



# **Racial and Ethnic Differences in Health in North Carolina: 2004 Update**

**A Special Report from the  
State Center for Health Statistics and  
Office of Minority Health and Health Disparities**

**North Carolina Department of Health  
and Human Services**

**May 2004**

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North Carolina Department of Health and Human Services



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## Executive Summary

The purpose of this study is to document health differences among the major racial and ethnic groups in North Carolina in order to identify areas of disparities that can be targeted for interventions and improvement. Race is considered as a marker of health problems, not as a risk factor or cause. Describing racial and ethnic differences in health allows targeting of resources and culturally appropriate health improvement programs toward populations most in need.

This report presents descriptive statistics by race and ethnicity for whites, African Americans, American Indians, Asians, and Hispanics/Latinos. The following topics are included: population, risk factors among adults, deaths, alcohol involvement in injury deaths, cancer incidence, HIV and sexually transmitted diseases, teen pregnancies, live births, infant deaths, risk factors around the time of pregnancy, birth defects, and youth risk factors. There are some potentially serious problems in the reporting of health data for the smaller minority groups (i.e., American Indians, Asians, and Hispanics/Latinos); health events for these groups are likely to be underreported and the population data used for the denominators of rates may be inaccurate.

The results of this study show generally poorer health among African Americans and American Indians in North Carolina, compared to whites, across a variety of measures. For American Indians, however, there is concern about the accuracy of the reporting of race on health records, so that the published statistics may substantially underestimate the level of health problems among American Indians. This underreporting is also likely an issue for Hispanic/Latino ethnicity. The measures of health problems for Hispanics/Latinos are generally lower than those for whites, especially for chronic diseases. The very young age of the Hispanic/Latino population in North Carolina, the “healthy migrant effect,” and other factors may contribute to low rates for many of the causes of death and for other health problems in this group.

Figures 1, 2, and 3 show areas where there are large disparities in the health indicators for African Americans, American Indians, and Hispanics/

Latinos, compared to whites. These charts summarize the data presented in the tables of the main report. The ratio of the measure for the minority group to the measure for whites is shown in these figures if it is greater than 1.5. African Americans exhibit a large number of substantial health disparities (Figure 1). American Indians have elevated rates for a variety of health indicators (Figure 2). Hispanics/Latinos have substantially higher rates for 17 of the measures presented in this report (Figure 3). Health measures for Asians in North Carolina are much better than those for whites in almost every case. Exceptions are that Asians have a higher percentage of adults who reported that they never had their blood cholesterol checked (ratio = 2.6, from Table 2), and a higher percentage where the mother reported that she did not start prenatal care during the first trimester (ratio = 1.7, from Table 9).

The results presented in this report emphasize areas where minority groups have worse health problems than whites. Notable areas where minority groups are better off than whites in North Carolina are:

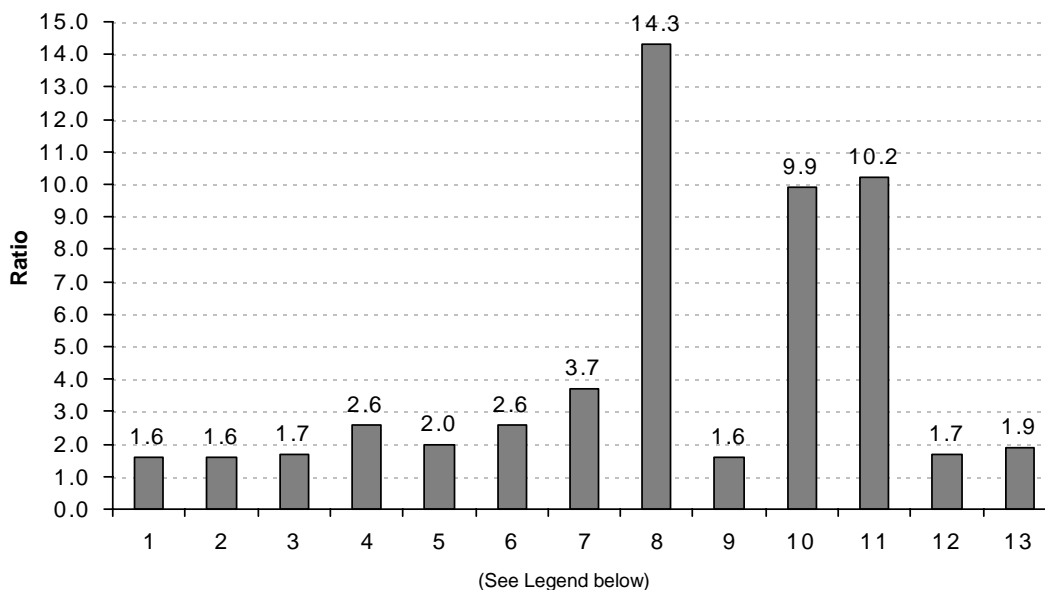
- smoking is lower among African Americans – in the general population of adults and particularly during pregnancy
- a lower percentage of African American adults report that they did not visit a doctor for a routine checkup in the past two years
- chronic lung disease and suicide death rates are lower among African Americans
- African American babies have a lower rate of orofacial cleft birth defects
- African American high school students are much less likely to report that they smoked or drank alcohol
- the suicide death rate and most cancer rates are lower for American Indians (though this could be partly due to misclassification of race on the death and cancer incidence records)
- the percentages for smoking during pregnancy and for low birth weight are lower among Hispanics/Latinos
- the infant mortality rate is lower among Hispanic/Latino births.

It is hoped that that the information presented in this report will inform North Carolina residents about racial and ethnic disparities in health, and will assist in the formulation of policies and programs in North Carolina to reduce these disparities. Ultimately, successful policies and programs will involve more than just efforts to encourage individuals to change their health behaviors. Sometimes there is a tendency to “blame the victim” for health disparities. Real progress in reducing health disparities will require systems changes that improve the

socioeconomic status of minority groups, reduce racism in our society, increase access to prevention and early detection services, and improve environmental conditions that influence health.

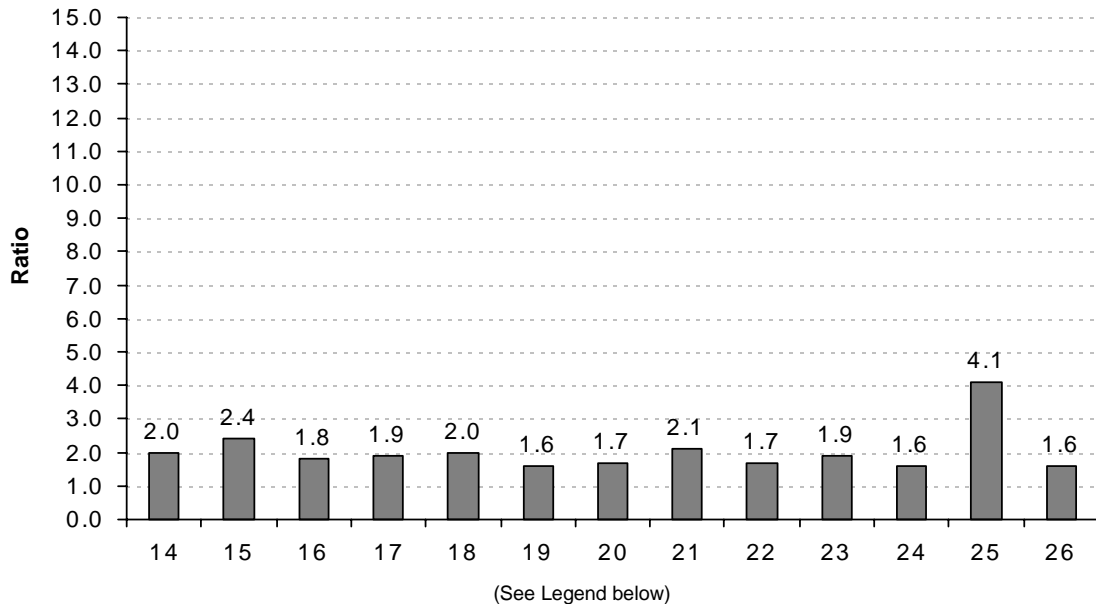
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**Figure 1**  
**Areas of Large Health Disparities between African Americans and Whites:**  
**Ratio of African-American Measure to White Measure**  
**North Carolina Residents**



