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# STUDIES

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## HEALTH STATUS OF NATIVE AMERICANS IN NORTH CAROLINA

### ABSTRACT

Generally, the health of North Carolina's Native American population appears better than that of Blacks but worse than that of Whites. However, compared to both Whites and Blacks, the Native American population has experienced low abortion utilization (in total and for teenagers) and excesses in low maternal education, maternal smoking, and birth defects (especially musculoskeletal defects and hypospadias). In addition, Indian mothers in the reservation counties (Graham, Jackson, and Swain) are shown to experience excesses in young maternal age, death of a previous liveborn infant, diabetes, hypertension, and Cesarean section.

The state's Native American median age at death is particularly low for non-motor-vehicle unintentional injuries, liver disease/cirrhosis, and suicide. Disproportionate mortality at ages 1-24 and from diabetes and motor-vehicle-injuries is observed. Also, compared to others, the state's Native American decedents are more likely to be Dead on Arrival, to die as hospital outpatients, to have death certified by a medical examiner, and to be autopsied.

Compared to the Year 2000 national health objectives for Native Americans, the state's Native American population is experiencing a much lower proportion of prenatal care in the first trimester and excesses in infant mortality, diabetes-related mortality, homicide, and the tuberculosis case rate.

This study points out the need for oversampling of Native Americans in sample surveys, the collection of race in hospital discharge reporting, and more accurate reporting of race in general.



## HEALTH STATUS OF NATIVE AMERICANS IN NORTH CAROLINA

A serious disparity in the health status of minority persons versus other Americans continues to persist, prompting intensified efforts to understand the issues and narrow the gap. Such inequities as presently exist are clearly unacceptable.

A recent report<sup>1</sup> provides background for the State Center's current emphasis on minority health studies and examines census data for the state's minority groups. Those results are intended to describe the state's minorities in terms of *WHO* and *WHERE* and to set the stage for the present report and a corresponding one for Blacks.

This study was undertaken at the initial request of the North Carolina Commission of Indian Affairs. Meanwhile, funding from the Public Health Foundation and a grant-in-aid from the North Carolina Minority Health Council and the Office of Minority Health have enabled the State Center to undertake this and other minority studies and to establish a minority health surveillance system. The latter will allow for rapid update of minority health indices and trends in the future.

### TECHNICAL BACKGROUND AND NOTES

According to census enumerations, the state's Native American population grew by 45 percent during the 1970s and 24 percent during the 1980s, compared to statewide population increases of only 16 and 13 percent respectively. Such large increases for Indians would reflect one or more of the following:

- high levels of natural increase (excess of births over deaths),
- high levels of in-migration largely from other states, Canada, and Mexico,
- changing race-identity patterns whereby increased numbers of people are identifying themselves as Native Americans.

The matter of changing race-identity patterns cannot be quantified. Meanwhile, birth and death data suggest that natural increase accounted for 79 percent of the 1980 to 1990 increase for Indians while net in-migration accounted for 21 percent. These data may be confounded, however, by race classification differences among birth, death, and census data. It is known, for example, that race of a decedent is sometimes only the judgement call of a funeral director, whereas race information at birth is usually from the mother. Thus, race at death is probably less accurate than race at birth, and neither may represent race classifications reported in the census.

Previous studies of the health status of North Carolina's Native Americans<sup>2,3</sup> did not use population-based rates, since births, deaths, and other health events probably did not represent proper subsets of the denominators. This would be a problem for Indians in particular since those rates involve much smaller numbers than do White and Black rates.

Nevertheless, in the present investigation, it was deemed desirable to at least examine the population-based rates (properly adjusted for age distribution) and assess their reasonableness. Supporting rationale is that (1) movement toward identifying with the Indian race appears to be slowing and (2) as people have become more sensitive to matters of race, perhaps race classifications among health events (numerators) and census enumerations (denominators) are converging. Comparisons of race at birth and race at death among infant deaths suggest that funeral directors are more apt now than formerly to ascribe to a deceased infant the same race as reported by the mother at the infant's birth.

Age-adjusted by the direct method, the state's race-specific 1988-90 death rates for several leading causes of death were compared to those of the U.S. For heart disease, cancer, stroke, unintentional injuries, and homicide, the state's Native American death rates exceeded those for U.S. Native Americans. This suggests that, in general, underreporting of Native Americans on death certificates is at least no worse in N.C. than in the U.S. Thus, age-adjusted death rates are included in the mortality section of this report.

Regarding natality, the decision was made to present age-specific (ages 15-44 and 15-19) rather than age-adjusted rates. Either age-specific or age-adjusted rates are required because minority populations are much younger than Whites; thus, comparisons of crude rates among the races would be misleading in terms of relative risk.

For the population-based rates of this report, the population bases represent straight-line interpolations/extrapolations of the 1980 and 1990 censuses since intercensal population estimates are not produced for Native Americans. The census figures used for this purpose are from the 100-percent tabulations; other census results cited in this report may represent sample tabulations.

In the section on pregnancy and infant health, live births for 1990 and 1991 use the definition of a newborn's race as that of its mother. Prior to 1990 for North Carolina (1989 for the U.S.), the darker of the mother's and father's race (if different) was ascribed to the newborn at birth. For infant deaths, race of the decedent is that recorded on the death certificate.

In some of the tables of this report, data are shown separately for Native Americans residing in reservation and nonreservation counties; the former consist of Graham, Jackson, and Swain counties, home of the federally recognized Eastern Cherokee Reservation. Some tables also include data for 17 counties having sizable Native American populations (500 or more in 1990). In using these data for reservation and other selected counties, the user should keep in mind the statistical problem of small numbers of events; many of the rates or percentages may be associated with large random errors.

Small numbers and unrepresentativeness of Indian events preclude the use of some data that will appear in the corresponding report for Blacks. For example, 1990 cancer incidence reports to the Central Cancer Registry included only 85 Indian cases, Cumberland and Guilford counties did not report cancer incidence data, and Cherokee Indian Hospital appears to have underreported. Although attempts were made to obtain all hospital discharge data for Cherokee Indian Hospital, those data were not obtainable within the time frame of this report.

Throughout this report, reference is made to those Year 2000 national health objectives that are specific for Native Americans.<sup>4</sup> Although some of those may not be entirely appropriate for North Carolina, they at least identify areas in which North Carolina needs to examine available data. A complete list of the national objectives for Native Americans is found in Appendix 1.

A final note is that this report generally does not include trend data. This decision was based on the data problems associated with changing race-identity patterns and related inconsistencies between numerators and denominators over time. While these problems may not greatly affect the numbers and population-based rates for Whites and Blacks, they could definitely bias the data for American Indians, much of which is already subject to substantial random fluctuation.

Definitions for a number of the terms used in this report are found in the Glossary beginning on page 17. Note the race definitions on page 19 and that the terms "American Indian," "Indian," and "Native American" are used interchangeably in this report.

## POPULATION CHARACTERISTICS

At the time of the 1990 census, residents reporting race as Native American (American Indian) numbered 79,825 and represented 1.2 percent of the total N.C. population. Fifty-one percent lived in Robeson County and accounted for 39 percent of that county's population. Another eight percent lived in the Cherokee Reservation counties of Graham, Jackson, and Swain. Other counties with sizable Native American populations include Columbus, Cumberland, Guilford, Halifax, Hoke, Mecklenburg, Scotland, and Wake.

The previously cited report<sup>1</sup> examines a variety of census data for race and Hispanic subgroups of the state's population. For Blacks and Native Americans, health-related indicators from the 1990 census and the corresponding percent changes since 1980 are compared to those for Whites. Among the findings for Native Americans are these:

- The Native American population grew significantly during the last two decades, possibly due in part to a change in race-identity patterns reflecting heightened pride in the Native American culture and heritage.
- One-third of the 1980 to 1990 numerical increase in Native Americans occurred in Robeson County where the White population declined. A large increase in Native Americans and decline in Whites also occurred in Halifax.
- Population growth among Native Americans residing on land of the Eastern Cherokee Reservation (11.2%) was less than half that among nonreservation Native Americans (24.7%).
- Compared to Whites in 1990, the state's Native Americans were far more rural, far younger, and their males far more likely to be incarcerated.
- Native American incomes were slightly higher than those of Blacks but much below those of Whites. Poverty remains especially prevalent among Black and Native American families with children, especially those headed by a female.
- During the 1980s, female-headed families with children became increasingly more prevalent among minorities. In 1990, a White child was a third more likely than a Native American child to belong to a married-couple family.
- Low educational levels remain a particular problem of minorities, especially Native Americans.
- Unemployment remains a particular problem of minorities; in 1990, a Native American was 2.5 times as likely as a White to be unemployed.
- While Native American housing conditions remain much inferior to those of Whites, more Native Americans (two-thirds) than Blacks (one-half) owned their homes in 1990 and fewer Native American households (12%) than Black households (23%) had no vehicle.

- Native American women are more likely to be divorced but less likely to be widowed than either White or Black women.

Also included in the previous report are several census indicators for Native Americans residing on the Eastern Cherokee Reservation and in five tribal designated statistical areas. Copies of the report are available by calling or writing the State Center.

In Figure 1, shadings categorize census tracts (metropolitan counties) and block numbering areas (nonmetropolitan counties) according to the size of their 1990 Native American populations. The user will note that these county subdivisions vary widely in spatial size as they do also in total population size. Altogether, the state is comprised of a combined total of 1,492 census tracts and block numbering areas.

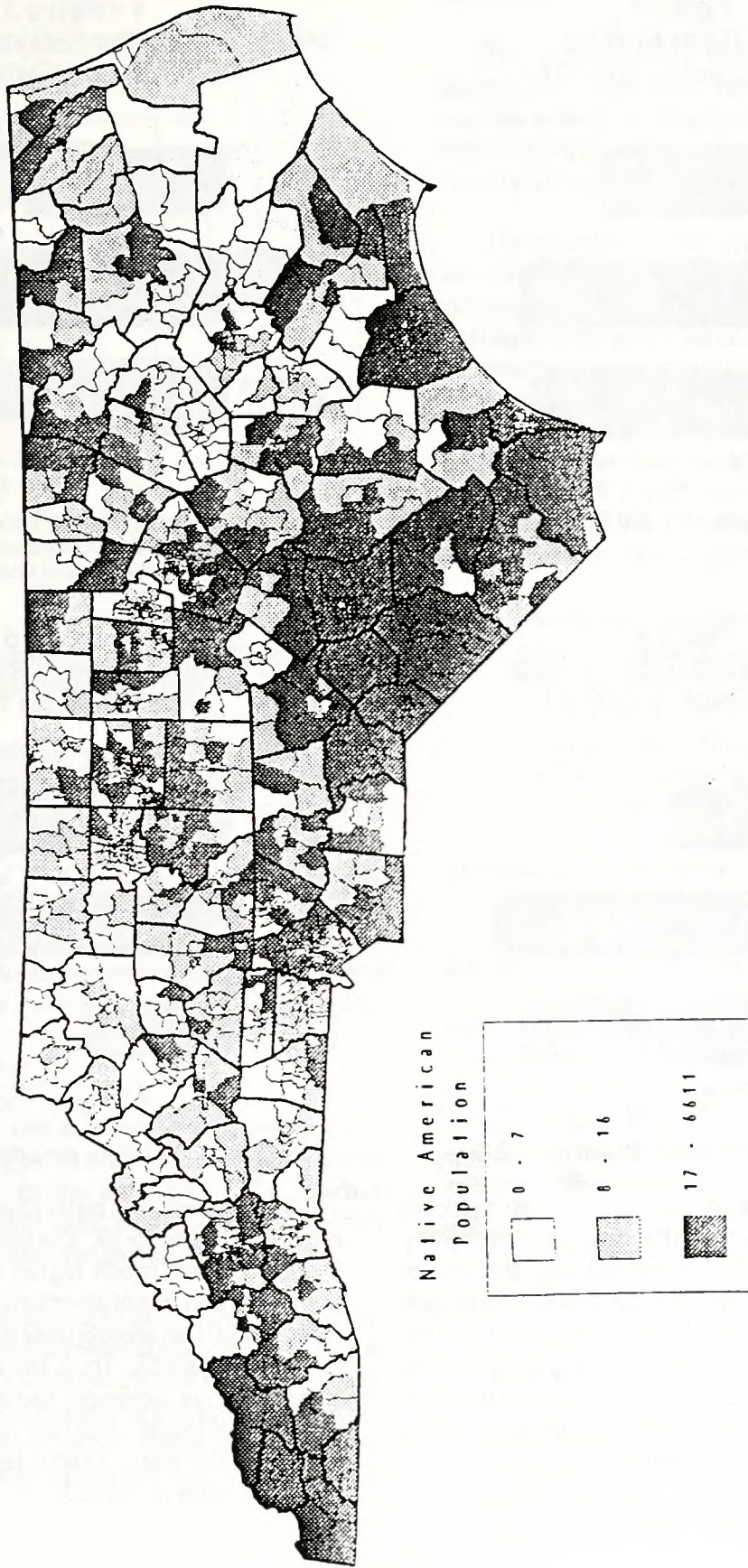
Finally, in examining the locations of North Carolina's Native Americans, Table 1 provides county-specific comparisons by race and Hispanic origin. The reader may obtain additional county-level detail by contacting one of 36 data centers where publicly accessible census products are maintained. The locations and telephone numbers of these centers are available from the State Data Center, Office of State Planning, at (919) 733-4131.

## MATERNAL AND INFANT HEALTH

### *Birth, Abortion, and Pregnancy Rates*

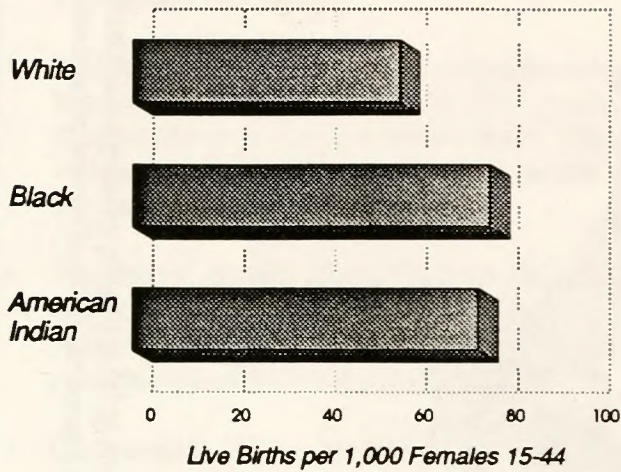
As shown by the rates of Table 2 and Figure 2, the 1987-91 birth rate for American Indians was about the same as that for Blacks and 30 percent higher than that for Whites. However, the abortion rate for Indians was below that for Whites and far below that for Blacks, as depicted in Figure 3. This low level of abortion use by Indians compared to Blacks has persisted over time<sup>3</sup> and is seen to involve virtually all of the counties of Table 2. The highest abortion rates for Indians occurred among Wake and Mecklenburg residents, with low use among Native Americans of Robeson County.

# Native American Population by Census Tract and Block Numbering Area

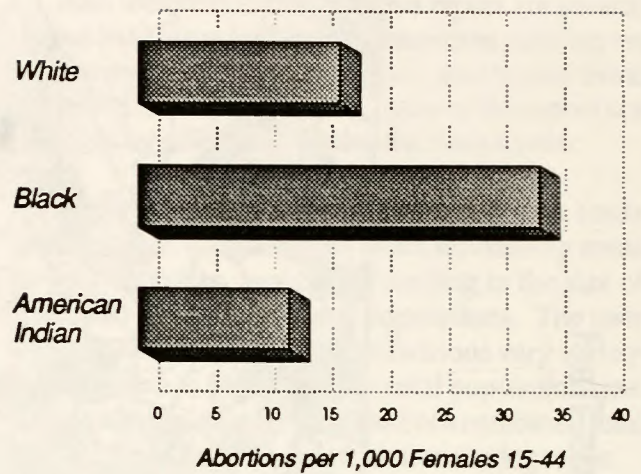


Source: U.S. Census 1990. Darker boundaries delineate counties; lighter boundaries are for census tracts (CTs) or block numbering areas (BNAs) (see Glossary, p. 17). Shadings depict the number of minority persons living in the CT or the BNA; the three categories are approximately equal in terms of the number of subdivisions (CTs and BNAs) represented.

