Epidemiologic Profile
for
HIV/STD Prevention & Care Planning

July 2005

Division of Public Health
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Please direct any comments or questions to:

Epidemiology & Special Studies Unit
HIV/STD Prevention & Care Branch
1902 Mail Service Center
Raleigh, North Carolina 27699-1902
919-733-7301

www.epi.state.nc.us/epi/hiv/

Note: References to regions in this document reflect unique HIV/STD Prevention & Care Branch regional designations. See the inside back cover for a region map.

North Carolina Epidemiologic Profile for HIV/STD Prevention & Care Planning

This document is for the 2005-2006 planning year and is based on data available through 2004

State of North Carolina • Michael F. Easley, Governor
Department of Health and Human Services
Carmen Hooker Odom, Secretary
Division of Public Health
Leah Devlin, DDS, MPH, State Health Director

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State of North Carolina
Department of Health & Human Services
Division of Public Health
Epidemiology Section

HIV/STD Prevention and Care Branch

Evelyn Foust, MPH, Head

Contributing Editor:
Bill Jones

Other Editors:
Lynne Sampson
Martha Buie
Ijatu Barrie
Penny Padgett
Del Williams

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TABLE OF CONTENTS

Executive Summary iii

Introduction 1

Part I: Core Epidemiology 3

Chapter 1: Sociodemographic Characteristics – General Population in North Carolina 5
- Highlights 5
- Population 7
- Demographic Composition 8
- Health Indicators 14

Chapter 2: Scope of the HIV/AIDS Epidemic in North Carolina 15
- Highlights 15
- Overall HIV/AIDS Trends 17
- HIV/AIDS by Race/Ethnicity and Gender 19
- HIV/AIDS by Age Group 23
- Adult/Adolescent HIV/AIDS by Exposure Categories 24
- Geographic Distribution of HIV/AIDS 27
- HIV/AIDS-Related Deaths 28
- Adolescent-Acquired HIV/AIDS 29
- Pediatric HIV/AIDS 30
- HIV Disease among Foreign-Born Residents 31

Chapter 3: Indicators of Risk for HIV/AIDS Infection in North Carolina 33
- Highlights 33
- Men Who Have Sex with Men (MSM) 35
- Direct Measures of MSM Risk Behavior 36
- Indirect Measures of MSM Risk Behavior 39
- Special MSM Risk Population 40
- Injecting Drug Use (IDU) 41
- Direct Measures of IDU Risk Behavior 41
- Heterosexual Contact 44
- Direct Measures of Heterosexual Risk Behavior 45
- Indirect Measures of Heterosexual Risk 48
- Special Heterosexual Risk Populations 51

Chapter 4: HIV Testing 53
- Highlights 53
- HIV Counseling, Testing and Referral (CTS) 55
- HIV Testing History 55
- Nontraditional Test Sites (NTS) 56
- HIV Testing and Positivity Trends 57

Chapter 5: Special Studies 63
- Recent Infections 65
- HIV Knowledge, Attitudes and Risk among Native Americans in North Carolina 69
- HIV among Young Adults Attending College 75
- Persons Diagnosed with both HIV and Syphilis 77
- Enhanced Perinatal Surveillance Project 80

Part Two: HIV/AIDS Treatment & Care in North Carolina 83
Chapter 6: The Impact of AIDS in North Carolina....85
Highlights....85
AIDS 87
Treatment 88
Chapter 7: Ryan White HIV/AIDS CARE Act and Other Service Considerations....91
Highlights....91
Ryan White 93
AIDS Drug Assistance Program (ADAP)....95
Housing Opportunities for Persons With AIDS (HOPWA) 97
Part Three: Sexually Transmitted Diseases in North Carolina....99
Chapter 8: STDs other than HIV/AIDS in North Carolina....101
Highlights....101
Chlamydia 106
Gonorrhea 108
Syphilis 111
Appendix A: Maps 117
Appendix B: Data Sources....129
Core HIV/AIDS Surveillance 131
Behavioral Surveys 132
STD Surveillance....134
Supplemental HIV/STD Surveillance....136
HIV Counseling and Testing Data....137
Substance Abuse Data 138
Vital Statistics Data 138
Population Data....140
Ryan White CARE Act Data 142
Appendix C: Special Notes....143
HIV Disease....145
2003-2004 HIV/AIDS Surveillance Reporting Issues....146
HIV Risk Categories and Distribution....146
Rate Calculation and Denominator Determination....147
Appendix D: Tables 149
References....183
Glossary 187
Index....199

EXECUTIVE SUMMARY

Recognizing North Carolina's diverse makeup is important to understanding the impact on the state of HIV/AIDS and other STDs because these diseases are disproportionately represented among minorities and the economically disadvantaged. North Carolina ranks as the 11th most populous state in the nation and experienced rapid growth from the 1990 to the 2000 Census. It has the seventh largest non-white population in the nation. In 2000, the racial/ethnic makeup of the of the state was about 22 percent black or African American (non-Hispanic), 71 percent white (non-Hispanic), and 5 percent Hispanic, with the remaining proportion consisting of primarily American Indians and Asians or Pacific Islanders. Although American Indians comprise just over one percent of the state's population, this group represents the largest population of American Indians in the eastern part of the nation. The state was ranked 37th in the nation for per capita income in 2004, with 14 percent of its population at or below the federal poverty level (2002-2003). North Carolina's foreign-born population increased from 4.6 percent in 2000 to 7.5 percent in 2004.

In 2004, 1,641 new individuals were reported with HIV disease (HIV and/or AIDS diagnosis). Over recent years, North Carolina has averaged about 1,700 new reports annually, which is up from the number of cases reported in the late 1990s. The overall HIV disease infection rate in 2004 was 19.5 cases per 100,000 persons. As seen with many other diseases, HIV is disproportionately distributed among the state's population. The 2004 rate of HIV infection for non-Hispanic blacks (58.9 per 100,000) was almost eight times greater than for whites (7.6 per 100,000). The rate of infection for Hispanics (20.6 per 100,000) was over three times that for whites, and the rate for American Indians (17.4 per 100,000) was over two times that for whites. The highest rate of infection was found among black males (84.0 per 100,000). The largest disparity was found in comparing white and black females; the HIV infection rate for black females (36.4 per 100,000) was 14 times higher than that for white non-Hispanic females (2.5 per 100,000). The ratio of male to female HIV disease reports has risen from 1.9 in 2000 to 2.5 in 2004. Much of the increase in HIV disease reports over the past few years was attributed to more male HIV disease cases being reported; the number of reports for females has remained fairly constant.

Risk of HIV transmission is very different for males and females; therefore it is important to discuss risk separately for each. In 2004, 68 percent of new adult and adolescent HIV disease reports for males was attributed to men who have sex with men (MSM) and MSM who also inject drugs (MSM/IDU), about 9 percent to injecting drug use (IDU) only, and 22 percent was attributed to heterosexual contact. The proportion of male reports with MSM (including MSM/IDU) as a risk factor has increased over the past few years for all racial/ethnic groups and ranged in 2004 from 86 percent of white non-Hispanic males to 59 percent of black non-Hispanic males. For adult and adolescent females, heterosexual contact accounted for about 82 percent of HIV disease reports in 2004, while injecting drug use accounted for about 13 percent.

Indicators of risk of infection with HIV vary considerably for different behavior groups. Most estimates of overall risk are based on a variety of direct and indirect measures. The state's partner counseling and referral services (PCRS) program showed an increasing proportion of interviewed men who indicated MSM risk during follow-up of both HIV and syphilis cases. In 2004, 48 percent of interviewed males with HIV indicated MSM risk and 40 percent of interviewed males with syphilis also indicated MSM risk. According to Counseling and Testing System (CTS) data, those reporting MSM risk have consistently had the highest percent of HIV positive test results. In 2004, about five

percent of males reporting MSM risk who tested at traditional test sites (TTS) were positive for HIV and about four percent of those who tested at nontraditional test sites (NTS) were positive.

Injecting drug use risk (including MSM/IDU) accounted for about 11 percent of male HIV disease reports in 2004 and accounted for about 13 percent of female reports. In 2004, persons who reported IDU risk (males and females) had the second-highest positivity rate among those who received HIV testing at CTS sites (about 1.7 percent at NTS and about 0.7 percent at TTS). Among HIV cases interviewed (PCRS) between 2000 and 2004, males were three times more likely than females to report IDU risk.

Heterosexual contact as a primary risk accounts for 39 percent of all (male and female) 2004 HIV disease reports. As mentioned earlier, it was the principal risk for female cases (82%), especially younger female cases (95% of likely female adolescent exposures). Heterosexual HIV reports for 2004 were higher among black males (27%) than among white males (6%). Indications of heterosexual risk-taking behavior can be found in the high rates of infection for other sexually transmitted diseases. In 2003, North Carolina ranked 7th in the nation in the rate of new gonorrhea cases. The male-to-female ratio for gonorrhea has remained stable and near 1.0, indicating the predominance of heterosexual transmission. Additionally, over 94 percent of new female syphilis cases and 72 percent of new male syphilis cases, interviewed through PCRS between 2000 and 2004, reported heterosexual activity.

While trends among new HIV disease reports can inform prevention needs, estimates of persons living with HIV or AIDS can indicate service and care needs. Further, trends among AIDS cases may indicate the areas of most severe care needs. As of December 31, 2004, an **estimated** 28,000 persons were living with HIV or AIDS in North Carolina, including those who may have been unaware of their infection. Of the persons who have been reported and were listed as living at that time, 68 percent were males and 32 percent were females. With respect to race/ethnicity, 71 percent were black non-Hispanic; 25 percent were white non-Hispanic. Most of the people living with HIV were older, with over half being 40 years of age or older.

In 2004, 1,114 new AIDS cases were reported in North Carolina, a four percent increase from the previous year. New AIDS cases in the state have increased substantially in the last few years. From 2000 to 2003, the national AIDS case rate increased by six percent (14.3 per 100,000 to 14.7) while in North Carolina, the AIDS case rate increased by 55 percent (8.3 to 12.9). In 2003, North Carolina ranked 17th among states for the rate of new AIDS cases and ranked 6th in the proportion of blacks among living AIDS cases. The reasons for the reported increases in AIDS reports in North Carolina are varied and likely represent several factors including: variations in access to medical care, changes in HIV treatment effectiveness over time, and enhanced surveillance efforts to capture accurate and timely reports.

Eleven consortia, along with other agencies and the state, provide Ryan White Title II services to HIV-infected persons across North Carolina. According to summary reports provided by service agencies, about 6,862 Ryan White Title II clients received or accessed funded services in 2004. In 2004, about 3,406 individuals were enrolled in the AIDS Drug Assistance Program (ADAP). The demographics of Ryan White Title II clients and ADAP enrollees were similar to the observed demographics of all persons listed as living in North Carolina with HIV or AIDS at the end of 2004.

INTRODUCTION

This issue of North Carolina's HIV/STD Epidemiologic Profile describes the HIV (human immunodeficiency virus) and STD (sexually transmitted disease) epidemics among various populations in North Carolina. As in previous issues, the majority of the data presented are drawn from surveillance systems maintained by the HIV/STD Prevention & Care Branch. We have also integrated other appropriate sources in the analysis and discussion.

This profile is divided into three parts. Part one describes general population demographics and social characteristics, the HIV epidemic, and indicators of HIV transmission risk in North Carolina. Part two describes HIV/AIDS treatment and care in North Carolina. Part three describes the epidemics and impact of other bacterial STDs in North Carolina including syphilis, chlamydia and gonorrhea. Throughout the profile, the following questions are addressed:

1. What are the sociodemographic characteristics of the general population in North Carolina?
2. What is the scope of the HIV/AIDS and STD epidemics in North Carolina?
3. What are the indicators of risk for HIV/STD infection in North Carolina?
4. What are the patterns of utilization of HIV services of persons in North Carolina?

The HIV and STD epidemics in North Carolina are related in that many of the same populations at high risk for one disease may be at increased risk for others as well. Public health activities at the state level aimed at controlling these epidemics have long been integrated in order to make optimal use of limited resources. While AIDS cases reflect older HIV infections, examination of trends in AIDS cases can draw attention to other aspects of the epidemic. Treatment advances have delayed progression from HIV to AIDS and from AIDS to death. This pattern has been demonstrated to some extent in surveillance data. Thus, "from 1996 on, cases of AIDS and deaths will provide a valuable measure of the continuing impact of treatment, as well as describe populations for whom treatment is either not accessible or not effective."(CDC 1998)

The Epidemiologic Profile content reflects a broad spectrum of information about sexually transmitted diseases in order to support the integrated activities of the HIV/STD Prevention & Care Branch. It seeks to add information to existing knowledge concerning HIV and other STD incidence in North Carolina. Along with prevention activities, the HIV/STD Prevention & Care Branch facilitates several key HIV/AIDS care and services programs across the state. Profile information on HIV/AIDS care and services for patients should assist various community-based organizations in assessing the need to provide or expand services in their service area. Some information in the profile is displayed or organized by HIV/STD Prevention & Care Regions. These regional designations can be seen on the map on inside back cover. HIV/STD data for these regions and some counties is also provided in the Regional/County supplement. This is made available as a separate document, but is intended to be used with this profile.

Through out this document, the references to race and ethnicity may be different from that found in documents from other agencies. Unless otherwise noted, references to all racial groups' data exclude Hispanics. Hispanics are counted as a separate group. Thus "white" refers to white non-

Hispanics, "blacks" refers to black non-Hispanics, etc. This allows Hispanics as a group to be compared to traditional racial groups. Also note that several appendices are included with this document. These appendices include Appendix A: Maps; Appendix B: Data sources: and Appendix C: Special notes, which is divided into three sections— C1: HIV disease (definition and use), C2: HIV risk categories references (assignment), and C3: Rate calculations; and Appendix D: Statewide tables. Although references to the appendices are noted throughout the profile, readers may find it beneficial to review them first, especially Appendix B and Appendix C. For example, Appendix B: Data sources contains valuable information about the strengths and limitations of the various data sources used throughout the document. Understanding the uniqueness of a data source is very helpful in determining the relevance of the trends that it displays.

PART I: CORE EPIDEMIOLOGY

WHAT ARE THE SOCIODEMOGRAPHIC CHARACTERISTICS OF THE GENERAL POPULATION IN NORTH CAROLINA? (CHAPTER 1)

WHAT IS THE SCOPE OF THE HIV/AIDS EPIDEMIC IN NORTH CAROLINA? (CHAPTER 2)

WHAT ARE THE INDICATORS OF RISK FOR HIV INFECTION IN NORTH CAROLINA? (CHAPTERS 3-5)

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CHAPTER 1: SOCIODEMOGRAPHIC CHARACTERISTICS OF THE GENERAL POPULATION IN NORTH CAROLINA

Highlights

- North Carolina ranks 9th in the nation in percentage population growth and is the 11th most populous state.
- From 1995 to 2000 North Carolina had the nation's 4th highest net in-migration rate.
- North Carolina's population grew by 21.4 percent from 1990 to 2000.
- Among the nation's top 50 metropolitan population growth areas in 2000 are Raleigh/Durham/Chapel Hill, ranking 12th; Wilmington, ranking 14th; Charlotte/Gastonia/Rock Hill, ranking 26th; and Greenville, ranking 40th.
- North Carolina has the 7th largest non-white population in the nation.
- North Carolina has the 15th largest Hispanic/Latino population in the nation.
- The median age for North Carolinians in 2000 was 35.3 years.
- In 2000, 24 percent of North Carolinians were 18 years and younger, while 12 percent were 65 years and older.
- North Carolina was 37th in the nation in per capita income in 2004 ($29,246), at 89 percent of the national average ($32,937).
- According to the Urban Institute and Kaiser Family Foundation, 27 percent of North Carolina's children (18 years and under), 17 percent of adults (between 19 and 64 years) and 16 percent of the state's elderly (65 years and over) were at or below the federal poverty level between 2002 and 2003.
- During 2004, 17.7 percent of North Carolinians were eligible for Medicaid coverage every month, or an average of one out of eight people.
- North Carolina ranked 3rd in states with statistically significant growth in immigration population between March 2000 and 2004.
- The 2004 infant death rate for North Carolina was 8.6 per 1,000 live births. The teen birth rate (women ages 15-19) for North Carolina in 2003 was 61.0 per 1,000; down from 64.1 per 1,000 in 2002.

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POPULATION

According to the 2000 federal Census, the United States population grew by 13.4 percent between 1990 and 2000 (1990: 248,709,873–2000: 281,421,906). During this same period, North Carolina's population grew by 21.4 percent, ranking 9th in percentage growth among the states and 6th in the number of persons added to the state. North Carolina is ranked as the 11th most populous state. According to the North Carolina State Demographer, the total estimated population for North Carolina in 2003 was 8,418,090 with county populations ranging from 4,226 (Tyrrell) to 750,221 (Mecklenburg). Population estimates for 2003 listed five counties with populations under 10,000 (Clay: 9,368; Graham: 8,044; Camden: 7,844; Hyde: 5,720; and Tyrrell: 4,226), with over half of North Carolina's population living in only 16 of the state's 100 counties (Mecklenburg, Wake, Guilford, Forsyth, Cumberland, Durham, Gaston, Buncombe, New Hanover, Davidson, Onslow, Catawba, Cabarrus, Union, Pitt, and Alamance). Map 1 (Appendix A, pg. 119) displays the population distribution among North Carolina counties for 2003.

The 2000 Census also recorded substantial growth in North Carolina metropolitan areas (MAs). The U.S. Office of Management and Budget (OMB) defines metropolitan areas as areas with specific social and economic links that have a central city of at least 50,000 persons. Among the nation's metro areas of 50,000 or more, the Triangle was the 6th fastest-growing in the 1990s, increasing 39 percent to 1.2 million people. In 2003, 72 percent of North Carolinians lived in a metropolitan area and 28 percent lived in a non-metropolitan area, as compared with the national proportion of 82 percent metropolitan, 18 percent non-metropolitan as stated by the (Urban Institute and Kaiser Family Foundation 2004). Four North Carolina areas were among the top 50 metropolitan population growth areas in the United States in 2000: Raleigh/Durham/Chapel Hill ranked 12th; Wilmington ranked 14th; Charlotte/Gastonia/Rock Hill ranked 26th; and Greenville ranked 40th. Three metropolitan areas ranked among the top 50 in the country for numerical population growth: Charlotte/Gastonia/Rock Hill; Raleigh/Durham/Chapel Hill; and Greensboro/Winston-Salem/High Point. Defined metropolitan areas are displayed in Map 2 (Appendix A, pg. 120).

According to the U.S. Census Bureau, Wake County ranked 9th nationwide in net in-migration (with about 53,000 people) and Mecklenburg County ranked 20th (with 37,000 people). Net in-migration is the number of people who arrived from other counties, minus the number who left. Migration from other states helped make North Carolina the 9th fastest-growing state in the 1990s, with over eight million residents, and giving North Carolina the nation's 4th highest net in-migration rate (Stradling 2003).

According to the Urban Institute, foreign-born population in new-growth states grew by 145 percent between 1900 to 2000, with the highest growth levels occurring in North Carolina, Georgia, Nevada, and Arkansas (Capps 2002). Another report by the Center for Immigration Studies, based on U.S. Census Bureau's March Current Population Surveys, ranked North Carolina 3rd in states with statistically significant growth in immigration population between March 2000 and 2004 (Camarota 2005). North Carolina's foreign-born population jumped 72 percent, from 373,000 in 2000 to 641,000 in March 2004 (from 4.6% to 7.5% of total population). However, the U.S. Census Bureau's Annual American Community survey showed that North Carolina's foreign-born population grew by only 35 percent to 502,776 from 2000 to 2003, 6.2 percent of total population. Table 1.1 shows that 23.6 percent of the foreign-born

population are naturalized citizens while 76.4 percent are not citizens. In addition, 70.8 percent of immigrants entered the state in 1990 or later. If we look at Table 1.2, the region of birth of the foreign-born population in North Carolina, 57 percent of immigrants came from Latin America, 22 percent from Asia, 11.5 percent from Europe, 5 percent from Africa, 4 percent from North America, and 0.5 percent from Oceania.

Table 1.1. North Carolina foreign-born population, 2003

	2003	
	Estimate	Percentage
Naturalized Citizen	118,400	23.6%
Not a Citizen	384,376	76.4%
Entered 1990 or Later	355,897	70.8%
Entered Before 1990	146,879	29.2%
Total	502,776	100%

Source: U.S. Census Bureau

Table 1.2. North Carolina foreign-born population by region of birth, 2003

	2003	
	Estimate	Percentage
Latin America	287,320	57.0%
Asia	110,127	22.0%
Europe	57,951	11.5%
Africa	25,998	5.0%
Northern America	18,763	4.0%
Oceania	2,617	0.5%
Total	502,776	100%

Source: U.S. Census Bureau

DEMOGRAPHIC COMPOSITION

Race/Ethnicity and Gender

North Carolina varies in demographic composition from region to region. North Carolina has the 7th largest non-white population (2,141,397) in the United States. In 2000, 11 counties had populations consisting of more than 50 percent non-white residents (Robeson: 66.7%; Bertie: 63.5%; Hertford: 62.2%; Warren: 60.8%; Northampton: 60.7%; Edgecombe: 59.7%; Hoke: 54.5%; Halifax: 57.1%; Vance: 51.4 %; Washington: 51.4%; and Anson: 50.2%). Maps 3-6 (Appendix A, pg. 121-124) display the racial and ethnic make-up of North Carolina counties, as reported in the 2003 bridged-race estimates.

Table 1.3 displays the percentage of males and females for the major race/ethnicity categories in North Carolina, according to the bridged-race estimates for 2003 (please see Appendix C, pg. 147 for more information about Census data and the bridged race categories used to calculate rates). Note the ratio of Hispanic males to females for North Carolina and the ratio of black or white females to males. Map 5 (Appendix A, pg. 123) displays the proportion of Hispanic population in 2003, by county. In 2000, North Carolina had the 15th largest Hispanic or Latino population in the nation. Within North Carolina, Duplin County had the highest proportion of Hispanic residents (15%), followed by Lee County (11.7%), Sampson County (10.8%), and Montgomery County (10.4%). Table 1.4 displays race/ethnicity by gender for 2003 by HIV/STD Prevention & Care Branch Regions. Note the larger proportion of white non-Hispanics in Region 1, American Indians in Region 5, and black non-Hispanics in Region 6. A state map of the HIV/STD Prevention & Care Branch Regions is displayed on the inside back cover.

Table 1.3. North Carolina race/ethnicity proportions by gender, 2003

	Am. Indian / Alaska native*	Asian/Pacific Islander*	Black*	White*	Hispanic	Total
Males	0.6%	0.9%	10.3%	34.1%	3.3%	49.2%
Females	0.6%	0.9%	11.6%	35.5%	2.3%	50.9%
Total	1.2%	1.8%	21.9%	69.6%	5.6%	100%

* non-Hispanic

Table 1.4. North Carolina race/ethnicity proportions by gender and HIV/STD Prevention and Care Branch Regions, 2003

	Am. Ind./AN*		Asian/PI *		Black*		White*		Hispanic	
	M%	F%	M%	F%	M%	F%	M%	F%	M%	F%
Region 1	0.6	0.6	0.4	0.5	2.6	2.4	43.3	46.4	1.9	1.3
Region 2	0.2	0.2	1.2	1.2	9.1	10.3	35.2	36.5	3.7	2.6
Region 3	0.2	0.2	0.7	0.7	8.5	9.9	35.8	38.2	3.4	2.5
Region 4	0.2	0.2	1.5	1.5	11.8	13.4	31.4	32.6	4.4	2.9
Region 5	4.0	4.2	0.7	0.9	14.9	15.9	27.0	26.9	3.1	2.4
Region 6	0.3	0.3	0.3	0.4	17.2	19.7	28.8	30.0	1.8	1.3
Region 7	0.5	0.5	0.4	0.6	9.8	10.5	36.7	36.0	3.1	2.0

* non-Hispanic AN=Alaska native PI=Pacific Islander

Age and Gender

The median age for persons living in North Carolina in 2000 was 35.3 years old, with 24.4 percent 18 years and younger, and 12 percent 65 years and older. Table 1.5 displays the percentage of the population in each age group, by gender. The trend in North Carolina follows the typical age trend of slightly more males under 12 years old and more females 40 and older. Table 1.6 displays the proportion of males and females by age group for the HIV/STD Prevention & Care Branch Regions. Note the greatest proportion of children ages 0 to 12 years is in Region 5 and adults ages 50 and older in Region 1. Region 7 has the highest proportion of 20- to 29- year old males.

Table 1.5. North Carolina age groups by gender, 2003

Age group (yrs.)	Pct. Males (N=4,124,864)	Pct. Females (N=4,293,226)	Pct. Total Population (N=8,418,090)
0-12	9.2%	8.8%	18.0%
13-19	4.9%	4.6%	9.5%
20-29	7.4%	6.8%	14.2%
30-39	7.6%	7.5%	15.1%
40-49	7.4%	7.6%	15.0%
≥ 50	12.7%	15.6%	28.3%
Total	49%	51%	100%

Table 1.6. North Carolina characteristics of age by gender, and HIV/STD Prevention and Care Branch Regions, 2003

Age group (yrs.)	Gender	Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7
0-12	Male	8.0%	9.6%	8.9%	9.4%	10.3%	9.0%	9.0%
	Female	7.5%	9.1%	8.4%	9.0%	9.9%	8.7%	8.6%
13-19	Male	4.6%	4.8%	4.7%	4.8%	5.3%	5.1%	5.0%
	Female	4.2%	4.5%	4.6%	4.7%	5.0%	4.9%	4.3%
20-29	Male	6.4%	7.0%	6.8%	7.9%	8.5%	7.2%	9.6%
	Female	5.9%	6.7%	6.7%	7.4%	7.0%	6.8%	7.0%
30-39	Male	6.8%	8.3%	7.4%	8.5%	7.5%	6.4%	6.8%
	Female	6.6%	8.1%	7.4%	8.3%	7.3%	6.6%	6.6%
40-49	Male	7.1%	7.7%	7.4%	7.7%	6.8%	7.3%	6.8%
	Female	7.4%	7.8%	7.7%	8.0%	7.2%	7.8%	7.1%
≥ 50	Male	16.0%	11.9%	13.5%	11.0%	11.2%	13.4%	13.3%
	Female	19.7%	14.5%	16.6%	13.4%	14.1%	17.0%	15.8%
Total	Male	48.9%	49.3%	48.7%	49.3%	49.6%	48.4%	50.5%
	Female	51.3%	50.7%	51.4%	50.8%	50.5%	51.8%	49.4%

Poverty, Income, and Education

According to the U.S. Department of Commerce's Bureau of Economic Analysis, the per capita income for 2004 in North Carolina was $29,246, or 88.8 percent of the national average of $32,937. This places North Carolina 37th in the U.S. for personal per capita income and 4th in the Southeast. As of February 2005, a total of 231,528 North Carolinians were unemployed, or 5.4 percent of the N.C. civilian, non-institutionalized population. This rate is down from February 2004, when 247,630— or 5.8 percent— of North Carolinians were unemployed. According to the Bureau of Labor Statistics, the national unemployment rate was 5.4 percent in February 2005 and 5.6 percent in February 2004.

According to the North Carolina Institute of Medicine, 1.4 million— or one in five— North Carolinians under the age of 65 were uninsured in 2003 (16.5% of the total population). Over the last four years, the number of uninsured residents increased from 15.3 percent to 19.4 percent. Overall, 62 percent of the state's uninsured population were low-income individuals with income less than 200 percent of the Federal Poverty Level. Furthermore, racial/ethnic minorities and non-citizens were more likely to be uninsured than whites. About 19.9 percent of blacks and 55.7

percent of Latinos were uninsured, compared to only 14 percent of whites. In addition, Latinos were more likely to be uninsured because they are usually recent immigrants with low-wage jobs, in industries that do not offer health insurance. Figure 1.1 (see pg. 12) shows the distribution of nonelderly uninsured by race/ethnicity in 2003.