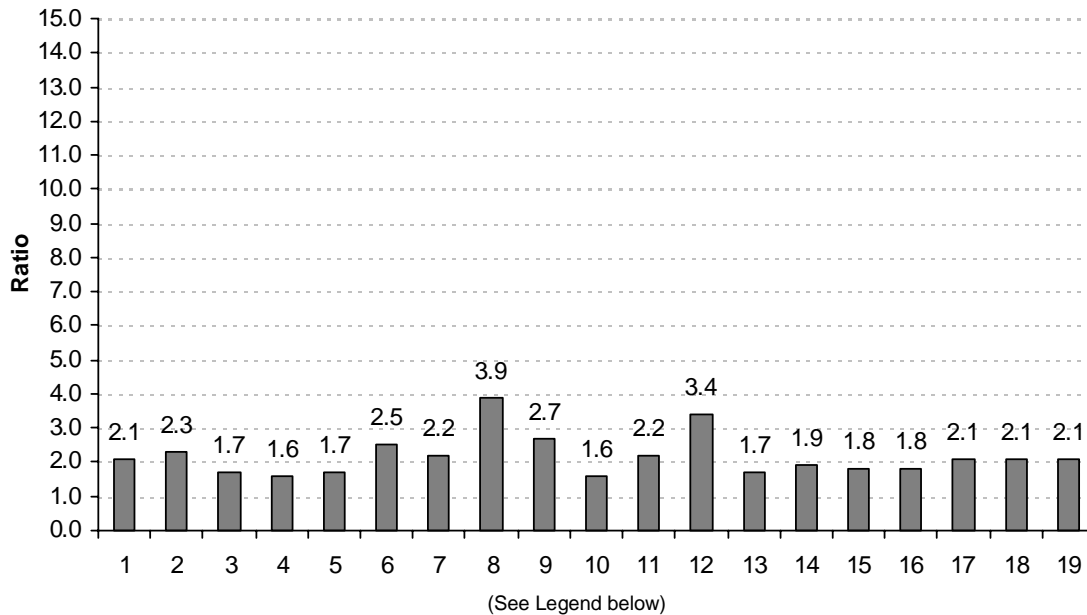
- 1 Percentage of adults who reported that there was a time during the last 12 months when they needed to see a doctor but could not because of the cost, from Table 2, 2001 and 2003
- 2 Percentage of adults ever told by a doctor that they had diabetes, from Table 2, 2001-2003
- 3 Percentage of adults who were obese, from Table 2, 2001-2003
- 4 Diabetes death rate, from Table 3, 1999-2002
- 5 Septicemia death rate, from Table 3, 1999-2002
- 6 Nephritis/Nephrosis death rate, from Table 3, 1999-2002
- 7 Homicide death rate, from Table 3, 1999-2002
- 8 AIDS death rate, from Table 3, 1999-2002
- 9 Prostate cancer incidence rate, from Table 5, 1996-2000
- 10 HIV case rate, from Table 6, 1998-2002
- 11 Sexually transmitted disease rate, from Table 6, 1998-2002
- 12 Teen pregnancy rate, from Table 7, 1998-2002
- 13 Percentage low birth weight, from Table 8, 1998-2002

**Figure 1 (continued)**  
**Areas of Large Health Disparities between African Americans and Whites:**  
**Ratio of African-American Measure to White Measure**  
**North Carolina Residents**



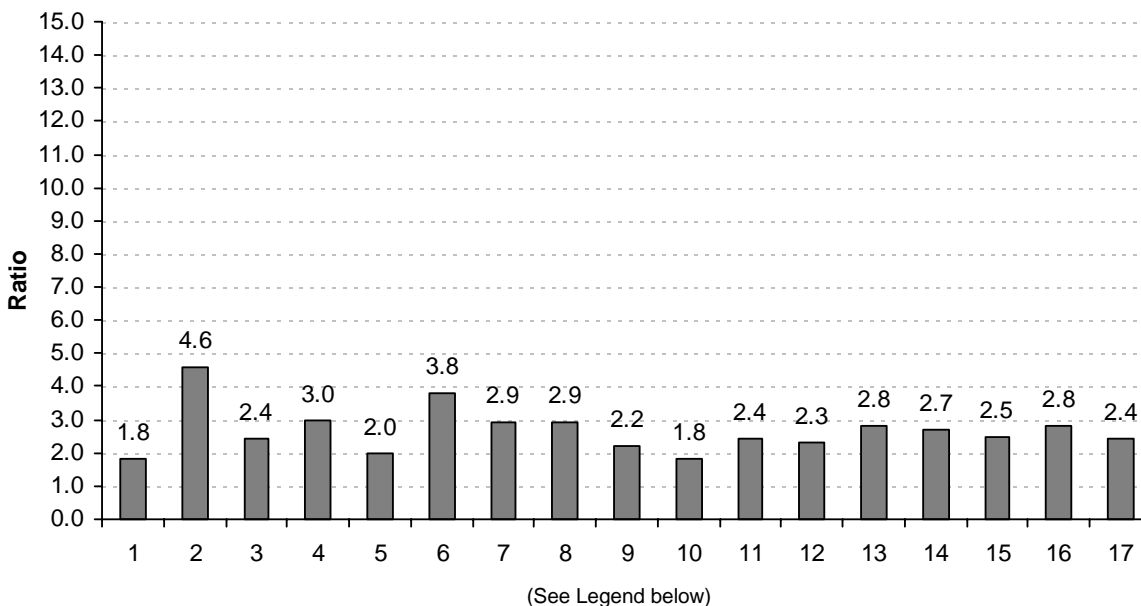
- 14 Percentage who began prenatal care after the first trimester, from Table 8, 1998-2002
- 15 Infant death rate, from Table 8, 1998-2002
- 16 Percentage reporting pregnancy was unintended, from Table 9, 1997-2001
- 17 Percentage where mother did not breastfeed at all, from Table 9, 1997-2001
- 18 Percentage of live births with family income less than \$14,000, from Table 9, 1997-2001
- 19 Percentage where mother reported that she did not start prenatal care during first trimester, from Table 9, 1997-2001
- 20 Percentage where mother reported physical abuse during pregnancy, from Table 9, 1997-2001
- 21 Percentage of middle school students who reported that they did not engage in vigorous exercise during the past seven days, from Table 11, 2003
- 22 Percentage of middle school students who reported that they did not have a physical exam during the past two years, from Table 11, 2003
- 23 Percentage of middle school students who reported that they did not see a dentist during the past year, from Table 11, 2003
- 24 Percentage of high school students who reported that they ever had sexual intercourse, from Table 12, 2003
- 25 Percentage of high school students who reported that they have ever been pregnant or gotten someone pregnant, from Table 12, 2003
- 26 Percentage of high school students who reported that they did not see a dentist during the past year, from Table 12, 2003

**Figure 2**  
**Areas of Large Health Disparities between American Indians and Whites:**  
**Ratio of American Indian Measure to White Measure**  
**North Carolina Residents**



- 1 Percentage of adults who reported that they had no health care coverage, from Table 2, 2001-2003
- 2 Percentage of adults who reported that there was a time during the last 12 months when they needed to see a doctor but could not because of the cost, from Table 2, 2001 and 2003
- 3 Percentage of adults ever told by a doctor that they had diabetes, from Table 2, 2001-2003
- 4 Percentage of adults who reported that they engaged in no physical activities or exercise in the past month, from Table 2, 2001-2003
- 5 Percentage of adults who reported that they never had their blood cholesterol checked, from Table 2, 2001 and 2003
- 6 Diabetes death rate, from Table 3, 1999-2002
- 7 Motor vehicle injury death rate, from Table 3, 1999-2002
- 8 Homicide death rate, from Table 3, 1999-2002
- 9 AIDS death rate, from Table 3, 1999-2002
- 10 Percentage of motor vehicle and other unintentional injury deaths with a blood alcohol level of .08 or greater, from Table 4, 1997-2001
- 11 HIV case rate, from Table 6, 1998-2002
- 12 Sexually transmitted disease rate, from Table 6, 1998-2002
- 13 Percentage who smoked during pregnancy, from Table 8, 1998-2002
- 14 Percentage who began prenatal care after the first trimester, from Table 8, 1998-2002
- 15 Infant mortality rate, from Table 8, 1998-2002
- 16 Percentage reporting that pregnancy was unintended, from Table 9, 1997-2001
- 17 Percentage where mother did not breastfeed at all, from Table 9, 1997-2001
- 18 Percentage of live births with family income less than \$14,000, from Table 9, 1997-2001
- 19 Percentage where mother reported that she did not start prenatal care during first trimester, from Table 9, 1997-2001

**Figure 3**  
**Areas of Large Health Disparities between Hispanics/Latinos and Whites:**  
**Ratio of Hispanic/Latino Measure to White Measure**  
**North Carolina Residents**