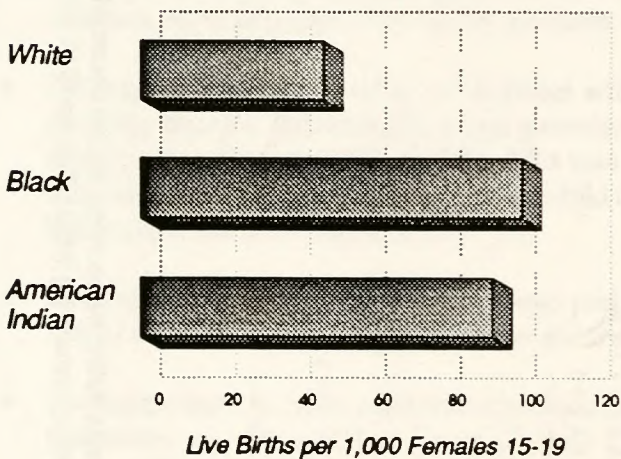
**Figure 2**  
**Birth Rates by Race**  
**North Carolina 1987-91**



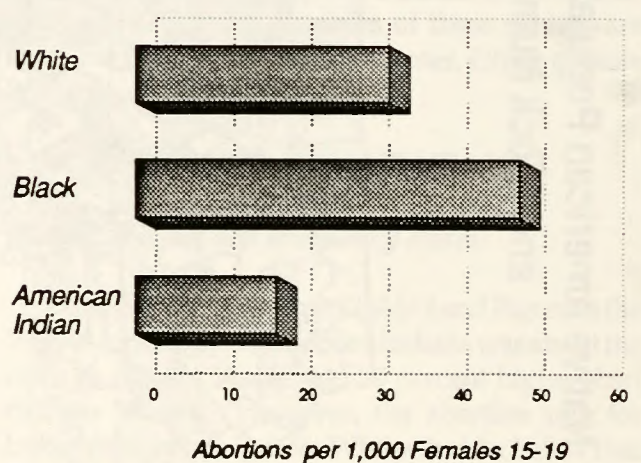
**Figure 3**  
**Abortion Rates by Race**  
**North Carolina 1987-91**



**Figure 4**  
**Teenage Birth Rates by Race**  
**North Carolina 1987-91**



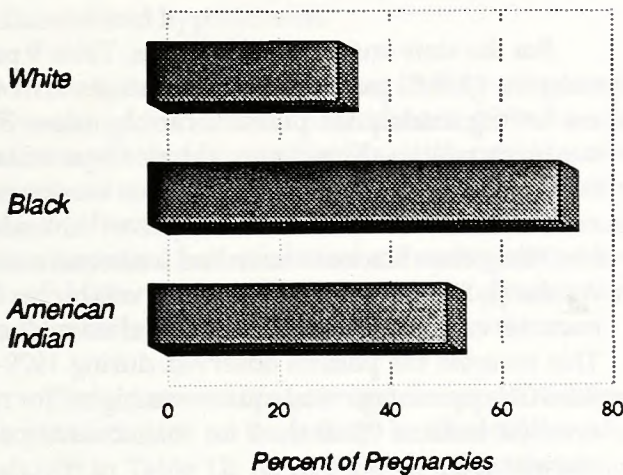
**Figure 5**  
**Teenage Abortion Rates by Race**  
**North Carolina 1987-91**



Teenage pregnancy remains a problem in North Carolina and nationwide as the rate of sexual activity among adolescents has increased and the age of initiation of sexual activity has declined.<sup>4</sup> Due to both economic and child health considerations, the Year 2000 health objective for teenage pregnancy focuses on reducing pregnancies among teenagers younger than age 18; unfortunately, Indian population bases for these ages are not available.

Table 3 examines birth, abortion, and pregnancy rates for females 15-19. The birth rates for Black and Indian girls are much higher than that for Whites (Figure 4), and use of abortion is much lower among Indian girls than among their Black and White counterparts (Figure 5). Thus, the statewide pregnancy rate for Native American teenagers (112.8) is below the national target of 120 for Black girls aged 15-19. However, that target is exceeded by Indians in nine of the 17 counties of Table 3.

**Figure 6**  
**Percentage of Pregnancies Unintended\***  
**North Carolina 1987-91**



\*Defined as all abortions and all other pregnancies to unmarried women and to girls under age 18.

- Notes: 1) A teenage pregnancy target for Indians was not established by the Year 2000 health objectives.
- 2) As explained in footnote 3 of Tables 2 and 3, race-specific rates for reservation and nonreservation counties cannot be computed due to lack of population bases for females 15-44 and 15-19. Lack of population bases also precludes the calculation of rates by marital status.
- 3) The numbers of events underlying the rates of Tables 2 and 3 are found in Tables 4 and 5.

### Abortion Fractions

The abortion rate estimates the probability of a woman becoming pregnant and having an abortion. It is comparable to the birth rate. The abortion fraction, on the other hand, measures the probability of a pregnant woman having an abortion.

When 1987-91 abortions are viewed as a fraction of total pregnancies, it is found that pregnant Native Americans (15%) were much less likely than pregnant Whites (23%) or pregnant Blacks (30%) to obtain an abortion. Low abortion utilization is similarly observed among pregnant Native American teenagers.

### Unintended Pregnancy

The prevention of unintended (unwanted or mistimed) pregnancies would greatly reduce the number of induced abortions and should reduce low birthweight, infant mortality, and other adverse pregnancy outcomes.

The measurement of whether or not pregnancies are intended is an uncertain process. For present purposes, let us assume that all induced abortions are unintended pregnancies as are all other pregnancies to unmarried women and to girls under the age of 18. This would mean that, of all North Carolina pregnancies terminating during 1987-91, the proportions unintended were 34% for Whites, 74% for Blacks, and 54% for Native Americans, as depicted in Figure 6. The proportion for Indians was about the same in reservation counties as elsewhere (54%).

Note: Some births to unmarried women and to girls under age 18 are intended, but we have assumed in the opposite direction that all births to married women and to those 18 and older are intended, some of which are not. Thus, the above definition for "unintended pregnancy" appears a fairly reasonable surrogate measure.

### Maternal Characteristics

For Whites, Blacks, and separately for reservation and nonreservation Indians, Table 6 shows five-year numbers and percentage distributions of live births for maternal factors known to be related to infant survival. For the categories associated with elevated infant loss (labeled A-H), Native American percentages are generally higher than those for Whites and lower than those for Blacks. Exceptions to this pattern include the following:

- Indian mothers in reservation counties are disproportionately young.
- Low education is a problem of Indian mothers statewide.
- Indian mothers are less likely than others to have had a previous stillborn, but those in reservation counties are more likely than others to have had a previous liveborn who died.

The Native American excesses in young maternal age, low educational levels, and death of a previous liveborn are persistent; these same problems were identified earlier.<sup>3</sup>

In Table 6, the categories labeled A-H are high-risk maternal characteristics identifiable before the present birth. As depicted in Figure 7, Native American mothers are found to be much more likely than Whites and slightly less likely than Blacks to have one or more of these characteristics. The corresponding numbers and percentages for selected counties are found in Table 7.

### Prenatal Care

Among live births during 1987-91, both reservation and nonreservation Indian mothers were more likely than White mothers but less likely than Black mothers to have had no care or late care, as shown in Table 8. The percentages for late or no care were higher for nonreservation than for reservation Indians.

A prenatal care index developed by Kessner<sup>5</sup> takes into account month of first visit, number of visits, and gestational age at delivery. According to the criteria (see Glossary, page 19), "inadequate"

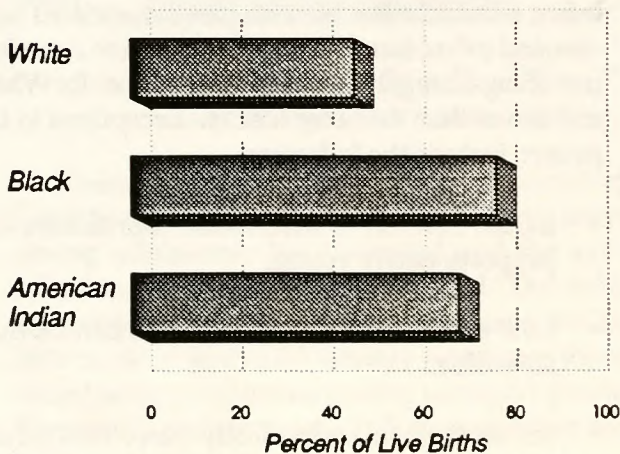
means essentially care beginning in the third trimester or fewer than five prenatal care visits. It should not be assumed, however, that all other births involve "adequate" care.

For the state and selected counties, Table 9 provides the 1987-91 numbers and percentages of mothers having inadequate prenatal care by race. The statewide relationships observed here (Figure 8) are the same as those observed for late or no prenatal care; Indians were much more likely than Whites but less likely than Blacks to have had inadequate care. As above, the percentage inadequate was higher for nonreservation than for reservation Indian mothers. This reverses the pattern observed during 1979-83 when the percentage inadequate was higher for reservation Indians (12.4) than for their counterparts elsewhere (9.0).<sup>3</sup>

### Maternal Medical Conditions

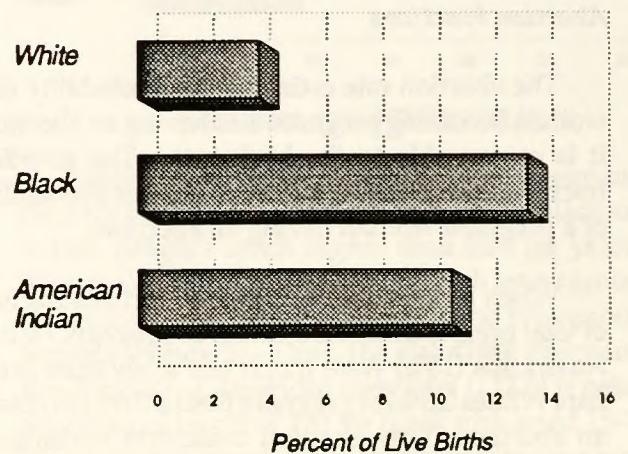
The North Carolina birth certificate was revised in 1988 to include checkboxes for medical risk factors associated with the pregnancy and delivery. Anemia, diabetes, and hypertension during pregnancy are the most commonly recorded medical conditions of the mother.

**Figure 7**  
Percentage of Mothers Having One or More Risk Factors\* by Race  
North Carolina 1987-91



\*One or more of eight sociodemographic characteristics; See A-H of Table 6.

**Figure 8**  
Percent of Mothers Having Inadequate Prenatal Care by Race  
North Carolina 1987-91





As shown in Table 10, Black and nonreservation Indian mothers delivering in 1988-91 were more likely than others to have anemia while reservation Indian mothers were more likely than others to have diabetes and hypertension.

An item related to smoking during pregnancy was also added to the birth certificate in 1988. For the state and selected counties, Table 11 provides the numbers and percentages of reported smokers by race. In both reservation and nonreservation counties, American Indian mothers were particularly likely to smoke. Black mothers were least likely to smoke, as shown in Figure 9.

The occurrence of a primary or repeat C-Section is also indicated on the revised birth certificate. As shown in Table 12, racial differences in use of the procedure do not appear large statewide; however, the procedure is more prevalent among reservation Indian mothers than others. The reduction of Cesarean sections to no more than 15 per 100 deliveries is among the Year 2000 health objectives for the nation.<sup>4</sup>

In considering the above excesses for Indian mothers in reservation counties, the possibility of better-than-average reporting by the Cherokee Indian Hospital could be a factor.

**Maternal Mortality**

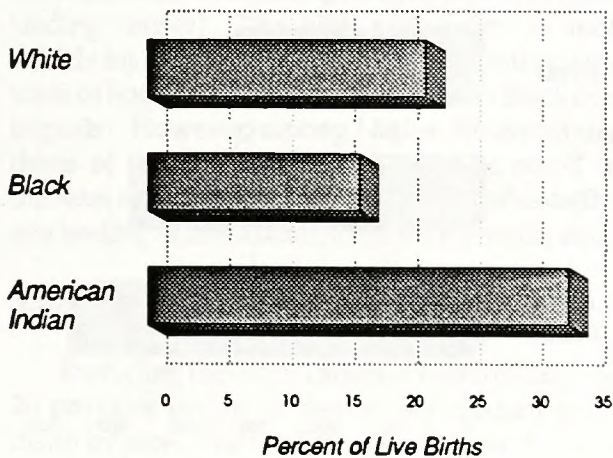
Based solely on the underlying cause of death, no American Indian maternal deaths were reported during the 1987-91 period. However, national studies have found that up to 40 percent of maternal deaths have been misclassified as nonmaternal using only the underlying cause.<sup>4</sup>

**Low Birthweight**

Table 13 provides the numbers and percentages of 1987-91 live births by birthweight. For both reservation and nonreservation Indian infants, the percentages for low birthweights (under 1500 and 1500-2499 grams) were higher than those for Whites but lower than those for Blacks. For the state and selected counties, Table 14 provides the numbers and percentages of low birthweight (under 2500 grams) by race. The statewide percentages are depicted in Figure 10.

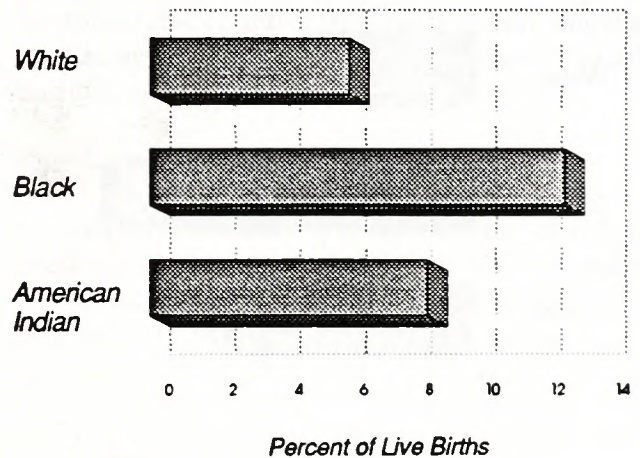
*Figure 9*

*Percentage of Mothers Who Smoked by Race North Carolina 1987-91*



*Figure 10*

*Percentage Low-Weight Births by Race North Carolina 1987-91*



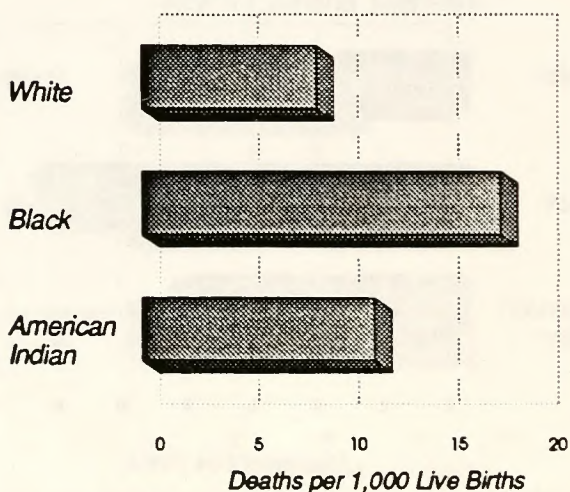
## Fetal and Infant Mortality

For each type of death (fetal, neonatal, postneonatal, infant) the 1987-91 death rates for American Indians were between those of Whites and Blacks, as shown in Table 15. However, based on relatively small numbers, the rates for Indians in reservation counties approached the higher rates of Blacks statewide. SIDS and birth defects each contributed three deaths to the total of 13 among Indians of the reservation counties. These same causes plus low birthweight/respiratory distress syndrome accounted for half of the Indian infant deaths in nonreservation counties.