According to the 2000 U.S. Census, 45.9 percent of North Carolina families with female head of household (no husband present) and with children under 5 years old were below the federal poverty level. For individuals 18 years and older living in North Carolina, 11 percent were below the federal poverty level at some point during 1999. From 2002 to 2003, 14 percent of North Carolinians were at or below the federal poverty level. Table 1.7 displays the individual poverty rate by age for the state and the nation from 2002 to 2003, and Table 1.8 displays the individual poverty rate by race/ethnicity for N.C. and the U.S. during 2002-2003. Map 7 (Appendix A, pg. 125) displays North Carolina per capita income for 2000 by county.

Table 1.7. North Carolina and U.S. poverty rates by age, 2002-2003

Age in Years	N.C. (N)	N.C. (Pct.)	U.S. (N)	U.S. (Pct.)
Children 0-18	587,870	27%	17,763,640	23%
Adults 19-64	849,180	17%	26,635,190	15%
Elderly 65+	152,380	16%	4,852,590	14%

Source: Urban Institute and Kaiser Family Foundation

Table 1.8. North Carolina and U.S. income and poverty rate, 2002-2003

Race/Ethnicity	Individual Poverty Rate (% of each group at or below the federal poverty level)	
	N.C. (Pct.)	U.S. (Pct.)
White*	13%	11%
Black*	32%	33%
Hispanic	38%	30%
Other	28%	20%

* non-Hispanic

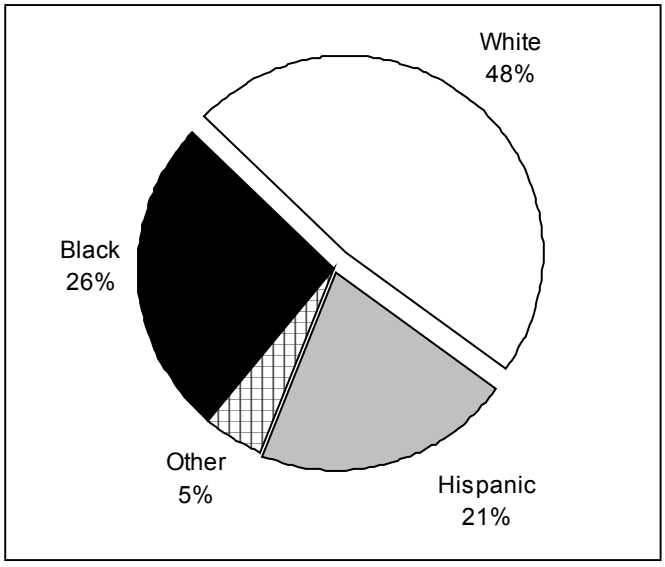
Source: Urban Institute and Kaiser Family Foundation

According to the 2003 American Community Survey, of North Carolinians 25 years and older, 7 percent had less than a 9th grade education; 13 percent had some high school but no diploma; 29 percent were high school graduates, including equivalency; 19 percent had some college, but no degree; 8 percent had an Associate degree; 16 percent had a Bachelor's degree; and 8 percent had a graduate or professional degree. The state's dropout rate declined from 2002 to 2003 for the fourth consecutive year; at the same time the standards and requirements for students increased. The number of students in seventh through twelfth grades that dropped out of school fell to 19,834 from 21,046 in school year 2002-2003. However, the number of students who dropped out in 2003-2004 rose slightly to 20,817 (N.C. Public Schools Statistical Profile 2004).

Public Aid

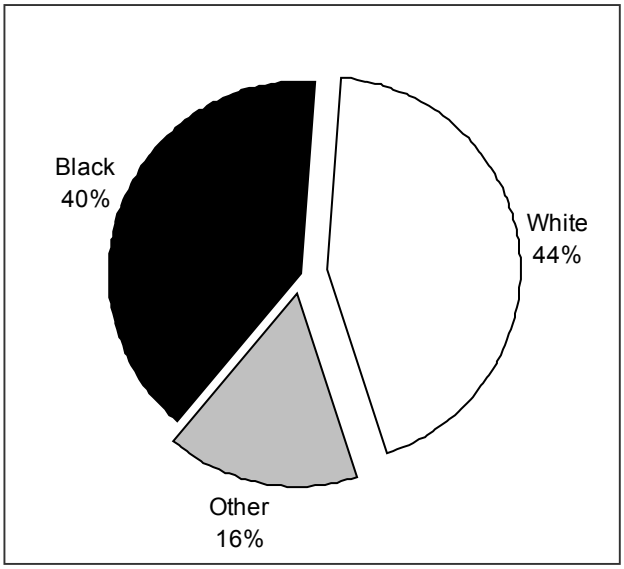
The grand total of Medicaid and Medicaid-related expenditures in North Carolina for SFY 2004 was $8,475,768,498 for roughly 1.5 million Medicaid recipients (an average $4,805 per recipient). During 2004, a total of 1,541,450 North Carolinians, or 17.7 percent of the total N.C. population, was eligible for Medicaid coverage at some point during the year (DHHS 2005*)*. The elderly and disabled recipients numbered 26.3 percent of the total recipients, yet their expenditures amounted to $5.1 billion, or 68.3 percent of the total service expenditures (Figure 1.3). Recipients from the families and children group represented 69.7 percent of all recipients; however, they accounted for $2.3 billion, only 31 percent, of total service expenditures. Aliens and refugees represented four percent of all recipients and accounted for $51.7 million, or one percent, of total service expenditures. Medicaid financed 45 percent of total births in N.C. during 2004. Figure 1.4 displays the 10-year history of the number of monthly Medicaid-eligibles in North Carolina. Figure 1.2 displays the percentage of North Carolinians, by race, who received Medicaid in 2003 (DHHS 2004*)*. Map 8 (Appendix A, pg. 126) displays the percent of Medicaid-eligibles by county for 2003.

Figure 1.1. N.C. distribution of nonelderly uninsured by race/ethnicity, 2003



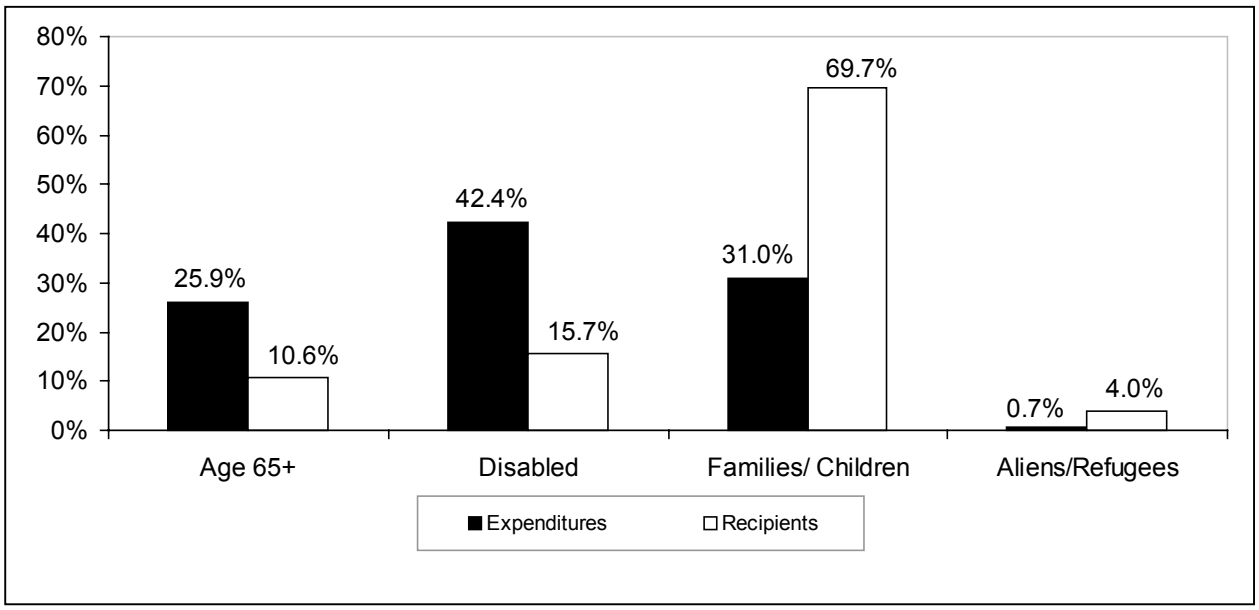
Source: Urban Institute and Kaiser Family Foundation

Figure 1.2. N.C. Medicaid recipients by race, SFY 2003



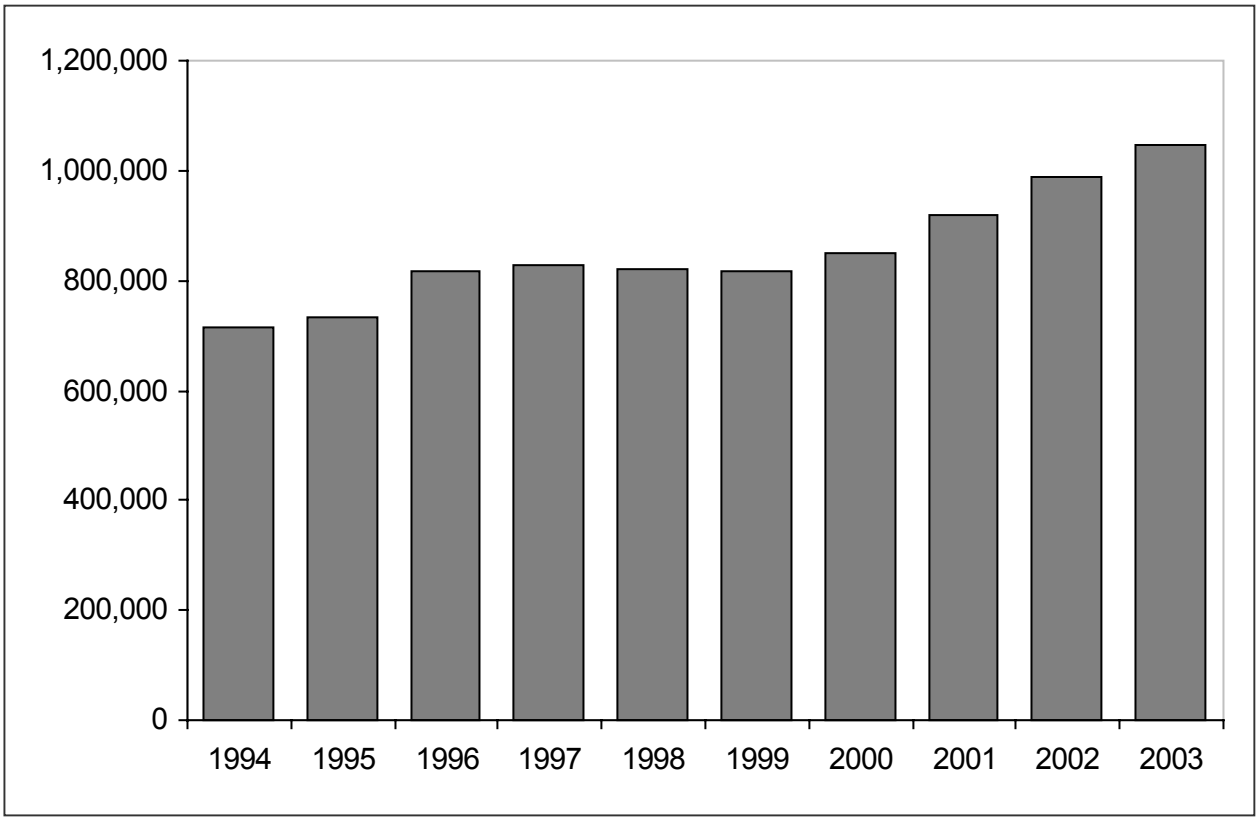
Source: Medicaid in North Carolina Annual Report 2003

Figure 1.3. N.C. Medicaid service expenditures & recipients, SFY 2004



Source: Medicaid Program Overview 2005

Figure 1.4. N.C. Medicaid history of monthly Medicaid eligibles, SFY 1994-2003



Source: Medicaid in North Carolina Annual Report 2003

HEALTH INDICATORS

There are a variety of ways to measure the health of different populations, especially as related to sexual activity and access to health care. In 2003, North Carolina ranked 20th in the nation for reported chlamydia with a rate of 314.7 or 26,187 cases; 7th for reported gonorrhea with a rate of 181.7 or 15,116 cases; and 19th for reported primary and secondary syphilis with a rate of 1.8 or 152 cases (CDC 2004). See chapter 8 for more information on bacterial Sexually Transmitted Diseases in North Carolina.

Another health indicator is to compare the state infant death rate to the national rate. The 2004 infant death rate for North Carolina was 8.6 per 1,000 live births, as compared to the national average of 6.6 per 1,000 live births (Hamilton et. all 2004). Birth rates for young women can be an indirect marker for sexual activity. Nationally, North Carolina had the highest teen birth rate in 2000. Although teen pregnancy rates continue to decline in North Carolina, nationally the state still had the 14th-highest birth rate in 2003. The teen birth rate (women ages 15-19) for North Carolina in 2003 was 61.0 per 1,000 girls down from 64.1 per 1,000 in 2002. The national teen birth rates in 2002 and 2003 were 43 and 41.7 per 1,000 young women, respectively. The North Carolina teen birth rate still remains high compared both to the national teen birth rate for Hispanic women and to the other race categories in the state. Table 1.9, below, displays the teen birth rate, low birth weight percentage and the infant death rate for North Carolina for race/ethnicity categories (note that data was not uniformly available for each year and for all race/ethnicity groupings). Also note that the teen birth rate for Hispanic women in the state increased from 147 per 1,000 in 2000 to 164 per 1,000 in 2002.

Table 1.9. N.C. and U.S. teen birth rate, low birth weight and infant death rate, by race/ethnicity

Race/Ethnicity	Teen Birth Rate, per 1,000 births (2002)		Percentage of Low Birth Weight** Infants (2002)		Infant Death Rate, per 1,000 births (2001)	
	N.C.	U.S.	N.C.	U.S.	N.C.	U.S.
White*	36.9	28.5	7.6%	6.9%	6.1	5.7
Black*	68.1	68.3	14.1%	13.4%	15.8	14.0
Hispanic	164.3	83.4	6.1%	6.5%	-	-

*non-Hispanic **Low birth weight is birth weight of less than 2,500 grams (51b.8oz.)

Source: Urban Institute and Kaiser Family Foundation

CHAPTER 2: SCOPE OF THE HIV/AIDS EPIDEMIC IN NORTH CAROLINA

Highlights

- In 2004, 1,641 new individuals were reported with an HIV diagnosis (HIV disease). Recently, N.C. has averaged approximately 1,700 new reports each year.
- North Carolina's overall rate of HIV infection in 2004 was 19.5 per 100,000.
- The cumulative number of individuals reported with HIV disease through December 31, 2004 was 26,818 persons.
- An estimated 28,000 persons were living with HIV or AIDS in North Carolina (including persons who may have been unaware of their infection) as of December 31, 2004.
- In 2004, the rate of HIV infection for non-Hispanic blacks (58.9 per 100,000) was almost eight times greater than for non-Hispanic whites (7.6 per 100,000). The rate of infection for Hispanics (20.6 per 100,000) was almost three times greater than for whites, and the rate of infection for American Indians (17.4 per 100,000) was over two times that for whites.
- The highest rate of HIV infection in 2004 was among black non-Hispanic males, at 84.0 per 100,000. This was about 6.5 times that for white non-Hispanic males (12.9/100,000).
- The largest disparity observed was for black non-Hispanic females, with a rate of HIV infection (36.4 per 100,000) that was over 14 times higher than for white non-Hispanic females (2.5 per 100,000).
- Adults aged 30 to 39 years and 40 to 49 accounted for the greatest proportion of new HIV reports in 2004 (30% each).
- For 2004 adult/adolescent HIV disease reports, men who have sex with men (MSM) was indicated in 47 percent of reports; heterosexual transmission risk was indicated in 39 percent of reports; and injecting drug use (IDU) was indicated in 10 percent of reports.
- In 2004, MSM and MSM/IDU accounted for 66 percent of new HIV disease reports among adult/adolescent males. This represents an increase for males as compared to earlier years.
- In 2004 HIV disease reports for adult/adolescent females, heterosexual contact accounted for about 82 percent of reports and injecting drug use accounted for about 13 percent.
- Nationally, in 2003, North Carolina reported the 2nd highest number of AIDS cases from non-metropolitan areas.

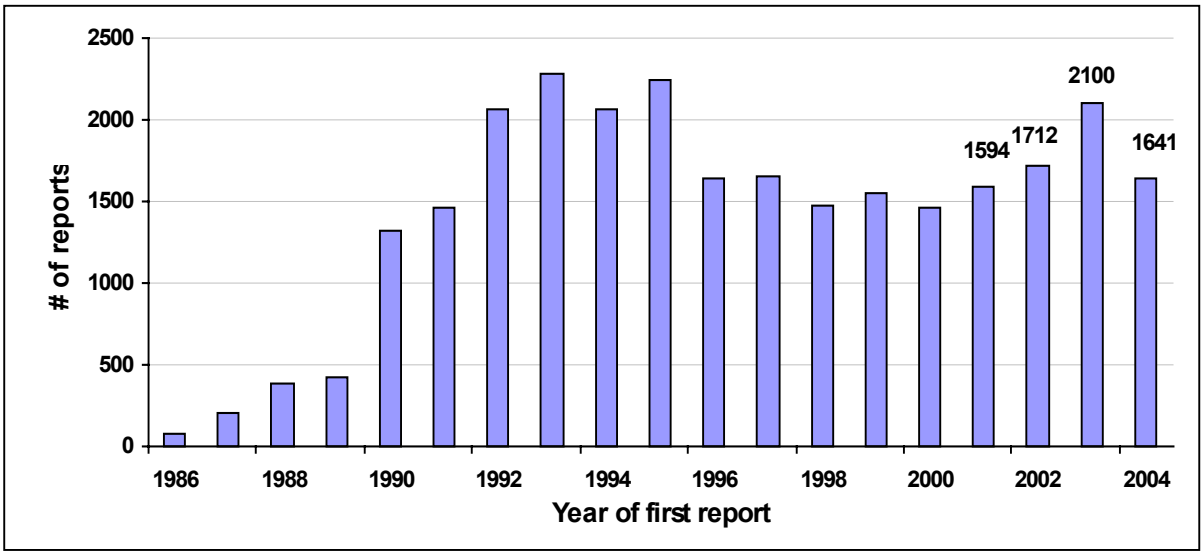
- Since the early 1990s, about 25 percent of North Carolina's HIV disease reports have consistently come from rural, or non-metropolitan, areas.
- In 2004, Hertford County had the highest county HIV infection rate (based on a 3-year average for 2002-2004) of 71.7 per 100,000 population. This was more than three times the state's 3-year average rate of 21.7 per 100,000 population. Edgecombe County ranked second with an HIV rate of 55.2, followed by Mecklenburg County (48.8), Durham County (41.3), and Duplin County (36.6).
- In 2003, HIV/AIDS was listed as the 7th leading cause of death for adults 25-44 years old.
- In 2003, HIV/AIDS was listed as the 8th leading cause of death for blacks overall. The crude HIV death rate for blacks is about 11 times higher than for whites (18.2 vs. 1.7 per 100,000).

OVERALL HIV/AIDS TRENDS

Special note: Unless otherwise noted, references to all racial groups in surveillance data exclude Hispanics. Hispanics are counted as a separate group. Thus "white" refers to white non-Hispanics, "blacks" refers to black non-Hispanics, etc.

HIV Incidence

Figure 2.1. HIV disease reports over time



Although HIV surveillance reports do not reflect the true incidence of all new infections since not everyone infected is tested and reported, it is important to follow surveillance reporting trends to estimate whether incidence is increasing or decreasing. In 2004, 1,641 new individuals were reported with an HIV diagnosis (*HIV disease*). This brings the total number of individuals reported with *HIV disease* (through December 31, 2004) to 26,818. [*HIV disease* includes not only persons diagnosed with HIV but also persons diagnosed with HIV and AIDS at the same time. Thus *HIV disease* includes all new individuals reported as infected by the date of their first report. More information about this designation of *HIV disease* can be found in Appendix C on page 145.]

Figure 2.1 shows all HIV disease cases reported, by year of first report for the individual. The addition of state-required HIV infection reporting in 1990 accounts for the dramatic increase in reports beginning at that time. The number of cases reported was highest from 1992 through 1995, representing a time when HIV incidence was likely at its peak. It is important to note that some of this spike in reporting was also probably a result of better reporting from providers due to enhanced awareness about HIV/AIDS issues. This likely occurred because of the implementation of required HIV infection reporting, changes in the AIDS case definition and/or as a result of enhanced active surveillance activities by staff. Thus, part of this 1992-to-1995 spike was likely a reflection of prevalent cases being reported. An interesting correlation to note is that 1992 was the peak year for HIV seropositivity among women who gave birth in North Carolina (data from the Survey of Childbearing Women) and was also the peak year for syphilis cases reported in North Carolina. It

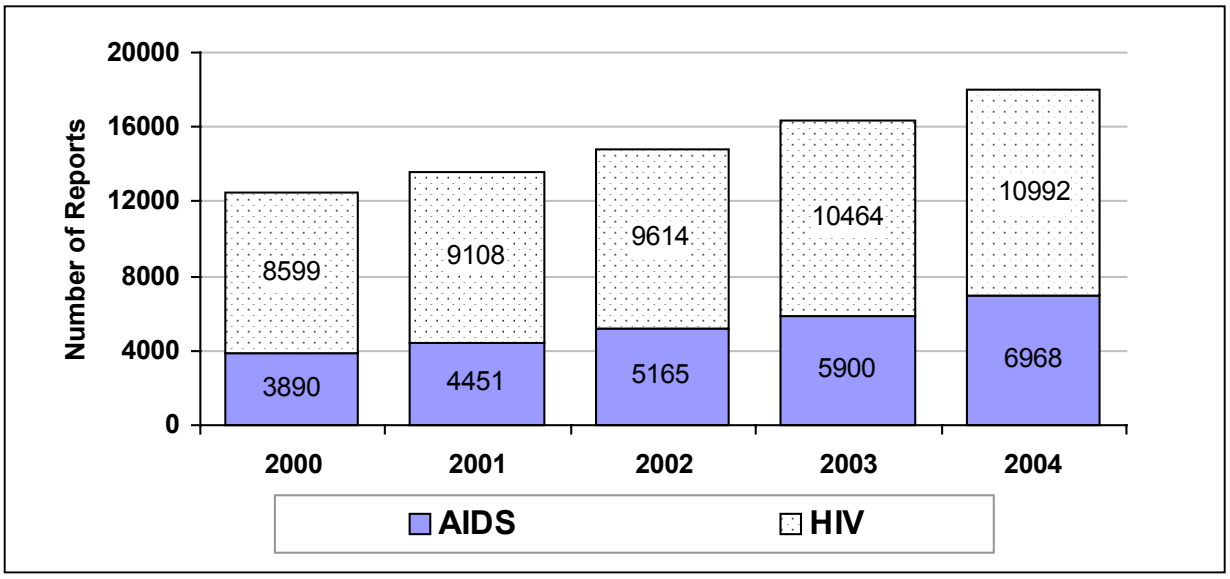
should also be noted that the peak of reports in 2003 was likely the result of newly implemented surveillance activities that added some older prevalent cases to the system.

Although the number of new HIV disease reports per year has moderated since 1996, yearly report totals have increased over the last few years to around 1,700 new reports per year. Reporting by type of initial case (HIV or AIDS) has been fairly consistent since the mid-1990s. Roughly just under 30 percent of new individuals reported each year with HIV disease also represent new AIDS cases (i.e., HIV and AIDS were reported at the same time for the individual).

HIV Prevalence

As stated earlier, the cumulative number of HIV disease cases reported through December 31, 2004 was 26,818, of whom, 8,858 have either died or have an unknown vital status. Therefore, the total number of persons living with HIV and reported to the HIV/STD Prevention & Care Branch is 17,960. Figure 2.2 displays the cumulative number of persons living with HIV or AIDS each year from 2000 to 2004. Readers may note that "living totals" for earlier years have been revised. HIV disease reports are periodically updated with vital status data available from the State Center for Health Statistics. An extensive update was completed in 2003.

Figure 2.2. Persons living with HIV in North Carolina, 2000-2004



The number of persons living with HIV stated above represents only persons who know that they are HIV-positive (i.e., have been diagnosed) and who have been reported to the N. C. public health surveillance system. Thus, this total underrepresents true HIV prevalence. The total must be adjusted to account for persons who have been diagnosed and not reported and for those who do not know that they are infected. Recent studies indicate that N.C. HIV surveillance currently captures 70 – 90 percent of new HIV diagnoses (Appendix B - pg. 131). One method for estimating persons who have HIV but are not aware of it is based upon the CDC estimate that two-thirds to three-fourths of the persons living with HIV and AIDS have been tested and know their status. Applying

these two statistics to our current surveillance total of 17,960 persons living in North Carolina with HIV/AIDS would increase the prevalence estimate to about 28,000 persons.

HIV Demographics

Table 2.1 displays demographics of HIV disease reports for persons newly reported with HIV during 2004 and those persons living with HIV/AIDS as of December 31, 2004. The comparison of the two groupings (new reports vs. all persons living) is similar demographically, an indication that in a broad sense new cases/reports are very much like older cases. It is important to keep in mind that, because there can be significant delay between HIV infection and testing (reporting), changes in the epidemic will take longer to be observed in surveillance data. Given this overall similarity, however, three differences are noteworthy between the 2004 cases only and all persons living with HIV/AIDS. As expected, there is a larger representation of older persons among the persons living with HIV/AIDS as many persons live several years with a diagnosis. Also as expected, there is a larger representation of Hispanics in new reports. This is not unusual, given the relatively recent increase in the Hispanic population in North Carolina. Please refer to page 8-9 and Map 5 (Appendix A, pg.123) in Chapter 1 for more information about North Carolina's Hispanic population. The third noteworthy item in this comparison is the larger proportion of new male HIV disease reports in 2004 as compared to new female reports than that found in reports for all living cases. This subtle change can be observed over time in Table A (pg.151). This change could indicate possible changes in exposure risk among males, females, or both.

In 2004, the rate of HIV infection among males (28.4 per 100,000 population) was over twice that of females (10.9 per 100,000). The rate of HIV infection among non-white populations was much greater than among whites (7.6 per 100,000). The rate for blacks (58.9 per 100,000) was almost eight times greater; the rate for Hispanics (20.6) was almost three times greater; and the rate for American Indians (17.1) was over twice that for whites. It should be noted that although the overall rate for HIV infection among Asian and Pacific Islanders was above that for whites in recent years, the rate for new reports dropped below the rate for whites in 2004 (Table B pg. 152).

HIV/AIDS BY RACE/ETHNICITY AND GENDER

Table 2.2 below indicates that the highest rate of HIV infection among racial/ethnic grouping by gender in 2004 is among black males (84.0 per 100,000), at more than six times that for white males (12.9 per 100,000). The second highest rate of HIV infection is for black females (36.4 per 100,000), over 14 times higher than the rate for white females (2.5 per 100,000). This disparity between white and black women represents the largest disparity noted within gender for race/ethnicity. Disparities also exist for Hispanics as compared to whites; the rate for Hispanic men (22.6 per 100,000) is almost twice that for white men and the rate for Hispanic women (17.7 per 100,000) is over seven times that for white women. Rates for other race/ethnic groups are based on numbers too small for meaningful comparisons but are displayed in Table B, pg. 152.