- 1 Percentage of adults who rated their health as fair or poor, from Table 2, 2001-2003
- 2 Percentage of adults who reported that they had no health care coverage, from Table 2, 2001-2003
- 3 Percentage of adults who reported that there was a time in the last 12 months when they needed to see a doctor but could not because of the cost, from Table 2, 2001 and 2003
- 4 Percentage of adults who reported that they did not visit a doctor for a routine checkup in the past two years, from Table 2, 2002
- 5 Percentage of adults who reported that they engaged in no physical activities or exercise in the past month, from Table 2, 2001-2003
- 6 Percentage of adults who reported that they never had their blood cholesterol checked, from Table 2, 2001 and 2003
- 7 Homicide death rate, from Table 3, 1999-2002
- 8 AIDS death rate, from Table 3, 1999-2002
- 9 Percentage of motor vehicle and other unintentional injury deaths with a blood alcohol level of .08 or greater, from Table 4, 1997-2001
- 10 Percentage of suicide deaths with a blood alcohol level of .08 or greater, from Table 4, 1997-2001
- 11 Cervical cancer incidence rate, from Table 5, 1996-2000
- 12 HIV case rate, from Table 6, 1998-2002
- 13 Sexually transmitted disease rate, from Table 6, 1998-2002
- 14 Teen pregnancy rate, from Table 7, 1998-2002
- 15 Percentage who began prenatal care after the first trimester, from Table 8, 1998-2002
- 16 Percentage of live births with family income less than \$14,000, from Table 9, 1997-2001
- 17 Percentage where mother reported that she did not start prenatal care during first trimester, from Table 9, 1997-2001



## Introduction

Health measures vary significantly along various demographic dimensions. Death rates increase dramatically with age and older people are more likely to experience health problems. Males have higher death rates than females for most of the leading causes of death. Persons of lower socioeconomic status (as measured by income, education, or occupation) generally have higher death rates and more health problems than persons of higher socioeconomic status.<sup>1</sup> Death rates and other health measures also vary substantially across racial and ethnic groups. The purpose of this study is to document health differences among the major racial and ethnic groups in North Carolina.

There has been considerable controversy about the appropriateness of examining racial differences in health. Some have gone so far as to call for abandoning race as a variable in public health research. They argue that race is an arbitrary system of visual classification without biological merit, and that demarcations by race largely reflect racism in our society.<sup>2</sup> The position taken here is that, though racial classification is imprecise and often based on self identification, there is some utility in describing racial differences in health. Racial classification has played and continues to play a major role in social stratification and in the allocation of economic resources, prestige, and power, which are key determinants of many of the observed racial and ethnic health disparities. Documenting these differences in health allows targeting of resources and health improvement programs toward populations most in need.

Race is considered as a **marker** of health problems, not as a risk factor or cause. We do not have a complete understanding of why race is associated with health problems, but low socioeconomic status, stress, and racism are among the underlying causes of the poorer health status of minorities (on average) compared to whites. However, few of our health data systems gather information on these other factors, while most do have information on race. Thus, race often serves as a surrogate measure for a variety of other factors.

This descriptive study presents various health statistics for major racial and ethnic groups in North

Carolina: white, African American, American Indian, and Asian (these are racial groups) and Hispanic/Latino (an ethnic group). We generally use the term Hispanic/Latino to designate ethnicity, though sometimes the terms Hispanic or Latino are used. Race and ethnicity are reported separately in most North Carolina health records. Hispanics may be counted in any of the racial groups. In this report, the tabulations by race include persons of both Hispanic and non-Hispanic ethnicity. The term African American is used in this report for all people who identify themselves as black. Though some black people in North Carolina may not identify themselves as African American (e.g., someone from Haiti), we use the terms interchangeably in this report.

We do not attempt to determine the reasons for the racial and ethnic differences that are observed here. The formulation of policies or programs that might reduce disparities in health, while certainly needed and important, is not addressed here. We hope that the information presented in this report will inform North Carolina residents about racial and ethnic disparities in health, and assist in the development of measures to improve the health of minority populations in North Carolina and thus reduce the disparities.

## Methods

The State Center for Health Statistics often publishes data by race for only two groups: “white” and “minority.” We appreciate the need for more detail on race, such as for American Indians and Asians. But several obstacles have hampered efforts to obtain accurate health measures for these populations. A small number of health events in the numerator of a rate leads to unstable rates, a situation frequently encountered for the smaller minority groups. Also, detailed population data by race are collected only every ten years in the Census. In other years, the North Carolina Office of State Planning produces official annual population estimates only for “white” and “other.” Therefore, the appropriate denominators to produce rates for small racial groups have not been routinely available. Hispanic/Latino is an ethnic group, rather than a racial group, and Hispanics may be counted in any of the racial categories. Even in Census years there is concern about undercounting this population.

With recent rapid growth of the Latino population in North Carolina, estimates for non-Census years are problematic.

In this publication, we have tried to address these problems. We look at data for whites, African Americans, American Indians, Asians, and Hispanics/Latinos. In order to increase the numbers of health events in the numerators of the rates, analyses are presented for the state as a whole. Also, several years of data are combined to compute multi-year (average annual) rates. In many cases, we calculate rates for the period 1998-2002. For the denominators of the population-based rates, we have used “bridged” population files, developed by the National Center for Health Statistics, which include estimates for detailed race and age groups as well as for Hispanic origin.<sup>3</sup> In these files, the multiple-race population reported in the 2000 Census has been converted or bridged to single-race categories for the 2000, 2001, and 2002 population estimates. This makes these years of data more comparable to the 1998 and 1999 population data and to the single-race data collected from vital records.

The population estimates used in the first edition of this report<sup>4</sup> (November 2000) were much too low for the Hispanic/Latino population in North Carolina, leading to artificially high death rates for this group. The first report was published before the more accurate 2000 Census data became available. The population-based rates in this 2004 report use projections from the 2000 census population in the denominator and will therefore usually be considerably lower than the Hispanic/Latino rates presented in the previous report. Also, the cause-specific death rates in the previous report were categorized according to the 9<sup>th</sup> revision of the International Classification of Diseases (ICD), while the rates in the present report are categorized according to the 10<sup>th</sup> revision. North Carolina began using the 10<sup>th</sup> revision of the ICD for coding causes of death in 1999, so the death rates in this report are for the period 1999-2002. Because of the differences in the population estimates and in the ICD coding system for deaths, the death data in this report are not directly comparable to those in the previous report.

There are serious concerns about the accuracy of the data for the smaller minority groups. A study by the National Center for Health Statistics found that

rates tend to be biased in two directions: upward due to undercounting of the population in the denominator, and downward due to undercounting of health events in the numerator. This study found that the net effect of these two biases was fairly small for whites and African Americans, but that officially reported rates for American Indians and Asians were too low by 20 and 10 percent, respectively.<sup>5</sup> No attempt is made in the present study to adjust the calculated rates for underreporting, but the reader should keep in mind the potential inaccuracies of the data.

Several statewide health databases are used in this study to portray racial and ethnic differences in health in North Carolina. Databases were required to include codes for both race and ethnicity, with a small percentage of missing values. Death rates for the leading causes of death were computed using death certificate data. Data from the Office of the Chief Medical Examiner were used to portray the involvement of alcohol in injury-related deaths. Cancer incidence records were used to produce rates of new cases of cancer for the major cancer sites. The report looks at HIV and sexually transmitted disease cases and rates. Teen pregnancy rates are presented. Birth certificates were used to compare measures such as the percentage of low birth weight, the percentage of mothers who smoked during pregnancy, and the percentage of mothers who began prenatal care after the first trimester. Infant death rates were calculated by race and ethnicity. The report examines racial and ethnic differences in the rates of major types of birth defects using data from the North Carolina Birth Defects Monitoring Program. Finally, North Carolina Youth Risk Behavior Survey data were used to describe health risk factors among middle school and high school students. Hospital discharge data were considered for computing hospitalization rates, but with nearly one-third of those records missing information on race, the data were not deemed reliable enough for this study.

Two major survey databases were used for this study. The Behavioral Risk Factor Surveillance System (BRFSS) is an ongoing random telephone survey of approximately 9,000 North Carolina adults each year. The BRFSS asks questions about behaviors and health issues that affect the major causes of illness and death. The BRFSS was conducted in both

English and Spanish in 2002 and 2003. We use BRFSS data for the period 2001-2003. The Pregnancy Risk Assessment Monitoring System (PRAMS) is a statewide random mail and telephone survey of approximately 1,800 women each year who have recently given birth. Questions are asked about maternal and infant health risks. We use PRAMS data for live births occurring from July 1, 1997 through December 31, 2001. PRAMS was conducted in both English and Spanish during this time period.

In most cases we present the number of events in the numerator, as well as the rates and percentages. As a general rule, rates or percentages are not considered statistically reliable if the numerator has fewer than 20 events. The numbers are sometimes not large enough to produce reliable rates for American Indians, Asians, and Latinos, even when combining several years of data. Though the rates are based on a complete count of events rather than a sample, there is still random error with small numbers.<sup>6</sup> A few events added or deleted could result in important rate changes, not necessarily indicative of a real change in the situation. With 20 events in the numerator, a rate or percentage will have a margin of error of approximately plus or minus 45 percent of the rate or percentage. For example, with 20 deaths from suicide out of a population of 150,000, the suicide death rate would be 13.3 per 100,000 population. The 95 percent confidence interval for this rate would be 13.3 plus or minus 5.8. Stated another way, we are 95 percent sure that the true suicide death rate for this population is between 7.5 and 19.1.