Table 16 provides the numbers of infant deaths and rates for counties having sizable Indian populations. While many of the Indian rates are based on very small numbers, a notable finding is the sizable number of Indian live births for counties having no Indian infant deaths. From Table 4, these numbers ranged from 39 in Forsyth to 129 in Guilford.

The statewide infant death rates for Whites, Blacks, and American Indians are depicted in Figure 11.

**Figure 11**  
Infant Death Rates by Race  
North Carolina 1987-91



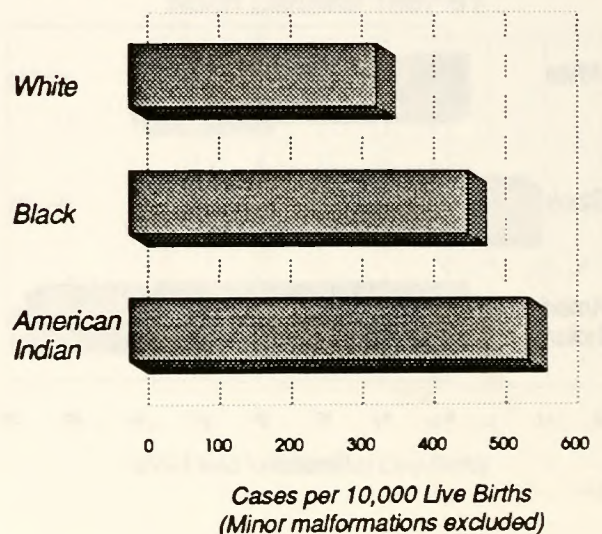
## Birth Defects

As observed in Table 15, birth defects are a major cause of infant mortality. Among all North Carolina infant deaths during 1987-91, the proportions attributed to birth defects were 24% for Whites, 12% for Blacks, and 19% for Native Americans.

The North Carolina Birth Defects Registry combines data from several separate and distinct sources to provide an estimate of birth defects incidence in the state. Sources are birth and infant death records, newborn Medicaid claims, newborn hospital discharge records, neonatal intensive care unit records, and Children's Special Health Services (CSHS) records. The CSHS program serves poverty-level children with various developmental disabilities who are treated through local public health departments.

As shown in Table 17 and Figure 12, the state's 1989-90 incidence rate for birth defects was greater for American Indians than for others. The total rate (minor malformations excluded) for Native Americans exceeded that for Whites by 61 percent, due largely to excesses in musculoskeletal defects and hypospadias, an anomaly in which the male urethra opens on the underside of the penis or on the perineum (region between the scrotum and anus).

**Figure 12**  
Birth Defects Incidence Rates by Race  
North Carolina Birth Defects Registry 1989-90



## Year 2000 Health Objectives

Cited below are three of the nation's maternal and infant health objectives for Native Americans, i.e., those for which the State Center has annual measures. Others may be found in the list of Appendix 1.

### Maternal and Infant Health Objectives for Native Americans

Health Status Indicator	U.S. Objective <sup>4</sup>	N.C. 1990
• Percent Prenatal Care in First Trimester	90.0	65.6
• Infant Death Rate	8.5	11.9
• Postneonatal Death Rate	4.0	3.3

## MORTALITY

### Leading Causes

As previously discussed, it is expected that Native Americans may be undercounted on death certificates, and thus, counts and rates of mortality may be biased. Keeping this in mind, Tables 18 and 19 provide the numbers of deaths, years of life lost, and those rankings for all Native Americans (12 leading causes) and for male and female Native Americans (5 leading causes). The high rank-orders of motor vehicle injuries distinguish the state's Native Americans of both sexes from their White and Black counterparts. However, among Native American decedents of the reservation counties, it is noted that diabetes supersedes motor vehicle and other injuries as a leading cause of death (data not shown in tables).

### Median Age at Death

Excluding the major causes of infant death, Table 20 provides counts of deaths and median ages at death by race. The median age of Native American decedents is seen to be at least five years below that of White decedents for heart disease, cerebrovascular

disease, AIDS, pneumonia/influenza, chronic liver disease/cirrhosis, non-motor-vehicle injuries, and suicide. Still, compared to median ages at death in 1982-83,<sup>3</sup> the 1987-91 medians for Native Americans were improved for most leading causes. For non-motor-vehicle injuries, the Native American's median age at death rose from 30 to 40.5, but the White-Indian differential of 21.4 years remains very large as do the liver disease and suicide differences.

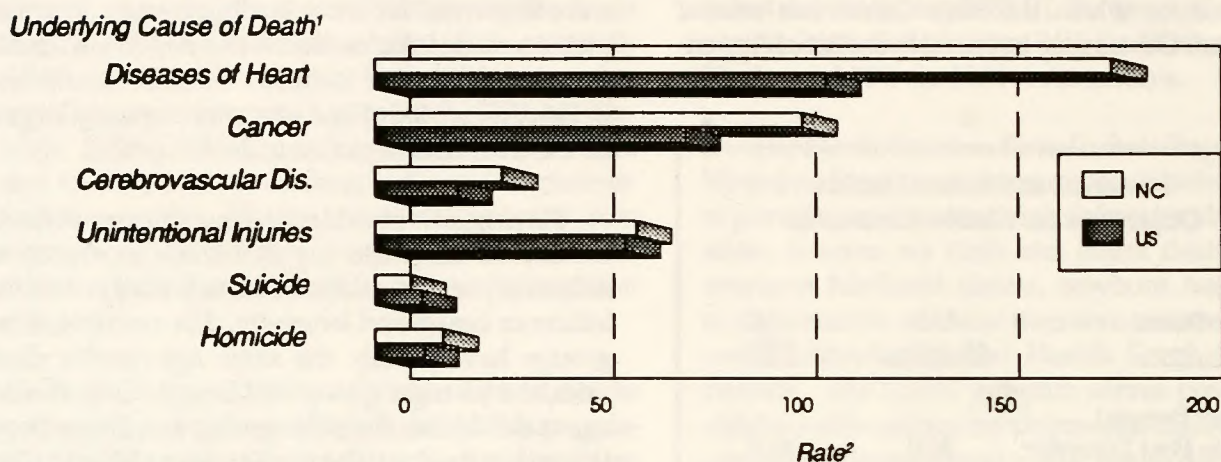
Having now provided the median ages at death, we should hasten to say that these measures are subject to population dynamics as well as factors that influence health and longevity. For example, if two groups have exactly the same age-specific death rates, the younger group will have a lower median age at death than the older group, just due to population distribution. The median ages of North Carolina's population groups in 1990 were 34.7 for Whites, 28.5 for Blacks, and 27.3 for American Indians,<sup>3</sup> so lower median ages at death among minorities are to be expected. However, population distribution alone would not account for the Native American's exceedingly low medians for non-motor-vehicle injuries, liver disease/cirrhosis, and suicide.

Keeping in mind the above caveat for median age, Table 21 provides race-specific death counts and median ages at death for reservation and nonreservation counties and for selected individual counties. Of the state's 2,172 Indian deaths during 1987-91, 61 percent were to residents of Robeson County where American Indian decedents were far younger than their Black and White counterparts. For some other counties, the reader should note that median ages at death are based on extremely small numbers of deaths.

### Age-Adjusted Death Rates

Despite the relatively small number of Indian deaths for some causes (as well as possible biases due to undercounts of Indian deaths), Table 22 provides cause-specific age-adjusted death rates by race. As shown by the resulting ratios, the Indian rates are usually higher than those of Whites and lower than those of Blacks. Compared to both Whites and Blacks, Native Americans are particularly vulnerable to death from diabetes and motor vehicle injuries.

**Figure 13**  
**Age-Adjusted Death Rates for American Indians**  
**North Carolina 1987-91 and United States 1988-90**



<sup>1</sup>ICD-9 codes are listed in Appendix 2.

<sup>2</sup>Deaths per 100,000 population using 10-year age groups and U.S. 1940 population as standard for direct age adjustment.

Note: U.S. rates are from the National Center for Health Statistics.

Compared to Whites alone, Native Americans also die disproportionately from nephritis/nephrosis, unintentional injuries other than motor vehicle, and homicide. Especially notable in Table 22 also is the North Carolina Native American's relatively low risk of death from cancer.

Despite that seemingly low cancer risk, however, the state's Native American population is at higher risk of cancer death than are Native Americans nationwide. This is seen in Figure 13 which also shows that the state's Native American population dies disproportionately from heart disease, stroke, and homicide. Deaths from injuries appear no more prevalent here than among Native Americans nationwide, and suicide is less prevalent here. The U.S. and N.C. rates, of course, may represent differential reporting of race.

Based on old data for the U.S., Native Americans in North Carolina may be less at risk than their U.S. counterparts of dying from alcohol-related causes. The 1986 age-adjusted rate of 26.4 for cirrhosis of the liver among U.S. Native Americans<sup>6</sup> compares to the state's 1987-91 rate of 9.1. Less use of alcohol may also contribute to reduced suicide among the state's Native Americans compared to Native Americans elsewhere.

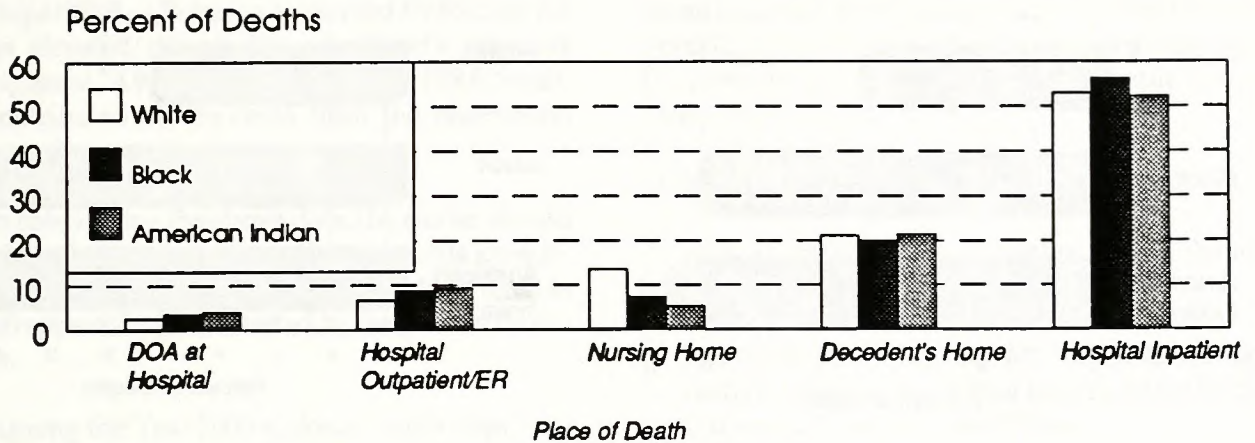
### Age-Specific Death Rates

While summary measures like median age at death and the age-adjusted death rate are highly useful in making multiple comparisons among groups, they in no way replace age-specific death rates. Ultimately, the latter must be examined in order to identify the population sectors most at risk of death.

For 11 age groups, Table 23 shows the 1987-91 numbers of deaths and death rates. Except for infants (under one year), younger Native Americans had higher death rates than Blacks. The Indian rates then fall between the Black and White rates at ages 25-44 and become more like White rates at ages 45-84. The higher White than minority rates at ages 85 and older is a phenomenon of historical note and interest.

When the state's 1987-91 death rates for American Indians are compared to the older 1984-86 U.S. rates,<sup>6</sup> North Carolina excesses are observed at ages under 15 and 55 and older. Although the time difference and possible differential reporting of race may contribute to these findings, the state's Indian excesses at younger ages are consistent with the in-state comparisons of Table 23.

**Figure 14**  
**Percentage of Deaths by Place of Death by Race**  
**North Carolina 1988-91\***



\*1987 omitted due to lack of comparability.

**Mentioned Conditions**

The North Carolina death certificate allows for the encoding of up to 20 diseases, injuries, or complications that caused or contributed to a death. The underlying cause of death, used in the preceding mortality analyses, is selected from among all mentioned conditions as the one that initiated events resulting in the death.

In 1990, the average number of mentioned conditions per death was slightly lower for Native Americans (2.78) than for Whites (2.84) and Blacks (2.88). When only non-violent causes of death are considered, the same pattern is observed with averages of 2.71 for Native Americans versus 2.82 for Whites and 2.86 for Blacks.

For the period 1989-91, Table 24 displays the numbers of deaths and age-adjusted death rates for six leading mentioned conditions by race. The resulting Indian-to-White rate ratios are especially high for alcohol use, diabetes, and hypertension while Indian-to-Black ratios are low for hypertension, septicemia, and nephritis/nephrosis.

In considering these rates of "morbidity" among persons who die, the user should keep in mind that

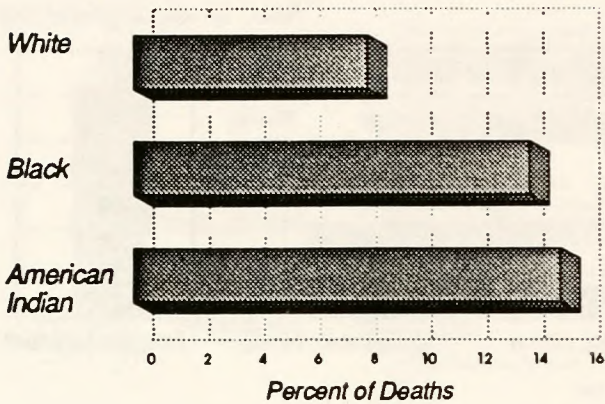
the death certificate asks for only "conditions contributing to death" and may not reflect all conditions present at death.

**Other Mortality Indices**

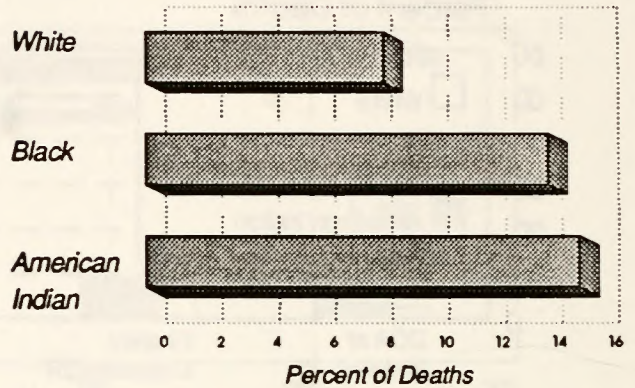
As shown in Figure 14, North Carolina Blacks and Native Americans are much less likely than their White counterparts to die in a nursing home and more likely to be dead on arrival (DOA) or to die as hospital outpatients. Minority decedents, especially Indians, are also more likely than Whites to have death certified by a medical examiner (Figure 15) and to have an autopsy performed (Figure 16). These findings reflect to some extent the race differentials in deaths due to violent causes.

Anecdotally, an article appearing in Raleigh's News and Observer on March 3, 1993 points up a particular problem associated with Native American mortality. It is the story of a six-year-old Lumbee who needs a bone marrow transplant. The story underscores the need for tissue typing among Native Americans. In North Carolina, only 1,200 Native Americans have had their tissue tested and entered into the national bone marrow registry operated by the American Red Cross.

**Figure 15**  
**Percentage of Deaths Certified by a Medical Examiner by Race North Carolina 1987-91**



**Figure 16**  
**Percentage of Decedents Autopsied by Race North Carolina 1987-91**



**Year 2000 Health Objectives**

Finally in the mortality area are the Healthy People 2000 objectives for Native Americans. Among those cited below, only homicide and diabetes appear clearly elevated in North Carolina. Other health objectives for Native Americans are listed in Appendix 1.