Table 2.1. North Carolina HIV/AIDS demographics, 2004

	HIV disease (HIV/AIDS) reports (2004)			Persons living with HIV/AIDS** (as of 12/31/2004)		
	No.	Pct.	Rate (per 100,000)	No.	Pct.	Rate (per 100,000)
Total	1,641		19.5	17,960		213.6
Gender						
Male	1,174	72%	28.4	12,237	68%	296.3
Female	467	28%	10.9	5,723	32%	133.8
Race/ethnicity						
White*	443	27%	7.6	4,398	25%	75.2
Black*	1,081	66%	58.9	12,715	71%	692.2
Am Indian/ Al Native*	18	1%	17.1	168	<1%	159.9
Asian/PI*	3	<1%	2.0	78	<1%	51.7
Hispanic	96	6%	20.6	586	3%	125.6
* non-Hispanic						
Age group						
00-12	4	<1%	0.3	86	<1%	5.7
13-19	34	2%	4.3	135	<1%	17.3
(13-24)	203	(12%)	14.5	-	-	-
20-29	340	21%	28.4	1,862	10%	155.5
30-39	488	30%	38.6	5,455	30%	431.1
40-49	500	30%	39.7	6823	38%	541.1
50 and over	275	17%	11.6	3,574	20%	150.4

**includes HIV disease reports for 2004

Table 2.2. North Carolina HIV disease by race/ethnicity and gender, 2004

Gender	**Males**			**Females**			**Total**		
Race/ethnicity	No.	Pct.	Rate*	No.	Pct.	Rate*	No.	Pct.	Rate*
White (non-Hispanic)	369	31%	12.9	74	16%	2.5	444	27%	7.6
Black(non- Hispanic)	727	62%	84.0	354	76%	36.4	1081	66%	58.9
Hispanic	62	5%	22.6	34	7%	17.7	96	6%	20.6
Other or unknown	16	1%	--	5	1%	--	21	1%	--
Total	1,174	100%	28.4	467	100%	10.9	1,641	100%	19.5

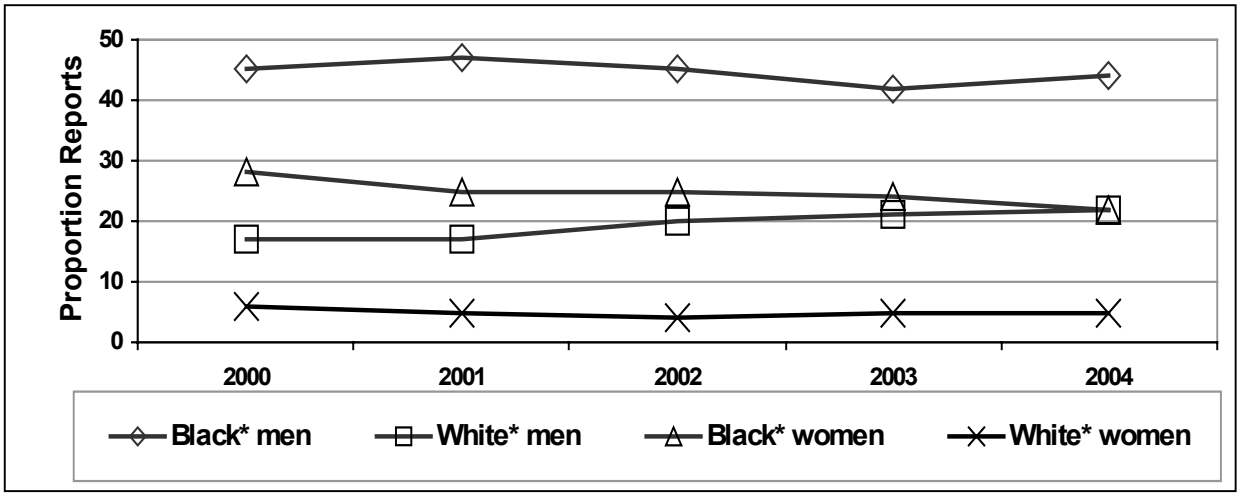
* per 100,000

Table A on pg. 151 displays the gender distribution of HIV disease reports from 2000 through 2004. The gender distribution of reports is about two and one-half male reports for each female report. This disparity has been widening over the past five years. In 2000, the ratio was about two male reports for each female report. Table B on page 152 also displays the race/ethnicity of reports stratified by gender from 2000 through 2004. Notable trends include the increase in proportion of reports for white males (17% of reports in 2000 to 22% of report in 2004) and for Hispanics overall (3% of reports in 2000 to 6% in 2004). Figure 2.3 displays proportion of HIV disease rates from

2000 through 2004 attributed to black and white males and to black and white females. Note also the slight increase in proportion of new cases for black males.

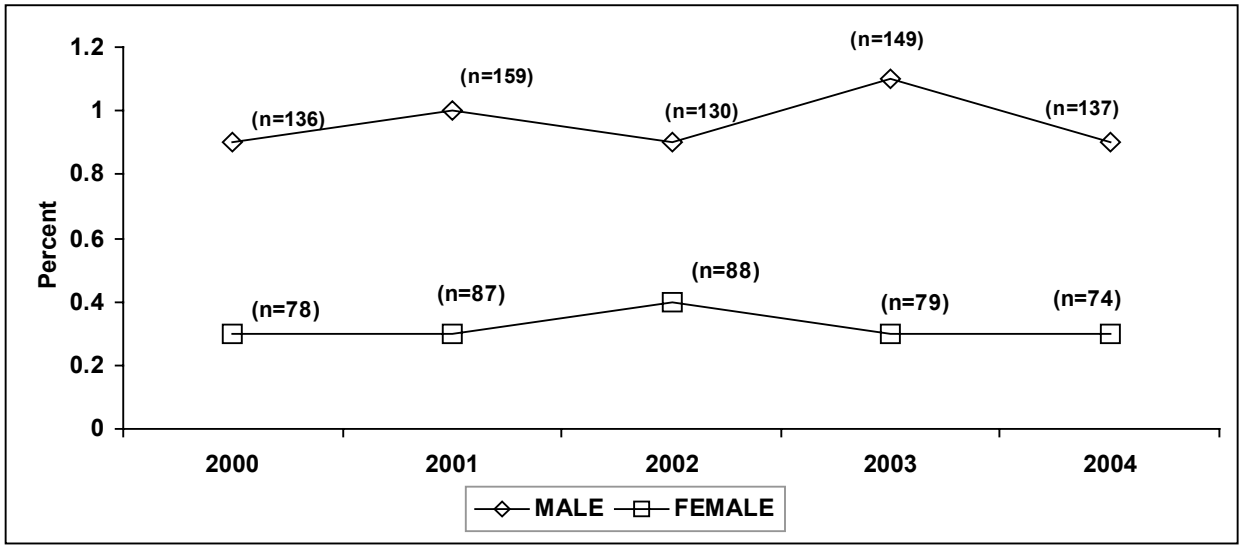
In addition to routine surveillance data, comparisons or trends can be isolated among persons tested at HIV counseling and testing system (CTS) sites. The North Carolina Division of Public Health collects information from clients seeking HIV testing at any of the 169 publicly funded HIV CTS sites across the state. Information on client demographics, risk behaviors, and testing history is

Figure 2.3. HIV/AIDS by race/ethnicity and gender over time, 2000-2004



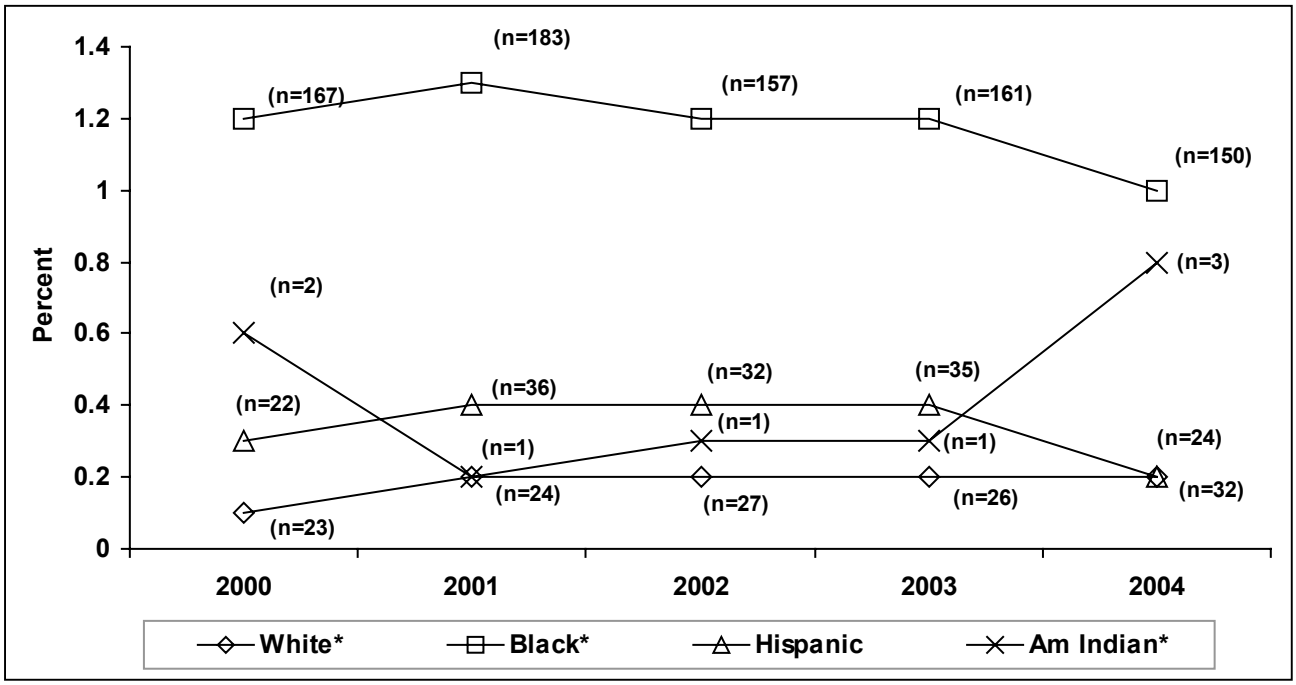
* non-Hispanic

Figure 2.4. Percent HIV positivity among persons tested (CTS) for the first time by gender, 2000-2004



collected, but no personal identifying information is included. The risk information provided can be used to classify clients according to a risk hierarchy similar to the one that is used to classify reported cases; however, the self-reported risk may not be accurate. Because clients who use CTS services are self-selected, they do not represent a random sample of the state's population. Also, because no personal identifying information is collected, it is impossible to know how many times an individual client is represented in the data set. However, clients are asked if they have ever been tested for HIV before. Those who say they have been tested before could be in the data set one, two, three, or more times in a single year, depending on their testing frequency. Those who report that they have not been tested before the current test therefore comprise a group with each person represented only once; this is the most stable group from which to make estimates. Changes are proposed for CTS data collection in 2005 that will improve the ability to identify multiple tests for persons over time. (For a detailed description of CTS, please see Appendix B, page 137 and HIV testing discussion beginning on page 53.)

Figure 2.5. Percent HIV positivity among persons tested (CTS) for the first time, by race/ethnicity, 2000-2004



* non-Hispanic

Although the CTS data is limited to persons who test at public clinics, it is very useful because information is available for persons who test HIV negative as well as persons who test HIV positive, so positivity rates can be calculated. Percent positivity among persons testing for the first time at HIV counseling and testing (CTS) sites in North Carolina is displayed in Figures 2.4 and 2.5. The relative rankings of positivity for males and females is similar to those seen in routine surveillance data, but relative ranking of positivity among racial/ethnic groups in 2004 is somewhat different. The positivity among whites and Hispanics tested at CTS sites is about even, and the positivity among blacks appears to be decreasing. The increase in positivity among American Indians may not

be meaningful as it is based on very few cases. The differences observed in positivity among the groups may be due to changes in the testing outreach and subsequent changes in the testing population.

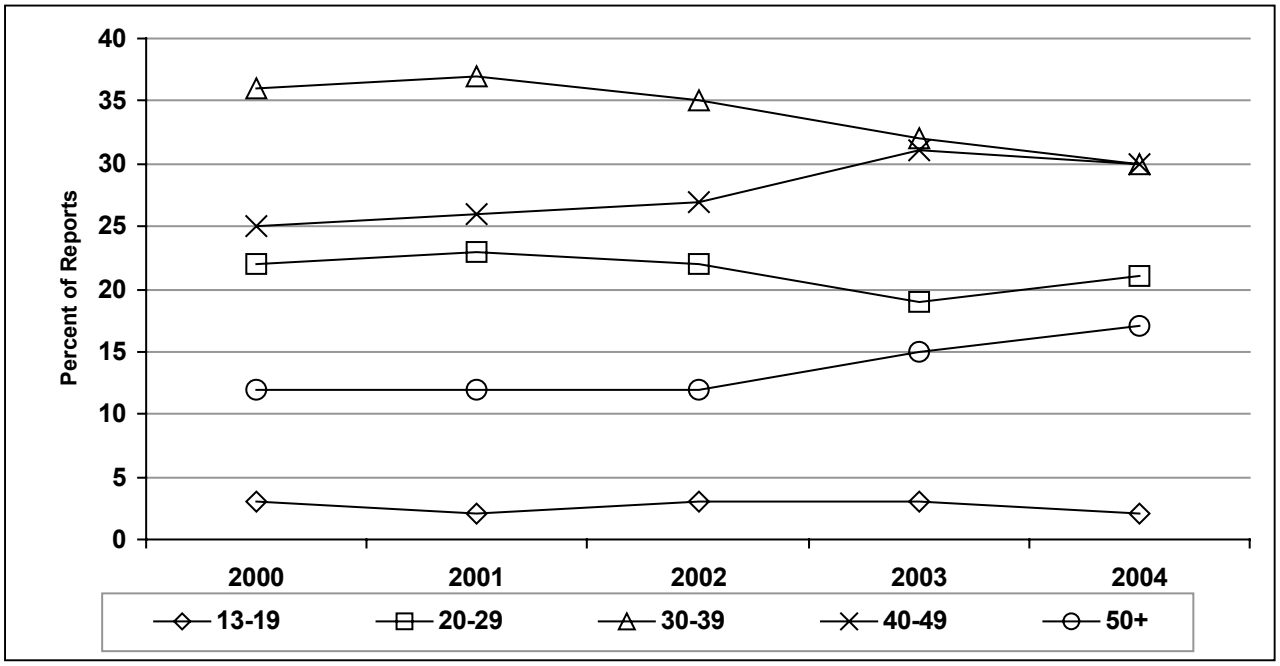
HIV/AIDS BY AGE GROUP

Table 2.4. North Carolina HIV disease by age group and gender, 2004

	Males			Females			Total		
Age (yrs.)	No.	Pct.	Rate	No.	Pct.	Rate	No.	Pct.	Rate
0-12	0	0%	0.0	4	1%	0.5	4	<1%	0.3
13-19	21	2%	5.1	13	3%	3.4	34	2%	4.3
20-29	249	21%	39.8	91	20%	15.9	340	21%	28.4
30-39	356	30%	55.8	132	28%	21.1	488	30%	38.6
40-49	354	30%	57.2	146	31%	22.7	500	30%	39.7
50 & over	194	17%	18.2	81	17%	6.2	275	17%	11.6
Total	1,174	100%	28.4	467	100%	10.9	1,641	100%	19.5

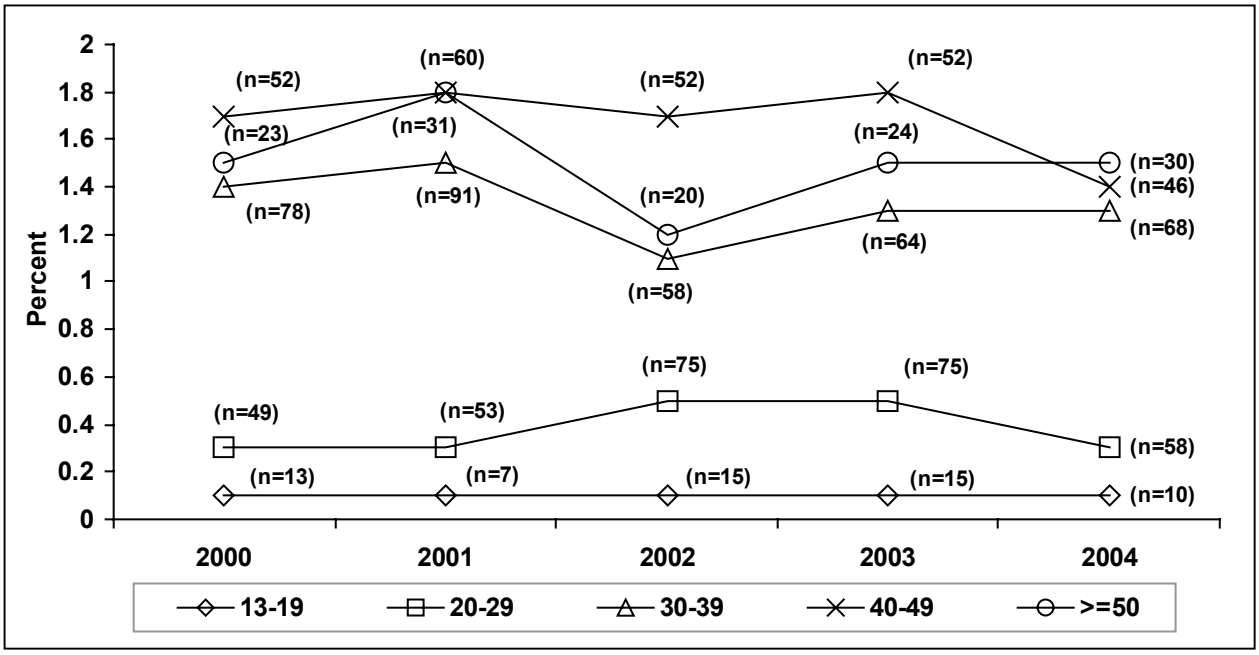
Most HIV disease reports are for adults and adolescents, as less than one percent of new reports represent infants or children younger than 13 (Table A, pg. 151). In 2004, adults aged 30 to 39 years and 40 to 49 years accounted for the greatest proportion of reports (see Table 2.4 above). Together, these two groups accounted for 60 percent of all reports. HIV is reported among an older population when compared to other sexually transmitted diseases like gonorrhea and chlamydia. However, the age distribution of HIV cases is similar to that of syphilis reports (Chapter 8). Figure 2.6 displays trends for age groups from 2000 to 2004 by their proportion of overall reports. Note that proportions

Figure 2.6. HIV/AIDS by age group, 2000-2004



have changed over time for some groups. The proportions have increased for those 50 years and older as well as for 40- to 49- year-olds. Those aged 30-39 years made up a smaller proportion of new reports over time. Figure 2.7 displays the percent positivity for persons tested for the first time at CTS sites from 2000 to 2004. Positivity is highest for those aged 50 years and older. For 40- to 49- year-olds, the percent positivity decreased in 2004. Positivity has remained fairly constant for other persons in recent years. Readers are reminded that CTS data only represent the testing population at public clinics and may not be generalizable to larger populations.

Figure 2.7. Percent positivity among persons tested (CTS) for the first time by age group, 2000-2004



ADULT/ADOLESCENT HIV/AIDS BY EXPOSURE CATEGORIES

As part of HIV surveillance activities, a great deal of importance is placed on determining the key HIV risk factors associated with each case. This is achieved by interviewing the patient, the sex and/or drug-using partners, and the treating physician. Ultimately, each case is assigned to a primary risk category based on a hierarchy of disease transmission developed by the CDC and others. Table 2.5 displays the reported mode of transmission for adult/adolescent HIV disease cases for 2004. Three principal risk categories are evident: men who have sex with men (MSM), injection drug use (IDU), and heterosexual contact. Note that the proportion of cases for which there is no identified risk (NIR) is substantial, and is higher among females than among males when proportions are compared for each gender separately. Part of these NIR cases are classified as such not because of missing or incomplete information, but because reported risks do not meet one of the CDC-defined risk classifications. Consequently, inferring trends from exposure category or risk data should be done with extreme caution. Some NIR cases have been reevaluated and reassigned to a "presumed heterosexual" risk category based on information from follow-up interviews with newly diagnosed

individuals, such as the exchange of sex for drugs or money, previous diagnoses with other STDs, multiple sexual partners, etc. Even with this reassignment of presumed heterosexual risk for some NIR reports, a substantial proportion of NIR reports remain, and it is somewhat difficult to follow changes in the proportions among the risk groups. To simplify the discussion and better describe the overall changes, the remaining NIR cases have been assigned a risk based on the proportionate representation of the various risk groups within the surveillance data (see Table 2.6). More explanation of this general risk reassignment of NIR cases can be found in Appendix C on page 146. Further discussions of risk or exposure categories in this profile will be based on the fully redistributed risk of all HIV/AIDS cases.

Table 2.5. Adult/adolescent HIV disease by exposure category, NIRs included, 2004

Exposure	Males		Females		Total	
Category	No.	Pct.	No.	Pct.	No.	Pct.
MSM	534	46%	--	--	534	33%
IDU	68	6%	35	8%	103	6%
MSM/IDU	21	2%	--	--	21	1%
Blood Products/ Hemophilia/other	11	1%	12	3%	23	1%
Heterosexual	77	7%	127	27%	204	12%
NIR (presumed heterosexual)	97	8%	93	20%	190	12%
NIR	365	31%	197	43%	562	34%
Total	1,173	100%	464	100%	1,637	100%

For 2004 adult/adolescent HIV disease reports, heterosexual transmission risk represents about 39 percent of all reports; MSM and MSM/IDU (men who have sex with men and inject drugs) represent about 49 percent of all reports; and IDU represents about 12 percent (including MSM/IDU). This gives a very broad look at how the HIV epidemic is spread among risk groups. However, it is difficult to apply this broad information to effective prevention strategies because risk is very different for males and females. Thus, it is necessary to discuss risk for each gender separately. Figures 2.8 and 2.9 display risk for each gender. For males, MSM and MSM/IDU together account

Table 2.6. Adult/adolescent HIV disease by exposure category, NIRs redistributed, 2004

Exposure	Males		Females		Total	
Category	No.	Pct.	No.	Pct.	No.	Pct.
MSM	769	65.5%			769	46.9%
IDU	99	8.5%	60	12.9%	160	9.7%
MSM/IDU	30	2.6%			30	1.8%
Blood Products/ Hemophilia/other	16	1.4%	21	4.5%	37	2.3%
Heterosexual	258	22.0%	383	81.9%	641	39.0%
Total	1,173	100%	464	100%	1,637	100%

for about 68 percent of HIV disease reports; heterosexual contact cases account for about 22 percent of reports; and IDU account for about 11 percent. For females, heterosexual contact accounts for about 82 percent of reports and IDU about 13 percent. Tables E and F (pp. 155-156) display the risk

categories for the sexes for reports from 2000 to 2004. For males, the proportion of MSM reports has risen in recent years, from about 49 percent in 2000 to 66 percent in 2004. This is consistent with the recent overall increase in male reports observed when comparing gender. The proportion of IDU reports (2000-2004) for males has continued to decline (14% to 9%), while reports for females do not show a discernable trend. For females, the proportion of heterosexual contact reports has remained fairly constant.

Just as HIV is distributed differently among racial/ethnic groups, it is also distributed differently with respect to risk categories for racial/ethnic groups. Figures 2.10 and 2.11 display the 2004 HIV risk information (exposure categories) by racial/ethnic groups for each gender, with the respective proportions calculated separately for each group. Note that for white males, MSM represented 83 percent of reports, heterosexual risk about six percent of reports, and IDU risk about seven percent of reports. For black males, MSM represented about 57 percent of reports, heterosexual risk about 30 percent of reports, and IDU risk about 10 percent of reports. The risk breakdown for other races/ethnicities (Hispanics, American Indians, and Asian/Pacific Islanders) are grouped together

Figure 2.8. Adult/adolescent female HIV disease reports, 2004

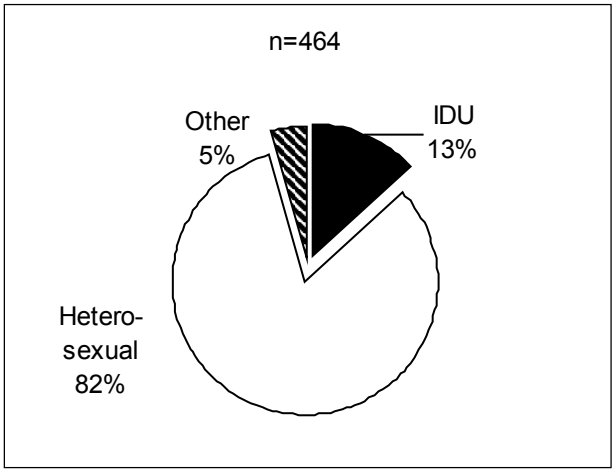


Figure 2.9. Adult/adolescent male HIV disease reports, 2004

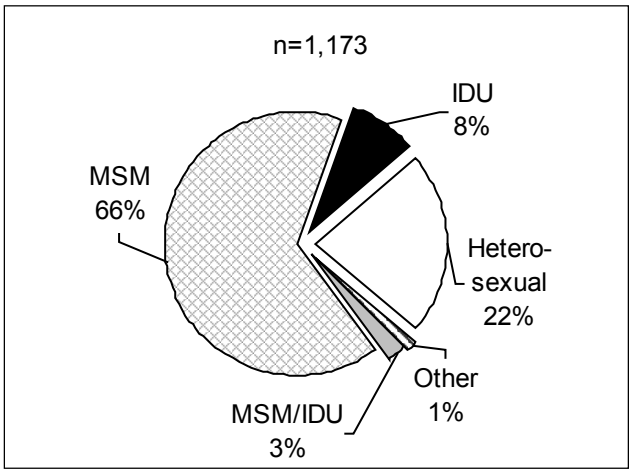
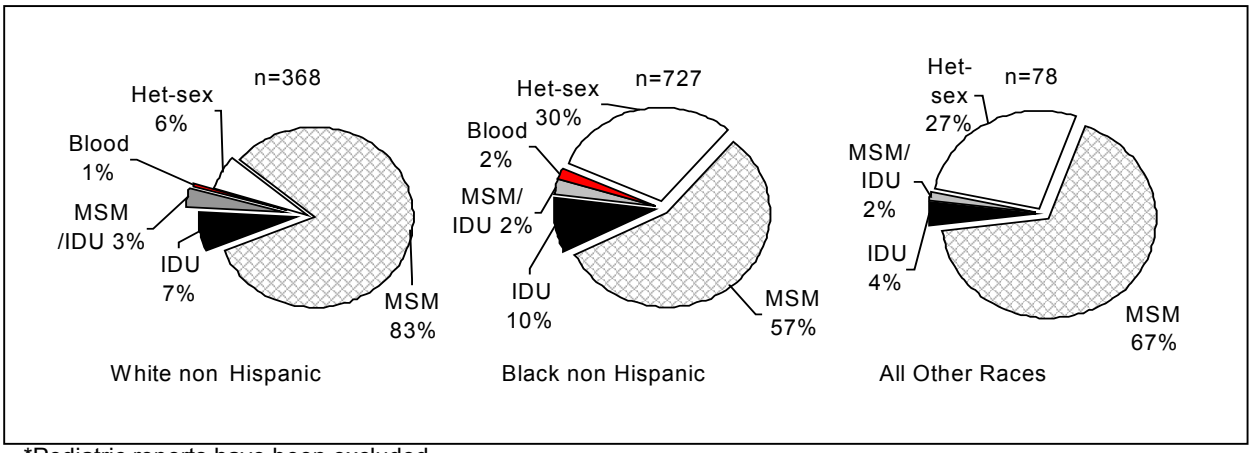


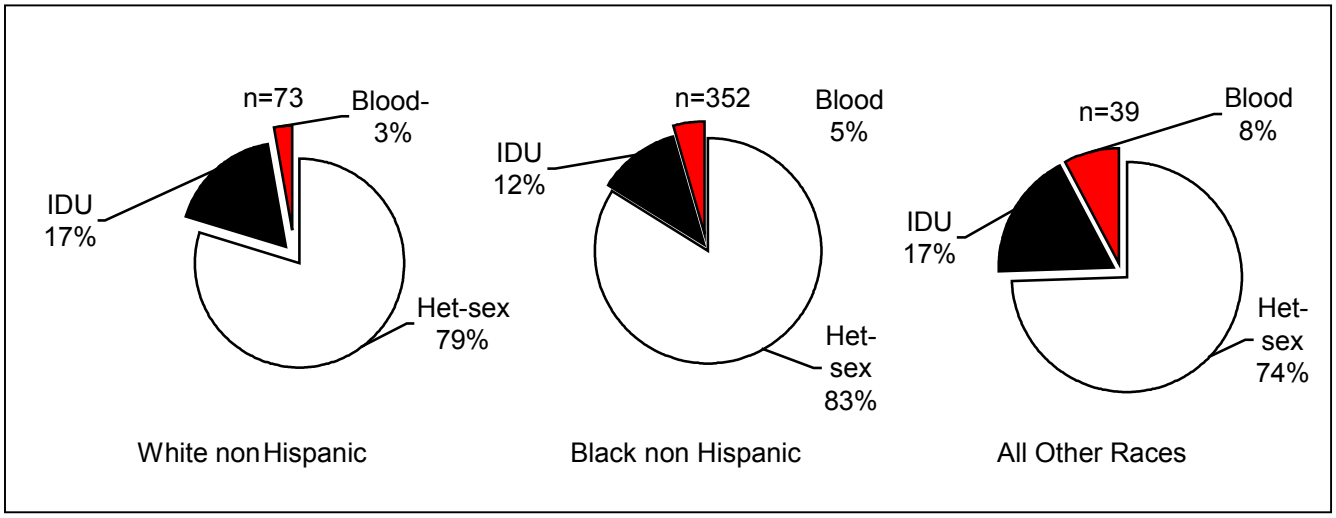
Figure 2.10. Male HIV disease reports*-exposure category by race/ethnicity, 2004



*Pediatric reports have been excluded

because of low case numbers. Within this aggregated group, MSM risk was reported for 67 percent of male reports, heterosexual risk for 27 percent of reports, and IDU risk for four percent of reports. Although some of this observed difference may be due to underreporting of MSM activity among minority males, some is attributed to the difference in prevalence of the disease for each racial/ethnic group. Unlike the differences observed for males among the racial/ethnic groups, there is much more reported risk similarity among the female racial/ethnic groups.