In comparing the death rates and cancer incidence rates among racial and ethnic groups, it is very important to adjust for age.<sup>7</sup> Chronic diseases occur with much higher frequency in the older age groups, and the age distribution of a population will have a strong influence on these rates. For example, the African American population in North Carolina has proportionately more persons in the younger age groups than the white population. As a result, the unadjusted death rate for African Americans (for total deaths) is approximately equal to that for whites, despite the fact that the death rates are higher for African Americans in each age category. After adjustment for age, the overall African American death rate is 30 percent higher than that for whites. The Latino population in North Carolina is

especially young, and so it is important to age-adjust rates before making comparisons. In this report, the projected 2000 United States population is used as the standard for age adjustment, in keeping with the conventions of the National Center for Health Statistics. The age-adjusted rates show what the rates **would be** if the racial or ethnic group had the same age distribution (in percentage terms) as that for the United States in 2000, without changing the age-specific death rates for that population.

In North Carolina each infant death certificate is matched to that baby's live birth certificate. The rate of successful matches is more than 99 percent. This linked birth/infant death file permits analysis of infant mortality by items present on the birth certificate, such as mother's age, mother's education, or maternal smoking during pregnancy (information that is not on the death certificate). Race and ethnicity are captured independently on both the birth and infant death records. For whites and African Americans, the agreement between the race codes is good (less than 5 percent discrepancy), but for other racial and ethnic groups the agreement is not as good. During 1998-2002, for example, there were 347 infant deaths where the mother's ethnicity was recorded as Latino on the matching birth certificate, compared to 316 infant deaths where Latino ethnicity was recorded on the death certificate (a difference of about 10 percent). Mother's race and ethnicity on the birth certificate are likely to be more accurate since they are usually reported by the mother at the time of delivery. Race and ethnicity on the death certificate are reported by a funeral director based on information supplied by a family member or other informant, or in the absence of an informant, based on observation. Using the linked birth/infant death file for infant mortality analyses, we have assigned mother's race and ethnicity from the birth certificate to both the births (denominator) and infant deaths (numerator), thus reducing the problem of misclassification of race and ethnicity on the infant death certificates.

There is serious concern about the accuracy of the recording of Latino ethnicity on the death and cancer incidence records. For example, the age-adjusted death rate (all causes) for the Latino population in 1998-2002 was less than one-half the age-adjusted death rate for the total North Carolina population. This suggests potentially serious

underreporting of Latino deaths. One factor may be that as Latino persons in North Carolina become seriously ill, particularly if they are of Mexican origin, they may return to their country of origin for the final period of life. Thus, no death certificate would be recorded in North Carolina. Another factor that may lower death rates and cancer incidence rates among Latinos (and perhaps among Asians) in North Carolina is the “healthy migrant effect.” This results from the fact that persons who emigrate tend to be healthier than persons who stay in their community of origin.

In an attempt to improve the ascertainment of Latino health events, we have used the approach of surname matching. From the United States Bureau of the Census, we obtained a list of the 639 most frequently occurring heavily Hispanic surnames.<sup>8</sup> The Census Bureau determined that persons with those surnames represent more than two-thirds of the Hispanic origin population, and that nearly 95 percent of persons with those surnames identified themselves as Hispanic in the 1990 Census. By matching these names to the death and cancer incidence records, we were able to identify additional Latino health events. This matching process increased the number of death and cancer incidence records identified as Latino by approximately one-half and one-third, respectively, compared to using only the Latino ethnicity code on the records. We then treated as Latino those records where there was either a Latino ethnicity code on the record **or** where there was a matching Hispanic surname. There are some limitations of matching Hispanic surnames. For example, women who have a Hispanic surname only through marriage will be identified as Latino. However, these errors are small in comparison to the additional records that are correctly identified as Latino through surname matching.

## Results

### *Population*

Table 1 shows the population in North Carolina by race and ethnicity for 1990 and 2000, as estimated by the Census Bureau. The Asian and Hispanic/Latino populations, in particular, increased substantially from 1990 to 2000.

<b>Race</b>	<b>1990</b>	<b>2000</b>
White	5,052,436	6,037,509
African American	1,469,503	1,775,634
American Indian	81,199	106,635
Asian	53,871	129,535
<b>Ethnicity</b>		
Hispanic/Latino	77,480	378,963
<b>TOTAL</b>	<b>6,657,009</b>	<b>8,049,313</b>

NOTE: In the 1990 census only one race was reported while in the 2000 census people could report more than one race. The 2000 population data in this table have been “bridged” to single race groups to be more comparable to the 1990 population data and to the single race data from vital records.

### *Risk Factors Among Adults (from the BRFSS)*

Table 2 presents selected measures from the BRFSS, a random telephone survey of adults in North Carolina. By combining three years of data (2001-2003), and due to the much larger BRFSS sample sizes in these years compared to previous years, we were able to produce estimates for American Indians, Asians, and Hispanics/Latinos, as well as for whites and African Americans. In general, African Americans reported higher levels of risk factors than whites, particularly for no health care coverage, diabetes, lack of exercise, obesity, and high blood pressure. In contrast, African Americans reported that they were less likely than whites to have not visited a doctor for a routine checkup in the past two years, less likely to smoke (though this difference was small), and somewhat less likely to have been told by a doctor that they had arthritis.

Compared to whites, American Indians reported considerably higher percentages of fair or poor health, no health care coverage, diabetes, smoking, lack of exercise, never having had their blood cholesterol checked, and disability. In general, the numbers were too small to make reliable statements about the relative health status of Asians, though most percentages were lower than those for whites. An exception is that a substantially higher percentage of Asians reported that they never had their blood cholesterol

**Table 2**  
**Percentages of Survey Respondents with Selected Risk Factors**  
**From the Behavioral Risk Factor Surveillance System (BRFSS) by Race and Ethnicity**  
**North Carolina Adults, 2001-2003**

	Year(s)	White	African American	American Indian	Asian	TOTAL	Hispanic/Latino
Health was fair or poor	01-03	17.2	22.5	26.1	11.0*	18.7	31.6
No health care coverage	01-03	12.8	18.3	26.5	11.0	15.9	58.9
There was a time during the last 12 months when they needed to see a doctor but could not because of the cost	01 & 03	11.1	17.4	25.1	16.8*	13.1	26.8
Did not visit a doctor for a routine checkup in the past 2 years	02	13.7	7.3	10.6	13.4*	14.0	41.1
Ever told by a doctor that they had diabetes (excluding women told only during pregnancy)	01-03	6.7	11.0	11.6	4.8*	7.4	2.4
Had one or more permanent teeth removed because of tooth decay or gum disease	01-02	51.4	63.1	60.2	31.8	53.1	46.3
Current smoker	01-03	26.5	22.7	36.0	12.7	25.7	20.8
Engaged in no physical activities or exercise in past month	01-03	23.9	33.9	38.1	25.7	26.9	48.8
Obese (Body Mass Index > = 30)	01-03	20.9	36.0	26.6	3.5*	23.5	19.8
Ever told by a doctor that they had high blood pressure	01 & 03	26.8	37.8	26.4	7.0*	28.1	9.1
Never had their blood cholesterol checked	01 & 03	17.9	23.8	30.4	47.2	21.2	68.2
Ever told by a doctor that they had arthritis	01-03	28.3	26.0	31.8	6.0*	27.0	11.4
Someone ever forced them to have sex or do sexual things since they were 18 years old	01 & 02	5.7	6.3	8.1	10.0*	5.9	3.7*
Percent with some type of disability (self-perceived, activity limitation, special equipment, or problem learning etc.)	01-03	25.6	27.5	33.4	9.0*	25.4	13.0
<b>Total Number of Survey Respondents</b>	<b>01-03</b>	<b>16,703</b>	<b>4,065</b>	<b>488</b>	<b>180</b>	<b>22,162</b>	<b>635</b>

NOTE: Percentages are weighted to reflect the total population of North Carolina adults.  
\*Percentage is based on less than 20 events in the numerator.

checked, compared to whites. Compared to whites, Hispanics/Latinos had much higher percentages who reported that their health was fair or poor, they had no health care coverage, there was a time during the last 12 months when they needed to see a doctor but could not because of the cost, they did not visit a doctor for a routine checkup in the past two years, they engaged in no physical activities or exercise in the past month, and they never had their blood cholesterol checked. These BRFSS percentages are not adjusted for age, and so the much younger age of Hispanics/Latinos in North Carolina is not controlled for in these results.