Cause-Specific Mortality Objectives for Native Americans		
Cause-Specific Death Rates*	U.S. Objective <sup>4</sup>	N.C. 1990
• Cirrhosis Death Rate	13.0	4.4
• Diabetes-related Death Rate	48.0	71.6
• Unintentional Injuries Death Rate	66.1	52.4
• Motor Vehicle Injuries Death Rate	39.2	36.2
• Male Alcohol-related Motor Vehicle Death Rate	44.8	21.7
• Suicide	12.8	11.2
• Homicide	11.3	23.0

\*Age-adjusted to the 1940 U.S. population.

**INFECTIOUS DISEASES**

Among the leading diseases of Table 25, chlamydia appears a particular problem for Native Americans in reservation counties while Hepatitis B appears especially prevalent among Native Americans elsewhere. Numerically, gonorrhea is problematic for the state's Indian population although the incidence rate is far below that for Blacks. Through 1991, only five cases of AIDS had ever been reported for Indians in North Carolina.

The following bullets describe major findings for the Native American experience by county:

- **Syphilis** — Robeson accounted for 36 cases or a rate of 17.9 per 100,000 population. However, Hoke's rate of 57.5 (9 cases) was much higher.
- **Gonorrhea** — Robeson contributed 663 cases for a rate of 330.4, but Hoke's rate was higher at 491.8 (77 cases). Swain's rate was also high at 283.6 (43 cases).
- **Chlamydia** — The reservation counties' high rate of 636.4 (195 cases) is due to Swain's rate of 1193.9 (181 cases). The Indian rate for nonreservation counties (64.0) was about the same as the statewide rate for Whites (60.9) and much below that for Blacks (368.0). Robeson's rate was 45.8 (92 cases).

- **Tuberculosis** — Robeson accounted for 16 cases or a rate of 8.0. All other counties had no more than one or two cases.
- **Hepatitis B** — Robeson accounted for 85 cases for an elevated rate of 42.4. Scotland's rate was higher at 74.9 (9 cases). With a rate of 39.6, Swain contributed all six cases from the reservation counties.

In considering the above data, the reader should keep in mind that infectious disease counts are subject to testing and reporting biases which tend to underrepresent persons tested in the private health sector.

Among the Year 2000 national health objectives for Native Americans is the reduction of the tuberculosis case rate to 5.0 per 100,000 population.<sup>4</sup> The 1990 case rate for American Indians in North Carolina was 7.5.

## HEALTH-RELATED SURVEYS

A report on the health status of Blacks, now in progress, includes data from a number of sample surveys. Unfortunately, those samples include few Native Americans, so estimates for this group are not available. It is anticipated, however, that future updates of the current report may include multiple years of data from the adult Behavioral Risk Factor Survey and the school-based Youth Risk Behavior Survey. North Carolina participates with the Centers for Disease Control in these national surveys. It is also recommended that these state surveys oversample Native Americans in the future.

Meanwhile, a national survey of nonurban Native American teenagers<sup>7</sup> has revealed a complex web of health problems and risk behaviors among these youth. For example, 22 percent of females and 12 percent of males reported ever having attempted suicide, and over half of these youth had attempted suicide more than once. Twenty-two percent reported their health as only fair or poor. Eighteen percent said they were sad all the time, and 11 percent told of extreme hopelessness. Eighteen percent reported having been the victim of sexual or physical abuse, or both. Regular use of tobacco and drugs was high with

one-third reporting ever having driven under the influence of alcohol. And only about half of the youths surveyed had received any type of preventive health exams or visits in the past two years. The extent to which these findings are representative of North Carolina's Native American youth is unknown. The need for state surveys that oversample Native Americans is clear.

## CONCLUSION

Among results of the present study are the following:

- Many health indicators for North Carolina's Native Americans are better than those for Blacks but worse than those for Whites.
- Compared to both Whites and Blacks, abortion utilization is low.
- More than half (an estimated 54%) of Native American pregnancies appear to be unintended (unwanted or mistimed).
- Smoking during pregnancy and low education appear especially prevalent among Native American mothers.
- Diabetes, hypertension, and C-Section appear especially prevalent among Indian mothers of the reservation counties while anemia appears highly prevalent among Indian mothers elsewhere.
- Birth defects, particularly musculoskeletal defects and hypospadias, appear more prevalent among Native Americans than others.
- Compared to North Carolina Blacks and Whites, the state's Native Americans appear particularly vulnerable to death from diabetes and motor vehicle injuries. Native American median ages at death were also low for non-motor-vehicle unintentional injuries, liver disease/cirrhosis, and suicide.
- Compared to their U.S. counterparts, the state's Native Americans appear at excess risk of death from heart disease, cancer, stroke, and homicide.

- The mortality excesses of Native Americans appear particularly large at ages 1-24.
- National health objectives for the Year 2000 suggest North Carolina Native American excesses in late prenatal care, infant mortality, death from homicide and diabetes, and tuberculosis morbidity.

Several of these findings duplicate those of earlier studies,<sup>2,3</sup> particularly low abortion utilization and the Native American excesses in low maternal education, infant mortality, and death from diabetes and the violent causes. One of the earlier studies<sup>3</sup> examined infant mortality in relation to birth characteristics and found Native American excesses among

mature-weight infants and demographically low-risk mothers, but simultaneously, mothers having inadequate prenatal care. The report concluded that newborn sociomedical risk factors may not be the larger problem, but rather, that environmental and general medical-care issues need to be addressed in the Native American population.

A final word concerns the dearth of health survey data for Native Americans, the accuracy of race-reporting by funeral directors and other reporters of health events, and the absence of race on hospital discharge records: Improvements in these areas are needed as we enhance and expand the minority health surveillance system in North Carolina.

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## GLOSSARY

**Abortion** — Induced abortion, or the purposeful interruption of pregnancy. Spontaneous abortions are not reportable in North Carolina.

**Abortion Rate** — The number of induced abortions per 1,000 females of a specified age group (15-44 or 15-19 in this report).

**Age-Adjusted Death Rate** — Deaths per 100,000 population using 10-year age groups and the 1940 U.S. population as the standard for direct age adjustment. The rates are free of the effects of a population's age composition and thus permit the user to assess the relative risk of death among population groups.

**Age-Specific Death Rate** — Deaths in a specific age group per 100,000 population in the age group.

**Birth Defect** — Any abnormal condition present at birth, not including injuries caused by the delivery. These are primarily ICD-9 codes 740-759.

**Birth Order** — The sum of previous children now living, previous children born alive and now dead, and previous fetal deaths (any gestational age) plus one for the present birth. Previous induced abortions may be included, effective with the 1988 revised birth certificate.

**Birth Rate** — The number of live births per 1,000 females of a specified age group (15-44 and 15-19 in this report).

**Block Numbering Area (BNA)** — Small statistical subdivisions of a county for grouping and numbering blocks in nonmetropolitan counties where local census statistical areas committees have not established census tracts. State agencies and the Census Bureau delineated BNAs for the 1990 census, using guidelines similar to those for the delineation of census tracts. BNAs do not cross county boundaries.

**Causes of Death** — All diseases, morbid conditions, or injuries which either resulted in or contributed to death and in the case of injuries, the circumstances of the injury or violence. Unless otherwise specified, deaths are tabulated by underlying cause of death (see definition).

**Census Tract** — Small, relatively permanent statistical subdivisions of a county. They are delineated for all metropolitan areas and other densely populated counties by local census statistical areas committees following Census Bureau guidelines.

Census tracts usually have between 2,500 and 8,000 persons and, when first delineated, are designed to be homogeneous with respect to population characteristics, economic status, and living conditions. Census tracts do not cross county boundaries. The spatial size of census tracts varies widely depending on the density of settlement. Census tract boundaries are delineated with the intention of being maintained over a long time so that statistical comparisons can be made from census to census. However, physical changes in street patterns caused by highway construction, new development, etc., may require occasional revisions; census tracts occasionally are split due to large population growth, or combined as a result of substantial population decline.

*Note: Figure 1 of this report depicts the numbers of American Indians living in census tracts (metropolitan counties) and block numbering areas (nonmetropolitan counties). Data are from the U.S. Census 1990.*

**Death** — The permanent disappearance of any evidence of life at any time after live birth. N.C. law (G.S. 90-322) also defines criteria for certifying "brain death."

**Eastern Cherokee Reservation** — The area and its established boundaries recognized by the federal government as territory in which American Indians have jurisdiction. Since health data sets do not identify residents of the reservation, the tables of this report tabulate data for residents of the reservation counties — Graham, Jackson, and Swain.

**Fetal Death** — Death prior to the complete expulsion or extraction from its mother of a product of human conception, irrespective of the duration of pregnancy, as indicated by the fact that after such expulsion or extraction the fetus does not breathe or show any evidence of life, such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles (definition adopted by World Health Organization in 1950). Consistent with North Carolina law, this report includes only fetal deaths which do not qualify as therapeutic abortions and which result from pregnancies of 20 or more weeks gestation.

**Fetal Death Rate** — Fetal deaths per 1,000 deliveries (live births plus fetal deaths).

**ICD: International Classification of Diseases** — A numerical system used worldwide for classifying all causes of death. The Ninth Revision was first applied to 1979 deaths.

**Infant Death** — Death of a liveborn child under one year of age. Infant deaths are the sum of neonatal and postneonatal deaths (see definitions).

**Infant Death Rate** — The number of infant deaths per 1,000 live births.

**Kessner Index** — See Prenatal Care (Kessner) Index.

**Live Birth** — The complete expulsion or extraction from its mother of a product of conception, irrespective of the duration of pregnancy, which, after separation, breathes or shows any other evidence of life, such as beating of the heart, pulsation of the umbilical cord, or any definite movement of voluntary muscles, whether or not the umbilical cord has been cut or the placenta is attached (definition adopted by World Health Organization in 1950).

**Low Birthweight** — 2500 grams (5 pounds, 8 ounces) or less at birth, regardless of the period of gestation (World Health Organization 1950). Weights under 1500 grams are considered "very low birthweight."

**Median Age at Death** — Age above and below which half of the deaths are found. Age at death is reported in completed years as of the last birthday.

**Mentioned Condition** — A disease, injury, or complication that caused or contributed to a death.

**Natural Increase** — The excess of births over deaths in a population.

**Neonatal Death** - Death of a liveborn child under 28 days of age.

**Neonatal Death Rate** — Neonatal deaths per 1,000 live births.

**Nonreservation Counties** - All North Carolina counties except Graham, Jackson, and Swain, home of the Eastern Cherokee Reservation.

**Out-of-Wedlock Birth** — Birth to a woman who has never been legally married or who has been widowed or legally divorced from her husband in excess of 280 days.

**Postneonatal Death** — Death of an infant 28 days and over but less than one year of age.

**Postneonatal Death Rate** — Postneonatal deaths per 1,000 neonatal survivors (live births minus neonatal deaths).

**Pregnancies** — The total number of live births plus fetal deaths of 20 or more weeks gestation plus induced abortions.

**Pregnancy Rate** — The number of pregnancies per 1,000 women of a specified age group (15-44 or 15-19).

**Prenatal Care (Kessner) Index** — A categorical index of a woman's quantity of prenatal care based on three variables:

- The trimester in which the first prenatal visit occurred;
- The number of prenatal visits; and
- The number of weeks gestation at time of delivery.

A woman may have received ADEQUATE, INADEQUATE, INTERMEDIATE, or UNKNOWN amount of care. INADEQUATE is assigned if either (a) there was no prenatal care visit, or (b) the first prenatal visit took place in the third trimester, or (c) one of the following combinations occurred:

<u>Gestation (Weeks)</u>		<u>Number of Prenatal Visits</u>
18-21	and	0
22-29	and	1 or less
30-31	and	2 or less
32-33	and	3 or less
34-48	and	4 or less

**Race** — As used by the Census Bureau, race reflects self-identification; it does not denote any clear-cut scientific definition of biological stock.

**White**—Includes persons who indicate their race as "White" or report entries such as Canadian, German, Italian, Lebanese, Near Easterner, Arab, or Polish.

**Black**—Includes persons who indicate their race as "Black or Negro" or report entries such as African American, Afro-American, Black Puerto Rican, Jamaican, Nigerian, West Indian, or Haitian.

**American Indian**—Includes persons who indicate their race as "American Indian," report the name of an Indian tribe, or report such entries as Canadian Indian, French-American Indian, or Spanish-American Indian. Some census counts are for American Indians, Eskimos, and Aleuts as a group. Eskimos and Aleuts represent only 0.4 percent of the combined group in North Carolina.

*Note: In this report, the terms "American Indian," "Indian," and "Native American" are used interchangeably.*

**Reservation Counties** — Graham, Jackson, and Swain, home of the federally recognized Eastern Cherokee Reservation.

**Residence** — The place (county, state, etc.) in which a person resides at the time of an event. College students and military personnel are considered residents of the college or military community. For deaths of inmates of long-term institutions, the institution is considered the residence if the decedent has resided there at least one year. For births, residence is that of the mother.

**Sociodemographic Risk Factors** — Maternal characteristics that have been found to be associated with high fetal and infant mortality rates. These include age under 18, age 35 or older, education under 12 completed years, marital status unmarried, birth order of 4 or more, history of a fetal death, history of a liveborn infant who died.

**Underlying Cause of Death** — (a) The disease or injury which initiated the train of morbid events leading to death, or (b) the circumstances of the injury or violence which produced the fatal injury.

**Unintended Pregnancies** — Defined in this report as the sum of all induced abortions and all other pregnancies to unmarried women and to girls under the age of 18.

**Violent Deaths** — Deaths due to homicide, suicide, motor vehicle and other injuries, and legal intervention.

**Years of Life Lost** — The expected years of life remaining, based on the decedent's age at death, race, and sex (using North Carolina life tables).