Figure 2.11. Female HIV disease reports*-exposure category by race/ethnicity, 2004



* Pediatric reports have been excluded

GEOGRAPHIC DISTRIBUTION OF HIV/AIDS

According to the U.S. Centers for Disease Control and Prevention (CDC), nationally most HIV and AIDS reports are from large metropolitan areas (greater than 500,000 population) in all regions of the country. The South, as a region, has the greatest proportion of reports from small metropolitan areas (50,000-500,000 population) and non-metropolitan areas (less than 50,000). North Carolina's HIV epidemic, like that of other states in the South, is more rural in nature than the national epidemic. Nationally, North Carolina ranked 2nd among all states in the number of AIDS reports (271) from non-metropolitan areas in 2003; more than 25 percent of North Carolina's AIDS reports were from non-metropolitan areas at that time. North Carolina was also among four states (including Florida, Pennsylvania and New York) that reported the most HIV infection (not AIDS) cases from non-metropolitan areas at that time. It is important to note that HIV was not consistently reported in all states; thus the region/state HIV (not AIDS) comparisons are only for those states that reported HIV.

There is growing concern about the disproportionate increase of HIV and AIDS in the South as compared to other regions of the nation. According to the *Southern States Manifesto—HIV/AIDS & STDs in the South: A Call to Action!* the South's unique makeup of factors such as poor health infrastructure, lack of affordable housing, racial disparity, high rates of bacterial STDs, lack of health insurance, and depressed socioeconomic factors may be contributing to the epidemic's regional rise. (Southern State AIDS Directors workgroup, 2003). See page 88 for more information about AIDS in the South.

The distribution of HIV disease is uneven across North Carolina, as can be seen in Maps 9 and 10 (Appendix A pp. 127-128). This distribution can be partly explained by the population distribution (Map 1, Appendix A pg. 119), as the epidemic tends to be concentrated in urban areas although it reaches rural areas as well. As mentioned above, North Carolina's epidemic has a significant rural component. Since the early 1990s, roughly 25 percent of North Carolina's HIV disease reports have consistently come from rural or non-metropolitan counties. This trend seems fairly steady and reflects the demographics of the state (Map 2, Appendix A pg. 120). Tables I-K (pp. 159-165) give individual county totals of HIV disease and AIDS cases reported, cases listed as living at the end of 2003, and a ranking of case rates (per 100,000) based on a three-year average. [Rate was calculated using the average of rates for the three previous years, ending in 2004. Hertford County ranked number one with the highest 3-year average rate (per 100,000 population) of HIV in 2004 (71.7), followed by Edgecombe County (55.2), Mecklenburg County (48.8), Durham County (41.3), and Duplin County (36.6).] Readers are cautioned to view rates carefully, as rates based on small numbers (generally less than 20) are considered unreliable.

HIV/AIDS-RELATED DEATHS

Unlike chronic diseases with high death rates, such as cancer or cardiovascular diseases, HIV/AIDS death rates are concentrated among the young and middle-aged. According to the North Carolina Center for Health Statistics, 454 HIV/AIDS deaths were reported in 2003, 30 less than the 484 HIV/AIDS-related deaths reported in 2002. Although HIV/AIDS did not rank among the top 10 of all causes of death for all ages, it was listed as 8th for ages 15 to 24 years and 7th for ages 25 to 44 years (Table 2.7); these rankings were the same as in 2002. HIV/AIDS was also listed as the 8th leading cause of death among blacks of all ages, (down from 7th in 2002). Table 2.8 displays HIV/AIDS deaths by race for each gender from vital records data maintained by the North Carolina State Center for Health Statistics. The crude death rate per 100,000 is about 11 times higher for blacks than for whites.

Table 2.7. Leading causes of death for North Carolina residents, 2003

15-24 years			25-44 years		
Rank	**Cause**	**No.**	**Rank**	**Cause**	**No.**
1	Motor vehicle injuries	409	1	Cancer	607
2	Homicide	174	2	Diseases of the heart	577
3	Other unintentional injuries	140	3	Motor vehicle injuries	554
4	Suicide	133	4	Other unintentional injuries	531
5	Cancer	35	5	Suicide	349
6	Diseases of the heart	33	6	Homicide	254
7	Congenital anomalies	12	7	HIV disease	222
8	HIV disease	11	8	Cerebrovascular diseases	116
9	Cerebrovascular diseases	8	9	Diabetes mellitus	85
10	Anemias	4	10	Chronic liver dis./ cirrhosis	78
	All other causes	103		All other causes	843
Total deaths		1,062	Total deaths		4,116

Table 2.8. N.C. HIV/AIDS-related deaths by race/ethnicity and gender, 2003

	Males			Females			Total		
Race/ ethnicity	No.	Pct.	Rate[#]	No.	Pct.	Rate[#]	No.	Pct.	Rate[#]
White*	78	17%	2.7	24	5%	0.8	102	23%	1.7
Black*	220	49%	25.4	115	25%	11.8	335	74%	18.2
Other	15	3%	n/a	1	<1%	n/a	16	4%	n/a
Total	313	69%	7.6	140	31%	3.3	453	100%	5.4

* not Hispanic

[#] crude death rates per 100,000 using bridged race data--see Appendix for more information about rates

ADOLESCENT ACQUIRED HIV/AIDS

Tables G and H (pp. 157-158) and Figures 2.12 and 2.13 below display the percentage of new HIV disease reports by risk and demographic categories for each gender for individuals aged 13 to 24 years at time of report. Because there can be significant delay between infection and subsequent testing and reporting, it is felt that the age group 13 to 24 years better describes infections that likely occurred during adolescence. In 2004, while just two percent of reports are found among teenagers aged 13 to 19, the percentage increases to 12 percent of all cases if 20- to 24- year olds are included (Table 2.1, pg. 17).

The exposure or risk categories for male adolescents and for female adolescents are very different. This difference is even more pronounced than for older adults. For adolescent females, the proportion of HIV disease reports attributed to heterosexual contact in 2004 accounted for almost 95 percent of the cases. For adolescent males, the proportion of HIV disease reports attributed to MSM risk accounted for 88 percent of the 2004 reports, up from the 73 percent of reports in 2000.

Figure 2.12. Male HIV disease rpts. (13-24 yrs) that likely represent adolescent exposures, 2004

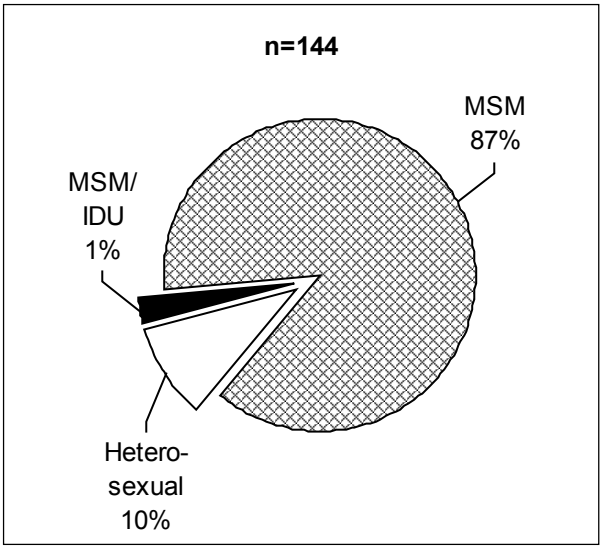
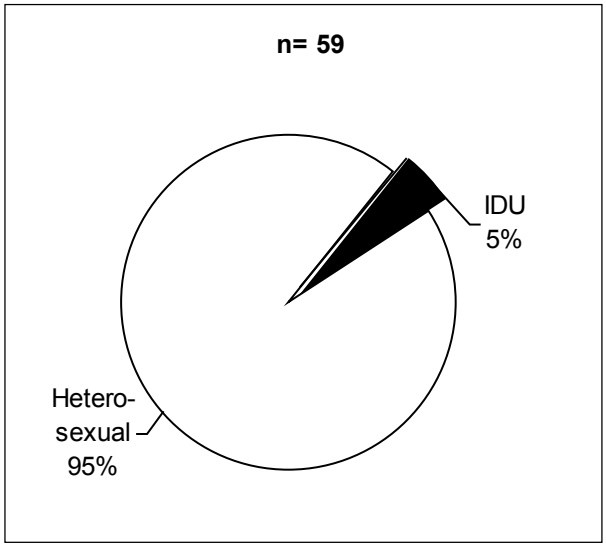


Figure 2.13. Female HIV disease rpts. (13-24 yrs) that likely represent adolescent exposures, 2004



PEDIATRIC HIV/AIDS

Between 1985 and 2004, 255 pediatric HIV cases were identified in North Carolina. Of these 255 pediatric cases, 77 percent were black, 18 percent were white, four percent were Hispanic, and one percent were some other or unknown race. Table 2.9 displays the mode of transmission reported for these cumulative, pediatric HIV cases. The leading modes of pediatric transmission were by HIV-positive mothers, mothers who had sex with HIV-positive men, and mothers who injected drugs. Most of the pediatric HIV cases that resulted from blood transfusions or related blood products occurred prior to 1990.

Table 2.9. Pediatric HIV cases by mode of transmission, 1985-2004

Expanded Mode of Transmission	Cases	Pct.
Pediatric Hemophilia/Blood Products	16	6%
Mother with HIV/AIDS	86	34%
Mother IDU	44	17%
Mother had sex with IDU	28	11%
Mother had sex with HIV+ Male	51	20%
Mother with additional risk factors*	6	2%
Other or unknown	24	9%
Total	255	100%

* receiving blood products, sex with a bisexual or hemophiliac male, or sex with a man who received blood products

Perinatal transmission of HIV is of particular interest in North Carolina because it is generally preventable if appropriate drugs are administered to the mother during pregnancy and delivery. For this reason, special emphasis is placed on follow-up for known HIV-infected mothers. Table 2.10 displays the proportion of HIV-infected women who are of child-bearing age (15-44 years old). This group of women represents the bulk of female reports but note that the proportion has decreased in recent years. Readers should keep in mind that the delays in testing and diagnosis can significantly affect the assessment of the true number of females in this category. The demographics for women of childbearing age, which are displayed in Table 2.11, closely resemble the demographics for all HIV-infected females. Table 2.12 displays the number of likely perinatal HIV transmissions that have occurred from 1995 to 2004. These represent pediatric reports that represent likely perinatal transmission based on exposure categories found in routine HIV surveillance data. These cases were HIV reports for children whose mother had HIV or an HIV risk, and thus represent *likely* perinatal transmission. Although no births have yet been identified where HIV perinatal transmission occurred in 2003 and 2004, readers should keep in mind that there can be significant delays in reporting for all the information necessary to determine a perinatal transmission. More information about perinatal transmission of HIV can be found in our special studies section (Chapter 4).

Table 2.10. Female HIV disease by special age groups, 2000-2004

	2000		2001		2002		2003		2004	
Age Group	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.
0-14 yrs	4	1%	2	0%	5	1%	5	1%	4	1%
15-44 yrs	376	79%	388	80%	415	78%	495	75%	313	67%
45 + yrs	97	20%	95	20%	113	21%	156	24%	150	32%
Total	477	100%	485	100%	533	100%	656	100%	467	100%

Table 2.11. Women of child-bearing age (15-44 yrs) by race/ethnicity, 2000-2004

	2000		2001		2002		2003		2004	
Race/ ethnicity	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.
White*	69	18%	68	18%	61	15%	86	17%	48	15%
Black*	301	80%	299	77%	324	78%	374	76%	235	75%
Other*	2	1%	8	2%	7	2%	10	2%	5	2%
Hispanic	4	1%	13	3.4%	23	6%	25	5%	25	8%
Total	376	100%	388	100%	415	100%	495	100%	313	100%

* not Hispanic

Table 2.12. N.C. HIV disease reports that were likely perinatal transmissions, 1995-2004

Year of Birth	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Reports	15	11	3	6	4	4	4	2	0	0

HIV DISEASE AMONG FOREIGN-BORN RESIDENTS

Table 2.13. HIV disease among foreign-born residents, 1995-2004

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Reports	11	22	25	22	24	28	17	77	90	83

Table 2.13 displays the number of HIV reports that were identified among foreign-born persons in North Carolina. Substantial increases in the number of reports for this group of persons has been noted over the last three years. In 2004, these HIV reports represented about five percent (399) of all reports (1,654). For foreign-born blacks, the principal countries of origin were South Africa, Zambia, Kenya and Haiti. For HIV-infected Hispanics, the principal country of origin was by far Mexico, followed by Honduras, El Salvador and Guatemala. The complete listing of HIV reports for foreign-born persons is displayed in Table 2.14. This information is important to keep in mind as outreach and prevention initiatives are planned, because these messages and information may need to be tailored for or designed to include foreign-born persons. See pages 7-8 (Chapter 1) for more information on foreign-born persons in North Carolina.

Table 2.14 HIV disease among foreign-born residents, 1995-2004

Race/ethnicity	No.	Pct	Principal countries represented
White, non Hispanic	20	5%	Brazil (3)
Black, non Hispanic	121	30%	South Africa (16), Zambia (13), Kenya (10), Haiti (10)
Asian, Pacific Islander	17	4%	India (4), Vietnam (4)
Hispanic	224	56%	Mexico (143), Honduras (31), El Salvador (9), Guatemala (9)
Unknown	17	4%	
Total	399	100%	

CHAPTER 3: INDICATORS OF RISK FOR HIV/AIDS INFECTION IN NORTH CAROLINA

Highlights

Men who have sex with men (MSM)

- MSM have continued to account for a substantial proportion of all HIV disease reports even as HIV has spread to other risk groups. In 2004, MSM and MSM/IDU represented 48.7 percent of all indicated risks for HIV reports.
- MSM has increased as a proportion of new HIV cases by 46.1 percent from 2000 to 2004.
- Among males, MSM and MSM/IDU risk represent 68 percent of 2004 reports. The proportion is much higher among adolescent males age 13-24 years (90% of 2004 reports).
- Black, non-Hispanic MSM account for a larger proportion of male HIV disease reports than non-Hispanic white MSM (35% vs. 26% in 2004).
- MSM reports have increased among patients interviewed through field services follow-up in 2004, especially among newly diagnosed syphilis cases.
- Of MSM with HIV, 35 percent also indicated having had sex with a woman; 24 percent of MSM with early syphilis indicated also having sex with a woman. Of MSM/IDU with HIV infection interviewed between 2000 and 2004, 49 percent also indicated having sex with a woman.

Injecting Drug Use (IDU)

- Injecting drug users accounted for 9.7 percent of HIV disease reports in 2004 (11.5% including MSM/IDU).
- Among HIV cases interviewed through field services (2000-2004), males were, on average, three times more likely than females to report injecting drugs.
- Among interviewed HIV and syphilis cases between 2000 and 2004, injection drug use was identified among a relatively older population; 50 percent were 40 to 49 years old. IDU with HIV infection were comparatively older as a group than those IDU with early syphilis infection.
- Among interviewed people reporting IDU risk, 56 percent of persons with syphilis also reported exchanging sex for drugs or money; 33 percent of persons with HIV reported exchanging sex for drugs or money (2000-2004).

Heterosexual Contact

- Thirty-nine percent of all HIV disease reports for 2004 indicated heterosexual contact as their only risk factor. This represents a 12.5 percent decrease in the proportion of heterosexual transmission from 2003 to 2004.

- Heterosexual contact is the main risk for 82 percent of all reported female 2004 HIV cases; the proportion is 94.7 percent among younger women (age 13-24 years).

- HIV transmission through heterosexual sex was attributed to 22 percent of all new male reports in 2004, but only attributable to 10 percent of new reports for adolescent males ages 13-24. Heterosexual HIV reports are significantly higher among non-white males (26.9-29.6%) in 2004 than among white males (5.9%). Female heterosexual reports remained fairly stable between 72 and 83 percent across all racial/ethnic categories.

- Ninety-four percent of female syphilis cases and 72 percent of male syphilis cases interviewed (2000-2004) by state DIS (disease intervention specialists) reported heterosexual activity.

- In the 2004 BRFSS survey, seven percent of males and two percent of females reported that they had three or more sexual partners during the previous 12 months.

INTRODUCTION TO RISK

Behaviors most closely linked with the epidemiology of HIV/AIDS—sexual contact and the injection of addictive drugs—are intimate and strongly driven. Individual behavior occurs in a complex sociocultural context with many determinants including self-efficacy, racial/ethnic culture and social networks, social pressures and behavioral norms, gender roles and differentials in power, access to health care and preventative care, poverty and discrimination (Auerbach et al. 1994). Populations at risk for HIV infection are oftentimes vulnerable to other psychological factors, such as depression and mental illness, a history of childhood abuse, abuse due to homophobia and internalized homophobia, and drug and alcohol abuse. The at-risk populations of interest in this discussion include men who have sex with men, heterosexually active women and men, and injection drug users. Within these populations, the greatest needs exist among the socioeconomically disadvantaged, especially in communities of color and among youth in high-risk situations (Becker et al. 1998). Poverty, the drug trade, and high-risk sexual behavior are all interrelated. The political and economic forces that perpetuate the current conditions will need to change before lasting impact will be achieved on those who face the greatest risk (Becker et. al 1998).

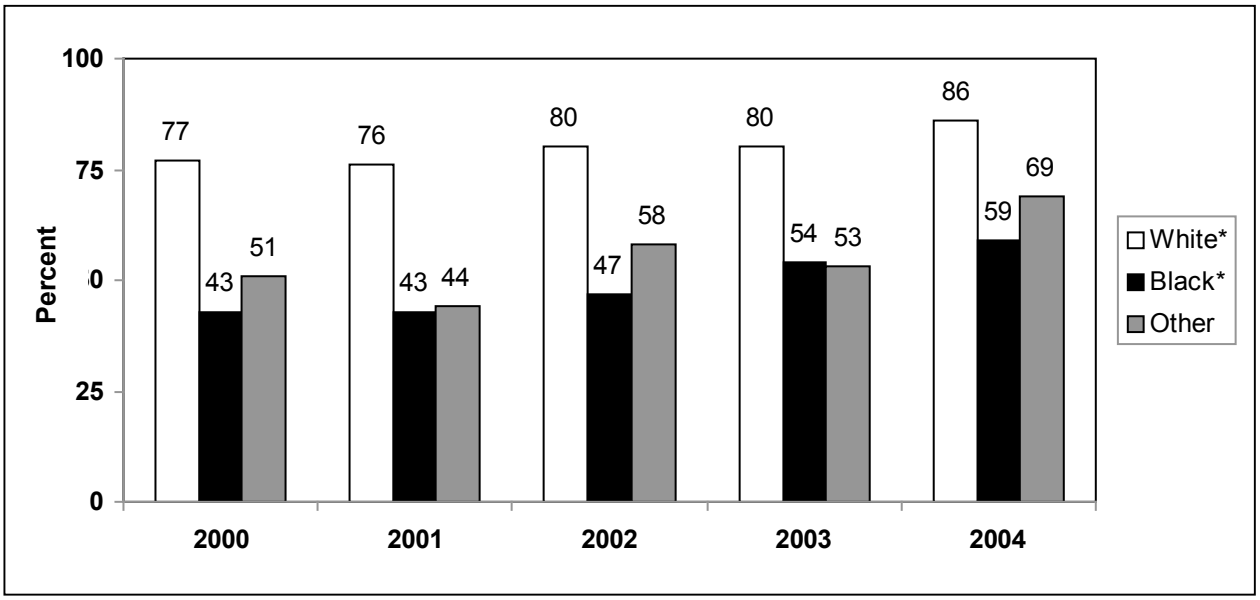
Relative risk for HIV infection among various exposure or risk categories is extremely difficult to ascertain because rate information is unavailable for most groups. In order to calculate rates, we must first have an estimate of the number of persons in the uninfected population. Part of the difficulty in estimating these populations is that some risk behaviors are highly stigmatized, and surveys that attempt to estimate risk behaviors can be biased and not generalizable to local populations. Since we do not have reliable population estimates for most of the groups defined by risk behaviors in North Carolina, we attempt to glean information about these groups through surveillance data. Readers should keep in mind that surveillance data is based on a mutually exclusive hierarchical assignment of risk. More detailed descriptions of surveillance data and the assignment of risk or exposure categories can be found in Appendix C (pg. 146). Changes in overall surveillance proportions can isolate trends for groups if the populations are stable, but these simple proportions don't measure relative risk among the groups. ***It is important to keep in mind that the relative risk of infection among these groups may vary greatly, depending on the size of the uninfected population for that group.*** Groups that represent the smallest population may represent the greatest relative risk. To better ascertain HIV exposure risk, the discussion that follows will rely heavily on direct and indirect measures of risk found in other data sources for each risk group: MSM, IDU, and heterosexuals. Other special groups of consideration within risk categories will be discussed, including: transgenders, black women at risk for heterosexual HIV transmission, and incarceration and HIV transmission.

MEN WHO HAVE SEX WITH MEN (MSM)

In the early part of the N.C. HIV epidemic (1983-1989), MSM cases accounted for almost 65 percent of all morbidity. By the mid-1990s, the epidemic had spread to other risk groups and MSM accounted for a smaller proportion (~38 %) overall. MSM have, however, continued to account for a substantial proportion of all reports, even as HIV has spread to other risk groups. While white MSM accounted for a larger portion of male reports in the early part of the epidemic, black MSM have accounted for a larger proportion of male reports since the early 1990s and continued to do so through 2004. This represents a significant disparity. Blacks as a racial group represent less than one-fourth of the general North Carolina population; if HIV occurrence was equal among MSM, then white MSM should outnumber black MSM by the same proportion as their representation by

race in the population. For 2004 male HIV disease reports, black MSM represented about 35 percent of reports (411); white MSM represented about 26 percent (305). Also, the proportion of cases with associated MSM and MSM/IDU risk is much greater among white males than non-white males (Figure 3.1). The proportion of MSM cases among HIV-positive males has increased in the past few years (Table F, pg. 156), with reports for MSM (including MSM/IDU) accounting for 68 percent of all male reports and almost half of all new reports in 2004. MSM and MSM/IDU behavior has increased 46 percent as a proportion among all male reports from 2000 to 2004. In 2004, MSM and MSM/IDU behaviors were indicated on over 90 percent of male adolescent reports (males ages 13-24) (Table L on pg. 157). The consistent and significant representation of MSM and MSM/IDU risk in HIV morbidity data suggests that efforts to minimize risk among men who have sex with other men should continue. This is especially important among younger men.

Figure 3.1. Percent of reported male cases with MSM risk, by race/ethnicity, 2000-2004**



*non-Hispanic **MSM includes MSM/IDU

Direct Measures of MSM Risk Behavior

Partner Counseling and Referral Services Data (PCRS)

Approximately 98 percent of reported syphilis cases and 90 percent of newly reported HIV cases are interviewed regarding risk behaviors and sex partners. This data is referred to as the PCRS data. Disease Intervention Specialists (DIS) attempt to interview all persons newly diagnosed with HIV and syphilis in North Carolina in order to inform them of their disease status, assist with partner notification and educate them about the control measures they must take in order to avoid infecting others. DIS work in the Field Services Unit of the HIV/STD Prevention & Care Branch. DIS also collect risk information about patients and contacts that includes sex and drug use behaviors, (i.e., condom use, number of sexual partners, types of drug use, testing history and history of STDs). More information about the Field Services and the PCRS data source can be found in Appendix B on page 137. In the following description of persons interviewed with syphilis, "syphilis" refers to early syphilis, which includes primary, secondary and early latent stages.

Among all males interviewed in 2004, MSM activity was identified in 40 percent of early syphilis reports and 48 percent of HIV reports. MSM activity has increased as a proportion of new cases for both HIV and syphilis in men interviewed over the past five years (2000-2004). Table 3.1 displays MSM behavior among interviewees as a percent of total male cases interviewed.

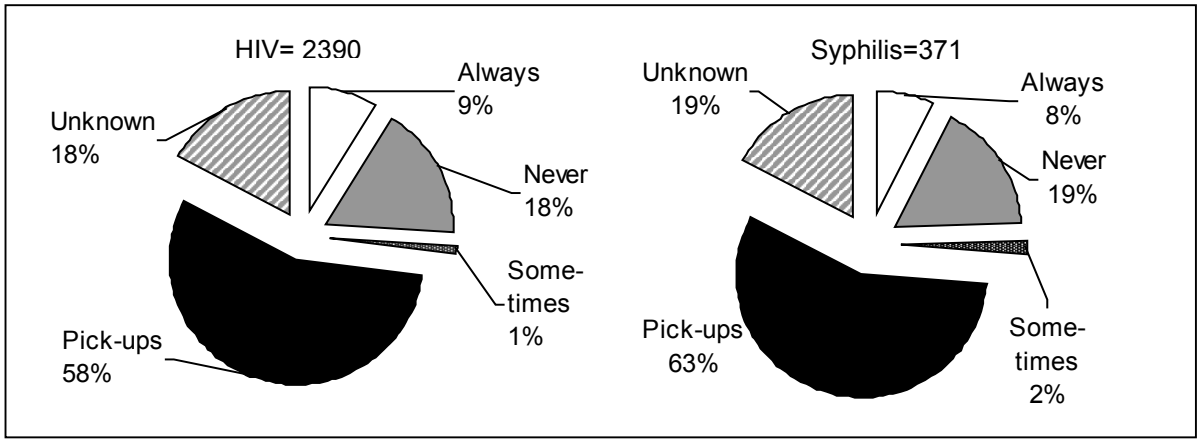
Table 3.1. Males interviewed with HIV or syphilis who indicated MSM risk, 2000-2004

Disease	2000		2001		2002		2003		2004	
	n	Pct.	n	Pct.	n	Pct.	n	Pct.	n	Pct.
HIV	330	37.3%	451	43.6%	516	44.1%	583	45.2%	510	47.8%
Syphilis	56	9.9%	51	10.4%	60	17.3%	71	28.4%	133	40.4%

Condom use

The National Institutes of Health concluded in July of 2001 that, when used *correctly and consistently*, use of male latex condoms effectively reduces transmission of HIV/AIDS in women and men; reduces gonorrhea in men; and prevents pregnancy (NIH 2001). "These are three excellent reasons for actively promoting the use of male latex condoms. The data clearly show that condoms prevent HIV/AIDS, which is the most deadly STI, and gonorrhea, the most easily transmitted infection. Also, the lack of research data on some STIs does not mean condoms are ineffective against these diseases, " says Willard Cates, Jr., MD, MPH, president of Family Health International (Network 2002). Meta-analysis of several studies showed an 87 percent decrease in risk of HIV transmission among consistent condom users. Moreover, three of the best-designed studies showed that HIV infection rates were under one percent per year among consistent condom users. Studies also show a 49-100 percent reduction in risk of gonorrhea among men reporting condom use, as compared to non-users (NIH 2001).