Beginning in 2002, the BRFSS was conducted in Spanish as well as English. We have found that the results for Spanish-speaking and English-speaking Hispanics are dramatically different for some of the risk factors, so the results for Hispanics presented in this report may be different from those in previous reports due to the large numbers of Spanish-speaking Hispanics included in the 2002 and 2003 BRFSS data. In 2002 and 2003, more than half of the Hispanic BRFSS respondents completed the survey in Spanish. While the numbers of respondents were not large enough to break out all of the BRFSS results for Hispanics in Table 2 into the two categories, following are some areas where the differences were especially large:

- 13.6 percent of English-speaking Hispanics reported that their health was fair or poor, compared to 38.4 percent of Spanish-speaking Hispanics
- 31.8 percent of English-speaking Hispanics reported that they did not have health care coverage, versus 69.1 percent of Spanish-speaking Hispanics
- 27.5 percent of English-speaking Hispanics reported that they smoked cigarettes, compared to 18.3 percent of Spanish-speaking Hispanics
- 28.1 percent of English-speaking Hispanics reported that they did not engage in any physical activity in the past month, compared to 56.5 percent of Spanish-speaking Hispanics
- 45.5 percent of English-speaking Hispanics reported that they never had their blood cholesterol checked, compared to 76.3 percent of Spanish-speaking Hispanics

- 21.7 percent of English-speaking Hispanics reported that they were ever told by a doctor that they had arthritis, versus 7.6 percent of Spanish-speaking Hispanics.

### *Deaths*

Table 3 shows average annual age-adjusted death rates for 1999-2002 for the leading causes of death by race and ethnicity. In the first panel of the table, for all causes of death combined, African Americans have the highest death rate, followed by American Indians, whites, Hispanics/Latinos, and Asians.

Considering the particular causes of death in Table 3, the following patterns stand out:

- African American death rates are particularly elevated for stroke, diabetes, septicemia (infection of the bloodstream), nephritis (kidney disease), homicide, and AIDS. African American death rates are relatively low for chronic lung disease and suicide.
- American Indian death rates are especially high for diabetes, motor vehicle injuries, and homicide.
- Hispanics have low death rates for all of the chronic diseases, but relatively high death rates for motor vehicle injuries, homicide, and AIDS.
- Asians have low death rates for every cause of death shown in Table 3.

### *Alcohol Involvement in Injury-Related Deaths*

Table 4 presents data from the Office of the Chief Medical Examiner on blood alcohol levels among persons age 15 and older who died from unintentional injuries, homicide, and suicide. The Medical Examiners investigate all deaths in North Carolina in these three categories and perform blood ethanol tests on approximately 85 percent of the decedents. The data in Table 4 include only those deaths where a blood alcohol test was done. Adding the last two columns of the table, we see that the overall percentages of decedents who had a blood alcohol level of .08 or greater (the legal definition for intoxication) were 18 percent for unintentional injuries, 25 percent for homicide, and 18 percent for suicide. In

**Table 3**

**Number of Deaths and Age-Adjusted Death Rates  
(per 100,000 Population)  
By Race and Ethnicity and Cause of Death  
North Carolina Resident Deaths, 1999-2002**

Cause of Death	Race/Ethnicity	# Deaths 1999-2002	1999-2002
			Average Annual Age-Adjusted Death Rate*
All Causes	White	218,418	874.2
	African American	61,680	1,138.9
	American Indian	2,454	958.4
	Asian	804	374.4
	TOTAL	283,554	921.5
	Hispanic/Latino	2,421	410.6
Heart Disease	White	59,773	240.1
	African American	15,378	295.9
	American Indian	654	292.4
	Asian	139	75.0
	TOTAL	75,969	249.6
	Hispanic/Latino	244	87.0
Cancer	White	49,932	194.8
	African American	13,111	245.7
	American Indian	443	167.7
	Asian	206	90.3
	TOTAL	63,709	202.8
	Hispanic/Latino	280	89.2
Stroke	White	16,770	68.3
	African American	4,918	96.5
	American Indian	160	75.8
	Asian	68	42.0
	TOTAL	21,921	73.2
	Hispanic/Latino	89	33.2
Chronic Lung Disease	White	12,721	50.2
	African American	1,634	31.8
	American Indian	91	42.3
	Asian	11	8.7
	TOTAL	14,462	47.0
	Hispanic/Latino	26	10.3
Pneumonia & Influenza	White	6,135	25.2
	African American	1,281	25.2
	American Indian	49	25.0
	Asian	14	10.0
	TOTAL	7,481	25.2
	Hispanic/Latino	31	11.1

NOTES: Rates based on small numbers (<20) are unstable and should be interpreted with caution. The numbers by race add to less than the TOTAL due to deaths of unknown and "other" race.

\*Standard for age adjustment is U.S. 2000 population.

**Table 3 (continued)**

**Number of Deaths and Age-Adjusted Death Rates  
(per 100,000 Population)  
By Race and Ethnicity and Cause of Death  
North Carolina Resident Deaths, 1999-2002**

<b>Cause of Death</b>	<b>Race/Ethnicity</b>	<b># Deaths 1999-2002</b>	<b>1999-2002 Average Annual Age-Adjusted Death Rate*</b>
Diabetes	White	5,440	21.5
	African American	2,915	55.6
	American Indian	127	52.7
	Asian	26	17.5
	TOTAL	8,510	27.4
	Hispanic/Latino	49	18.1
Motor Vehicle Injuries	White	4,729	19.2
	African American	1,435	20.7
	American Indian	167	41.6
	Asian	56	12.9
	TOTAL	6,404	19.6
	Hispanic/Latino	501	28.3
Other Unintentional Injuries	White	5,792	23.5
	African American	1,380	22.7
	American Indian	75	20.5
	Asian	25	10.2
	TOTAL	7,286	23.2
	Hispanic/Latino	204	17.4
Suicide	White	3,339	13.3
	African American	383	5.4
	American Indian	33	7.3
	Asian	28	5.8
	TOTAL	3,786	11.6
	Hispanic/Latino	80	4.5
Septicemia (infection of the bloodstream)	White	2,994	12.0
	African American	1,249	24.0
	American Indian	36	15.3
	Asian	11	6.1
	TOTAL	4,291	14.0
	Hispanic/Latino	24	5.2
Nephritis/Nephrosis (kidney disease)	White	3,329	13.4
	African American	1,804	34.9
	American Indian	50	20.7
	Asian	18	13.1
	TOTAL	5,202	17.1
	Hispanic/Latino	16	4.1

NOTES: Rates based on small numbers (<20) are unstable and should be interpreted with caution. The numbers by race add to less than the TOTAL due to deaths of unknown and "other" race.

\*Standard for age adjustment is U.S. 2000 population.



**Table 3 (continued)**

**Number of Deaths and Age-Adjusted Death Rates  
(per 100,000 Population)  
By Race and Ethnicity and Cause of Death  
North Carolina Resident Deaths, 1999-2002**

<b>Cause of Death</b>	<b>Race/Ethnicity</b>	<b># Deaths 1999-2002</b>	<b>1999-2002 Average Annual Age-Adjusted Death Rate*</b>
Chronic Liver Disease & Cirrhosis	White	2,291	8.9
	African American	635	10.5
	American Indian	31	8.7
	Asian	7	3.2
	TOTAL	2,964	9.2
	Hispanic/Latino	21	3.8
Homicide	White	1,144	4.6
	African American	1,266	17.0
	American Indian	82	18.1
	Asian	20	4.4
	TOTAL	2,522	7.6
	Hispanic/Latino	262	13.3
AIDS	White	384	1.5
	African American	1,462	21.4
	American Indian	16	4.0
	Asian	2	0.3
	TOTAL	1,867	5.7
	Hispanic/Latino	39	4.4

NOTES: Rates based on small numbers (<20) are unstable and should be interpreted with caution. The numbers by race add to less than the TOTAL due to deaths of unknown and "other" race.  
\*Standard for age adjustment is U.S. 2000 population.

**Table 4**

**Number Tested for Alcohol and Blood Alcohol Levels in North Carolina Deaths from Unintentional Injuries, Homicide, and Suicide By Race and Ethnicity, 1997-2001 (Age 15 and Older Only)**

	Number Tested for Alcohol	Percent 0.0	Percent .01-.07	Percent .08-.15	Percent .16 or More
<b><i>Motor Vehicle and Other Unintentional Injury Deaths</i></b>					
White	10,399	79.7	4.1	5.9	10.4
African American	3,146	72.0	6.1	7.3	14.6
American Indian	237	69.2	5.1*	9.7	16.0
Asian	53	88.7	1.9*	1.9*	7.6*
TOTAL	14,337	77.1	4.6	6.5	11.8
Hispanic/Latino	740	57.3	6.5	12.6	23.6
<b><i>Homicide</i></b>					
White	1,264	65.3	9.1	12.3	13.3
African American	1,675	65.1	12.4	12.4	10.1
American Indian	103	55.3	14.6*	13.6*	16.5*
Asian	10	90.0*	10.0*	0.0*	0.0*
TOTAL	3,264	63.9	11.4	12.6	12.1
Hispanic/Latino	298	47.3	13.8	16.4	22.5
<b><i>Suicide</i></b>					
White	4,080	75.0	6.2	8.4	10.4
African American	461	77.4	9.8	6.1	6.7
American Indian	45	64.4	6.7*	13.3*	15.6*
Asian	21	76.2*	14.3*	9.5*	0.0*
TOTAL	4,669	75.0	6.6	8.3	10.1
Hispanic/Latino	91	54.9	11.0*	15.4*	18.7*

NOTES: Data are from the North Carolina Medical Examiner's Office. The numbers by race add to less than the TOTAL due to deaths of unknown and "other" race.