# TABLES



TABLE 1

POPULATION COUNTS BY RACE AND HISPANIC ORIGIN  
NORTH CAROLINA AND COUNTIES 1990

COUNTY	TOTAL	WHITES	BLACKS	AMERICAN INDIANS, ESKIMOS, ALEUTS	ASIANS OR PACIFIC ISLANDERS	OTHER RACES	HISPANIC ORIGIN (of any race)
THE STATE	6,628,637	5,008,491	1,456,323	80,155	52,166	31,502	76,726
Alamance	108,213	86,373	20,822	303	487	228	736
Alexander	27,544	25,667	1,673	52	49	103	184
Alleghany	9,590	9,338	177	8	5	62	85
Anson	23,474	12,264	11,106	69	27	8	67
Ashe	22,209	21,960	144	21	31	53	102
Avery	14,867	14,596	158	23	23	67	118
Beaufort	42,283	28,949	13,194	28	48	64	197
Bertie	20,388	7,790	12,531	46	14	7	32
Bladen	28,663	16,926	11,199	464	30	44	150
Brunswick	50,985	41,336	9,211	242	81	115	376
Buncombe	174,821	158,979	14,336	486	765	255	1,173
Burke	75,744	69,521	5,178	133	794	118	344
Cabarrus	98,935	85,286	12,853	313	375	108	483
Caldwell	70,709	66,506	3,881	105	111	106	315
Camden	5,904	4,388	1,481	21	9	5	24
Carteret	52,556	47,445	4,385	269	293	164	450
Caswell	20,693	12,155	8,436	26	20	56	136
Catawba	118,412	106,370	10,689	232	830	291	921
Chatham	38,759	29,423	8,845	125	69	297	564
Cherokee	20,170	19,313	361	405	42	49	131
Chowan	13,506	8,349	5,087	24	29	17	95
Clay	7,155	7,061	41	39	7	7	40
Cleveland	84,714	66,362	17,741	114	394	103	376
Columbus	49,587	32,897	15,181	1,370	53	86	242
Craven	81,613	58,660	21,116	319	765	753	1,821

TABLE 1 (continued)

POPULATION COUNTS BY RACE AND HISPANIC ORIGIN  
NORTH CAROLINA AND COUNTIES 1990

COUNTY	TOTAL	WHITES	BLACKS	AMERICAN INDIANS, ESKIMOS, ALEUTS	ASIANS OR PACIFIC ISLANDERS	OTHER RACES	HISPANIC ORIGIN (of any race)
Cumberland	274,566	170,069	87,496	4,425	5,769	6,807	13,298
Currituck	13,736	12,051	1,545	66	51	23	110
Dare	22,746	21,766	811	37	79	53	199
Davidson	126,677	113,296	12,314	395	477	195	602
Davie	27,859	25,194	2,482	86	53	44	129
Duplin	39,995	25,927	13,259	104	47	658	1,015
Durham	181,835	109,886	67,654	425	3,233	637	2,054
Edgecombe	56,558	24,665	31,661	73	68	91	255
Forsyth	265,878	196,918	66,102	551	1,662	645	2,102
Franklin	36,414	23,288	12,843	74	63	146	290
Gaston	175,093	150,868	22,676	397	915	237	864
Gates	9,305	5,101	4,180	8	13	3	21
Graham	7,196	6,731	1	454	6	4	29
Granville	38,345	23,069	14,909	99	100	168	356
Greene	15,384	8,747	6,521	16	6	94	169
Guilford	347,420	249,584	91,655	1,637	3,726	818	2,887
Halifax	55,516	26,009	27,586	1,711	145	65	237
Harnett	67,822	51,117	15,315	601	299	490	1,159
Haywood	46,942	46,011	648	180	67	36	240
Henderson	69,285	66,158	2,361	197	286	283	846
Hertford	22,523	9,214	12,970	228	94	17	81
Hoke	22,856	9,635	9,878	3,176	85	82	218
Hyde	5,411	3,596	1,781	4	3	27	43
Iredell	92,931	77,207	14,869	193	356	306	672
Jackson	26,846	23,609	425	2,667	109	36	155



TABLE 1 (continued)

POPULATION COUNTS BY RACE AND HISPANIC ORIGIN  
NORTH CAROLINA AND COUNTIES 1990

COUNTY	TOTAL	WHITES	BLACKS	AMERICAN INDIANS, ESKIMOS, ALEUTS	ASIANS OR PACIFIC ISLANDERS	OTHER RACES	HISPANIC ORIGIN (of any race)
Johnston	81,306	65,773	14,389	178	159	807	1,262
Jones	9,414	5,687	3,677	8	19	23	53
Lee	41,374	31,216	9,401	169	191	397	800
Lenoir	57,274	34,322	22,539	70	151	192	463
Lincoln	50,319	45,710	4,108	120	172	209	570
McDowell	35,681	33,901	1,479	72	200	29	114
Macon	23,499	22,919	385	76	60	59	165
Madison	16,953	16,744	136	19	32	22	86
Martin	25,078	13,788	11,186	20	40	44	99
Mecklenburg	511,433	364,651	134,468	1,936	8,461	1,917	6,693
Mitchell	14,433	14,354	23	19	19	18	50
Montgomery	23,346	16,773	6,001	92	150	330	556
Moore	59,013	47,464	10,882	309	150	208	470
Nash	76,677	51,874	24,142	218	223	220	606
New Hanover	120,284	94,895	24,097	435	616	241	924
Northampton	20,798	8,397	12,328	42	11	20	116
Onslow	149,838	111,939	29,808	939	2,994	4,158	8,035
Orange	93,851	75,871	14,893	286	2,361	440	1,279
Pamlico	11,372	8,362	2,951	33	20	6	61
Pasquotank	31,298	19,403	11,583	59	184	69	246
Pender	28,855	19,828	8,770	76	44	137	273
Perquimans	10,447	6,979	3,426	18	20	4	28
Person	30,180	20,740	9,106	181	15	138	249
Pitt	107,924	70,643	35,921	214	709	437	977
Polk	14,416	13,276	1,053	17	25	45	115

TABLE 1 (continued)

POPULATION COUNTS BY RACE AND HISPANIC ORIGIN  
NORTH CAROLINA AND COUNTIES 1990

COUNTY	TOTAL	WHITES	BLACKS	AMERICAN INDIANS, ESKIMOS, ALEUTS	ASIANS OR PACIFIC ISLANDERS	OTHER RACES	HISPANIC ORIGIN (of any race)
Randolph	106,546	99,042	6,367	453	358	326	734
Richmond	44,518	30,816	12,869	502	195	136	293
Robeson	105,179	37,986	26,185	40,511	239	258	704
Rockingham	86,064	67,893	17,548	149	190	284	620
Rowan	110,605	91,851	17,773	262	444	275	651
Rutherford	56,918	50,133	6,514	95	98	78	342
Sampson	47,297	30,273	15,686	876	75	387	727
Scotland	33,754	19,025	12,176	2,430	83	40	318
Stanly	51,765	45,269	5,972	155	249	210	309
Stokes	37,223	34,917	2,069	52	79	106	254
Surry	61,704	58,383	2,780	66	84	391	602
Swain	11,268	7,950	196	3,075	31	16	78
Transylvania	25,520	24,121	1,189	79	99	32	154
Tyrrell	3,856	2,297	1,543	4	5	7	11
Union	84,211	70,023	13,427	294	257	210	675
Vance	38,892	21,146	17,512	69	60	105	271
Wake	423,380	324,011	88,057	1,148	8,177	1,987	5,396
Warren	17,265	6,593	9,847	763	14	48	98
Washington	13,997	7,556	6,366	13	35	27	65
Watauga	36,952	35,930	768	59	152	43	249
Wayne	104,666	69,172	33,793	265	839	597	1,356
Wilkes	59,393	56,237	2,824	69	100	163	362
Wilson	66,061	40,623	24,896	70	177	295	537
Yadkin	30,488	28,884	1,295	22	26	261	388
Yancey	15,419	15,221	151	27	11	9	49

Table 2

Live Birth, Abortion, and Pregnancy Rates by Race  
North Carolina and Selected Counties<sup>1</sup> 1987-91

Residence	Birth Rate <sup>2</sup>			Abortion Rate <sup>2</sup>			Pregnancy Rate <sup>2</sup>		
	Whites	Blacks	American Indians	Whites	Blacks	American Indians	Whites	Blacks	American Indians
North Carolina	58.4	78.2	75.6	17.4	34.5	13.0	76.1	113.8	89.2
<u>County<sup>1</sup></u>									
Columbus	56.0	88.8	73.8	12.4	22.2	5.5 <sup>4</sup>	68.9	112.1	79.4
Cumberland	81.6	86.0	99.3	20.6	36.3	21.9	102.7	123.5	121.5
Forsyth	53.6	74.4	50.4	20.5	48.3	18.1	74.5	123.6	68.5
Guilford	51.9	67.9	58.6	24.1	44.7	15.5	76.4	113.6	74.1
Halifax	57.6	87.9	78.8	18.8	22.6	16.6	76.8	111.6	95.9
Harnett	67.7	93.1	91.8	14.3	27.7	16.4	82.4	121.8	108.2
Hoke	69.1	83.3	85.6	13.3	19.4	7.5	82.6	103.5	93.6
Jackson	41.4	40.5	85.0	17.6	50.1	13.2	59.5	90.6	99.1
Mecklenburg	57.7	78.1	55.8	22.0	42.9	25.2	80.0	122.0	81.3
Onslow	104.9	110.8	122.6	18.7	38.3	11.7	124.1	150.1	135.4
Richmond	58.8	85.4	98.2	14.8	19.6	4.9 <sup>4</sup>	74.0	106.0	103.1
Robeson	56.9	88.8	80.5	17.0	23.4	12.9	74.4	113.4	94.1
Sampson	58.6	72.2	72.7	14.0	21.7	10.2	73.1	94.8	82.9
Scotland	55.6	79.9	99.7	13.3	13.9	10.8	69.3	95.5	112.7
Swain	58.7	NA <sup>3</sup>	130.0	14.2	NA <sup>3</sup>	12.5	73.2	NA <sup>3</sup>	144.3
Wake	52.4	71.9	59.3	20.9	48.3	31.7	73.7	121.4	91.5
Warren	61.2	73.0	57.2	17.4	24.7	7.6 <sup>4</sup>	79.0	98.7	64.8

<sup>1</sup>Counties having 500 or more Indian population in 1990.

<sup>2</sup>Number of events per 1,000 females 15-44. Denominator for the state Indian rate includes a small number of Eskimos and Aleuts. Pregnancies are the sum of live births, fetal deaths, and abortions.

<sup>3</sup>The Census Bureau did not routinely produce population counts by age-race-sex if a county had fewer than 400 residents of the race group in 1990. Therefore, nonzero rates for Black females 15-44 are not available for Swain County, and race-specific rates are not available for reservation vs. nonreservation counties.

<sup>4</sup>Rate based on fewer than 10 events: 9 in Columbus, 3 in Richmond, and 7 in Warren.

Table 3

Live Birth, Abortion, and Pregnancy Rates for Females 15-19 by Race  
North Carolina and Selected Counties<sup>1</sup> 1987-91

Residence	Birth Rate <sup>2</sup>			Abortion Rate <sup>2</sup>			Pregnancy Rate <sup>2</sup>		
	Whites	Blacks	American Indians	Whites	Blacks	American Indians	Whites	Blacks	American Indians
North Carolina	48.8	101.6	93.8	32.7	49.4	18.2	81.8	152.3	112.8
<u>County<sup>1</sup></u>									
Columbus	52.6	102.3	66.2	22.3	26.2	9.9 <sup>4</sup>	75.4	129.5	76.2
Cumberland	72.3	96.6	110.4	35.8	47.4	31.5	108.6	145.2	142.0
Forsyth	34.8	104.6	44.2 <sup>4</sup>	38.3	77.6	8.8 <sup>4</sup>	73.4	183.5	53.1 <sup>4</sup>
Guilford	31.1	82.2	73.8	44.2	65.1	26.2	75.6	148.4	100.0
Halifax	48.3	104.3	74.8	38.3	30.1	18.7 <sup>4</sup>	87.3	135.3	93.5
Harnett	62.6	129.2	138.9	24.9	38.9	13.9 <sup>4</sup>	87.9	169.2	152.8
Hoke	69.5	106.0	112.0	34.8	27.1	11.4	104.3	133.1	123.4
Jackson	25.7	17.9 <sup>4</sup>	116.1	23.3	77.4	22.3	49.4	95.2	139.9
Mecklenburg	32.2	115.8	51.3	42.7	70.6	25.6	75.1	187.8	76.9
Onslow	104.6	119.1	105.6	35.1	51.6	21.1 <sup>4</sup>	140.1	171.8	126.8
Richmond	63.4	113.4	133.9	32.4	30.5	7.9 <sup>4</sup>	96.2	144.9	141.7
Robeson	56.7	120.8	88.5	31.6	35.1	16.4	88.5	157.7	105.7
Sampson	53.3	80.9	110.0	28.8	28.8	5.0 <sup>4</sup>	82.5	110.1	115.0
Scotland	61.4	114.5	146.8	26.9	16.7	12.9 <sup>4</sup>	88.6	133.7	162.6
Swain	85.9	NA <sup>3</sup>	181.4	24.3	0.0	21.8	111.1	NA <sup>3</sup>	206.1
Wake	21.0	84.5	95.8	38.7	69.9	53.9 <sup>4</sup>	59.9	155.6	149.7
Warren	43.7	80.4	36.4 <sup>4</sup>	32.8	30.8	4.5 <sup>4</sup>	76.5	112.2	40.9 <sup>4</sup>

<sup>1</sup>Counties having 500 or more Indian population in 1990.

<sup>2</sup>Number of events per 1,000 females 15-19. Denominator for the state Indian rate includes a small number of Eskimos and Aleuts. Pregnancies are the sum of live births, fetal deaths, and abortions.

<sup>3</sup>The Census Bureau did not routinely produce population counts by age-race-sex if a county had fewer than 400 residents of the race group in 1990. Therefore, nonzero rates for Black females 15-19 are not available for Swain County, and race-specific rates are not available for reservation vs. nonreservation counties.

<sup>4</sup>Rate based on fewer than 10 events; see Table 5.

Table 4

Live Births, Abortions, and Pregnancies by Race  
North Carolina and Selected Counties\* 1987-91

<u>Residence</u>	<u>Live Births</u>			<u>Abortions</u>			<u>Pregnancies</u>		
	<u>Whites</u>	<u>Blacks</u>	<u>American Indians</u>	<u>Whites</u>	<u>Blacks</u>	<u>American Indians</u>	<u>Whites</u>	<u>Blacks</u>	<u>American Indians</u>
North Carolina	338,596	147,766	8,087	100,656	65,244	1,394	441,555	214,995	9,542
<u>County*</u>									
Columbus	2,016	1,602	120	448	400	9	2,481	2,022	129
Cumberland	16,322	9,764	585	4,125	4,125	129	20,543	14,022	716
Forsyth	12,722	6,805	39	4,873	4,420	14	17,688	11,301	53
Guilford	15,720	9,099	129	7,301	5,983	34	23,125	15,211	163
Halifax	1,525	2,821	166	497	726	35	2,033	3,582	202
Harnett	4,012	1,791	73	845	533	13	4,882	2,344	86
Hoke	726	962	342	140	224	30	868	1,196	374
Jackson	1,234	21	265	525	26	41	1,772	47	309
Mecklenburg	26,752	14,897	144	10,197	8,186	65	37,124	23,269	210
Onslow	12,360	3,444	115	2,205	1,189	11	14,629	4,665	127
Richmond	1,948	1,317	60	489	303	3	2,451	1,636	63
Robeson	2,404	2,870	4,136	717	755	665	3,140	3,665	4,834
Sampson	1,905	1,347	71	456	405	10	2,376	1,769	81
Scotland	1,229	1,262	315	295	219	34	1,532	1,508	356
Swain	470	4	456	114	1	44	586	5	506
Wake	22,605	9,139	101	9,025	6,144	54	31,764	15,423	156
Warren	327	791	53	93	267	7	422	1,069	60

\*Counties having 500 or more Indian population in 1990.

Table 5

**Live Births, Abortions, and Pregnancies for Females 15-19 by Race  
North Carolina and Selected Counties\* 1987-91**

<u>Residence</u>	<u>Live Births</u>			<u>Abortions</u>			<u>Pregnancies</u>		
	<u>Whites</u>	<u>Blacks</u>	<u>American Indians</u>	<u>Whites</u>	<u>Blacks</u>	<u>American Indians</u>	<u>Whites</u>	<u>Blacks</u>	<u>American Indians</u>
North Carolina	41,369	34,699	1,859	27,709	16,877	361	69,409	52,022	2,234
County*									
Columbus	318	398	20	135	102	3	456	504	23
Cumberland	2,033	1,929	105	1,007	947	30	3,056	2,898	135
Forsyth	1,084	1,600	5	1,195	1,188	1	2,287	2,808	6
Guilford	1,334	2,030	31	1,894	1,607	11	3,243	3,665	42
Halifax	202	652	32	160	188	8	365	846	40
Harnett	632	498	20	251	150	2	887	652	22
Hoke	114	235	98	57	60	10	171	295	108
Jackson	176	3	73	159	13	14	338	16	88
Mecklenburg	1,772	3,637	26	2,353	2,216	13	4,136	5,898	39
Onslow	1,744	521	15	586	226	3	2,337	752	18
Richmond	352	346	17	180	93	1	534	442	18
Robeson	365	823	980	203	239	182	569	1,074	1,170
Sampson	277	315	22	150	112	1	429	429	23
Scotland	242	398	102	106	58	9	349	465	113
Swain	99	1	125	28	0	15	128	1	142
Wake	1,094	1,659	16	2,015	1,372	9	3,120	3,054	25
Warren	36	167	8	27	64	1	63	233	9

\*Counties having 500 or more Indian population in 1990.