Figure 3.2 Condom use by MSM interviewed with HIV or syphilis, 2000-2004



Interviews of HIV and syphilis cases address condom usage questions. Condom use is described by five categories: always, never, sometimes, pick-ups only, and unknown. Proportionately, the HIV and syphilis interviewees indicated similar practices (Figure 3.2). Of MSM with HIV interviewed from 2000 to 2004, 9 percent indicated that they "always" used a condom, 18 percent indicated they

"never" used a condom, 1 percent indicated they "sometimes" used a condom, and 58 percent indicated they used condoms with "pick-ups only." Among the MSM with early syphilis, eight percent indicated "always," 19 percent indicated "never," 2 percent indicated "sometimes," and 63 percent indicated they used condoms with "pick-ups only."

Multiple sexual partners

Among the interviewed men who have sex with men from 2000 to 2004, 37 percent of those with HIV and 63 percent of MSM interviewed with early syphilis indicated they had multiple sexual partners in the past year (Table 3.2). Of MSM with HIV, 35 percent also indicated having had sex with a woman and 24 percent with early syphilis indicated also having sex with a woman. Of MSM/IDU with HIV infection interviewed between 2000-2004, 49 percent indicated having sex with a woman. These proportions indicate substantial risk activity for each group, and for their female sexual partners.

Table 3.2. Multiple sex partners among MSM interviewed with HIV or syphilis, 2000-2004

Partners	MSM with HIV (n= 2390)		MSM with Syphilis (n= 371)	
	n	Pct.	n	Pct.
>1 partner, 90 days	283	12%	108	29%
>1 partner, one year	884	37%	232	63%
New partner, 90 days	267	11%	103	28%
Sex with men and women	848	35%	88	24%

Drug use among MSM

People with a history of substance abuse are more likely to engage in high-risk sexual activities (Leigh 1993). Crack cocaine use has been shown to be strongly associated with the transmission of HIV, especially among men who have unprotected anal sex with men (Edlin 1994). For non-injecting substance abusers, HIV infection is not caused by drug use, but by unsafe sexual behavior within certain sexual networks. Sexual networks of substance abusers might include people who have used needles, have traded sex for money or drugs, have been victims of trauma, or have been incarcerated. All of these populations may have higher rates of HIV infection, making transmission more likely. Syphilis epidemics in parts of the rural South, coupled with the epidemic use rates of crack/cocaine, are leading cofactors in both the rural and urban HIV epidemics in the United States (Forney & Halloway 1990). Information regarding drug use is collected during the interview of newly infected persons (Figures 3.3 and 3.4). The most common drugs used among MSM interviewed by DIS were marijuana, crack-cocaine, cocaine, non-specified narcotics, and heroin. Evidence of the use of "club drugs" such as MDMA (ecstasy), Rohypnol, GHB, and ketamine were not found among MSM interviewed in North Carolina from 2000 to 2004, nor was methamphetamine. DIS may differ in the way they record drug information and PCRS data has limitations (more information about the Field Services and the PCRS data source can be found in Appendix B (pg. 137).

Figure 3.3. Drugs used by MSM interviewed with syphilis, 2000-2004

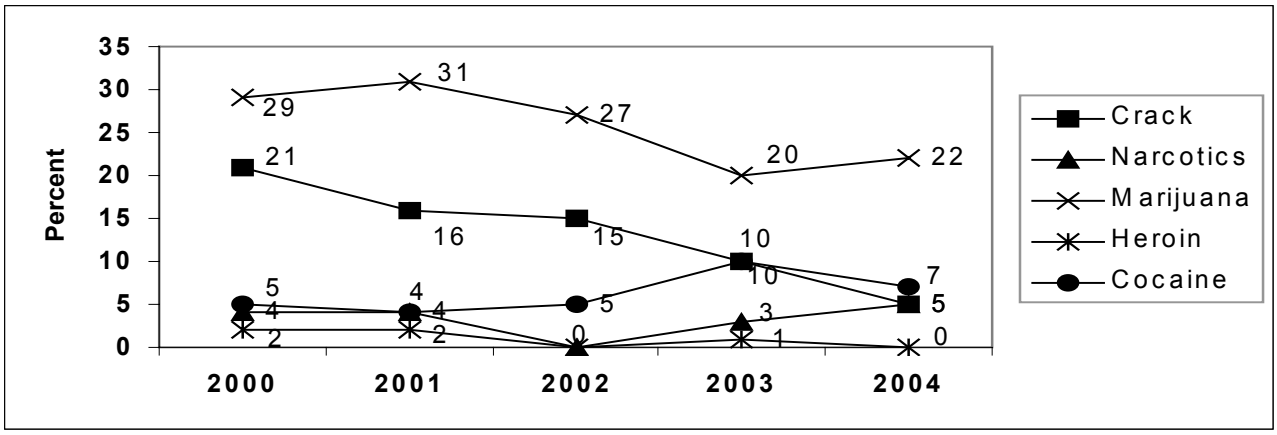
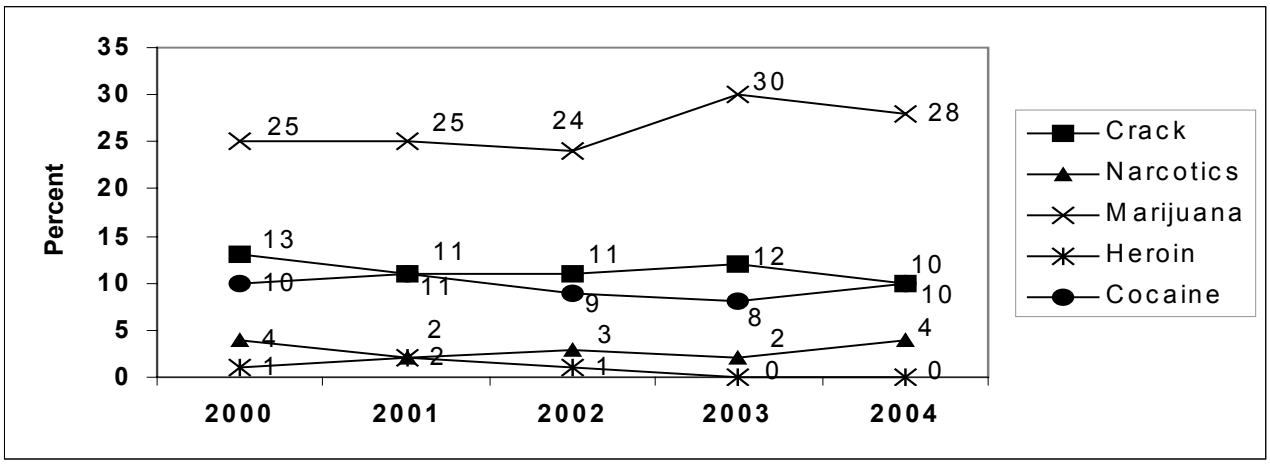


Figure 3.4. Drugs used by MSM interviewed with HIV, 2000-2004



Indirect Measures of MSM Risk Behavior

Hepatitis Data

Communicable diseases which can be spread through sexual activity, such as hepatitis, can indirectly measure MSM risk behavior by monitoring changes in male-to-female ratios. Diseases spread primarily through heterosexual sexual contact should produce a male-to-female ratio close to one. Increases in the male-to-female ratio indicate possible increases in MSM activity. It should be noted, however, that these ratios can be affected by other risks such as IDU or screening practices; thus it is an imperfect measure of MSM risk.

Table 3.3 displays hepatitis data for 2000 to 2004. Note the male-to-female ratios for hepatitis B have been fairly stable. The ratios for hepatitis A have changed from year to year. Hepatitis A is primarily spread person-to-person through the fecal-oral route. Many outbreaks can be traced to food-borne transmission, but some can be linked to sexual contact. Hepatitis B is primarily spread through sexual contact or needle sharing. Hepatitis C is generally associated with IDU activity.

Table 3.3. Male : Female ratios for hepatitis A, B (chronic and acute) and C, 2000-2004

	2000	2001	2002	2003	2004
Hepatitis A	1.0 (76/77)	2.1 (164/78)	3.3 (160/48)	1.9 (81/43)	1.1 (54/51)
Hepatitis B acute	1.9 (169/87)	1.7 (139/82)	1.7 (145/87)	2.0 (109/54)	1.9 (119/63)
Hepatitis B chronic	1.3 (360/268)	1.5 (388/255)	1.3 (500/379)	1.3 (568/448)	1.4 (610/436)
Hepatitis C	0.8 (9/11)	1.8 (14/8)	1.1 (15/14)	0.1 (1/12)	0.5 (8/4)

The increase in the male-to-female ratio among hepatitis A cases in 2002 prompted a review of surveillance data by the Epidemiology Section of the Division of Public Health. The review suggested a likely increase in MSM activities among cases in 2002, as it showed a 4.5-fold increase in the number of men self-reporting recent sexual contact with men when compared to the average over the 1997-2001 time period. (More information about the review can be found at http://www.epi.state.nc.us/epi/gcdc/pdf/HepatitisA.pdf.)

Syphilis Data

As with the other bacterial STDs, essentially all female cases of syphilis can be assumed to be the result of heterosexual transmission. The male-to-female ratio of early syphilis cases has risen from 1.0 in 2000 to 2.07 in 2004 (Table 3.4). This likely indicates increased MSM-acquired syphilis and supports the trend found in PCRS risk data gathered through DIS interviews of recently diagnosed syphilis cases (Table 3.1). It could also indicate increased transmission via females who exchange sex for drugs or money with multiple male sex partners.

Table 3.4. Reported primary, secondary & early latent syphilis cases 2000-2004

	2000	2001	2002	2003	2004
Male	551	503	342	236	306
Female	550	438	274	160	148
M/F Ratio	1.00	1.15	1.25	1.48	2.07

Special MSM Risk Population

Transgender and HIV

Genetic, physical and hormonal gender complexities occur in an estimated one person in every 60 persons. An estimated one in 12,000 persons are male-to-female transgender, and about one in every 30,000 are a female-to-male transgender (Mackay 2000). In 2004, 23 of the 6,862 people receiving AIDS care services in North Carolina considered themselves transgender. Male-to-female (MTF) transgenders (born male but now identifying as female or transsexual) are exceedingly vulnerable to HIV infection due, in part, to the comparatively high number of MTF transgenders that go into prostitution (Nemoto et al. 2004). A number of studies report significantly higher prevalence rates of HIV infection among transgender sex workers as compared to non-transgender male and female sex workers (see for example, Elifson et al., 1993 and Gattari et al., 1991). Common risk factors found among transgender sex workers include multiple sex partners, frequent anal receptive sex, irregular condom use, and injecting drug use. Financial burdens for survival and desperate economic needs, which stem from discrimination against transgenders, societal transphobia and high costs of

gender-related treatments, contribute to prostitution and unsafe sex practices with both customers and primary partners. Scarcity of men who engage in personal relationships with MTF transgenders, transphobia experiences, and myths that exist in the MTF transgender community that sex work is a rite of passage are also contributing factors (Nemoto et al., 2004).

INJECTING DRUG USE (IDU)

While almost 45 percent of all HIV surveillance reports were attributed to IDU and MSM/IDU in the early 1990s, this proportion has declined to about 12 percent of all cases in 2004 (Table D, pg. 54). Among males, IDU risk in 2004 (including MSM/IDU) represented about 11 percent all of new reports; among females, IDU risk represented about 13 percent of all new reports (Tables E and F, pp. 155-156). IDU as a risk has declined somewhat as a proportion for both sexes over the past five years (2000 to 2004). IDU among non-black minority females, however, has increased as a proportion since 2001, from 4.7 percent to 17.4 percent, in 2004.

Direct Measures of IDU Risk Behavior

National Survey on Drug Use and Health (NSDUH)

The National Survey on Drug Use and Health (NSDUH), formerly known as the National Household Survey on Drug Abuse (NHSDA), makes estimates of drug abuse among the national population, states and some metropolitan areas (pg. 138 for more information). The survey of illicit drug use includes marijuana, cocaine, heroin, hallucinogens, inhalants, and non-medical use of prescription-type pain relievers, tranquilizers, stimulants, and sedatives, and is not unique to injecting drug use. Among persons aged 12 years or older in North Carolina interviewed in NHSDA (2000-2001), 8.0 percent reported having used an illicit drug at least once during the last month, compared to the national estimate of 8.2 percent. Comparison of illicit drug use by age is part of the NHSHA survey. Responses are available for three age groups: 12 to 17 years of age, 18 to 25 years of age, and 26 years of age and older. The 18-to 25-year-olds in North Carolina reported the highest proportion of illicit drug use, 18.5 percent, in 2000-2001.

Partner Counseling and Referral Services Data (PCRS)

Persons newly diagnosed with HIV or syphilis are asked about drug use in two general categories: intravenous drug use (IDU), and non-intravenous drug use. From 2000 to 2004, IDU risk was reported by seven percent of interviewed HIV cases and three percent of interviewed cases with syphilis. Among HIV cases, IDU risk remained fairly consistent from 2000 to 2004 (Table 3.5), with slight decreases in the past three years. Among syphilis cases interviewed, the proportion of IDU risk has consistently been around three percent.

Table 3.5. Number and proportion of interviewed injecting drug users (IDUs)*, 2000-2004

	2000		2001		2002		2003		2004	
	n	Pct.	n	Pct.	n	Pct.	n	Pct.	n	Pct.
HIV	127	10%	144	10%	154	9%	130	7%	112	7%
Syphilis	28	2%	27	3%	11	2%	15	4%	12	3%

*IDU includes MSM/IDU

Gender, Age and Race/Ethnicity

Among HIV-positive persons interviewed from 2000-2004, males are 3.4 times more likely to have IDU risk as compared to females (516 total IDU male cases versus 151 total IDU female cases). Injection drug use risk varies by age for HIV cases and syphilis cases. The majority of HIV cases are among an older population of 40-49 years and the majority of syphilis IDU cases are split between 30-39 and 40-49 year olds. IDU is a prominent risk among American Indians with syphilis as compared to other race/ethnicity groups. Black injecting drug users comprise the majority of IDU cases in both disease categories (Table 3.6).

Table 3.6. Persons interviewed with HIV or syphilis who indicated IDU risk, 2000-2004

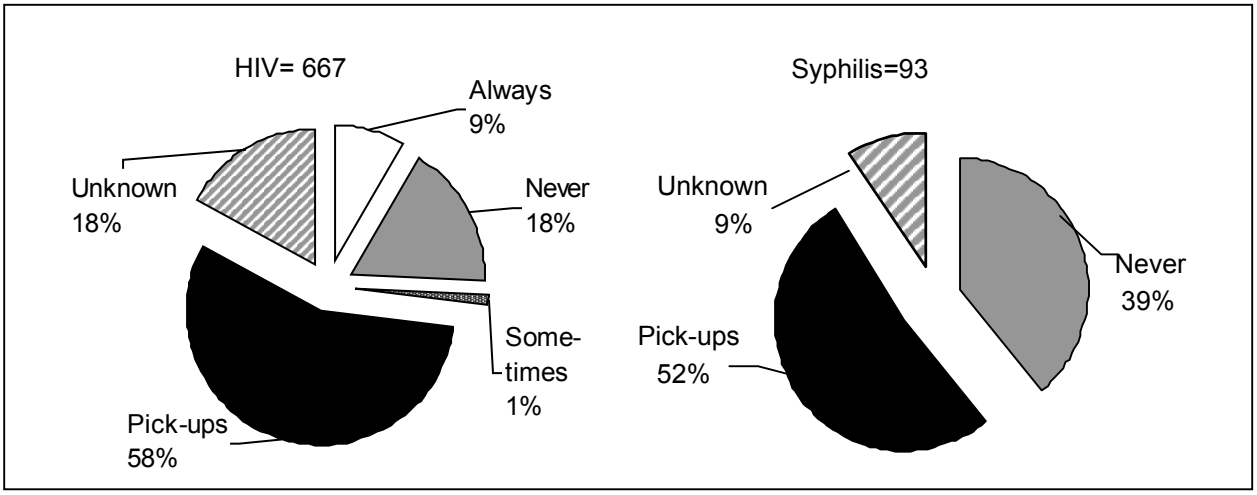
Demographics	HIV (n= 667)		Syphilis (n= 93)	
	n	Pct.	n	Pct.
Sex				
Male	516	77%	53	57%
Female	151	23%	40	43%
Race/Ethnicity				
American Indian/AN	13	2%	11	12%
Asian/PI	1	0%	0	0%
Black, non Hispanic	448	67%	49	53%
White, non Hispanic	161	24%	29	31%
Hispanic	30	4%	2	2%
Age				
13-19 years	1	0%	1	1%
20-29 years	40	6%	10	11%
30-39 years	173	26%	37	40%
40-49 years	347	52%	36	39%
50+ years	106	16%	9	10%

*IDU includes MSM/IDU

Condom Use

Condom use data are available for 667 HIV cases with identified IDU risk and 93 syphilis cases with identified IDU risk. Condoms are used less frequently among interviewees with syphilis than among HIV cases (Figure 3.5) who were interviewed. Furthermore, none of the syphilis cases reporting IDU risk said that they "always" use condoms, compared to six percent of all HIV cases with IDU risk. There was also a larger proportion of "never" using condoms among those with syphilis (please see p. 37 for a discussion of condom effectiveness).

Figure 3.5. Condom use among IDU with HIV or syphilis, 2000-2004



Multiple Sex Partners

Among those interviewed and identified as IDU, the risk of having multiple sex partners in the last year was reported more among those with syphilis (70 %) than those with HIV diagnoses (24%) (Table 3.7). While the proportion of multiple sex partners doesn't differ by gender among IDU with HIV, among IDU with syphilis, 71.4 percent of females and 52.3 percent of males reported multiple sex partners.

Table 3.7. Multiple sex partners among IDU interviewed with HIV or syphilis, 2000-2004

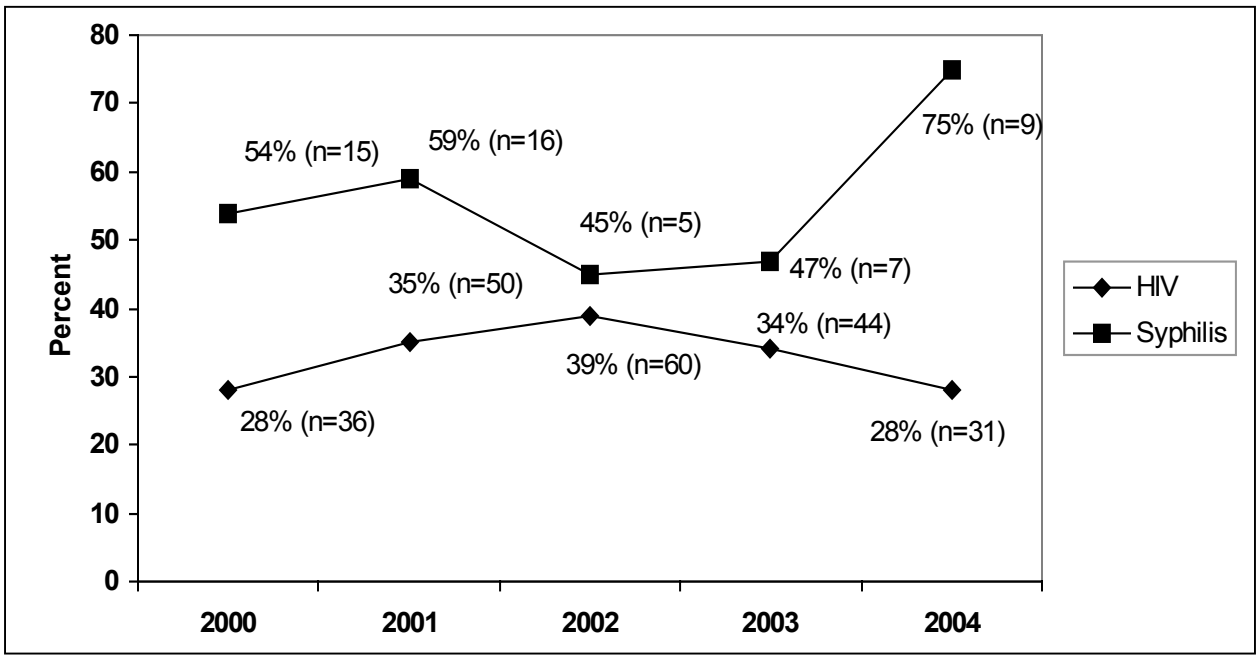
Partners	IDU with HIV (n= 667)		IDU with Syphilis (n= 93)	
	n	Pct.	n	Pct.
>1 partner, 90 days	58	9%	43	46%
>1 partner, one year	158	24%	65	70%
New partner, 90 days	41	6%	28	30%

*IDU includes MSM/IDU

Sex in exchange for Drugs or Money

Exchanging sex for drugs or money is a fairly common risk factor identified among interviewed IDU (56% of IDU with syphilis and 33% of IDU with HIV). Forty-two percent of IDU females with HIV diagnoses and 55 percent of IDU females with syphilis diagnoses admit to having sex for drugs or money. In contrast, 57 percent of IDU males interviewed with syphilis reported exchanging sex for drugs or money, while only 31 percent of IDU males with HIV diagnoses reported the same risk (Figure 3.6).

Figure 3.6. Interviewed IDU engaging in sex for drugs or money, 2000-2004



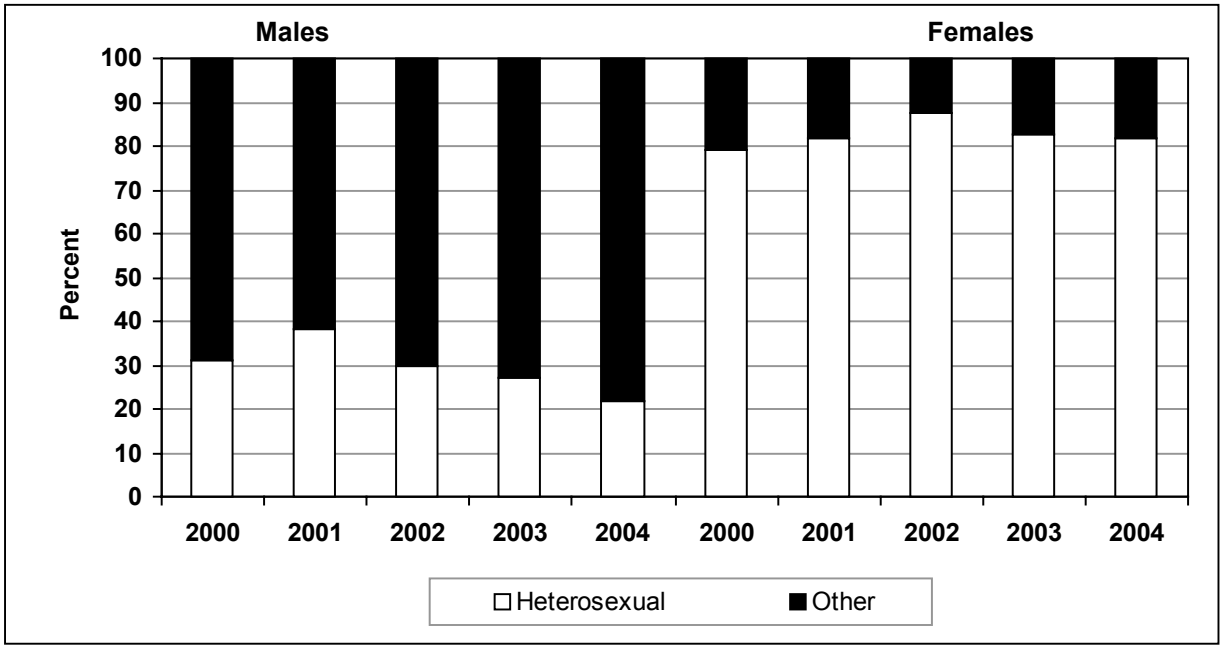
HETEROSEXUAL CONTACT

Heterosexual risk represented 39 percent of new reports in 2004. Though the proportion of total HIV disease reports with heterosexual transmission risk classification has declined 25 percent since 2001 (Table D, pg. 154), North Carolina continues to experience an HIV epidemic in which a substantial proportion of the cases are among persons for whom heterosexual sex is their only risk.

The number of male HIV surveillance reports for 2004 is more than double the number of female HIV reports (1174 male reports vs. 467 female reports in 2004). These heterosexual risk reports consistently represent over three-quarters of the female cases, whereas they represent only one-quarter to one-third of the male reports (Figure 3.7).

The pattern of HIV disease is slightly different for young people 13-24 years of age, with a much smaller proportion of the male cases attributable to heterosexual transmission, as compared to older males. In 2004, only 10 percent of new cases in males age 13-24 were attributed to heterosexual sex. Among females 13-24 years of age, slightly higher proportions of cases are attributed to heterosexual transmission, compared to all female cases (in 2004, 94.7% of new cases in females age 13-24 were attributed to heterosexual sex). This indicates that young females are at particularly high risk of heterosexually acquired HIV infection, while young males are at particularly high risk of acquiring HIV through sex with other males. Gender differences can be seen when the data are stratified by race. Black females are slightly more likely than white females to be classified with heterosexual risk (83% vs. 79% in 2004) (Table E, pg. 155).

Figure 3.7. HIV disease reports: heterosexual risk vs. all other risks, 2000-2004



Direct Measures of Heterosexual Risk Behavior

Partner Counseling and Referral Services Data (PCRS)

As part of contact tracing and partner notification, reported cases of STDs (primarily syphilis and HIV) are interviewed in depth by Disease Intervention Specialists (DIS) working for the HIV/STD Prevention & Care Branch. Interviews are attempted on all reported cases but occasionally the DIS are unable to locate a patient, the patient is located but refuses to answer questions, or the patient dies before the interview can take place (Appendix B on page 137 for data limitations).

During the 2000-2004 period, 82 percent of interviewed females infected with HIV (mean = 414/year) and 94 percent of females with syphilis (mean n = 275/yr) reported heterosexual activity (Figure 3.8). Because some males are exclusively MSM, a smaller proportion of males report heterosexual activity and the proportions differ by disease. Over 42 percent of interviewed syphilis cases (mean n = 278) and 24 percent of interviewed HIV cases (mean n = 381) report sexual contact with females. Of MSM with HIV interviewed between 2000 and 2004, 35 percent also indicated having had sex with a woman; 24 percent of MSM with early syphilis indicated having sex with a woman; and 49 percent of MSM/IDU with HIV infection indicated having sex with a woman.