\*Percentage is based on less than 20 events in the numerator.

**Table 5**

**Number of Cancer Cases and Age-Adjusted Cancer Incidence Rates  
(per 100,000 Population)  
By Race and Ethnicity and Major Cancer Sites  
North Carolina Residents, 1996-2000**

	<b>Race/Ethnicity</b>	<b># Cases</b>	<b>Age-Adjusted Incidence Rate*</b>
<b>Total Cancer</b>	White	136,306	440.2
	African American	29,233	443.7
	American Indian	876	268.5
	Asian	701	279.0
	TOTAL	167,906	440.0
	Hispanic/Latino	1,235	338.4
<b>Female Breast Cancer (includes in situ) (denominator=female population)</b>	White	24,851	148.9
	African American	5,157	130.6
	American Indian	154	79.4
	Asian	145	72.0
	TOTAL	30,453	143.8
	Hispanic/Latino	242	130.4
<b>Prostate Cancer (denominator=male population)</b>	White	18,497	135.4
	African American	5,399	216.8
	American Indian	158	123.3
	Asian	66	87.9
	TOTAL	24,316	147.4
	Hispanic/Latino	101	96.9
<b>Lung Cancer</b>	White	22,362	71.2
	African American	4,207	65.2
	American Indian	145	45.7
	Asian	77	38.0
	TOTAL	26,833	70.1
	Hispanic/Latino	112	38.5
<b>Colon/Rectum Cancer</b>	White	14,770	48.0
	African American	3,364	52.6
	American Indian	75	24.2
	Asian	69	29.7
	TOTAL	18,353	48.8
	Hispanic/Latino	117	43.2
<b>Cervical Cancer (denominator=female population)</b>	White	1,307	8.3
	African American	513	12.7
	American Indian	23	10.7
	Asian	20	12.8
	TOTAL	1,880	9.0
	Hispanic/Latino	58	20.3

NOTE: The numbers by race add to less than the TOTAL due to cases of unknown race.

\*Standard for age adjustment is U.S. 2000 population.

general, blood alcohol levels were substantially higher for American Indian and Hispanic/Latino decedents (with the caveat that some of the percentages are based on small numbers).

### **Cancer Incidence**

Table 5 shows age-adjusted cancer incidence rates by race and ethnicity for 1996-2000, the latest period of available data. These are the average annual rates of new cases of cancer during this time period.

The general pattern is that whites and African Americans have the highest cancer incidence rates, with lower rates for the American Indian, Asian, and Hispanic/Latino groups. However, this pattern may be due in part to failure to accurately record race on the cancer incidence records of persons in these smaller minority groups. This problem of undercounting health events in the smaller racial and ethnic groups was discussed earlier. One exception is that Hispanics/Latinas have by far the highest rate of cervical cancer. Also, the cervical cancer rate for Asians, although based on a fairly small number of cases, is relatively high. This may reflect differences among Asian subpopulations. For example, cervical cancer rates for the Vietnamese

population have been shown to be higher compared to other Asian subgroups.<sup>9</sup>

The cancer incidence rates for whites and African Americans are generally very similar in magnitude, with the exception of prostate cancer, where the African American rate is 60 percent higher than the white rate, and cervical cancer, where the African American rate is 53 percent higher than the white rate. Though the age-adjusted incidence rate for total cancer for African Americans was only slightly higher than the rate for whites, the age-adjusted **death** rate for total cancer for African Americans was 26 percent higher than the rate for whites (see Table 3). This is due in part to cancer being diagnosed at a later stage of the disease among African Americans, on average, with survival being lower when diagnosis occurs at the later stages.

### **HIV and Sexually Transmitted Diseases**

Table 6 shows cases and rates for HIV and sexually transmitted diseases (STD) by race and ethnicity for the period 1998-2002. These data are from the HIV/STD Prevention and Care Branch of the North Carolina Division of Public Health. Health care providers are required to report new cases of sexually transmitted and certain other communicable diseases

	<b>HIV*</b>		<b>Sexually Transmitted Disease**</b>	
	<b>New Cases</b>	<b>Rate</b>	<b>New Cases</b>	<b>Rate</b>
White	1,822	6.5	49,909	172.0
African American	5,530	64.2	152,755	1,758.3
American Indian	69	14.5	2,890	580.6
Asian	36	6.2	1,433	243.5
TOTAL	7,795	19.4	207,269	515.0
Hispanic/Latino	279	14.7	9,055	477.9

\*Racial data are for white, non-Latino; African American, non-Latino; American Indian, non-Latino; and Asian, non-Latino.  
\*\*Includes chlamydia, gonorrhea, and early syphilis.

NOTE: Cases add to less than the TOTAL due to cases with unknown race.

to the State of North Carolina, although there is probably some degree of underreporting of these diseases. African Americans have by far the highest rates of HIV and STD, with American Indians and Hispanics/Latinos also having relatively high rates, compared to whites and Asians. The HIV incidence data show racial differences very similar to those found in the AIDS death data (Table 3). There were more than three new HIV cases in 1999-2002 for every AIDS death. The STD rates were disproportionately high among African Americans, American Indians, and Hispanics/Latinos compared to whites. This may be due in part to their greater use of public clinics, where reporting is more complete.

### **Teen Pregnancies**

Table 7 presents data on the numbers of reported teen pregnancies during 1998-2002 and the rate of pregnancies per 1,000 female population (ages 15-19) by race and ethnicity. These are reported pregnancies and include live births, induced abortions, and fetal deaths of 20 or more weeks gestation. Early fetal deaths (miscarriages) are not reported to the State of North Carolina. Hispanics/Latinas had a much higher teen pregnancy rate than whites and African Americans. American Indians also had relatively high rates. A rate for Asians could not be computed due to a data

incompatibility between the numerator and denominator.

### **Live Births and Infant Deaths**

The total number of live births in North Carolina increased from approximately 104,000 in 1990 to more than 117,000 in 2002. During this period, there were moderate increases in the numbers of births for whites (71,000 to 85,000) and American Indians (1,500 to 1,650), while the number of births to Asians nearly tripled from 1,100 to almost 3,000 and the number of Hispanic/Latino births increased 8.5 times from 1,750 to more than 15,000. The only group with a decline in the number of live births during this period was African Americans (31,000 to 28,000).

Table 8 shows data from the live birth certificates on maternal smoking during pregnancy, percentage low birth weight, and initiation of prenatal care. American Indians have a particularly high rate of smoking during pregnancy. African Americans, Asians, and Hispanics have smoking rates lower than average. African Americans and American Indians have the highest rates of low birth weight, while Hispanics have the lowest rate. Despite having the lowest percentage low birth weight, Hispanics have the highest percentage with late or

<b>Table 7</b>		
<b>Pregnancies and Pregnancy Rates for Teens Ages 15-19 By Race and Ethnicity North Carolina Residents, 1998-2002</b>		
	<b># Pregnancies* 1998-2002</b>	<b>1998-2002 Average Annual Pregnancy Rate**</b>
White	55,974	62.4
African American	36,998	103.0
American Indian	2,040	95.7
Asian	N.A.	N.A.
TOTAL	97,743	75.1
Hispanic/Latina	10,283	168.0

\*Reported pregnancies; includes live births, induced abortions, and fetal deaths of 20 or more weeks gestation.  
\*\*Rates are pregnancies per 1,000 female population ages 15-19.

**Table 8**

**Selected Health Indicators from  
Birth and Infant Death Certificates by Race and Ethnicity  
North Carolina Resident Live Births, 1998-2002**

	<b>Five-Year Number*</b>	<b>Percentage of All Live Births</b>
<b><i>Smoked During Pregnancy</i></b>		
White	63,386	15.2
African American	15,628	11.0
American Indian	2,149	25.3
Asian	351	2.6
TOTAL	81,514	14.0
Hispanic/Latino	965	1.6
<b><i>Low Birth Weight</i></b>		
White	30,064	7.2
African American	19,658	13.9
American Indian	886	10.4
Asian	1,071	7.8
TOTAL	51,679	8.9
Hispanic/Latino	3,712	6.2
<b><i>Began Prenatal Care After the First Trimester (Including Those with No Prenatal Care)</i></b>		
White	50,657	12.1
African American	34,170	24.1
American Indian	1,997	23.5
Asian	2,256	16.5
TOTAL	89,080	15.3
Hispanic/Latino	18,174	30.3
<b>Infant Deaths</b>	<b>Five-Year Number</b>	<b>Rate**</b>
White	2,641	6.3
African American	2,181	15.4
American Indian	95	11.2
Asian	81	5.9
TOTAL	4,998	8.6
Hispanic/Latino	347	5.8
<p>*Number of live births during the five-year period where the mother smoked, the birth was low birthweight, or there was late or no prenatal care.</p> <p>**Infant deaths per 1,000 live births.</p>		