**Table 6**

**Numbers and Percentages of Live Births by Selected Characteristic by Race  
North Carolina 1987-91**

	Whites		Blacks		American Indians*			
	Number	Percent	Number	Percent	Reservation Number	Reservation Percent	Nonreservation Number	Nonreservation Percent
Total	338,596	100.0	147,766	100.0	775	100.0	7,312	100.0
<b>Mother's Age</b>								
<18 (A)	13,964	4.1	16,016	10.8	93	12.0	612	8.4
18-34	299,584	88.5	124,497	84.3	658	84.9	6,392	87.4
35+ (B)	23,753	7.0	6,843	4.6	21	2.7	283	3.9
Unknown	1,228	0.4	365	0.2	3	0.4	24	0.3
<b>Mother's Education</b>								
<9 (C)	11,088	3.3	4,673	3.2	38	4.9	439	6.0
9-11 (D)	56,597	16.7	38,608	26.1	259	33.4	2,369	32.4
12+	270,518	79.9	104,197	70.5	478	61.7	4,493	61.4
Unknown	393	0.1	288	0.2	0	0.0	11	0.2
<b>Out-of-Wedlock</b>								
Yes (E)	44,182	13.0	92,046	62.3	358	46.2	3,236	44.3
No	294,385	86.9	55,703	37.7	417	53.8	4,076	55.7
Unknown	29	0.0	17	0.0	0	0.0	0	0.0
<b>Birth Order</b>								
1	131,168	38.7	48,664	32.9	279	36.0	2,651	36.3
2-3	167,832	49.6	70,997	48.0	362	46.7	3,526	48.2
4+ (F)	39,131	11.6	27,855	18.9	134	17.3	1,118	15.3
Unknown	465	0.1	250	0.2	0	0.0	17	0.2
<b>Previous Fetals</b>								
Yes (G)	74,801	22.1	35,491	24.0	140	18.1	1,362	18.6
No	263,519	77.8	112,128	75.9	635	81.9	5,942	81.3
Unknown	276	0.1	147	0.1	0	0.0	8	0.1
<b>Previous Live Births Now Dead</b>								
Yes (H)	5,200	1.5	3,658	2.5	26	3.4	173	2.4
No	333,111	98.4	143,949	97.4	749	96.6	7,127	97.5
Unknown	285	0.1	159	0.1	0	0.0	12	0.2
Any One or More of A-H	165,790	49.0	118,244	80.0	568	73.3	5,220	71.4

\*Reservation counties are Graham, Jackson, and Swain.

Table 7

**Numbers and Percentages of Mothers Having One or More  
Sociodemographic Risk Factors<sup>1</sup> by Race  
North Carolina and Selected Counties<sup>2</sup> 1987-91**

<b>RESIDENCE</b>	<b>WHITES</b>		<b>BLACKS</b>		<b>AMERICAN INDIANS</b>	
	<b>Number</b>	<b>Percent</b>	<b>Number</b>	<b>Percent</b>	<b>Number</b>	<b>Percent</b>
North Carolina	165,790	49.0	118,244	80.0	5,788	71.6
Reservation <sup>3</sup>	1,156	54.3	18	69.2	568	73.3
Non-Reservation <sup>3</sup>	164,634	48.9	118,226	80.0	5,220	71.4
<b>COUNTY<sup>2</sup></b>						
Columbus	1,023	50.7	1,345	84.0	74	61.7
Cumberland	7,376	45.2	6,637	68.0	393	67.2
Forsyth	5,682	44.7	5,584	82.1	25	64.1
Guilford	7,747	49.3	7,347	80.7	95	73.6
Halifax	860	56.4	2,390	84.7	126	75.9
Harnett	1,979	49.3	1,450	81.0	51	69.9
Hoke	357	49.2	795	82.6	283	82.7
Jackson	624	50.6	13	61.9	183	69.1
Mecklenburg	11,613	43.4	11,886	79.8	90	62.5
Onslow	4,671	37.8	1,802	52.3	49	42.6
Richmond	1,076	55.2	1,095	83.1	46	76.7
Robeson	1,317	54.8	2,506	87.3	3,022	73.1
Sampson	984	51.7	1,109	82.3	52	73.2
Scotland	688	56.0	1,090	86.4	242	76.8
Swain	296	63.0	4	0.0	340	74.6
Wake	10,045	44.4	7,069	77.3	64	63.4
Warren	177	54.1	616	77.9	47	88.7

<sup>1</sup>One of more of eight high-risk characteristics; see A-H of Table 6.

<sup>2</sup>Counties having 500 or more Indian population in 1990.

<sup>3</sup>Reservation counties are Graham, Jackson, and Swain.



**Table 8**

**Numbers and Percentages of Mothers by Time of First Prenatal Care by Race North Carolina 1987-91**

<b>Time of First Visit</b>	<b>Whites</b>		<b>Blacks</b>		<b>American Indians*</b>			
	<b>Number</b>	<b>Percent</b>	<b>Number</b>	<b>Percent</b>	<b>Reservation</b>	<b>Percent</b>	<b>Nonreservation</b>	<b>Percent</b>
<b>Total</b>	338,596	100.0	147,766	100.0	775	100.0	7,312	100.0
<b>No Care</b>	3,060	0.9	5,062	3.4	10	1.3	126	1.7
<b>1st Trimester</b>	280,979	83.0	89,396	60.5	550	71.0	4,758	65.1
<b>2nd Trimester</b>	45,683	13.5	42,916	29.0	180	23.2	1,947	26.6
<b>3rd Trimester</b>	8,048	2.4	9,733	6.6	35	4.5	462	6.3
<b>Unknown</b>	826	0.2	659	0.4	0	0.0	19	0.3

\*Reservation counties are Graham, Jackson, and Swain.

Table 9

**Numbers and Percentages of Mothers Having  
Inadequate Prenatal Care by Race  
North Carolina and Selected Counties\* 1987-91**

<b>RESIDENCE</b>	<b>WHITES</b>		<b>BLACKS</b>		<b>AMERICAN INDIANS</b>	
	<b>Number</b>	<b>Percent</b>	<b>Number</b>	<b>Percent</b>	<b>Number</b>	<b>Percent</b>
North Carolina	14,646	4.3	20,357	13.8	895	11.1
Reservation**	98	4.6	2	7.7	73	9.4
Non-Reservation**	14,548	4.3	20,355	13.8	822	11.2
<b>COUNTY*</b>						
Columbus	100	5.0	247	15.4	3	2.5
Cumberland	490	3.0	810	8.3	30	5.1
Forsyth	365	2.9	646	9.5	1	2.6
Guilford	600	3.8	1,091	12.0	18	14.0
Halifax	58	3.8	266	9.4	7	4.2
Harnett	203	5.1	385	21.5	13	17.8
Hoke	20	2.8	76	7.9	30	8.8
Jackson	43	3.5	2	9.5	24	9.1
Mecklenburg	731	2.7	1,518	10.2	12	8.3
Onslow	416	3.4	258	7.5	10	8.7
Richmond	114	5.9	246	18.7	4	6.7
Robeson	172	7.2	623	21.7	539	13.0
Sampson	131	6.9	240	17.8	9	12.7
Scotland	96	7.8	249	19.7	40	12.7
Swain	31	6.6	0	0.0	45	9.9
Wake	690	3.1	1,333	14.6	10	9.9
Warren	13	4.0	80	10.1	9	17.0

\*Counties having 500 or more Indian population in 1990.

\*\*Reservation counties are Graham, Jackson, and Swain.

Table 10

**Numbers and Percentages of Mothers Having Selected  
Medical Risk Factors by Race  
North Carolina 1987-91**

<b>Birth Certificate Indicates Mother Had</b>	<b>Whites</b>		<b>Blacks</b>		<b>American Indians'</b>			
	<b>Number</b>	<b>Percent</b>	<b>Number</b>	<b>Percent</b>	<b>Reservation</b>		<b>Nonreservation</b>	
					<b>Number</b>	<b>Percent</b>	<b>Number</b>	<b>Percent</b>
Anemia	4,987	1.8	5,291	4.4	12	1.9	221	3.8
Diabetes	8,883	3.2	2,980	2.5	42	6.6	189	3.2
Hypertension	10,726	3.9	4,485	3.7	50	7.9	147	2.5

\*Reservation counties are Graham, Jackson, and Swain.

Table 11

Numbers and Percentages of Mothers  
Who Smoked by Race  
North Carolina and Selected Counties\* 1988-91

RESIDENCE	WHITES		BLACKS		AMERICAN INDIANS	
	Number	Percent	Number	Percent	Number	Percent
North Carolina	60,989	22.2	20,406	16.9	2,175	33.6
Reservation**	417	23.7	5	27.8	192	30.3
Non-Reservation**	60,572	22.2	20,401	16.9	1,983	33.9
<b>COUNTY*</b>						
Columbus	433	27.3	288	21.6	34	35.4
Cumberland	2,999	22.8	1,174	14.9	154	33.6
Forsyth	2,382	23.1	1,321	23.6	5	16.1
Guilford	2,918	22.8	1,506	20.0	50	48.5
Halifax	347	28.2	400	17.1	46	33.6
Harnett	913	28.6	217	14.8	21	38.2
Hoke	156	26.9	120	15.3	92	32.6
Jackson	251	24.7	4	28.6	62	27.6
Mecklenburg	2,826	12.9	2,023	16.6	26	23.0
Onslow	2,101	21.4	314	11.3	15	16.7
Richmond	372	23.5	133	12.1	10	22.2
Robeson	574	29.0	419	18.1	1,161	35.0
Sampson	372	23.9	188	16.9	18	34.6
Scotland	280	27.9	196	19.1	107	41.3
Swain	96	23.9	1	33.3	110	30.2
Wake	2,328	12.5	1,397	18.3	19	25.0
Warren	71	27.8	98	15.5	8	18.2

\*Counties having 500 or more Indian population in 1990.

\*\*Reservation counties are Graham, Jackson, and Swain.

Table 12

**Numbers and Percentages of Mothers Having  
a Primary or Repeat C-Section by Race  
North Carolina and Selected Counties\* 1988-91**

<u>RESIDENCE</u>	<u>WHITES</u>		<u>BLACKS</u>		<u>AMERICAN INDIANS</u>	
	<u>Number</u>	<u>Percent</u>	<u>Number</u>	<u>Percent</u>	<u>Number</u>	<u>Percent</u>
North Carolina	65,014	23.7	26,950	22.3	1,465	22.6
Reservation**	412	23.4	4	22.2	196	31.0
Non-Reservation**	64,602	23.7	26,946	22.3	1,269	21.7
<b>COUNTY*</b>						
Columbus	330	20.8	258	19.4	20	20.8
Cumberland	2,476	18.8	1,530	19.4	87	19.0
Forsyth	2,558	24.8	1,297	23.1	7	22.6
Guilford	3,318	26.0	2,050	27.2	27	26.2
Halifax	305	24.8	589	25.1	18	13.1
Harnett	728	22.8	323	22.0	15	27.3
Hoke	139	24.0	175	22.3	56	19.9
Jackson	245	24.1	3	21.4	79	35.1
Mecklenburg	5,128	23.4	2,317	19.0	32	28.3
Onslow	2,041	20.8	714	25.7	21	23.3
Richmond	477	30.1	278	25.3	8	17.8
Robeson	468	23.7	516	22.2	731	22.0
Sampson	353	22.7	282	25.4	10	19.2
Scotland	288	28.7	232	22.6	43	16.6
Swain	88	21.9	1	33.3	100	27.5
Wake	3,945	21.2	1,543	20.2	19	25.0
Warren	56	22.0	145	22.9	8	18.2

\*Counties having 500 or more Indian population in 1990.

\*\*Reservation counties are Graham, Jackson, and Swain.

Table 13

**Numbers and Percentages of Live Births by Birthweight by Race  
North Carolina 1987-91**

	<u>Whites</u>		<u>Blacks</u>		<u>American Indians*</u>			
	<u>Number</u>	<u>Percent</u>	<u>Number</u>	<u>Percent</u>	<u>Reservation</u>		<u>Nonreservation</u>	
					<u>Number</u>	<u>Percent</u>	<u>Number</u>	<u>Percent</u>
Total	338,596	100.0	147,766	100.0	775	100.0	7,312	100.0
Under 1500 grams	3,641	1.1	4,358	2.9	15	1.9	107	1.5
1500-2499 grams	16,919	5.0	14,469	9.8	40	5.2	524	7.2
2500 or more grams	317,784	93.9	128,755	87.1	720	92.9	6,675	91.3
Unknown	252	0.1	184	0.1	0	0.0	6	0.1

\*Reservation counties are Graham, Jackson, and Swain.

Table 14

Numbers and Percentages for Low-Weight Births by Race  
North Carolina and Selected Counties\* 1987-91

<u>RESIDENCE</u>	<u>WHITES</u>		<u>BLACKS</u>		<u>AMERICAN INDIANS</u>	
	<u>Number</u>	<u>Percent</u>	<u>Number</u>	<u>Percent</u>	<u>Number</u>	<u>Percent</u>
North Carolina	20,560	6.1	18,827	12.7	686	8.5
Reservation**	132	6.2	6	23.1	55	7.1
Non-Reservation**	20,428	6.1	18,821	12.7	631	8.6
<b>COUNTY*</b>						
Columbus	111	5.5	198	12.4	8	6.7
Cumberland	867	5.3	1,147	11.7	47	8.0
Forsyth	787	6.2	990	14.5	2	5.1
Guilford	917	5.8	1,125	12.4	13	10.1
Halifax	89	5.8	325	11.5	13	7.8
Harnett	237	5.9	229	12.8	8	11.0
Hoke	43	5.9	106	11.0	21	6.1
Jackson	71	5.8	5	23.8	18	6.8
Mecklenburg	1,579	5.9	2,159	14.5	7	4.9
Onslow	679	5.5	344	10.0	5	4.3
Richmond	122	6.3	160	12.1	1	1.7
Robeson	172	7.2	363	12.6	398	9.6
Sampson	112	5.9	180	13.4	9	12.7
Scotland	92	7.5	155	12.3	20	6.3
Swain	33	7.0	1	25.0	35	7.7
Wake	1,148	5.1	1,108	12.1	7	6.9
Warren	26	8.0	114	14.4	12	22.6

\*Counties having 500 or more Indian population in 1990.

\*\*Reservation counties are Graham, Jackson, and Swain.

Table 15

Fetal, Neonatal, Postneonatal, Total and Cause-Specific Infant Deaths  
and Rates by Race  
North Carolina 1987-91

	Whites		Blacks		American Indians <sup>1</sup>			
	Number	Rate	Number	Rate	Reservation Number	Reservation Rate	Nonreservation Number	Nonreservation Rate
Fetal Deaths <sup>2</sup>	2,303	6.8	1,988	13.3	10	12.7	52	7.1
Neonatal Deaths <sup>3</sup>	1,935	5.7	1,846	12.5	9	11.6	50	6.8
Postneonatal Deaths <sup>4</sup>	1,046	3.1	807	5.5	4	5.2	32	4.4
Infant Deaths <sup>5</sup>	2,981	8.8	2,653	18.0	13	16.8	82	11.2
SIDS Deaths <sup>6</sup>	437	1.3	332	2.2	3	3.9	14	1.9
Low Birthweight/ Respiratory Distress <sup>7</sup>	389	1.1	598	4.0	0	0.0	13	1.8
Birth Defects <sup>8</sup>	709	2.1	329	2.2	3	3.9	15	2.1
Perinatal Condition <sup>9</sup>	67	0.2	59	0.4	1	1.3	2	0.3
Injuries <sup>10</sup>	92	0.3	82	0.6	0	0.0	1	0.1

<sup>1</sup>Reservation counties are Graham, Jackson, and Swain.