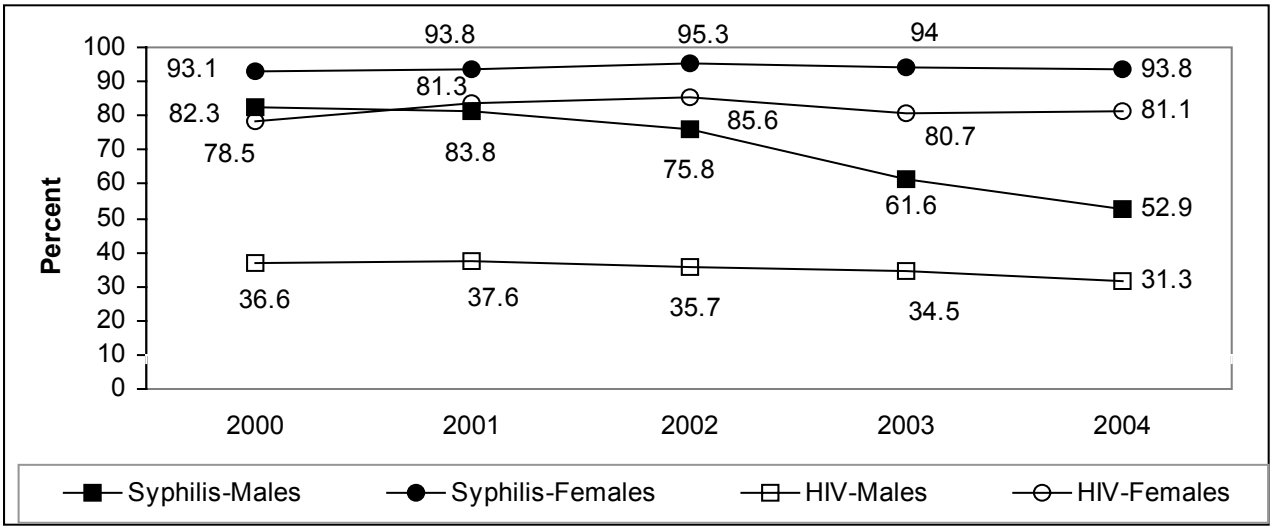
Multiple Sex Partners

Restricting the analysis to those who reported only heterosexual sex between 2000-2004, less than one-third of interviewed HIV cases reported multiple sexual partners in the last year while over half of the interviewed syphilis cases reported multiple partners (Table 3.8).

Table 3.8. Multiple sex partners of heterosexuals interviewed with HIV or syphilis, 2000-2004

Partners	Heterosexual with HIV (n= 3976)		Heterosexual with Syphilis (n= 2812)	
	n	Pct.	n	Pct.
>1 partner, 90 days	352	9%	895	32%
>1 partner, one year	1102	28%	1555	55%
New partner, 90 days	248	6%	674	24%

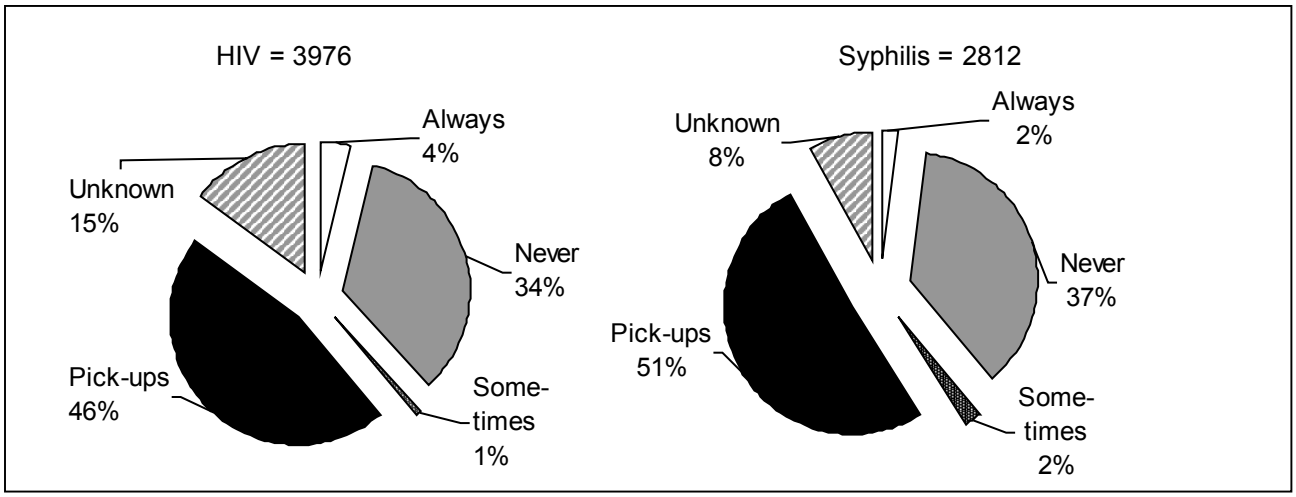
Figure 3.8. Interviewed syphilis & HIV cases reporting heterosexual sex, 2000-2004



Condom Use

In comparison with MSM and IDU, condoms were used least among heterosexuals interviewed as the result of a new HIV or early syphilis diagnosis. Thirty-four percent of those HIV-positive persons indicated that they "never" use condoms and 46 percent using condoms with "pick-ups only." Thirty-seven percent of those newly diagnosed syphilis cases indicated that they "never" use condoms, and 51 percent were only using condoms with "pick-ups" (Figure 3.9).

Figure 3.9. Condom use among heterosexuals with HIV or syphilis, 2000-2004

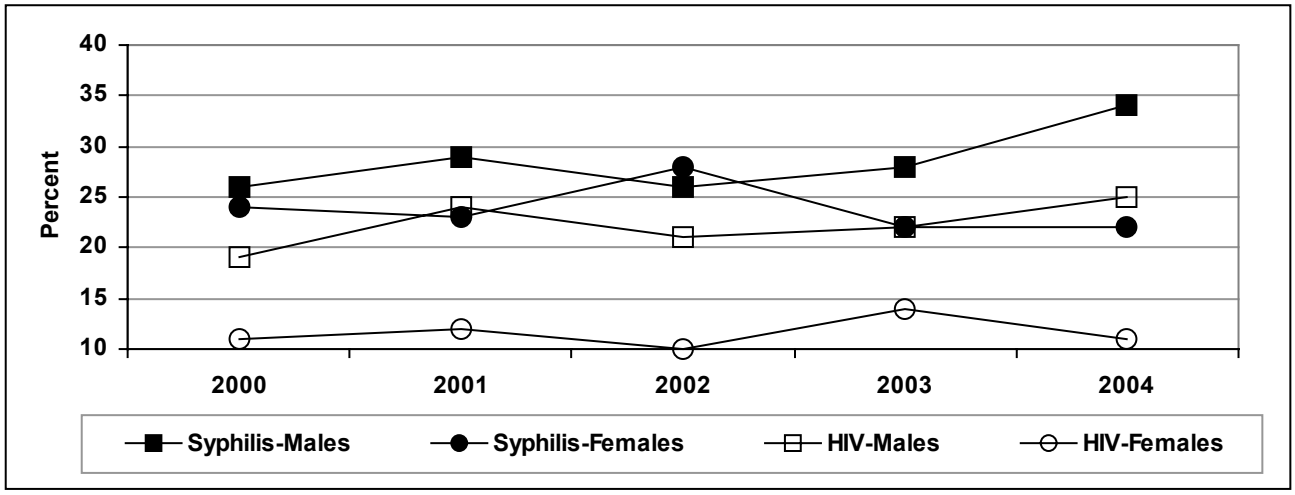


Sex in exchange for Drugs or Money

The exchange of sex for drugs or money is frequently reported among the HIV-infected heterosexual population. Proportions of persons exchanging sex for drugs or money are higher among men and women with syphilis (2000-2004), where over 28 percent of interviewed males and over 24 percent of interviewed females reported the activity (Figure 3.10).

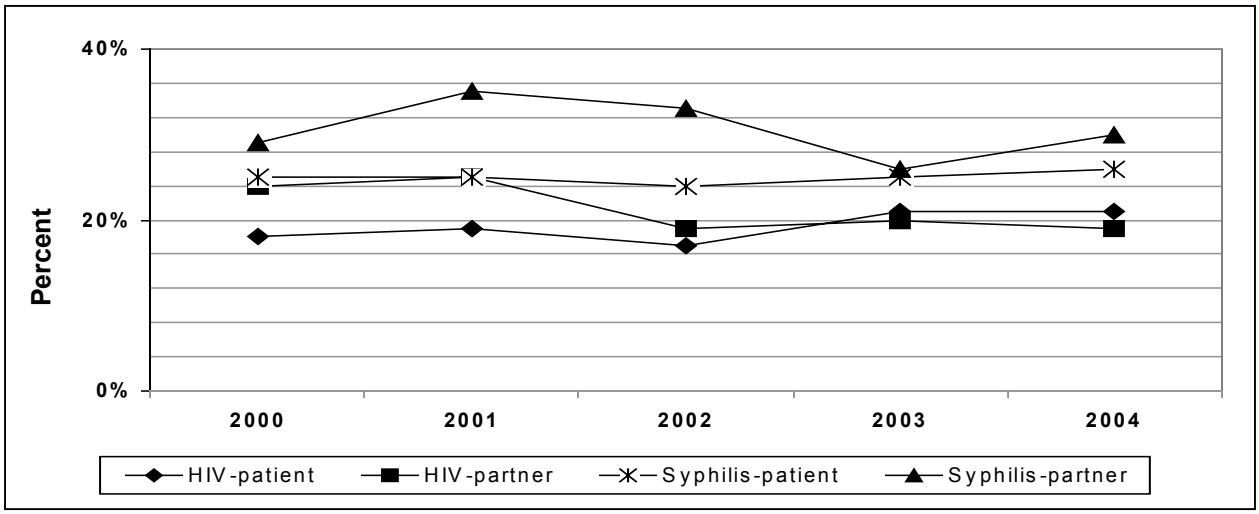
Crack and heterosexual risk for HIV and syphilis infection

Figure 3.10. Heterosexuals engaging in sex for drugs or money, 2000-2004



The analysis of heterosexual risk would not be complete without some mention of an association of crack/cocaine use and both HIV and syphilis infection. According to PCRS interview data, an average of 20 percent of HIV-positive men reporting heterosexual risk and an average of 19 percent of heterosexual women admit to smoking crack. Of the newly reported early syphilis cases, an average 19 percent of men and an average 31 percent of women admit to smoking crack. There was also a significant percentage of persons newly diagnosed with HIV or syphilis who indicated that their heterosexual partners smoked crack (Figure 3.11).

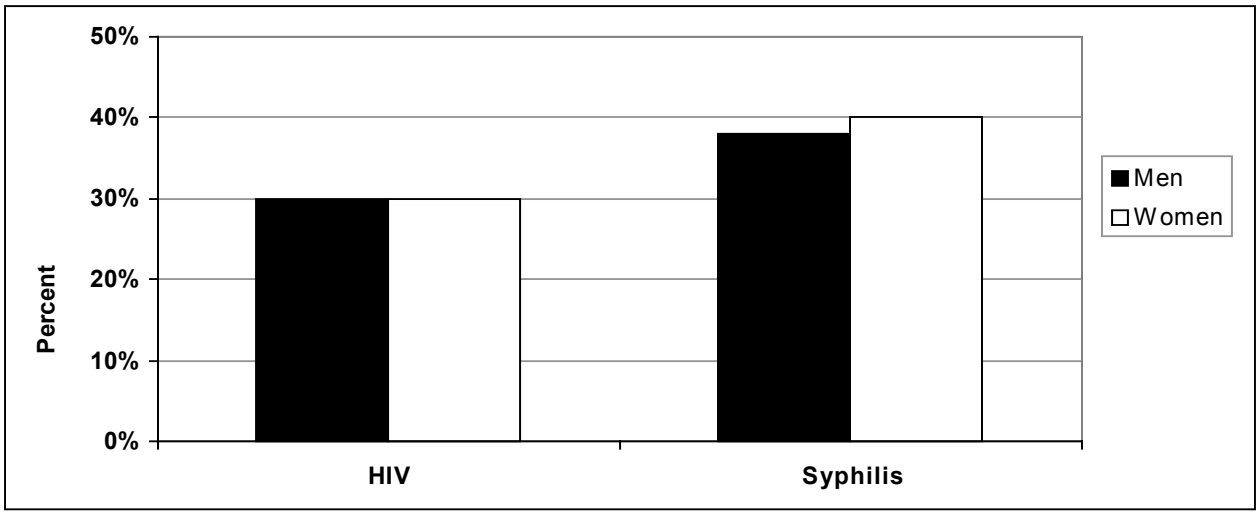
Figure 3.11. Heterosexuals admitting crack use by self or partner, 2000-2004



History of STDs

An additional factor that was common among heterosexuals with HIV or syphilis was having a history of sexually transmitted infection. Between 2000 and 2004, 30 percent of males and females with HIV infection indicated that they had previously been infected with a sexually transmitted disease. Among men diagnosed with early syphilis, 38 percent had previously experienced a STD and 40 percent of women diagnosed with early syphilis had a previous STD (Figure 3.12).

Figure 3.12. Heterosexuals with a history of STD infection, 2000-2004



Indirect Measures of Heterosexual Risk

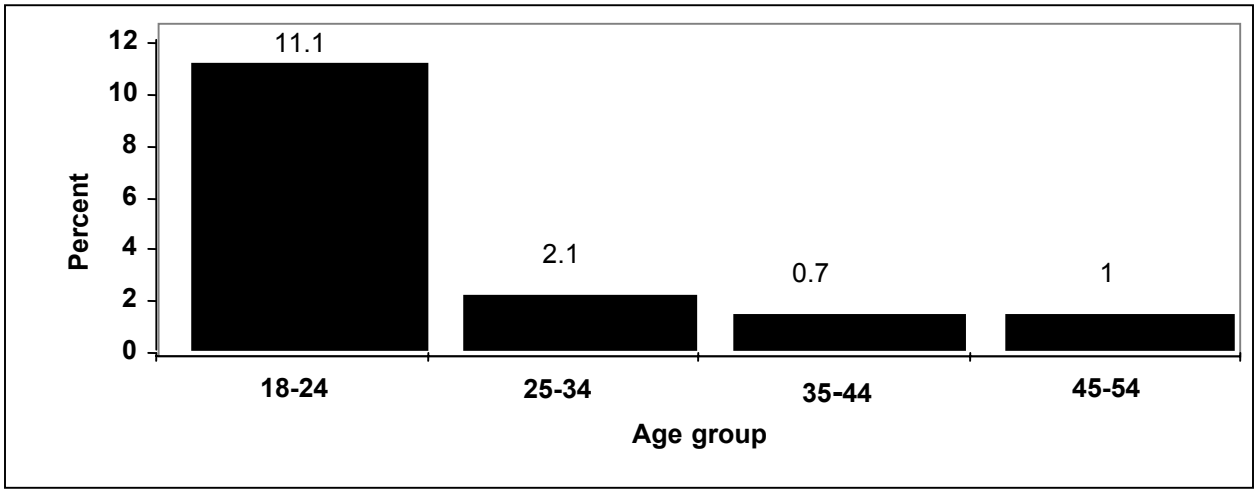
Behavioral Risk Factor Surveillance System (BRFSS)

The Behavioral Risk Factor Surveillance System (BRFSS) is a collaborative project between the Centers for Disease Control and Prevention (CDC) and U.S. states and territories. Interviewers conduct monthly telephone surveys in order to collect various information on health behaviors from adults age 18 and older. (For a more detailed description and strengths and limitations, please see Appendix B on page 132). The survey is designed to include core sections (data collected by all areas), CDC-designed optional modules, and state-added questions. In 2001 and 2004, some sexual behavior questions were added and used in those years only.

Sexual Partners and Condom Use

For the 2001 and 2004 surveys, several questions about sexual behavior were added. Adults age 18 to 54 were asked how many different people they had sexual intercourse with over the past 12 months. In 2001, 7.6 percent of males and 1.7 percent of females reported that they had three or more sexual partners over the past 12 months; in 2004, 7.2 percent of males and 2.0 percent of females reported three or more sexual partners over the past 12 months. The gender of the sexual partners was not specified, so it is not possible to know exactly what proportion of the respondents were referring to heterosexual partners, but it is likely to be large.

Figure 3.13. Proportion of 2004 BRFSS respondents with 3+ sex partners by age



Only 20 percent of respondents in 2001 reported that they had used a condom during their last sexual intercourse, in 2004 22.4 percent responded that they had used a condom during their last sexual intercourse. A higher proportion of 18- to 24-year-olds responded that they had used condoms during their last sexual intercourse in 2004 than in 2001 (53.2 versus 45.2). In 2001, 50.7 percent agreed that a properly used condom would be very effective in preventing an individual from getting infected with HIV; in 2004, 48.5 percent agreed that condoms are very effective in preventing HIV infection. Another 37.8 percent thought condoms would be somewhat effective in 2001 and 42.1 percent considered condoms somewhat effective in 2004. Among those who had used a condom during their last intercourse in 2001, 35.9 percent did so specifically to prevent pregnancy and another 51.6 percent to prevent both pregnancy and disease. Among those who had used a condom during their last intercourse in 2004, 36.9 percent did so specifically to prevent pregnancy and another 48.7 percent to prevent both pregnancy and disease. Note: condom use is most certainly effective in preventing HIV infection. However, condom use data should be interpreted with caution. Those who report condom use are often a mixture of those at the very lowest risk (because they consistently use the condoms and are protected) and those at the very highest risk (using condoms due to their high-risk behavior and possibly inconsistent condom use). In 2004 only, the question "How many new sex partners did you have during the past twelve months?" was asked, and 11 percent of 18- to 24-year-olds responded that they had three or more new sex partners within that time period (see Figure 3.13).

History of STDs

The 2004 BRFSS Sexual Behavior Module asked the question "In the past five years, have you been treated for a sexually transmitted or venereal disease?" Four percent of the total 6,079 respondents answered yes; 9.8 percent of blacks responded yes, compared to 2.8 percent of whites and 2.2 percent of Hispanics. Of those respondents age 18-24, 11.4 responded yes; 4.8 percent of 25- to 34-year-olds, 2 percent of 35- to 44-year-olds and 1 percent of 45-to 54-year-olds responded that yes, they had been treated for a STD in the past five years. Fifty-five percent of those responding that yes, they had been treated for a STD, were treated at a health department STD clinic.

The standard risk question in the BRFSS survey asked in 2002, 2003, and 2004 was "Please tell me if any of the situations apply to you: You have used intravenous drugs in the past year; You have been treated for a sexually transmitted or venereal disease in the past year; You have given or received money or drugs in exchange for sex in the past year; You had anal sex without a condom in the past year." The total responding yes to this question has remained very stable at approximately 3.5 percent for all three years. The 18-24 age group did experience an increase in the proportion responding yes over the past three years with 7.2 in 2002, 9.9 in 2003 and 10.8 in 2004.

Youth Behavior Risk Survey

North Carolina high school students participated in the 2003 Youth Risk Behavior Survey (YRBS) that assessed sexual behavior, in addition to other health related topics (for further description and strengths and limitations of this survey see Appendix B, pg. 133). The results revealed that 52.3 percent of all high school students and 73.5 percent of high school seniors had experienced sexual intercourse and 10 percent of students had sex before the age of 13. Of the sexually active students, 17.1 percent had had four or more sexual partners, and the percent of students who used drugs or alcohol before their last sexual experience was 18.1 percent. In 2003, 62.1 percent of the students reported the use of condoms and 17.6 percent reported use of other methods of birth control. In four of the five risk-taking categories examined, the percentage of North Carolina's adolescents practicing risky sexual behaviors was greater than the national average. In the fifth category, condom usage, North Carolina and national results were similar (see North Carolina State Advisors on Adolescent Sexual Health, available at: http://www.nchealthyschools.org/docs/hiv/the_state_of_adolescent_sexual_health_with_attachments.pdf)

Pregnancy Risk and Monitoring System (PRAMS)

The North Carolina Pregnancy Risk and Monitoring System (PRAMS) is an ongoing random survey of women who deliver a live infant in North Carolina. For a further description and strengths and limitations of this study, please see Appendix B on page 139. The survey includes questions designed to determine if the woman wanted to be pregnant someday but not at this time (pregnancy mistimed) or if the woman never wanted to be pregnant (pregnancy unwanted). Pregnancies represent unprotected heterosexual sex. However, such sexual activity that results in a planned pregnancy is more likely to be among low-risk heterosexuals with only one partner. Mistimed or unwanted pregnancies may be a more reasonable proxy for unprotected heterosexual sex among possible high-risk partners.

The 2003 North Carolina pregnancy rate for teens ages 15 through 19 was 61.0 pregnancies per 1,000 girls, down from 64.1 per 1,000 in 2002. The total number of teens aged 15-19 who were pregnant in 2003 was 17,390. Unfortunately, 30.4 percent of those pregnancies were to girls who had been pregnant at least once before. The total number of 10- to 14-year-olds who were pregnant was 443. The pregnancy rate among Hispanic adolescents aged 15-19 was 185.9, up from 181.5 per 1,000 girls in 2002; this was one of the highest rates in the nation in 2002. Black teens had a pregnancy rate of 86.3 per 1,000, down from 89.9. While adolescent pregnancy rates have declined by more than 40 percent in North Carolina since 1990, the state still has the 14th-highest birth rate for 15- to 19-year-olds in the United States in 2002 (see NCDHHS, State Center for Health Statistics, available at: http://www.schs.state.nc.us/SCHS/prams/2003/)

Abortion Data

Abortion data closely mirror the unwanted pregnancy data presented above. Non-whites comprise only 29.1 percent of the state population (2000 Census), but approximately half of the abortions are performed on non-white women. This proportion has risen slightly in the past five years, from 48.9 percent in 1998 to 50.4 percent in 2003. During the same period, over three-quarters of North Carolina resident abortions have been to women age 20 and older (Table 3.9). With respect to HIV risk, this represents approximately 27,000 women and 27,000 men engaged in unprotected heterosexual sex per year who may be at risk for HIV infection.

Table 3.9. North Carolina residents who received abortions 1998-2002

	1999	2000	2001	2002	2003
Total abortions	28,136	26,944	27,096	25,883	26,708
Age 20 and over	82.3%	82.7%	82.8%	83.4%	81.5%
Non-white	50.0%	52.1%	53.3%	51.9%	50.4%
Unmarried	73.6%	72.1%	64.6%	71.3%	73.1%

Special Heterosexual Risk Populations

HIV Transmission among Black Women in North Carolina

In 2004, black women accounted for 22 percent of new HIV disease reports in North Carolina. The 2004 rate among black females was 36.4 per 100,000, over fourteen times the rate among white females (2.5 per 100,000), and twice the rate among Hispanic females (17.7 per 100,000) (Table B, pg. 152). Eighty-three percent of those 354 new cases among black females are attributed to heterosexual sex. Several studies have attempted to explain the racial disparity of HIV infection among heterosexual women in North Carolina. Most recently, the CDC, in collaboration with the North Carolina Division of Public Health, conducted an epidemiologic investigation of HIV sexual risk behaviors among HIV-positive and HIV-negative sexually active black women in North Carolina. Analysis of data collected through patient and control interviews revealed that although the majority of women participants had either had an STD, been pregnant or been tested for HIV, most felt they were unlikely or very unlikely to contract HIV (CDC, 2005). HIV-positive women were significantly more likely than the controls to be unemployed, have 20 or more sexual partners, have used crack/cocaine; and receive money, shelter, or drugs in exchange for sex. Women who discussed sexual and behavioral history with their male partners were less likely to be HIV positive.

"Contextual factors, such as poverty, discrimination, epidemiology of illicit drug use in the community, ratio of men to women, incarceration rates, and racial segregation, influence sexual behavior and sexual networks directly and indirectly through a variety of mechanisms. Disparities in these contextual features likely contribute substantially to the persistence of marked racial disparities in rates of STIs" (Adimora & Schoenbach 2005). Sexual networks are the group of people who are directly and indirectly linked through sexual contact. The pattern of these linkages dramatically influences transmission of HIV. Concurrent sexual partnerships (sexual relationships that overlap in time) influence the speed and number of individuals infected. Data analyzed from the 1995 National Survey of Family Growth indicate that the prevalence of concurrent sexual partnerships is greater among black women than white women (21% in the preceding five years versus 11%, respectively) (Adimora et al. 2003). Data from a study of heterosexual transmission of HIV infection among black persons in North Carolina showed an even higher prevalence than did the NSFG of concurrent

partnerships among black men (53% in the preceding five years) than among black women (31% in the preceding five years) (Adimora et al. 2003). Adimora and Schoenbach (2005) attribute the higher concurrency to lower marriage rates, low male-to-female sex ratio, and younger age at first sexual intercourse among black women. The scarcity of black men can profoundly influence partner selection and places black women at a disadvantage in negotiating and maintaining mutually monogamous relationships. Researchers suggest effort's at controlling HIV infection will continue to "miss the forest for the trees" if public health researchers cannot shift the prevention efforts emphasis on individual risk factors and determinants to the multidisciplinary investigation of macro-level forces (such as sexual network dynamics, concurrency, incarceration, drugs, racial segregation, and low sex ratios in black populations) (Adimora & Schoenbach 2005).

Incarceration and HIV transmission

Nationally, almost one-third of black men ages 20-29 are in jail, in prison, on probation or parole and in 2002, 10.4 percent of black men 25-29 years of age were in prison (New York Times 28 July, 2003). The prevalence of HIV among prison inmates is estimated to be 8-10 times higher than the unincarcerated U. S. population (Freudenberg 2001). Researchers say high incarceration rates increase risk behaviors associated with HIV by skewing the male-to-female ratio, and by worsening economic conditions by reducing the employment prospects of individuals, which increases the likelihood of poverty and the instability of long-term partnerships (Adimora and Schoenbach 2005). "HIV is an opportunistic disease that thrives on disruptions of social networks," according to David Wohl, M.D., assistant professor of medicine at the University of North Carolina-Chapel Hill. "You can hardly get more socially disruptive than removing double-digit percentages of men from communities for extended periods of time" (New York Times August 6, 2004). According to a recent UNC School of Medicine study presented at the 10th Conference on Retroviruses and Opportunistic Infections, the impact our nation's prison system has on the HIV epidemic is not that unsafe sex is rampant in prison, but that rather unsafe sex occurs immediately after prisoners are released back into society (Wohl et al. 2003). Wohl's study focused on a group of 80 HIV-positive inmates in North Carolina prisons. Interviews after release revealed that about half of the former prisoners in the study reported having sex, with 26 percent of them admitting to already having sex without condoms with their main sex partners. Sixty-four percent of the HIV-positive releasees said that their main partner was HIV-negative or of unknown HIV status. Wohl reported that 81 percent of these releasees were heterosexual, and only three prisoners had sex while they were in prison. "There are communities that are just blighted by incarceration--and they happen to also be communities that are blighted by HIV. We don't think it's an accident." This study highlights the need for prevention efforts in the communities in which HIV and incarceration are prevalent.

Information about persons with HIV in N.C. correctional facilities is limited. According to state surveillance data from HARS (HIV/AIDS reporting systems), 559 persons were diagnosed and reported with HIV in correctional facilities in North Carolina in the past five years (Table 3.10).