**Table 9**  
**Percentages of Survey Respondents with Selected**  
**Maternal and Infant Health Risk Factors**  
**From the Pregnancy Risk Assessment Monitoring System (PRAMS)**  
**By Race and Ethnicity**  
**North Carolina New Mothers, July 1997 – December 2001**

	White	African American	American Indian	Asian	TOTAL	Hispanic/ Latina
Pregnancy was unintended (wanted later or not at all)	36.7	66.8	65.2	42.9	44.6	38.6
Mother did not take folic acid every day before pregnancy	71.2	84.7	86.2	69.9	74.7	82.3
Usual sleeping position for baby was on stomach or side	44.7	61.7	59.6	43.5	48.9	49.4
Mother did not breastfeed at all	29.9	55.9	61.5	23.5	36.5	12.8
Annual family income was less than \$14,000	22.7	45.5	47.0	14.0	28.2	63.1
Moderate or serious postpartum depression was reported	18.8	20.7	24.9	21.8	19.4	12.7
Mother smoked during last three months of pregnancy	15.8	8.3	21.3	4.0*	13.8	1.9*
Mother reported smoking at time of survey (2-5 months after delivery)	22.0	14.7	28.1	5.7*	20.0	3.6
Mother reported physical abuse before, during, or after pregnancy	7.9	13.7	10.2*	9.4*	9.4	9.4
Did not start prenatal care during 1st trimester	18.4	30.1	37.8	30.9	21.8	43.7
<b>Total number of survey respondents</b>	<b>5,300</b>	<b>2,357</b>	<b>138</b>	<b>140</b>	<b>7,935</b>	<b>553</b>

NOTE: Percentages are weighted to reflect the total population of North Carolina births.  
\*Percentage is based on less than 20 events in the numerator.

no prenatal care. All of the racial groups except whites have percentages of late or no prenatal care higher than average, especially African Americans and American Indians.

Table 8 also shows infant deaths and infant death rates by race and ethnicity for 1998-2002. Rates are substantially higher than average for African Americans and American Indians.

### ***Risk Factors Around the Time of Pregnancy (from PRAMS)***

Selected indicators of maternal and infant health risks are shown in Table 9. This information is from the PRAMS survey described earlier, where women are interviewed 2-5 months after the birth of a baby. By combining five years of data (1997-2001), we were able to produce estimates for American Indians, Asians, and Hispanics/Latinas, as well as for whites and African Americans. In a few cases where a percentage is based on a numerator of less than 20, the percentages are flagged with an asterisk. In general, African American women report higher levels of health risks than whites, particularly for unintended pregnancy, placing their baby to sleep on the stomach or side, not breastfeeding, low family income, physical abuse, and not starting prenatal care during the first trimester. In contrast, African American women reported substantially lower levels of smoking during and after pregnancy.

Compared to white women, American Indian women had higher risks in the areas of unintended pregnancy, not taking folic acid every day before pregnancy, placing their baby to sleep on the stomach or side, not breastfeeding, low family income, postpartum depression, smoking during pregnancy, smoking after delivery, and not starting prenatal care during the first trimester. Asian women had lower risks in almost every category, except they were more likely than white women to report that they did not start prenatal care during the first trimester. Table 9 shows considerably higher risks for Hispanic/Latina women, compared to white women, for not taking folic acid every day before pregnancy, low family income, and not starting prenatal care during the first trimester. Hispanic/Latina women had much lower rates of smoking during pregnancy and after delivery than all other groups, consistent with the data shown in Table 8.

For all of the racial and ethnic groups, the percentages in Table 9 for late or no prenatal care (reported by the mother) are substantially higher than the corresponding percentages in Table 8, which are based on information from the birth certificates. We do not know which is more accurate, maternal recall or the information recorded in the hospital on birth certificates.

### ***Birth Defects***

The North Carolina Birth Defects Monitoring Program provides a comprehensive ascertainment of new cases of major birth defects using birth certificates, hospital discharge data, abstraction of medical data from hospitals by field staff, and other sources. Table 10 shows the numbers of birth defects by racial and ethnic group and the corresponding rates per 10,000 live births for the period 1996-2000. On average, there are more than 5,000 babies born each year in North Carolina with a major birth defect. The overall rate of major birth defects is fairly consistent across each of the racial and ethnic groups, though somewhat higher among American Indian births and somewhat lower among Asian births. Also shown in Table 10 are the numbers and rates for four selected major birth defect subcategories. African Americans and Hispanics/Latinos have higher rates of central nervous system defects, African Americans and American Indians have higher rates of cardiovascular defects, American Indians and Asians have higher rates of orofacial clefts (though the numbers here are small and the rates may not be reliable), and Hispanics/Latinos have the highest rate of chromosomal defects. African Americans have a relatively low rate of orofacial cleft defects. The data in Table 10 for central nervous system defects include cases of neural tube defects. A previous study showed the rate of neural tube defects to be more than twice as high among Hispanics/Latinos compared to white non-Hispanics and African American non-Hispanics.<sup>10</sup>

### ***Youth Risk Factors***

The Youth Risk Behavior Survey (YRBS) is conducted every two years by the North Carolina Department of Public Instruction. The latest data available are for the spring of 2003, when approximately 2,000 middle school students and 2,500 high



**Table 10**

**Number and Rate (per 10,000 Live Births)  
of Infants with Birth Defects for All Major Defects  
and for Selected Subcategories, by Race and Ethnicity  
North Carolina, 1996-2000**

<b>Birth Defect</b>	<b>Race/Ethnicity</b>	<b>Five-Year Number</b>	<b>Rate</b>
All Major Defects	White	17,948	452.9
	African American	7,000	498.1
	American Indian	458	552.9
	Asian	413	355.1
	TOTAL	25,863	464.3
	Hispanic/Latino	1,953	456.2
Central Nervous System	White	1,142	28.8
	African American	515	36.6
	American Indian	24	29.0
	Asian	31	26.7
	TOTAL	1,732	31.1
	Hispanic/Latino	179	41.8
Cardiovascular	White	4,953	125.0
	African American	2,360	167.9
	American Indian	135	163.0
	Asian	105	90.3
	TOTAL	7,563	135.8
	Hispanic/Latino	603	140.9
Orofacial Clefts	White	688	17.4
	African American	161	11.5
	American Indian	18	21.7
	Asian	24	20.6
	TOTAL	894	16.0
	Hispanic/Latino	71	16.6
Chromosomal	White	887	22.4
	African American	297	21.1
	American Indian	13	15.7
	Asian	21	18.1
	TOTAL	1,230	22.1
	Hispanic/Latino	136	31.8

NOTE: Numbers of birth defects by race add to slightly less than the total due to cases of unknown and "other" race.

school students were interviewed. The State Center for Health Statistics was not able to combine several years of the YRBS data, and the 2003 numbers are not large enough to produce reliable estimates for racial and ethnic groups other than white and African American.

Table 11 shows the risk factors for middle school students. A surprising 20.4 percent of all middle school students reported that they ever seriously thought about killing themselves. This percentage was higher for African Americans than for whites. Other areas of racial differences are: African American students were substantially more likely than white students to report that they did not engage in vigorous physical exercise, did not have a routine check-up or physical exam in the past two years, did not see a dentist in the past year, and that their health was fair or poor.

Table 12 shows the YRBS results for high school students. More than 18 percent of high school students reported that they seriously considered attempting suicide during the past 12 months. White students were more likely than African American students to report that they smoked cigarettes, had five or more drinks of alcohol in a row during the past month, and considered themselves to have a disability. African American high school students were more likely than white high school students to report that they ever had sexual intercourse, have ever been pregnant or gotten someone pregnant, did not engage in vigorous physical exercise, and did not see a dentist in the past year.

## Discussion

The results of this study show generally poorer health among African Americans and American Indians in North Carolina, compared to whites, across a variety of measures. For American Indians, however, there is concern about the accuracy of the reporting of race on health records; the published statistics may substantially underestimate the level of health problems among American Indians. This underreporting is also likely an issue for Hispanic ethnicity. The measures of health problems for Hispanics are generally lower than those for whites, especially for chronic diseases. However, the very young age of the Hispanic/Latino population in North Carolina, the “healthy migrant effect,” and other factors may also contribute to low rates for

many of the causes of death and for other health problems in this group.

Figures 1, 2, and 3 show areas where there are large disparities in health measures for African Americans, American Indians, and Hispanics/Latinos, compared to whites. These charts summarize the data presented in the tables. The ratio of the measure for the minority group to the measure for whites is shown in these figures if it is greater than 1.5. African Americans exhibit a large number of substantial health disparities (Figure 1). American Indians have elevated rates for a variety of health indicators (Figure 2). Hispanics have substantially higher rates for 17 of the measures presented in this report (Figure 3). Health measures for Asians in North Carolina are much better than those for whites in almost every case. Exceptions are that Asians have a higher percentage of adults who reported that they never had their blood cholesterol checked (ratio = 2.6, from Table 2) and a higher percentage where the mother reported that she did not start prenatal care during the first trimester (ratio = 1.7, from Table 9).