<sup>2</sup>Stillbirths of at least 20 weeks gestation. Rate is per 1,000 deliveries.

<sup>3</sup>Death of a liveborn child under 28 days of age. Rate is per 1,000 live births.

<sup>4</sup>Death of an infant 28 days to one year of age. Rate is per 1,000 neonatal survivors.

<sup>5</sup>Death of a liveborn child under one year of age. Rate is per 1,000 live births.

<sup>6</sup>ICD-9 code 798.0.

<sup>7</sup>ICD-9 codes 764, 765, 769-770.7.

<sup>8</sup>ICD-9 codes 740-759.

<sup>9</sup>ICD-9 code 771.

<sup>10</sup>ICD-9 codes 800-999.

Table 16

Infant Deaths and Rates by Race  
North Carolina and Selected Counties<sup>1</sup> 1987-91

	Whites		Blacks		American Indians	
	<u>Number</u>	<u>Rate<sup>2</sup></u>	<u>Number</u>	<u>Rate<sup>2</sup></u>	<u>Number</u>	<u>Rate<sup>2</sup></u>
North Carolina	2,981	8.8	2,653	18.0	95	11.7
Reservation Counties <sup>3</sup>	21	9.9	0	0.0	13	16.8
Nonreservation Counties <sup>3</sup>	2,960	8.8	2,653	18.0	82	11.2
<u>County<sup>1</sup></u>						
Columbus	23	11.4	25	15.6	2	16.7
Cumberland	151	9.3	178	18.2	4	6.8
Forsyth	113	8.9	142	20.9	0	0.0
Guilford	139	8.8	161	17.7	0	0.0
Halifax	11	7.2	63	22.3	2	12.0
Harnett	35	8.7	33	18.4	0	0.0
Hoke	6	8.3	13	13.5	5	14.6
Jackson	9	7.3	0	0.0	5	18.9
Mecklenburg	196	7.3	299	20.1	1	6.9
Onslow	118	9.5	76	22.1	0	0.0
Richmond	29	14.9	22	16.7	0	0.0
Robeson	17	7.1	46	16.0	56	13.5
Sampson	17	8.9	26	19.3	0	0.0
Scotland	13	10.6	23	18.2	6	19.0
Swain	5	10.6	0	0.0	7	15.4
Wake	174	7.7	186	20.4	1	9.9
Warren	1	3.1	15	19.0	0	0.0

<sup>1</sup>Counties having 500 or more Indian population in 1990.

<sup>2</sup>Infant deaths (under 1 year) per 1,000 live births.

<sup>3</sup>Reservation counties are Graham, Jackson, and Swain.

Table 17

**Numbers and Rates of Birth Defects by Race  
North Carolina Birth Defects Registry 1989-90**

<b>Type of Defect</b>	<b>Whites</b>		<b>Blacks</b>		<b>American Indians</b>	
	<b>Number</b>	<b>Rate<sup>1</sup></b>	<b>Number</b>	<b>Rate<sup>1</sup></b>	<b>Number</b>	<b>Rate<sup>1</sup></b>
Total <sup>2</sup>	4,872	346.2	2,873	473.6	165	557.2
Central Nervous System <sup>3</sup>	214	15.2	126	20.8	6	20.3
Eye and Ear <sup>4</sup>	198	14.1	134	22.1	10	33.8
Heart <sup>5</sup>	1,060	75.3	618	101.9	30	101.3
Respiratory System <sup>6</sup>	205	14.6	94	15.5	7	23.6
Digestive System <sup>7</sup>	398	28.3	167	27.5	9	30.4
Genitourinary <sup>8</sup>	1,008	71.6	493	81.3	32	108.1
Hypospadias <sup>9</sup>	427	30.3	154	25.4	19	64.2
Musculoskeletal <sup>10</sup>	1,984	141.0	1,301	214.5	79	266.8
Chromosomal <sup>11</sup>	194	13.8	58	9.6	3	10.1

<sup>1</sup>Cases per 10,000 live births.

<sup>2</sup>ICD-9 codes 740-759 excluding minor malformations, i.e., codes 743.8, 744.1, 744.5, 747.5, 750.0, 751.0, 755.0, 756.2, 757.2, 757.3, 757.6.

<sup>3</sup>ICD-9 codes 740.0-742.9.

<sup>4</sup>ICD-9 codes 743.0-743.6, 743.9, 744.0, 744.2-744.3.

<sup>5</sup>ICD-9 codes 745.0-747.4, 747.6-747.9.

<sup>6</sup>ICD-9 codes 748.0-748.9.

<sup>7</sup>ICD-9 codes 749.0-749.2, 750.1-750.9, 751.1-751.9.

<sup>8</sup>ICD-9 codes 752.0-753.9.

<sup>9</sup>ICD-9 code 752.6.

<sup>10</sup>ICD-9 codes 754.0-754.8, 755.1-756.1, 756.3-756.9.

<sup>11</sup>ICD-9 codes 758.0-758.9.



TABLE 18

TWELVE LEADING CAUSES OF NATIVE AMERICAN MORTALITY:  
 NUMBERS OF DEATHS, YEARS OF LIFE LOST,  
 AND CORRESPONDING RANKS  
 NORTH CAROLINA 1987-91

<u>UNDERLYING CAUSE**</u>	DEATHS		YLL*	
	<u>NUMBER</u>	<u>RANK</u>	<u>NUMBER</u>	<u>RANK</u>
Diseases of Heart	670	1	3,514	2
Cancer	375	2	2,770	4
Motor Vehicle Injuries	169	3	5,695	1
Cerebrovascular Disease	120	4	535	12
Diabetes	100	5	—	—
All Other Unintentional Injuries	84	6	2,334	5
Homicide	66	7.5	2,087	6
Chronic Obstructive Pulmonary Diseases	66	7.5	—	—
Pneumonia and Influenza	53	9	741	10
Conditions in the Perinatal Period	50	10	3,393	3
Suicide	34	11	1,083	9
Chronic Liver Disease and Cirrhosis	31	12	626	11
Congenital Anomalies	—	—	1,700	7
Sudden Infant Death Syndrome	—	—	1,142	8

\*Years of Life Lost (YLL) is the expected years of life remaining, comparing decedent's age at death to the sex-specific life expectancy at birth of a North Carolina nonwhite.

\*\*ICD-9 codes are listed in Appendix 2.

TABLE 19

FIVE LEADING CAUSES OF MALE AND FEMALE NATIVE AMERICAN MORTALITY  
 NUMBERS OF DEATHS, YEARS OF LIFE LOST,\* AND CORRESPONDING RANKS  
 NORTH CAROLINA 1987-91

UNDERLYING CAUSE**	MALES				FEMALES			
	DEATHS	RANK	YLL*	RANK	DEATHS	RANK	YLL*	RANK
Diseases of Heart	364	1	1,549	5	306	1	1,965	1
Cancer	209	2	—	—	166	2	1,866	2
Motor Vehicle Injuries	126	3	3,966	1	43	5	1,729	3
All Other Unintentional Injuries	64	4	1,681	3	—	—	—	—
Homicide	55	5	1,593	4	—	—	—	—
Cerebrovascular Disease	—	—	—	—	66	3	—	—
Diabetes	—	—	—	—	62	4	—	—
Conditions in the Perinatal Period	—	—	1,787	2	—	—	1,606	4
Congenital Anomalies	—	—	—	—	—	—	890	5

\*Years of Life Lost (YLL) is the expected years of life remaining, comparing decedent's age at death to the sex-specific life expectancy at birth of a North Carolina nonwhite.

\*\*ICD-9 codes are listed in Appendix 2.

**TABLE 20**  
**NUMBERS OF DEATHS AND MEDIAN AGES AT DEATH BY RACE**  
**NORTH CAROLINA 1987-91**

<b>UNDERLYING CAUSE OF DEATH*</b>	<b>NUMBER OF DEATHS</b>			<b>MEDIAN AGE AT DEATH</b>		
	<b>WHITES</b>	<b>BLACKS</b>	<b>AMERICAN INDIANS</b>	<b>WHITES</b>	<b>BLACKS</b>	<b>AMERICAN INDIANS</b>
All Causes	216,273	67,606	2,172	74.3	68.5	66.1
Diseases of Heart	74,773	19,824	670	76.8	72.7	71.8
Cerebrovascular Disease	16,960	5,857	120	81.1	74.7	75.6
Atherosclerosis	1,508	451	14	84.6	81.3	81.1
Cancer	49,908	13,973	375	69.8	68.9	68.7
Diabetes Mellitus	4,110	2,283	100	73.4	69.8	70.3
AIDS/HTLV-III/LAV Infection	684	899	12	36.9	35.9	31.1
Septicemia	1,959	868	18	78.9	74.3	75.5
Pneumonia and Influenza	7,380	1,859	53	82.9	75.7	76.3
Chronic Obstructive Pulmonary Disease	8,853	1,206	66	74.0	70.8	72.9
Chronic Liver Disease and Cirrhosis	2,459	1,019	31	62.4	52.1	50.6
Nephritis, Nephrotic Syndrome and Nephrosis	1,662	973	26	78.7	74.1	77.5
Motor Vehicle Injuries	5,611	1,808	169	31.3	32.3	31.3
All Other Unintentional Injuries	5,183	2,263	84	61.9	45.3	40.5
Suicide	3,708	459	34	44.1	35.4	31.3
Homicide	1,546	1,887	66	34.0	30.7	31.9

\*ICD-9 codes are listed in Appendix 1.

Table 21

**Deaths and Median Ages at Death by Race  
North Carolina and Selected Counties<sup>1</sup> 1987-91**

<b>Residence</b>	<b>Whites</b>		<b>Blacks</b>		<b>American Indians</b>	
	<b>Number</b>	<b>Median<sup>2</sup></b>	<b>Number</b>	<b>Median<sup>2</sup></b>	<b>Number</b>	<b>Median<sup>2</sup></b>
North Carolina	216,273	74.3	67,606	68.5	2,172	66.1
Reservation Counties <sup>3</sup>	1,923	76.5	37	77.4	238	66.3
Nonreservation Counties <sup>3</sup>	214,350	74.3	67,569	68.5	1,934	66.1
<b>County<sup>1</sup></b>						
Columbus	1,782	73.3	917	69.4	42	66.2
Cumberland	5,084	68.4	2,659	64.0	109	65.2
Forsyth	8,768	75.4	3,216	69.2	2	72.8
Guilford	11,234	75.3	3,683	67.4	18	46.0
Halifax	1,661	75.2	1,517	68.2	53	58.3
Harnett	2,211	72.9	734	67.3	21	71.3
Hoke	437	73.8	376	68.7	64	60.8
Jackson	1,027	76.9	24	77.0	93	63.3
Mecklenburg	12,501	74.3	5,404	63.4	21	51.4
Onslow	2,185	68.3	598	59.8	10	52.7
Richmond	1,662	72.3	736	70.0	4	45.3
Robeson	2,126	72.6	1,387	69.4	1,332	67.6
Sampson	1,720	75.2	856	69.1	33	69.8
Scotland	928	72.3	597	68.7	60	59.7
Swain	541	76.3	11	78.0	134	67.3
Wake	8,566	73.5	3,243	67.4	14	48.7
Warren	428	76.3	600	71.3	19	73.5

<sup>1</sup>Counties having 500 or more Indian population in 1990.

<sup>2</sup>Half of the deaths are above and half below the median age at death.

<sup>3</sup>Reservation counties are Graham, Jackson, and Swain.

**TABLE 22**  
**AGE-ADJUSTED DEATH RATES BY RACE SHOWING INDIAN RATIOS**  
**NORTH CAROLINA 1987-91**

<u>UNDERLYING CAUSE OF DEATH<sup>2</sup></u>	<u>RATE<sup>1</sup></u>			<u>RATIOS: INDIANS TO</u>	
	<u>WHITES</u>	<u>BLACKS</u>	<u>AMERICAN INDIANS</u>	<u>WHITES</u>	<u>BLACKS</u>
All Causes	508.0	795.3	579.6	1.14	.73
Diseases of Heart	157.5	220.3	181.7	1.15	.82
Cerebrovascular Disease	30.9	62.0	31.2	1.01	.50
Atherosclerosis	2.4	3.8	3.2 <sup>3</sup>	1.33	.84
Cancer	128.1	172.5	105.4	.82	.61
Diabetes Mellitus	9.6	27.4	28.7	2.99	1.05
AIDS/HTLV-III/LAV Infection	2.6	12.7	3.0 <sup>3</sup>	1.15	.24
Septicemia	4.0	9.1	4.5	1.13	.49
Pneumonia and Influenza	12.9	19.0	12.4 <sup>3</sup>	.96	.65
Chronic Obstructive Pulmonary Disease	19.7	14.2	18.3	.93	1.29
Chronic Liver Disease and Cirrhosis	7.5	15.5	9.1	1.21	.59
Nephritis, Nephrotic Syndrome and Nephrosis	3.4	10.4	6.5	1.91	.63
Motor Vehicle Injuries	22.1	25.2	42.4	1.92	1.68
All Other Unintentional Injuries	15.3	29.5	22.0	1.44	.75
Suicide	13.3	6.4	8.7	.65	1.36
Homicide	6.0	26.1	16.8	2.80	.64

<sup>1</sup>Deaths per 100,000 population using 10-year age groups and the 1940 U.S. population as standard for direct age adjustment.

<sup>2</sup>ICD-9 codes are listed in Appendix 2.

<sup>3</sup>Rate based on fewer than 20 deaths.

Note: The total numbers of deaths underlying the age-adjusted rates are found in Table 20.

Table 23

Age-Specific Deaths and Death Rates by Race  
North Carolina 1987-91

Age Group	Whites		Blacks		American Indians	
	Number	Rate*	Number	Rate*	Number	Rate*
Under 1 Year**	2,981	880.4	2,653	1,795.4	95	1,174.7
01-04	563	45.7	415	86.1	26	98.3
05-14	760	25.0	455	37.0	38	51.6
15-24	3,501	92.6	1,581	117.6	96	127.2
25-34	4,700	111.0	3,160	252.2	123	180.4
35-44	6,705	176.7	4,495	448.2	159	274.3
45-54	12,258	438.6	5,877	985.0	178	484.5
55-64	28,714	1,198.4	9,991	2,046.9	321	1,391.4
65-74	52,290	2,682.4	15,674	3,836.5	479	2,921.3
75-84	61,434	6,134.8	15,231	7,073.3	442	6,038.3
85 and older	42,367	15,253.5	8,074	13,287.0	215	13,530.5

\*Deaths per 100,000 population.

\*\*For American Indians, population estimates were not available for persons under 1 and 1-4 years, and undercounts occurred for persons under 1 in all other race groups. Therefore, 1987-91 live births are used for under 1 and the population 0-4 minus live births is used for ages 1-4.

Table 24

**Deaths and Age-Adjusted Death Rates for  
Mentioned Conditions by Race Showing Indian Ratios  
North Carolina 1989-91**

Condition Mentioned on Death Certificate	Number of Deaths			Age-Adjusted Death Rate			Rate Ratios: Indians to	
	Whites	Blacks	American	Whites	Blacks	American	Whites	Blacks
			Indians			Indians		
Atherosclerosis <sup>1</sup>	26,218	6,365	211	80.4	103.1	88.0	1.09	.85
Diabetes Mellitus <sup>2</sup>	10,249	4,485	158	37.7	87.0	71.7	1.90	.82
Hypertension <sup>3</sup>	9,259	5,469	122	31.8	106.0	54.9	1.73	.52
Nephritis, Nephrotic Syndrome, Nephrosis <sup>4</sup>	6,429	3,103	82	22.5	56.7	35.3	1.57	.62
Septicemia <sup>5</sup>	6,241	2,668	68	21.8	49.2	28.3	1.30	.58
Alcohol Use <sup>6</sup>	2,779	1,925	78	15.7	48.0	35.7	2.27	.74

<sup>1</sup>ICD-9 codes 290.4, 414.0, 429.2, 437.0, 440.