Table 3.10. HIV Disease reports for correctional facilities only, 2000-2004

Reporting Facility Type	2000		2001		2002		2003		2004	
	n	Pct.	n	Pct.	n	Pct.	n	Pct.	n	Pct.
Prison /Correctional	92	89%	95	76%	105	89%	102	84%	73	81%
Jail/Detention Center	12	12%	30	24%	13	11%	20	17%	17	19%
TOTAL	**104**	**100%**	**125**	**100%**	**118**	**100%**	**122**	**100%**	**90**	**100%**

CHAPTER 4: HIV TESTING

Highlights

- The number of HIV tests performed at publicly funded counseling and testing system (CTS) sites has increased over the past three years to 119,094 tests in 2004.
- The proportion of people tested through CTS who report that they have never been tested for HIV before has been on a steady decline (from 38.1% in 2000 to 36.2% in 2004).
- The overall positivity for clients tested in CTS sites has declined from 0.50 percent in 2000 to 0.46 percent in 2004.
- The vast majority of CTS testing is performed at traditional sites, but those tested at nontraditional test sites (NTS) are more likely to test positive for HIV.
- More males are tested in NTS sites and more females are tested in traditional sites due to the availability of prenatal, obstetrics and family planning services at traditional sites in local health departments.
- The positivity rates for non-Hispanic blacks tested in NTS sites is approximately two to three times that for non-Hispanic whites; in traditional sites the disparity is four-fold. Hispanics and non-Hispanic Native Americans tested in traditional sites also have consistently higher positivity rates than whites.
- A greater proportion of those tested at NTS sites are at highest risk for HIV. High-risk clients (MSM, IDU, MSM/IDU, and those reporting exchanging sex for drugs or money) comprised approximately 20 percent of the clients tested in NTS during 2004, compared to just five percent of the traditional-venue clients.
- For most risk groups (IDU, high-risk heterosexuals, heterosexual only), clients tested at NTS sites are more likely to test positive. Men who have sex with men testing represents a higher proportion of tests in NTS sites, but the positivity rate is greater in traditional sites.

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HIV COUNSELING, TESTING AND REFERRAL (CTS)

Testing for HIV infection is provided at no charge to clients in all local health departments and a number of community-based organizations (CBOs) in North Carolina. The testing program is known as CTS (Counseling and Testing System), in reference to the data management system used for the collection and analysis of the data. All clients tested through the program receive pre-test HIV-prevention education and counseling. As part of this pre-test counseling process, each person tested is asked a series of questions regarding possible HIV risks, reasons for getting tested, and testing history. This data is collected and sent with the blood sample to the North Carolina State Laboratory for Public Health in Raleigh for analysis. The data contains no identifying information, so it is not possible to assess which individuals are represented more than one time, only that some report having been tested previously. For more information on the data, please see the discussion in Appendix B, page 137.

While the CTS data does not provide a true monitoring of seroprevalence, it is a useful tool to evaluate voluntary testing for HIV in the public sector. The raw number of tests, number of positives, and positivity rate for the most recent five years for publicly funded HIV testing in North Carolina is presented in Table 4.1. While the number of tests processed by the State Laboratory of Public Health has increased for the last three years, the raw positivity rate (calculated as proportion of positive tests) has declined from 0.74 percent in 2001 to 0.60 percent in 2004. For county-level data, please see Table L, page 166.

Table 4.1. HIV testing in publicly funded sites in N.C., 2000-2004

Year of Test	Tests*	Positives	Positivity (%)**
2000	105,862	739	0.70
2001	109,178	803	0.74
2002	105,743	754	0.71
2003	107,842	743	0.69
2004	119,094	716	0.60

*Total tests performed, regardless of result. Readers should be aware that some clients are tested multiple times for various reasons (see Table 4.2). **Positivity calculated with inconclusive or missing test results removed from denominator.

HIV TESTING HISTORY

When describing the demographics or risk factors reported by persons who sought HIV testing through the CTS program, it may be appropriate to consider all tests performed, regardless of prior testing history. However, in order to provide a meaningful analysis of testing and positivity trends, previous test status is taken into account by removing positive results for patients who report a previous positive test. Positivity rates are also calculated with inconclusive or missing test results removed from the denominator. Earlier parts of the *Profile* address the use of the CTS data in the evaluation of HIV incidence. ***Please take care to note when previous tests are included or excluded from the analysis.***

The proportion of people who report that they have never been tested for HIV before has been on a steady decline (Table 4.2). The resulting increase in proportion of repeat tests has been among those reporting having had a previous negative test. Note that in 2004 there were 198 people who reported a previous positive test result. Of these, 32 (16%) tested negative on the current test,

which may suggest either client recall errors or unclear pretest counseling questions about previous test status.

Table 4.2. HIV counseling and testing by previous test result, 2000-2004

Previous Test Result	Year of Test									
	2000		2001		2002		2003		2004	
	Test	Pct.	Test	Pct.	Test	Pct.	Test	Pct.	Test	Pct.
No Previous Test	40,319	38.1%	41,219	37.8%	38,318	36.2%	38,475	35.7%	43,053	36.2%
Negative	63,735	60.2%	65,829	60.3%	65,508	62.0%	67,256	62.4%	73,927	62.1%
Positive	252	0.2%	275	0.3%	246	0.2%	190	0.2%	198	0.2%
Inconclusive	91	0.1%	85	0.1%	89	0.1%	105	0.1%	113	0.1%
Unknown/ Missing	1,465	1.4%	1,770	1.6%	1,582	1.5%	1816	1.7%	1803	1.5%
Total	105,862	100%	109,178	100%	105,743	100%	107,842	100%	119,094	100%

Individuals who have had a previous positive HIV test are sometimes tested again for a variety of reasons, such as switching to a new health care provider who needs record of HIV status before prescribing treatment. Of the 716 positive tests recorded through the CTS program in 2004, 164 (23%) reported that they had previously tested positive. Table 4.3 presents the corrected overall positivity in which these previous positive results were removed from consideration. The denominator used in the positivity calculation in this table does include other previous tests (for example, persons reporting previous negative tests). ***All subsequent discussions of testing and positivity rates in this section are based on these corrected values, with previous positive tests removed from consideration.***

Table 4.3. Corrected CTS positivity*, 2000-2004 (previous positives removed)

Year of Test	Positives	Positivity (%)
2000	530	0.50
2001	584	0.54
2002	554	0.53
2003	580	0.54
2004	552	0.46

*Positivity calculated with inconclusive or missing test results removed from denominator

NONTRADITIONAL TEST SITES (NTS)

The North Carolina Commission for Health Services' ruling to discontinue anonymous testing for HIV in May 1997 raised concern that, by removing the anonymous test option, testing among persons at high risk for HIV infection would be reduced. Before the option for anonymous testing was removed, the HIV/STD Prevention & Care Branch implemented procedures to make HIV testing available in nontraditional settings. Some nontraditional HIV test sites (NTS) operate as stand-alone test sites that deliver HIV testing in non-routine settings and times through a community-based organization (CBO). Others are physically located in a local health department but operate outside normal working hours. The sites other than NTS (predominantly

local health departments and some CBOs) have been designated as "traditional" test sites in this publication.

The number of HIV tests conducted at public (CTS) sites has increased every year since 1999, and positivity has remained under one percent since 1994. High-risk clients (MSM, MSM/IDU, IDU, persons who exchange sex for drugs or money, persons who have sex while using non-injecting drugs and persons who are sex partners of persons at risk or persons infected with HIV) continue to seek testing through publicly funded test sites. The vast majority of tests are performed at traditional sites (Table 4.4). However, a greater *proportion* of those tested in nontraditional test sites test positive than in traditional sites. For 2004, the NTS positivity rate was 0.96 percent, compared to 0.48 percent for all other public site testing (Figure 4.1). Since its inception, NTS positivity has been at least twice that of traditional test sites.

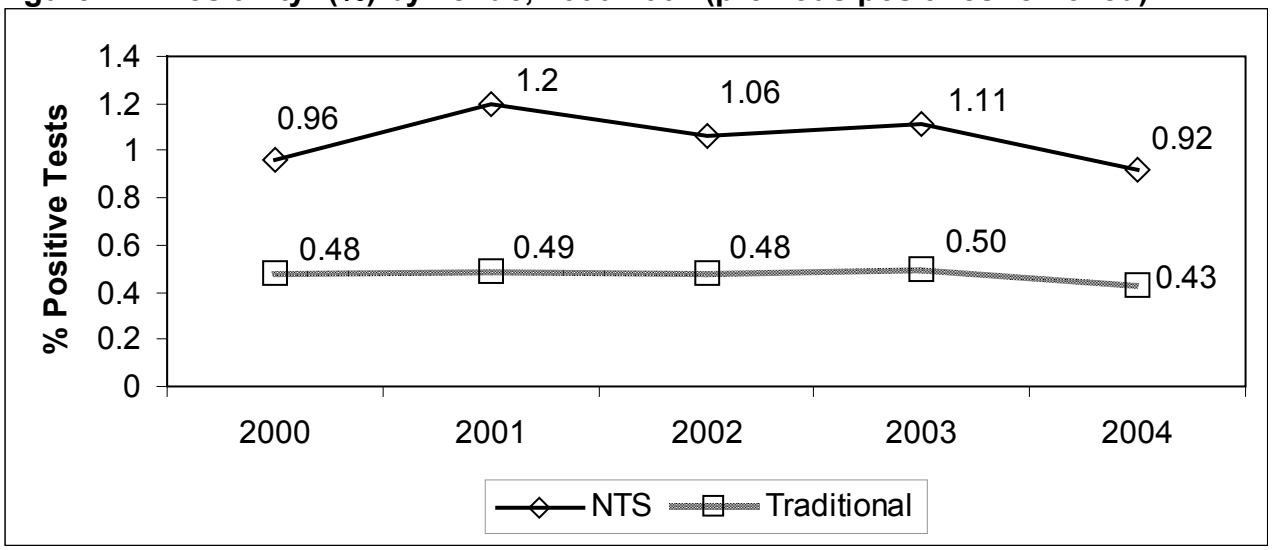
Table 4.4. Number of tests performed and number positive by venue, 2000-2004 (previous positives removed)

Testing Venue	Year of Test									
	2000		2001		2002		2003		2004	
	Tests	Pos.	Tests	Pos.	Tests	Pos.	Tests	Pos.	Tests	Pos
NTS	4,893	47	6,764	81	7,661	81	7,986	88	9,228	85
Traditional	100,758	483	102,195	503	97,879	473	99,688	492	109,700	467

HIV TESTING AND POSITIVITY TRENDS

Overall, repeat test behavior has been similar in the two venue types for 2000-2004 (about 60% of clients were previously tested with negative results). Among the clients who were tested and found to be positive, approximately half had a previous negative test. In NTS sites, repeat testers have a higher positivity rate than first-time testers (1.08% vs. 0.74% in 2004). In traditional sites,

Figure 4.1. Positivity* (%) by venue, 2000-2004 (previous positives removed)



*Positivity calculated with inconclusive or missing test results removed from denominator

the positivity rates are lower and the trend is the opposite; in 2004 first-time testers had a positivity rate of 0.50 percent compared to 0.42 percent among the repeaters.

These trends illustrate the foundation of the NTS testing sites, which were set up under the assumption that the clientele at the NTS sites might be very different than those tested in traditional sites. One of the most striking differences is the number of males tested compared to the number of females tested. For the past five years, more males than females were tested in NTS sites (57.6% in 2004, Table 4.5). The opposite is true for traditional test sites, where far more females are tested (67.7% in 2004). This is likely due to the fact that HIV screening is recommended for pregnant women and that NTS sites do not have prenatal/OB or family planning services, which are found in many of the traditional testing sites at local health departments.

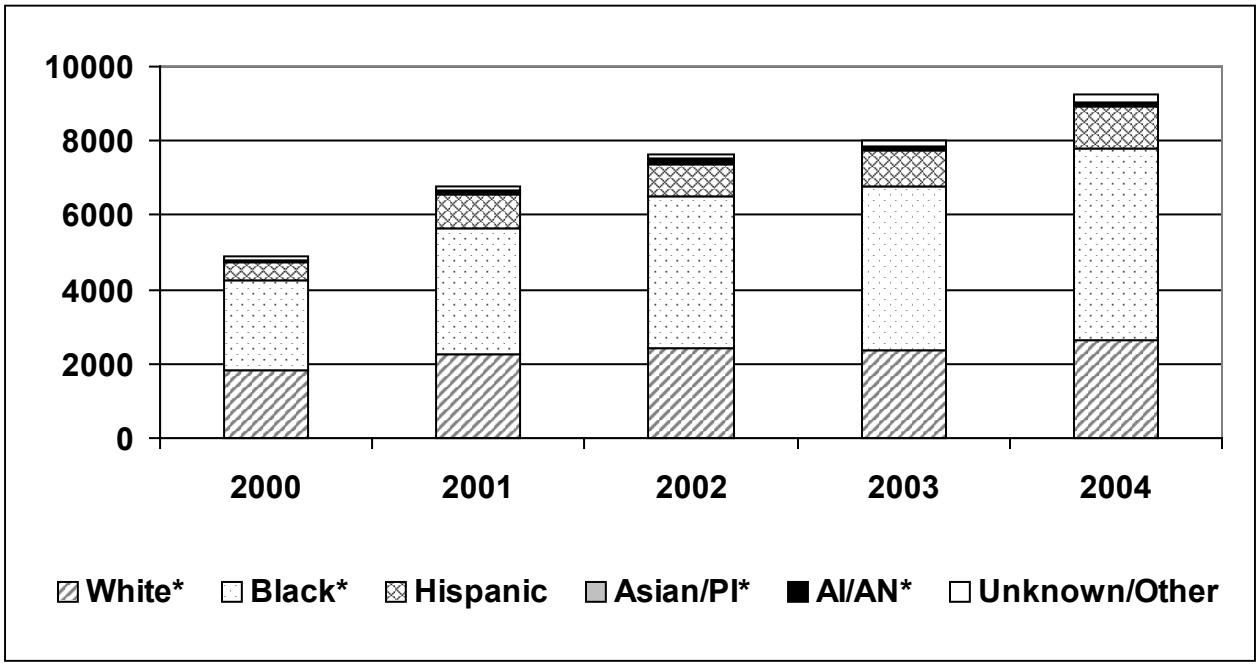
Table 4.5. HIV CTS tests by gender, 2000-2004 (previous positives removed)

	Year of test									
NTS Venue	2000		2001		2002		2003		2004	
Gender	Tests	Pct.	Tests	Pct.	Tests	Pct.	Tests	Pct.	Tests	Pct.
Male	2,907	59.4%	4,351	64.3%	4,588	59.9%	4,864	60.9%	5,314	57.6%
Female	1,922	39.3%	2,327	34.4%	2,915	38.1%	2,998	37.6%	3,766	40.8%
Missing	64	1.3%	86	1.3%	158	2.1%	124	1.6%	148	1.6%
Total	4,893	100%	6,764	100%	7,661	100%	7986	100%	9,228	100%
Traditional Venue	2000		2001		2002		2003		2004	
Gender	Tests	Pct.	Tests	Pct.	Tests	Pct.	Tests	Pct.	Tests	Pct.
Male	31,254	31.0%	32,075	31.4%	30,852	31.5%	31,332	31.4%	33,997	30.1%
Female	68,719	68.2%	68,895	67.4%	65,896	67.3%	67,140	67.4%	74,230	67.7%
Missing	786	0.8%	1,225	1.2%	1,131	1.2%	1,216	1.2%	1,473	1.3%
Total	100,759	100%	102,195	100%	97,879	100%	99,688	100%	109,700	100%

During the first years of NTS availability, approximately the same proportion of clients seen in traditional and NTS sites were white. In recent years the proportion of tests for black clients has steadily increased in NTS sites (from 49% in 2000 to 56% in 2004), but remained constant at 43-44 percent in traditional sites (Figures 4.2 and 4.3). Among Hispanics, the trend has been the opposite; testing proportions have remained relatively unchanged (around 12%) in NTS sites but have increased from 12.3 percent in 2000 to 16.4 percent in 2004 in traditional test sites.

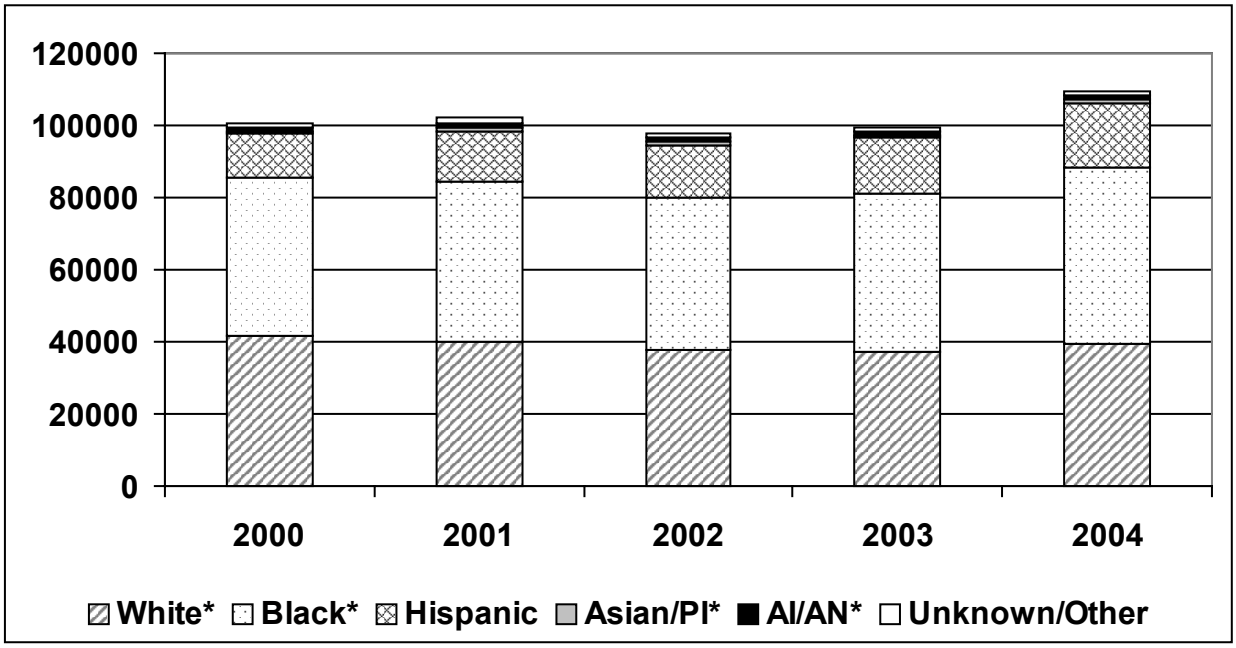
The total number of tests performed and the percent positive by race/ethnicity are presented in Table 4.6. The positivity for blacks tested in NTS sites is approximately two to three times that for whites, while the differential between these two groups is four-fold in traditional sites. The number of Hispanics and Native Americans tested at NTS sites is small, making the trends there difficult to interpret, but in traditional sites both groups have consistently higher positivity rates than whites.

Figure 4.2. NTS Sites – CTS tests performed by race/ethnicity 2000-2004



* non-Hispanic

Figure 4.3. Traditional test sites – CTS tests performed by race/ethnicity 2000-2004



*non-Hispanic

Table 4.6. Number of tests performed and positivity* by race/ethnicity, 2000-2004 (previous positives removed)

	Year of Test									
NTS Venue	2000		2001		2002		2003		2004	
Race/ Ethnicity	Tests	Pos. (%)	Tests	Pos. (%)	Tests	Pos. (%)	Tests	Pos. (%)	Tests	Pos. (%)
White	1,817	0.61	2,233	0.58	2,409	0.79	2,347	0.89	2,611	0.61
Black	2,404	1.33	3,383	1.83	4,079	1.40	4,398	1.32	5,197	1.17
Hispanic	508	0.79	950	0.53	853	0.23	965	0.73	1,088	0.74
Asian/PI	26	0	31	0	38	0	41	0	71	0
Native American	32	0	47	0	108	0	50	0	54	0
Other/unk	90	0	109	0.93	160	1.90	150	1.3	181	0
Total	4,877	0.96	6,753	1.20	7,647	1.06	7,951	1.11	9,202	0.92
Traditional Venue	2000		2001		2002		2003		2004	
Race/ Ethnicity	Tests	Pos. (%)	Tests	Pos. (%)	Tests	Pos. (%)	Tests	Pos. (%)	Tests	Pos. (%)
White	41,485	0.20	40,104	0.18	37,655	0.19	37,069	0.21	39,621	0.20
Black	43,816	0.83	44,059	0.86	42,305	0.82	43,517	0.80	48,673	0.70
Hispanic	12,385	0.23	14,214	0.28	14,639	0.30	15,399	0.32	17,955	0.17
Asian/PI	723	0	726	0.14	731	0	660	0.45	837	0.12
Native American	1,019	0.49	1,271	0.31	1,043	0.38	980	0.41	1,059	0.47
Other/unk	1,189	0.50	1,730	0.40	1,405	0.43	1,334	0.52	1,435	0.63
Total	100,617	0.48	102,104	0.49	97,778	0.48	98,959	0.50	109,580	0.43

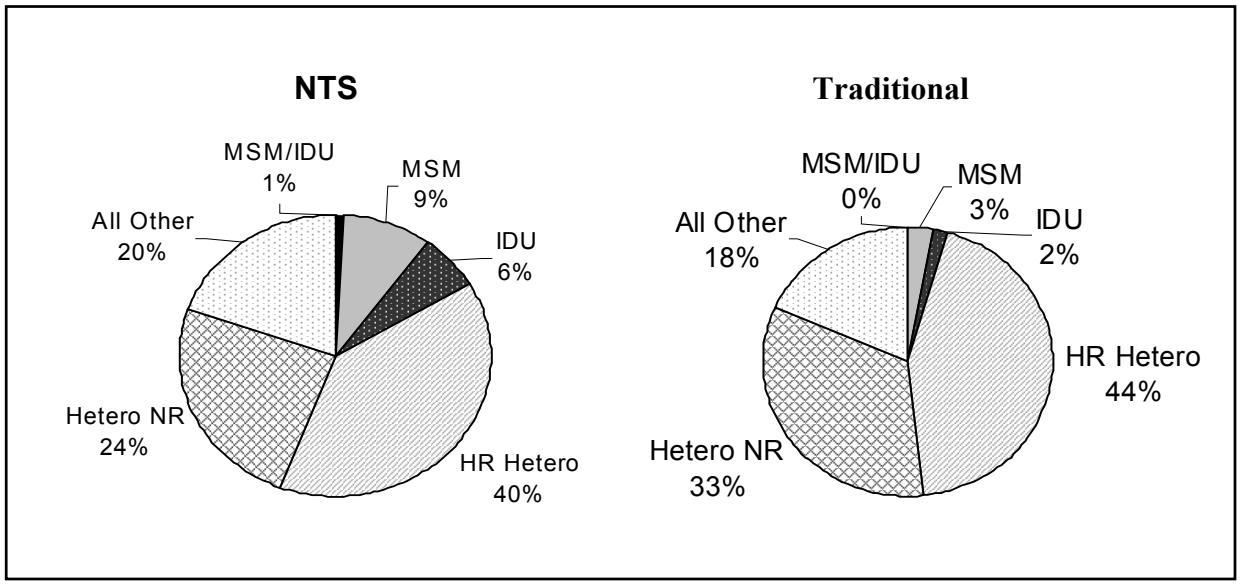
*Positivity calculated with inconclusive or missing test results removed from denominator

The major difference noted between clients seen in NTS and other sites is the proportion of tests comprising high-risk clients. Clients undergoing testing at all CTS sites are interviewed regarding their HIV risk as a part of pre-test counseling. Although an individual may report several different behavioral risks, each test is assigned a "mode of transmission" category according to the reported behavior that carries the highest risk of HIV transmission. For example, if a person reports both injection drug use (IDU) and heterosexual sex, the person will fall into the IDU category. The same is true if a male client reported having sex with other men (MSM) and women; they would fall under MSM. There is an additional category for persons reporting both MSM and IDU. The category 'heterosexual sex with a high-risk partner' includes those who report heterosexual sex with known HIV positives or partners at risk for HIV, exchanging sex for drugs or money, having sex while using non-injecting drugs, multiple sexual partners, or recent STD diagnoses. Other risks include blood exposures such as transfusions and accidental needle sticks.

Men who have sex with men (MSM), injecting drug users (IDU) and clients reporting both MSM and IDU risks made up approximately 16 percent of the clients tested in NTS during 2004, compared to less than five percent of the traditional venue clients during the same time (Figure 4.4). This is consistent with testing proportions in previous years. High-risk heterosexual

activity made up 40 percent of the NTS clients and 43 percent of the traditional venue clients. Traditional venues also consistently report more clients with heterosexual risk only (no other risk); they were 33 percent of traditional testing clients and 24 percent of NTS clients in 2004.

Figure 4.4. CTS testing by mode of transmission, 2004 (previous positives removed)



Within the high-risk heterosexual category, some key differences exist between NTS and traditional sites. For 2000-2004, 19-20 percent of traditional test site clients reported STD history compared to only 14-15 percent in NTS. Conversely, 3-4 percent in NTS sites reported exchanging sex for drugs or money, compared to less than one percent in other sites.

Repeat testing was slightly more common in NTS settings for MSM (73-80% compared to 66-70%). Conversely, traditional sites had slightly higher proportions of repeat tests for IDUs, high-risk heterosexuals, and heterosexuals with no other risk reported.

While MSM testing represented a higher proportion of tests in NTS sites, the positivity rate was greater in traditional sites than NTS sites (Table 4.7). The positivity rates for IDU clients were only slightly higher in NTS sites, although IDU testing proportions were about two times greater in NTS sites than traditional sites. The vast majority of heterosexual only and high-risk heterosexual clients tested were seen in traditional settings, but those using NTS sites were consistently more likely to test positive.

Table 4.7. HIV CTS tests performed and positivity* by mode of transmission, 2000-2004 (previous positives removed)

	Year of Test									
NTS Venue	2000		2001		2002		2003		2004	
Mode of Transmission	Tests	Pos. (%)	Tests	Pos. (%)	Tests	Pos. (%)	Tests	Pos. (%)	Tests	Pos. (%)
MSM IDU	38	0	44	2.27	56	3.57	73	5.48	69	0
MSM	503	2.58	645	2.33	730	2.6	913	3.83	849	4.0
IDU	389	1.29	533	1.69	569	1.05	498	1.20	590	1.69
High-Risk Heterosexual	2,307	1.08	3,348	1.14	3,374	0.98	3,239	0.83	3,645	0.63
Heterosexual, No Other Risk	1,019	0.29	1,442	1.18	1,816	0.55	2,053	0.63	2,252	0.53
Other/Missing	621	0.16	741	0.13	1,102	1.00	1,175	0.26	1,797	0.33
Total	4,877	0.96	6,753	1.20	7,647	1.06	7,951	1.11	9,202	0.92

Traditional Venue	2000		2001		2002		2003		2004	
Mode of Transmission	Tests	Pos. (%)	Tests	Pos. (%)	Tests	Pos. (%)	Tests	Pos. (%)	Tests	Pos. (%)
MSM IDU	155	2.58	120	3.33	94	2.13	112	0	94	3.19
MSM	2,252	4.44	2,586	4.64	2,696	4.78	2,790	5.02	3,075	4.62
IDU	2,697	1.41	1,965	0.87	1,870	0.86	1,909	0.94	1,766	0.68
High-Risk Heterosexual	47,268	0.47	48,083	0.47	45,845	0.46	44,405	0.50	48,136	0.38
Heterosexual, No Other Risk	32,346	0.24	33,701	0.27	32,088	0.21	32,908	0.24	36,454	0.18
Other/Missing	15,899	0.26	15,649	0.29	15,185	0.30	16,835	0.21	20,055	0.30
Total	100,617	0.48	102,104	0.49	97,778	0.48	98,959	0.50	109,580	0.43

*Positivity calculated with inconclusive or missing test results removed from denominator

CHAPTER 5: SPECIAL STUDIES

- **RECENT INFECTIONS**
- **NATIVE AMERICAN INTERFAITH MINISTRY (NAIM) SURVEY**
- **HIV AMONG YOUNG ADULTS ATTENDING COLLEGE**
- **PERSONS DIAGNOSED WITH BOTH HIV AND SYPHILIS**
- **ENHANCED PERINATAL SURVEILLANCE PROJECT**

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RECENT INFECTIONS

Historically, HIV surveillance in the general population has involved monitoring the number of new reports (new diagnoses) of individuals who are infected with HIV infection. True incidence (i.e., the number of newly acquired infections within the population in a given time period) is very difficult to determine in HIV patients because a person can be infected for months or years before developing symptoms and seeking testing or a diagnosis. If newly acquired or recent HIV infections can be identified, public health officials will be able to monitor the epidemic more effectively, make better decisions concerning the allocation of resources, and plan and implement programs, particularly prevention programs. Serologic studies that identify true recent or new infections (as opposed to newly identified individuals who are infected) have only recently become available.

