for 16 percent of all occupational deaths in 2003. A recent study of 43,900 North Carolina death records revealed that construction workers face increased risks of falls, transportation injuries, respiratory tuberculosis, and electrocutions.

![Chart 11: Fatal Occupational Injuries in North Carolina, 2003](attachment:chart11.png)

Census of Fatal Occupational Injuries, 2003
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 the health improvement programs will result in better health for the citizens of our state.