<sup>2</sup>ICD-9 code 250.

<sup>3</sup>ICD-9 codes 401-405, 437.2, 642.

<sup>4</sup>ICD-9 codes 580-589.

<sup>5</sup>ICD-9 code 038.

<sup>6</sup>ICD-9 codes 291, 303, 305.0, 571.0-571.3, 790.3, E860, N980.

Table 25

**Cases and Rates for Leading Infectious Diseases by Race  
North Carolina 1987-91**

	Whites		Blacks		American Indians <sup>1</sup>			
	Number	Rate <sup>2</sup>	Number	Rate <sup>2</sup>	Reservation Number	Reservation Rate <sup>2</sup>	Nonreservation Number	Nonreservation Rate <sup>2</sup>
Syphilis <sup>3</sup>	1,585	6.4	11,971	165.6	7	22.8	78	21.4
Gonorrhea <sup>4</sup>	17,424	70.2	143,361	1,982.8	47	153.4	993	272.6
Chlamydia	15,133	60.9	26,609	368.0	195	636.4	233	64.0
Tuberculosis <sup>5</sup>	1,070	4.3	2,025	28.0	2	6.5	31	8.5
Hepatitis B	2,372	9.6	1,597	22.1	6	19.6	127	34.9

<sup>1</sup>Reservation counties are Graham, Jackson, and Swain.

<sup>2</sup>Reported cases per 100,000 population.

<sup>3</sup>All stages.

<sup>4</sup>All sites.

<sup>5</sup>Verified cases, all forms.

Statement of the Board of Directors  
 of the National Council on Education  
 for the Year 1951-52

Category	1951-52		1950-51		1949-50	
	Actual	Budget	Actual	Budget	Actual	Budget
Operating Expenses	1,200,000	1,150,000	1,100,000	1,050,000	1,000,000	950,000
Capital Expenses	500,000	500,000	450,000	450,000	400,000	400,000
Income	300,000	300,000	300,000	300,000	300,000	300,000
Surplus	400,000	400,000	350,000	350,000	300,000	250,000

The following table shows the actual and budgeted figures for the year 1951-52. The actual figures are shown in the first column, and the budgeted figures are shown in the second column. The third and fourth columns show the actual and budgeted figures for the year 1950-51, and the fifth and sixth columns show the actual and budgeted figures for the year 1949-50. The seventh column shows the actual and budgeted figures for the year 1948-49.

Table 1

Cost and Basis for Operating National Council on Education  
 for the Year 1951-52

Category	1951-52		1950-51		1949-50	
	Actual	Budget	Actual	Budget	Actual	Budget
Operating Expenses	1,200,000	1,150,000	1,100,000	1,050,000	1,000,000	950,000
Capital Expenses	500,000	500,000	450,000	450,000	400,000	400,000
Income	300,000	300,000	300,000	300,000	300,000	300,000
Surplus	400,000	400,000	350,000	350,000	300,000	250,000

The following table shows the actual and budgeted figures for the year 1951-52. The actual figures are shown in the first column, and the budgeted figures are shown in the second column. The third and fourth columns show the actual and budgeted figures for the year 1950-51, and the fifth and sixth columns show the actual and budgeted figures for the year 1949-50. The seventh column shows the actual and budgeted figures for the year 1948-49.



## APPENDIX 1

# Healthy People 2000 Objectives Targeting American Indians and Alaska Natives

- 2.3d\* Reduce overweight to a prevalence of no more than 30 percent among American Indians and Alaska Natives. (Baseline: An estimated 29-75 percent for different tribes in 1984-88)
- Note: For people aged 20 and older, overweight is defined as body mass index (BMI) equal to or greater than 27.8 for men and 27.3 for women. For adolescents, overweight is defined as BMI equal to or greater than 23.0 for males aged 12 through 14, 24.3 for males aged 15 through 17, 25.8 for males aged 18 through 19, 23.4 for females aged 12 through 14, 24.8 for females aged 15 through 17, and 25.7 for females aged 18 through 19. The values for adolescents are the age- and gender-specific 85th percentile values of the 1976-80 National Health and Nutrition Examination Survey (NHANES II), corrected for sample variation. BMI is calculated by dividing weight in kilograms by the square of height in meters. The cut points used to define overweight approximate the 120 percent of desirable body weight definition used in the 1990 objectives.*
- 2.10d Reduce the prevalence of anemia to less than 10 percent among Alaska native children aged 1 through 5. (Baseline: 22-28 percent in 1983-85)
- Note: Iron deficiency is defined as having abnormal results for 2 or more of the following tests: mean corpuscular volume, erythrocyte protoporphyrin, and transferrin saturation. Anemia is used as an index of iron deficiency. Anemia among Alaska Native children was defined as hemoglobin <11 gm/dL or hematocrit <34 percent. For pregnant women in the third trimester, anemia was defined according to CDC criteria. The above prevalences of iron deficiency and anemia may be due to inadequate dietary iron intakes or to inflammatory conditions and infections. For anemia, genetics may also be a factor.*
- 3.4f\* Reduce cigarette smoking to a prevalence of no more than 20 percent among American Indians and Alaska Natives. (Baseline: An estimated 42-70 percent for different tribes in 1979-87)
- Note: A cigarette smoker is a person who has smoked at least 100 cigarettes and currently smokes cigarettes.*
- 3.9a Reduce smokeless tobacco use by American Indian and Alaska Native youth to a prevalence of no more than 10 percent. (Baseline: 18-64 percent in 1987)
- Note: For males aged 12 through 17, a smokeless tobacco user is someone who has used snuff or chewing tobacco in the preceding month. For males aged 18 through 24, a smokeless tobacco user is someone who has used either snuff or chewing tobacco at least 20 times and who currently uses snuff or chewing tobacco.*
- 4.1a Reduce deaths among American Indian and Alaska Native men caused by alcohol-related motor vehicle crashes to no more than 44.8 per 100,000 American Indian and Alaska Native men. (Age-adjusted baseline: 52.2 per 100,000 in 1987)
- 4.2b Reduce cirrhosis deaths among American Indians and Alaska Natives to no more than 13 per 100,000 American Indians and Alaska Natives. (Age-adjusted baseline: 25.9 per 100,000 in 1987)
- 6.1d\* Reduce suicides among American Indian and Alaska Native men in Reservation States to no more than 12.8 per 100,000 American Indian and Alaska Native men. (Age-adjusted baseline: 15 per 100,000 in 1987)
- 7.1f Reduce homicides among American Indians and Alaska Natives in Reservation States to no more than 11.3 per 100,000 American Indians and Alaska Natives. (Age-adjusted baseline: 14.1 per 100,000 in 1987)
- 8.11 Increase to at least 50 percent the proportion of counties that have established culturally and linguistically appropriate community health promotion programs for racial and ethnic minority populations. (Baseline data available in 1992)
- Note: This objective will be tracked in counties in which a racial or ethnic group constitutes more than 10 percent of the population.*
- 9.1a Reduce deaths among American Indians and Alaska Natives caused by unintentional injuries to no more than 66.1 per 100,000 American Indians and Alaska Natives. (Age-adjusted baseline: 82.6 per 100,000 in 1987)
- 9.3d Reduce deaths among American Indians and Alaska Natives caused by motor vehicle crashes to no more than 39.2 per 100,000 American Indians and Alaska Natives. (Age-adjusted baseline: 46.8 per 100,000 in 1987)

## Healthy People 2000

### Objectives Targeting American Indians and Alaska Natives (continued)

- 13.1b Reduce dental caries (cavities) so that the proportion of American Indian and Alaska Native children aged 6 through 8 with one or more caries (in permanent or primary teeth) is no more than 45 percent. (Baseline: 92 percent in primary teeth and 52 percent in permanent teeth in 1983-84)
- 13.1d Reduce dental caries (cavities) so that the proportion of American Indian and Alaska Native adolescents aged 15 with one or more caries (in permanent or primary teeth) is no more than 70 percent. (Baseline: 93 percent in permanent teeth in 1983-84)
- 13.2b Reduce untreated dental caries so that the proportion of American Indian and Alaska Native children with untreated caries (in permanent or primary teeth) is no more than 35 percent among children aged 6 through 8 and no more than 40 percent among adolescents aged 15. (Baseline: 64 percent of American Indian and Alaska Native children aged 6 through 8 in 1983-84; 84 percent of American Indian and Alaska Native adolescents aged 15 in 1983-84)
- 13.5b Reduce the prevalence of gingivitis among American Indians and Alaska Natives aged 35 through 44 to no more than 50 percent. (Baseline: 95 percent in 1983-84)
- 13.11b\* Increase to at least 65 percent the proportion of American Indian and Alaska Native parents and caregivers who use feeding practices that prevent baby bottle tooth decay. (Baseline data available in 1991)
- 14.1b Reduce the infant mortality rate among American Indians and Alaska Natives to no more than 8.5 per 1,000 live births. (Baseline: 12.5 per 1,000 live births in 1984)
- 14.1i Reduce the postneonatal mortality rate among American Indians and Alaska Natives to no more than 4 per 1,000 live births. (Baseline: 6.5 per 1,000 live births in 1984)
- Note: Infant mortality is deaths of infants under 1 year; neonatal mortality is deaths of infants under 28 days; and postneonatal mortality is deaths of infants aged 28 days up to 1 year.*
- 14.4a Reduce the incidence of fetal alcohol syndrome among American Indians and Alaska Natives to no more than 2 per 1,000 live births. (Baseline: 4 per 1,000 live births in 1987)
- 14.9d\* Increase to at least 75 percent the proportion of American Indian and Alaska Native mothers who breastfeed their babies in the early postpartum period, and to at least 50 percent the proportion who continue breastfeeding until their babies are 5 to 6 months old. (Baseline: 47 percent at discharge from birth site and 28 percent at 5 to 6 months in 1988)
- 14.11b Increase to at least 90 percent the proportion of pregnant American Indian and Alaskan Native women who receive prenatal care in the first trimester of pregnancy. (Baseline: 60.2 percent of live births in 1987)
- 17.2b Reduce to no more than 11 percent the proportion of American Indians and Alaska Natives who experience a limitation in major activity due to chronic conditions. (Baseline: 13.4 percent in 1983-85)
- Note: Major activity refers to the usual activity for one's age-gender group whether it is working, keeping house, going to school, or living independently. Chronic conditions are defined as conditions that either (1) were first noticed 3 or more months ago, or (2) belong to a group of conditions such as heart disease and diabetes, which are considered chronic regardless of when they began.*
- 17.9b Reduce diabetes-related deaths among American Indians and Alaska Natives to no more than 48 per 100,000 American Indians and Alaska Natives. (Age-adjusted baseline: 54 per 100,000 in 1986)
- Note: Diabetes-related deaths refer to deaths from diabetes as an underlying or contributing cause.*
- 17.10b Reduce end-stage renal disease due to diabetes among American Indians and Alaska Natives with diabetes to no more than 1.9 per 1,000 American Indians and Alaska Natives with diabetes. (Baseline: 2.1 per 1,000 in 1983-86)
- Note: End-stage renal disease (ESRD) is defined as requiring maintenance dialysis or transplantation and is limited to ESRD due to diabetes. Blindness refers to blindness due to diabetic eye disease.*
- 17.11a Reduce diabetes among American Indians and Alaska Natives to a prevalence of no more than 62 per 1,000 American Indians and Alaska Natives. (Baseline: 69 per 1,000 aged 15 and older in 1987)

## Healthy People 2000

### Objectives Targeting American Indians and Alaska Natives (continued)

- 20.3g\* Reduce Hepatitis B (HBV) among Alaska Natives to no more than 1 case. (Baseline: An estimated 15 cases in 1987)
- 20.4d Reduce tuberculosis among American Indians and Alaska Natives to an incidence of no more than 5 cases per 100,000 American Indians and Alaska Natives. (Baseline: 18.1 per 100,000 in 1988)
- 20.7a Reduce bacterial meningitis among Alaska Natives to no more than 8 cases per 100,000 Alaska Natives. (Baseline: 33 per 100,000 in 1987)
- 21.2k Increase to at least 70 percent the proportion of American Indians and Alaska Natives who have received, as a minimum within the appropriate interval, all of the screening and immunization services and at least one of the counseling services appropriate for their age and gender as recommended by the U.S. Preventive Services Task Force. (Baseline data available in 1991)
- 21.8 Increase the proportion of all degrees in the health professions and allied and associated health profession fields awarded to members of underrepresented racial and ethnic minority groups as follows:

	1985-1986 Baseline	2000 Target
American Indians and Alaska Natives	0.3%	0.6%

*Note: Underrepresented minorities are those groups consistently below parity in most health profession schools—blacks, Hispanics, and American Indians and Alaska Natives.*

- 22.4 Develop and implement a national process to identify significant gaps in the Nation's disease prevention and health promotion data, including data for racial and ethnic minorities, people with low incomes, and people with disabilities, and establish mechanisms to meet these needs. (Baseline: No such process exists in 1990)

*Note: Disease prevention and health promotion data includes disease status, risk factors, and services receipt data. Public health problems include such issue areas as HIV infection, domestic violence, mental health, environmental health, occupational health, and disabling conditions.*

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DEPARTMENT OF CHEMISTRY  
RESEARCH REPORT

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2. Experimental

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9. Author's address

10. Summary

## APPENDIX 2

### NINTH REVISION INTERNATIONAL CLASSIFICATION OF DISEASES (ICD) CODES FOR SELECTED CAUSES OF DEATH

<u>CAUSE</u>	<u>ICD CODES</u>
Diseases of Heart	390-398,402,404-429
Cerebrovascular Disease	430-438
Atherosclerosis	440
Cancer	140-208
Diabetes Mellitus	250
AIDS/HTLV-III/LAV Infection	042-044
Septicemia	038
Pneumonia and Influenza	480-487
Chronic Obstructive Pulmonary Disease and Allied Conditions	490-496
Chronic Liver Disease and Cirrhosis	571
Nephritis, Nephrotic Syndrome and Nephrosis	580-589
Maternal Mortality	630-676
Accidents	E800-949
Motor Vehicle Accidents	E810-825
All Other Accidents and Adverse Effects	E800-807, 826-949
Suicide	E950-959
Homicide and Legal Intervention	E960-978

APPENDIX

NINTH REVISION INTERNATIONAL CLASSIFICATION OF DISEASES  
 CODES FOR SELECTED CAUSES OF DEATH

CAUSE	ICD-9 CODE
Ischaemic Heart Disease	410-414
Coronary Atherosclerosis	410
Angina Pectoris	411
Myocardial Infarction	410-412
Cardiomyopathy	413
Conduction System Diseases	414
Stroke	430-438
Ischaemic Stroke	430-431
Haemorrhagic Stroke	432-433
Subarachnoid Haemorrhage	434
Chronic Liver Disease and Cirrhosis	570-573
Alcoholic Liver Disease	571
Chronic Hepatitis	572
Chronic Cholelithiasis	573
Chronic Pancreatitis	574
Chronic Kidney Disease	580-585
End-stage Renal Disease	585
Diabetes Mellitus	250
Diabetes Mellitus, Type 1	250.0
Diabetes Mellitus, Type 2	250.1
Diabetes Mellitus, Type 3	250.2
Diabetes Mellitus, Type 4	250.3
Diabetes Mellitus, Type 5	250.4
Diabetes Mellitus, Type 6	250.5
Diabetes Mellitus, Type 7	250.6
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Diabetes Mellitus, Type 10	250.9
Diabetes Mellitus, Type 11	250.10
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