The results from this report pertaining to American Indians in North Carolina are generally consistent with those from a report by the North Carolina Commission of Indian Affairs.<sup>11</sup> That report also found that the infant mortality rate was higher among American Indians, compared to the state average. It indicated that American Indians have a shorter life expectancy than the population as a whole and are more likely to have inadequate health care, poor nutrition, and high adult mortality rates. The report also indicated that, compared to whites, the American Indian population in North Carolina has higher death rates from heart disease, diabetes, and motor vehicle injuries.<sup>11</sup>

The results presented here have emphasized areas where minority groups have worse health problems than whites. Notable areas where minority groups are better off than whites in North Carolina are:

- smoking is lower among African Americans – in the general population of adults and particularly during pregnancy
- a lower percentage of African American adults report that they did not visit a doctor for a routine checkup in the past two years

**Table 11**

**Selected Results from the 2003 Youth Risk Behavior Survey:  
North Carolina Middle School Students**

	<b>Total</b>	<b>White</b>	<b>African American</b>
<b>Total Respondents</b>	<b>2,018</b>	<b>1,178</b>	<b>508</b>
<b>Percent</b>			
Ever seriously thought about killing yourself	20.4	18.0	24.0
Smoked cigarettes on one or more of the past 30 days	12.8	12.4	12.9
Had at least one drink of alcohol on one or more of the past 30 days	16.3	16.2	14.8
During the past 7 days, did not exercise or participate in physical activity for at least 20 minutes that made you sweat and breathe hard	10.8	7.7	16.0
Consider yourself to have a disability (physical, mental, emotional, or communication-related) (Note: 13 percent more were not sure if they had a disability)	12.6	12.0	12.2
During the past two years, did not see a doctor or health care provider for a check-up or physical exam when you were not sick or injured (Note: 22 percent more were not sure when they had their last check-up)	10.0	7.7	12.8
During the past year, did not see a dentist for a check-up, exam, teeth cleaning, or other dental work (Note: 16 percent more were not sure when they had their last check-up)	22.1	16.4	30.8
Rate your health as fair or poor	15.3	12.7	19.6

**Table 12**

**Selected Results from the 2003 Youth Risk Behavior Survey:  
North Carolina High School Students**

	<b>Total</b>	<b>White</b>	<b>African American</b>
<b>Total Respondents</b>	<b>2,553</b>	<b>1,528</b>	<b>622</b>
<b><i>Percent</i></b>			
Seriously considered attempting suicide during the past 12 months	18.1	18.8	15.7
Smoked cigarettes on one or more of the past 30 days	24.8	28.4	15.4
Had 5 or more drinks of alcohol in a row (within a couple of hours) during the past 30 days	21.0	25.6	10.3
Ever had sexual intercourse	52.5	44.1	72.4
Have ever been pregnant or gotten someone pregnant	5.5	2.8	11.6
During the past 7 days, did not participate in physical activity for at least 20 minutes that made you sweat and breathe hard	17.1	15.2	20.5
During the past 12 months, was threatened or physically abused (such as slapped, shoved, hit, or restrained) by someone you were dating or going out with	15.9	14.8	17.8
Consider yourself to have a disability (physical, mental, emotional, or communication-related) (Note: 9 percent more were not sure if they had a disability)	15.3	17.3	11.2
During the past two years, did not see a doctor or health care provider for a check-up or physical exam when you were not sick or injured (Note: 12 percent more were not sure when they had their last check-up)	13.3	13.3	12.3
During the past year, did not see a dentist for a check-up, exam, teeth cleaning, or other dental work (Note: 8 percent more were not sure when they had their last check-up)	26.9	22.3	35.3
Rate your health as fair or poor	19.5	18.2	20.8

- chronic lung disease and suicide death rates are lower among African Americans
- African American babies have a lower rate of orofacial cleft birth defects
- African American high school students are much less likely to report that they smoked or drank alcohol
- the suicide death rate and most cancer rates are lower for American Indians (though this could be partly due to misclassification of race on the death and cancer incidence records)
- the percentages for smoking during pregnancy and for low birth weight are lower among Hispanics/Latinos
- the infant mortality rate is lower among Hispanic/Latino births.

Several potential limitations of the data presented in this study were mentioned earlier in the Methods section. Another issue is the inconsistency in the way race and ethnicity are reported in the population data (denominator) versus the health data (numerator). Census data, on which the population estimates are based, rely on self-identification for race and ethnicity. For public health surveillance data, race and ethnicity are collected in a variety of methods, including direct interview, interviewer's observation, and reporting by health providers. For deaths, reporting may be based on observation by funeral directors or information from surviving family members or other informants. Although numbers obtained through self-identification and third-party observation for whites and African Americans generally agree, there are substantial differences for the smaller minority groups.<sup>12</sup> The measures based on the birth certificate and infant mortality data may be more reliable, since race and ethnicity in both the numerator and denominator is that reported by the mother at the time of delivery. Also, race and ethnicity are consistently classified in the numerators and denominators of the birth defects and Medical Examiner measures, as well the measures from the BRFSS, PRAMS, and YRBS surveys.

Given the opportunity to report their race in an open-ended format, North Carolinians describe their

race with hundreds of terms and concepts.<sup>13</sup> The racial data in this report are highly aggregated into only four broad groups. This aggregation is necessary to produce large enough numbers to yield reliable rates and percentages, but it should be noted that these are not by any means homogeneous groups and that health conditions may vary substantially among subgroups of each broad racial category. The "Asian" category in particular may be so heterogeneous as to have little meaning.<sup>13</sup>

We hope that the information presented in this report will inform North Carolina residents about racial and ethnic disparities in health, and will assist in the formulation of policies and programs in North Carolina to reduce these disparities. Ultimately, successful policies and programs will involve more than just efforts to encourage individuals to change their health behaviors. Sometimes there is a tendency to "blame the victim" for health disparities. Real progress in reducing health disparities will require systems changes that improve the socioeconomic status of minority groups, reduce racism in our society, increase access to prevention and early detection services, and improve environmental conditions that influence health.

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## References

1. Syme SL, Berkman LF. Social class, susceptibility, and sickness. *American Journal of Epidemiology* 1976; 104:1-8.
2. Fullilove MT. Comment: abandoning “race” as a variable in public health research – an idea whose time has come. *American Journal of Public Health* 1998; 88:1297-1298.
3. Ingram DD, Parker JD, Schenker N, et al. United States Census 2000 population with bridged race categories. *Vital and Health Statistics, Series 2, Number 135*. National Center for Health Statistics, Centers for Disease Control and Prevention, September 2003.
4. Center for Health Informatics and Statistics and Office of Minority Health. *Racial and ethnic differences in health in North Carolina*. North Carolina Division of Public Health, November 2000. (<http://www.schs.state.nc.us/SCHS/pubs/>)
5. Rosenberg HM, Maurer JD, Sorlie PD, et al. Quality of death rates by race and Hispanic origin: a summary of current research, 1999. *Vital and Health Statistics* 1999; Series 2, No. 128. Hyattsville: National Center for Health Statistics.
6. Buescher PA. Problems with rates based on small numbers. *Statistical Primer* 1997; No. 12. State Center for Health Statistics. (<http://www.schs.state.nc.us/SCHS/pubs/>)
7. Buescher PA. Age-adjusted death rates. *Statistical Primer* 1998; No. 13. State Center for Health Statistics. (<http://www.schs.state.nc.us/SCHS/pubs/>)
8. Word DL, Perkins RC. Building a Spanish surname list for the 1990’s – a new approach to an old problem. Technical Working Paper No. 13, March 1996. Washington DC: U. S. Bureau of the Census. (<http://www.census.gov/genealogy/www/spanname.html>)
9. Umar KB. Breaking cultural barriers: cervical cancer in Asian American and Pacific Islander women. *Closing the Gap* January/February 2004. Office of Minority Health, U.S. Department of Health and Human Services.
10. Buescher PA. A review of available data on the health of the Latino population in North Carolina. *North Carolina Medical Journal* 2003; 64:97-105.
11. North Carolina Commission of Indian Affairs. *American Indians in North Carolina: a profile of social and economic indicators*, 1999.
12. Centers for Disease Control and Prevention. Use of race and ethnicity in public health surveillance: summary of the CDC/ATSDR workshop. *Morbidity and Mortality Weekly Report* 1993; Vol. 42, No. RR-10.
13. Buescher PA, Gizlice Z, Jones-Vessey KA. Self-reported versus published data on racial classification in North Carolina birth records. *SCHS Studies*, No. 139. State Center for Health Statistics, North Carolina Division of Public Health, February 2004. (<http://www.schs.state.nc.us/SCHS/pubs/>)

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**MEDIA RATE**