Two programs have been initiated in North Carolina aimed at identifying or estimating new or recent infections: Screening and Tracing Active Transmission (STAT) and HIV Incidence Surveillance. Each uses a different testing methodology, and together the respective information can help better estimate overall HIV incidence. These two programs are discussed below.

STAT Program

The Screening and Tracing Active Transmission (STAT) program is an initiative to improve HIV prevention and care by enabling the State Laboratory for Public Health to detect individuals who are likely newly infected with HIV and to provide this information to disease intervention specialist (DIS) with the Field Service Unit of the HIV/STD Prevention and Care Branch. Recently infected individuals will therefore be able to receive counseling and treatment earlier, with the goal of preventing inadvertent exposure to partners. These individuals are considered to have an **acute (or primary)** HIV infection (before they begin to produce antibodies to the virus), compared to those with **established** infection (i.e., detectable antibody levels). In North Carolina, the STAT concept was implemented as a cooperative arrangement between the HIV/STD Prevention and Care Branch, the State Laboratory for Public Health and the University of North Carolina in Chapel Hill. It began in May 2002 as a two-month pilot program through the research laboratory of Dr. Chris Pilcher at the University of North Carolina at Chapel Hill School of Medicine. For the pilot, aliquots of serum with no detectable levels of HIV antibody by EIA and Western Blot (i.e., seronegative) were sent from the State Laboratory for Public Health to Dr. Pilcher's laboratory for further testing. These sera were tested for the presence of the HIV virus (not the antibody) using the polymerase chain reaction (PCR) to detect viral RNA. Due to the large number of specimens which are seronegative (more than 100,000 per year) and for the purposes of cost containment, the serum aliquots were pooled such that up to 100 sera were tested together. If a pool of 100 sera tested positive, the researchers worked backwards in the dilution scheme to identify which individual specimen(s) contained viral nucleic acid. Following the demonstration of feasibility through the pilot program, STAT was implemented as a routine program in November of 2002.

Within 72 hours after receiving the report, Disease Intervention Specialists (DIS) contact individuals who test positive for the HIV virus. The DIS perform an initial interview and counsel the individual to have a repeat HIV-antibody test within two weeks (and, if necessary, at 4 and 12 weeks). Partners—both sexual and needle-sharing—of these individuals are also notified and offered testing. The results from the pilot and ongoing testing activity showed a distribution of positive acute tests that reflects what is seen with EIA/Western Blot testing. In a

one-year period (November 1, 2002 to October 31, 2003), 109,250 individuals were tested. Of these, 583 had antibody-positive established infections. An additional 23 individuals were antibody negative but tested positive for the virus using PCR (i.e., were acute infections). The majority of these 23 acutely infected individuals were male (65%), black (70%), and were over 24 years old (70%). The most common risk categories were persons also positive for another STD (30%) and men who have sex with men (also 30%; see Table 5.1). Roughly four percent (23 out of a total of 606) of the HIV-1 infected patients were EIA antibody negative and would not have been detected until possibly much later without the use of the STAT procedure (Pilcher et al. 2005). Acute testing is now being conducted at the State Health Laboratory on all seronegative specimens. This testing was responsible for helping recognize an HIV outbreak among young adults attending college or linked to students attending college. This information will be incorporated into routine HIV surveillance data for the general population, for public health officials to use in developing and implementing better treatment and prevention programs.

The result from the pilot STAT program was combined with the results from Serologic Testing Algorithm for Recent HIV Seroconversion (STARHS) testing (discussed below) conducted on laboratory samples submitted to the State Laboratory for a similar 12-month period by Dr. Chris Pilcher. He estimated an overall incidence in the study population of 2.2 HIV infections per 1,000 person years (Pilcher et al. 2005).

HIV Incidence Surveillance Program

North Carolina is one of 33 cities and states in the U.S. that are participating in the HIV Incidence Surveillance Program. This program uses the Serologic Testing Algorithm for Recent HIV Seroconversion (STARHS) method for determining the proportion of individuals who test positive for HIV for the first time who may have been recently infected by HIV. Sera which have tested positive for HIV antibodies by EIA and have been confirmed as positive by Western blot, are tested by a second, less-sensitive enzyme immunoassay (LS-EIA). In the context of a reactive, standard HIV EIA, recent HIV seroconversion is likely if the LS-EIA is nonreactive. STARHS can determine with reasonable probability the number of HIV infections recently acquired within the testing population. The LS-EIA must be applied to the diagnostic HIV-positive specimen because the assay is sensitive to the length of time that the infection has been present (because of changes in antibody concentration). The time from when a specimen would first be reactive by a sensitive HIV EIA to when the specimen would first be reactive by the LS-EIA, if tested, is defined as the STARHS window period. Although the mean STARHS window period may vary slightly by HIV subtype, the mean window period for calculating population-based incidence estimates is 153 days. The LS-EIA for STARHS is performed only on HIV-positive sera. Thus, STARHS is time-sensitive, and the LS HIV EIA must be applied to the diagnostic HIV-positive specimen. It is anticipated that North Carolina will begin routinely collecting STARHS data in the summer of 2005.

When STARHS is fully implemented in North Carolina, the following procedures will be followed. HIV incidence surveillance coordinators will be informed regularly by their laboratory designees of all stored specimens at the public health laboratory. Serum specimens will be held in the state public health laboratory until the coordinator, using routine HIV/AIDS surveillance reporting procedures, determines whether the specimen represents the person's first reported positive-HIV test result. If a person has been previously reported to the HIV/AIDS reporting system (HARS), then that person's serum specimen is ineligible for STARHS and will be handled according to routine laboratory protocols for HIV-positive serum specimens. For

persons not previously reported to the HIV/AIDS Reporting System (HARS), surveillance staff will review STARHS eligibility. Persons with a positive HIV test result will be considered eligible for STARHS if they meet the following requirements:

- They have not been reported previously in HARS.
- The serum specimen held in the laboratory represents their first confirmatory positive HIV test result from a confidential test.

Information on prior HIV testing and antiretroviral drug use will be collected on all eligible individuals reported as potentially having a newly diagnosed HIV infection, so that incidence estimates can be accurately derived. Some of this information has been collected routinely in HARS and the Counseling and Testing System (CTS); however, not all of the required elements for STARHS have been collected uniformly. Therefore, a standard set of questions and corresponding data elements yielding information specific for STARHS has been developed. For those reporting sites that participate in CTS, these standard questions and data elements are being incorporated into the new CTS data system. For those sites that do not participate in CTS, a paper copy of the standard set of questions, based on the requisite elements, will be made available to those conducting post-testing counseling. In North Carolina, testing history information will be collected when the individual returns to receive test results and/or HIV counseling. Obtaining the HIV testing history when individuals return for the HIV test result will take advantage of their ability to recall information about testing behaviors. Local surveillance personnel will use their best judgment in each instance regarding when to approach individuals for their testing history. However, should more time be required to gather the information because of logistical or other reasons, a reasonable time frame for gathering that information is one to three months after a diagnosis of HIV. Standard procedures will be followed in contacting individuals to prevent them from becoming lost to follow-up. Some data—such as the date of the previous negative HIV test(s), test location, and result—may be available from laboratories or other data systems. The data management system for the HIV incidence surveillance program will allow for collection of information for each data element from multiple sources. The various sources will be identified in the database.

Because of the variability in antibody development in individuals, the predictive value of an individual's STARHS result is low. CDC data only reliably support using STARHS for estimating incidence at the population level. The FDA has labeled the LS-EIA kit and methodology being used, the BED HIV-1 Capture EIA, "For surveillance use. Not for diagnostic or clinical use." The BED HIV-1 Capture EIA is not FDA-approved as a diagnostic test, and the results are only reliable as part of the population-based incidence estimate. Consequently, STARHS results cannot be returned to individuals or to providers.
Local health department personnel and Disease Intervention Specialists are being trained to use HIV testing history questionnaires when conducting follow-up counseling for HIV-positive patients. Very early preliminary data from Dr. Chris Pilcher's laboratory suggests that the distribution of recent positives mirrors that seen in both acute and standard testing (Table 5.1). HIV incidence surveillance will be integrated into routine laboratory HIV diagnostic testing and reporting procedures. This testing is designed to have no effect on individual patient care and minimal effect on current HIV surveillance activities. The State Laboratory for Public Health performs routine diagnostic confirmatory HIV testing by Western blot and will report as usual to the North Carolina HIV/AIDS surveillance program. The laboratory will then either store the remnant HIV-positive serum specimens or send them to the Wadsworth Diagnostic HIV Testing Laboratory in Albany, New York for STARHS testing. STARHS results will be returned to county health departments in a standardized reporting format, but not to the individual.

STARHS results will be identified by the regional STARHS laboratory accession number and linked to the unique identification numbers used to label the original specimen.

Table 5.1. Demographics for STAT, STARHS, and all laboratory positives, Nov 2002 - Oct 2003

Category	Acute (STAT) (n = 23)	Recent (STARHS) (n = 107)	All Antibody Positives (n = 583)
Sex	Pct.	Pct.	Pct.
Male	65%	64%	65%
Female	35%	36%	34%
Age			
> 24 years old	70%	69%	78%
≤ 24 years old	30%	29%	21%
Race/ethnicity			
Black*	70%	60%	70%
White*	22%	27%	18%
Hispanic	4%	13%	9%
American Indian*	4%	0%	0.6%
Risk Category			
Heterosexual	4.3%	17%	17%
STD diagnosis	30%	10%	12%
Sex partner at risk	9%	21%	24%
None acknowledged	0%	5%	3%
Non-injected drugs	9%	2%	3%
MSM	30%	35%	29%
Heterosexual & IDU	4%	5%	4%
Victim of Sexual Assault	4%	1%	0%

* non-Hispanic

HIV KNOWLEDGE, ATTITUDES AND RISK AMONG NATIVE AMERICANS IN NORTH CAROLINA – NAIM SURVEY

Background

Native Americans in North Carolina are disproportionately affected by HIV and STDs. Since 1998, Native American HIV rates have been one-and-a-half to two times higher than white rates, while gonorrhea rates have been around five times higher. Syphilis rates among Native Americans have been consistently much higher than white rates, particularly during an outbreak in Columbus and Robeson counties in 2001 (see Figures 8.4 and 8.5 on page 115). Although the HIV rates are not as dramatically elevated as those of other STDs, the syphilis rates in particular indicate that the community is at high risk for HIV. The HIV/STD Prevention and Care Branch (the Branch) sought to better understand the Native American population in North Carolina in order to improve the effectiveness of HIV prevention programs.

The Branch partnered with the Native American Interfaith Ministry (NAIM), the North Carolina Commission on Indian Affairs (NCCIA), the University of North Carolina at Pembroke (UNCP), and tribal leaders across the state to conduct a survey of Native American HIV knowledge, attitudes, and risk behaviors. The survey also contained questions regarding religion and spirituality, sources of health information and services, and access to health care. The self-administered survey was developed and tested using focus groups. Then from May to December of 2003, the survey was conducted by staff from NAIM, UNCP, and tribal leaders. Participants were recruited at 20 different sites including powwows, colleges and universities, churches, bars, and community health screenings.

Demographics

There were 1,009 total respondents. Of these, 99 percent were Native American (972 self-identified as Native American race, while 27 listed another race but identified as a member of one of the tribes). Nearly two-thirds of the respondents were female (65%); just two listed their gender as ‘Transgender”; and two were missing gender information. The majority of the respondents identified as members of the Lumbee tribe (56.2%), followed by the Waccamaw Siouan (8.8%), Triangle Native American Association (8%), and Coharie (7.7%). Respondents ranged from age 7 to 80, and the mean age (32) and interquartile range (IQR 20-42) were the same for both males and females.

Attitudes

Most respondents felt that the average person should be concerned about HIV (75.2%) and that everyone should be tested (76.9%).

Several questions pertained to the power of knowledge and education in preventing HIV. The overwhelming majority (over 78%) felt that knowledge was useful in preventing HIV, and 71 percent reported reading and listening to HIV information. Similar proportions felt empowered to prevent HIV themselves (72.1% and 80.3%).

The majority of respondents showed sympathy for those with HIV/AIDS. A high proportion agreed that people with HIV deserve family and community support (80.3%) and said that they

have sympathy for infected persons (72.4%). A slightly lower proportion, but still a majority (55.1%), felt that government money should be spent on research.

Attitudes reflecting fear and discrimination were in the minority but still show cause for concern. Almost 40 percent reported that they avoided contact with HIV patients, 19.5 percent felt that children with HIV should not attend school, 36.2 percent approved of separate facilities (e.g., bathrooms) for HIV patients, and 21.3 percent felt that persons with HIV should not be allowed to work. A large proportion (38.6%) "would be embarrassed" if someone in their family had HIV, but fortunately the number agreeing with the most highly prejudiced questions was much smaller: HIV as a punishment to homosexuals (19.3%) and that only unfit mothers have children with HIV (10.5%).

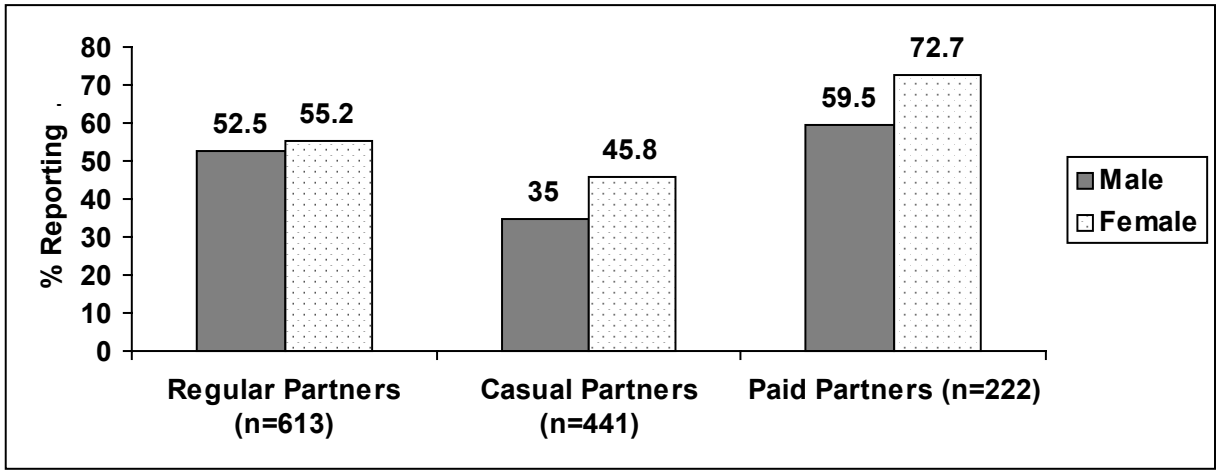
The attitude questions were examined separately by gender and in nearly all cases, males and females responded similarly (within several percentage points). The only exception to this was that males were slightly more likely than females to believe that persons with HIV should not be allowed to work (26.7% vs. 18.6%).

Sexual Risk

There were 679 respondents who reported any sexual partners during the previous year (66% of female respondents and 70% of male respondents). The following discussion of sexual risk is restricted to these 679 sexually active people.

Over 30 percent of both males and females reported any paid sex in the previous year. Twenty percent of the men and sixteen percent of the women reported anal sex in the previous year. Participants were asked about condom use with regular, casual, and paid sex partners.

Figure 5.1. Percent of Native Americans reporting NEVER using condoms, by partner type



Alarmingly, those reporting paid sex partners were MOST likely to report never using condoms with those partners (Figure 5.1). Persons reporting sex with paid partners did perceive themselves to be at greater risk for HIV than persons reporting sex with casual or regular partners, but the proportion was still low (12.1% of males and 9.2% of females with paid partners felt at risk for HIV, compared to 7.8% and 5.4% with regular partners).

A small but potentially important minority of respondents reported that they could not buy condoms themselves (12.1%) or use them correctly (11.2%). A smaller number felt that they could not talk to partners about condoms (8.5%) or safe sex (8.1%).

Injection Drug Use Risk

There were 72 people (40 male, 32 female) who reported any injection drug use (IDU) in the previous year. Disturbingly, 70 percent of these IDUs did not perceive themselves to be at risk for HIV even though 70 percent also reported needle sharing in the previous year. They also exhibited low self-efficacy with respect to IDU risks. Nearly a third of male IDUs (32.5%) and a fourth of females (25%) reported that they could not refuse to shoot up with a friend. More males (37.5%) and fewer females (15.6%) reported that they could not refuse to use a needle after a friend had used it.

HIV/AIDS Knowledge

The survey included 25 true-false knowledge questions. These questions were coded against the correct answers to assess the overall HIV knowledge level of the respondents (as a percentage of questions answered correctly). Overall, respondents scored quite well, with females doing slightly better than males. For males, the average score was 72.7 (IQR 60-84), and for females the average was 74.8 (IQR 68-84).

Those scoring in the bottom 25 percent of respondents were similar to the high scorers with respect to gender, tribal affiliation, and self-perception of HIV risk. However, certain high risk groups (IDU, anal sex, paid sex, any sex) and those in the youngest age groups were more likely to score in the lowest quartile (Table 5.2).

Table 5.2. Native American HIV knowledge and risk: odds of scoring in the lowest quartile among risk groups

	n Reporting	OR (odds ratio)	95% CI (confidence interval)
Any IDU last year	72	6.9	4.2 – 11.5
Anal sex last year	122	3.5	2.3 – 5.2
Paid sex last year	222	3.0	2.2 – 4.2
Age <20 years	220	2.9	2.1 – 4.1
Any sex last year	679	1.8	1.3 – 2.4
Age <30 years	541	1.6	1.2 – 2.1

Performance on individual questions ranged from 88.6 percent responding correctly, to a low of only 37.8 percent responding correctly. Fortunately, most of the basic questions with respect to HIV transmission and prevention received high scores. Well over 80 percent of respondents knew that HIV could be transmitted via needles, sex, and pregnancy and that non-homosexuals are at risk. Most of the questions on which performance was poorest involved HIV statistics, biology, and treatment. Several questions posed some cause for concern, however. Over 21 percent of respondents still believe that HIV can be transmitted by sharing meals or linens or by other casual contact, and only 58.3 percent believe that the blood supply is safe.

Spirituality

The survey included separate questions on religion and spirituality and one question referring to belief in God. The vast majority of the participants reported that they do currently believe in God (86.1%), with females being slightly more likely than males and those age 25-34 being slightly less likely than those older and younger. Very few respondents reported that religion and spirituality were "not important," and males were more likely to say that than females (about 18% compared to about 9% for females). The relationship with age was similar to the belief in God question, with the youngest (under 25) and oldest (age 35 and older) more likely to say that religion and spirituality were important.

Age was also consistently associated with finding strength in religion and spirituality and in using those beliefs to guide daily activities, with the oldest group most likely to agree (about 70%) and the youngest group least likely to agree (55-60%).

Participants reporting any sexual activity in the previous year were more likely than those not sexually active to report current belief in God (90.7% vs. 76.4%) and, by a smaller margin, more likely to feel that religion and spirituality are important (about 89% compared to about 85%). The association with risk-taking is most striking among those reporting any IDU activity in the previous year. Although 72.2 percent (52 of 72) report that they currently believe in God, 41.7 percent report that religion and spirituality are not at all important.

Sources of HIV/STD information

Participants were asked where they received information about HIV and STDs (Table 5.3). The most frequently cited sources were friends, TV, and relatives, while surprisingly small numbers of people reported receiving information from print media, radio, and the Internet.

Table 5.3. Sources of HIV/STD information among Native Americans in N.C.

Source	Pct. Reporting (n=1,009)
Friends	56.3%
TV	49.7%
Relatives	48.1%
Health Department	44.9%
Print Media	25.1%
Radio	17.9%
Internet	9.8%

Respondents 35 and over were more likely to report TV or health department while those under 25 were most likely to report the Internet. Most surprising was the association with any IDU activity: injection drug users reported that they got most of their information from friends and relatives and were half as likely to get information from the health department (23.6% vs. 46.5%). Very few reported getting information from radio, TV or print media, and none of the 72 IDUs used the Internet to get health information.

HIV/STD services

County health departments were the most frequently reported source for HIV/STD testing services (51.5%). Personal physicians (42.7%), local clinics (41.6%), and hospitals (33.2%) were also common. A very low number reported seeking these services at tribal agencies (2.9%).

Sources of testing did not differ much by gender; even the county health department was cited as a source of testing almost equally among males and females. Age differences were seen, with the higher age groups most likely to receive services at the health department, personal physician, and at HIV/STD agencies. Injection drug users were less likely than non-IDUs to report services at the local health department (37.5% vs. 52.6%) or at a personal physician (27.8% vs. 43.9%).

Barriers to seeking HIV/STD services

Financial concerns were the most commonly cited barriers to seeking HIV/STD health care services (ability to pay 64.7%, lack of insurance 53.2%). Only 37.1 percent reported that transportation would be a barrier to seeking care. Even smaller numbers reported concerns about the sensitivity of providers (21.3%) or confidentiality (17.9%).

Again, responses were primarily similar across gender groups, with females more likely to list insurance as a problem (55.6% compared to 48.1% for males). The older age groups were most likely to list transportation as a problem (about 42% compared to 29% among those under 25), and they were also more likely to list insurance as a major problem (68.9% in oldest group vs. 37.6% in the youngest). Surprisingly, the IDU group was less likely to list any barriers at all, especially providers, ability to pay, and insurance.

Lessons Learned

The results of this survey provide valuable information for planning HIV prevention activities for Native Americans in North Carolina.

The current HIV/AIDS knowledge level is relatively good but there are some clear areas for improvement. The respondents overwhelmingly expressed confidence in the effect of knowledge and education on HIV prevention, indicating that an educational campaign might be well received. Attitudes toward persons with HIV were generally sympathetic but some fearful attitudes were reflected in the responses. However, those fears could likely be remedied with improved HIV knowledge. For example, fewer people might be against HIV-positive children attending public schools if they better understood transmission.

Despite relatively good knowledge levels, as a whole, the respondents had an alarmingly low self-perception of HIV risk. This is despite a community history of syphilis epidemics in the recent past, and was true even among those who engaged in high-risk activities such as paid sex and injection drug use. This low perception of risk is also reflected by the high numbers who report never using condoms, even with paid or casual partners. Making risk personal will have to be an integral part of HIV prevention campaigns for this group.

The number of people reporting transportation and cultural sensitivity of providers as barriers to accessing HIV/STD services was lower than expected. The most commonly reported barriers were financial in nature. This concern can likely be addressed by getting the word out to the community that many HIV/STD services can be obtained free at county health departments.

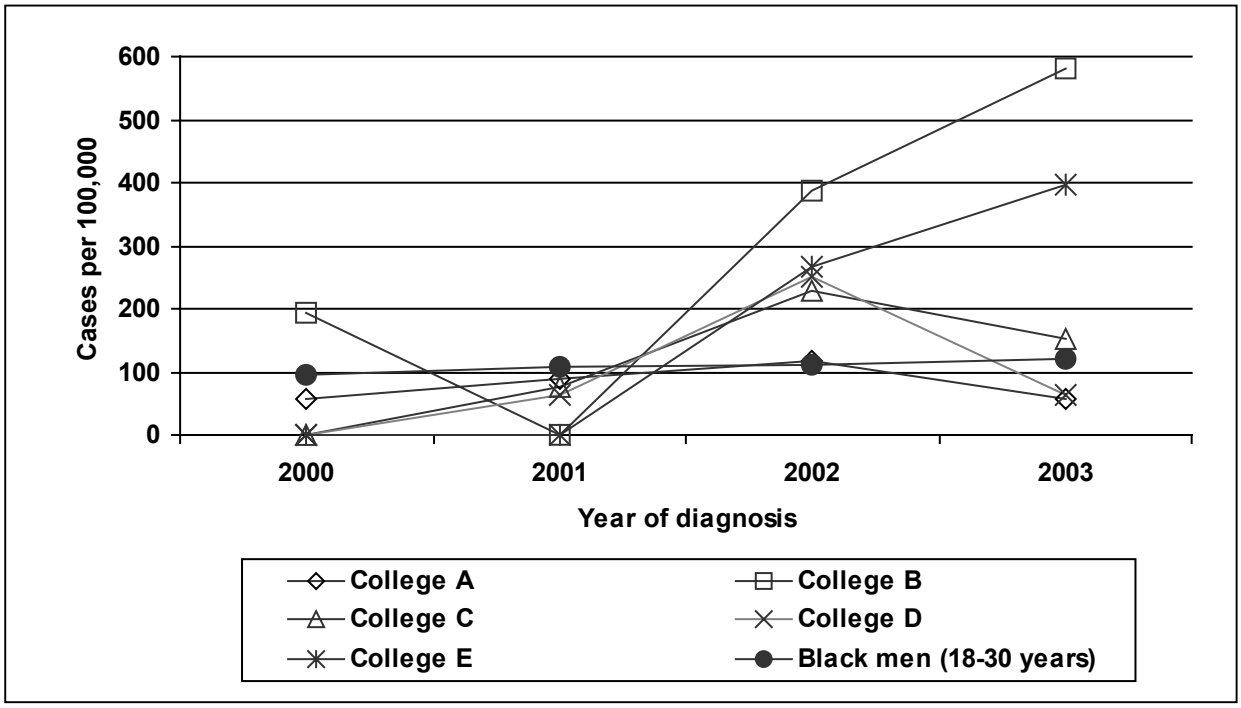
The survey results highlight Native American injection drug users as a group at extremely high risk and which will require special attention. As a group, these IDUs had lower knowledge levels and showed poor self efficacy with respect to protecting themselves against contracting HIV through needle use. Very few perceive themselves to be at risk for HIV even though most share needles. They are also less likely to receive services or information from the health department and more likely to report problems with insurance and transportation.

In designing educational programs for Native American, it will be important to recognize the importance of spirituality. Likewise, programs should be designed to reach people through information sources they currently use. For example, a lay health educator model might work well since so many reported turning to friends and relatives for HIV/STD information. Very few reported using Internet and radio.

HIV AMONG YOUNG ADULTS ATTENDING COLLEGE

Over the past few years, North Carolina identified a previously unrecognized HIV outbreak among young adults attending college or linked to students attending college. The outbreak was found as a result of the state's STAT (Screening Tracing Active Transmission) HIV testing program. The STAT program uses specialized laboratory testing and procedures to identify recently-infected individuals who might be missed using standard testing alone. In early 2002, two newly-positive HIV male college students were identified by the STAT project, triggering a retrospective review of state HIV case reports in the Triangle (Wake, Durham, and Orange counties). The review revealed 25 new cases of HIV infection in males attending college in the Triangle between January 1, 2001 and March 1, 2003. A sexual partner network investigation linked several colleges together. These 25 cases represented a dramatic increase in new HIV cases for males attending college as compared to similar new cases reported in 2000. Many steps were taken as a result of the outbreak. Local health department personnel, all of the campuses involved in the outbreak, and local community-based organizations (CBOs) were notified of the outbreak findings, and counseling and testing activities were expanded. In addition, a Centers for Disease Control and Prevention (CDC) Epi-Aid team comprised of HIV-prevention experts, in collaboration with University of North Carolina researchers and N. C. Division of Public Health staff, conducted a behavioral study of young black MSM in the state. The study found: a) high-risk behaviors were occurring in both HIV-positive and HIV-negative young MSM; b) college students were less likely to identify themselves as gay and/or disclose sexual orientation; and c) venues for meeting sex partners were not limited to college campuses. The investigators concluded that North Carolina is experiencing a dramatic increase in HIV infections among young black men (CDC, MMWR, 2004). The epicenter of the outbreak is the college

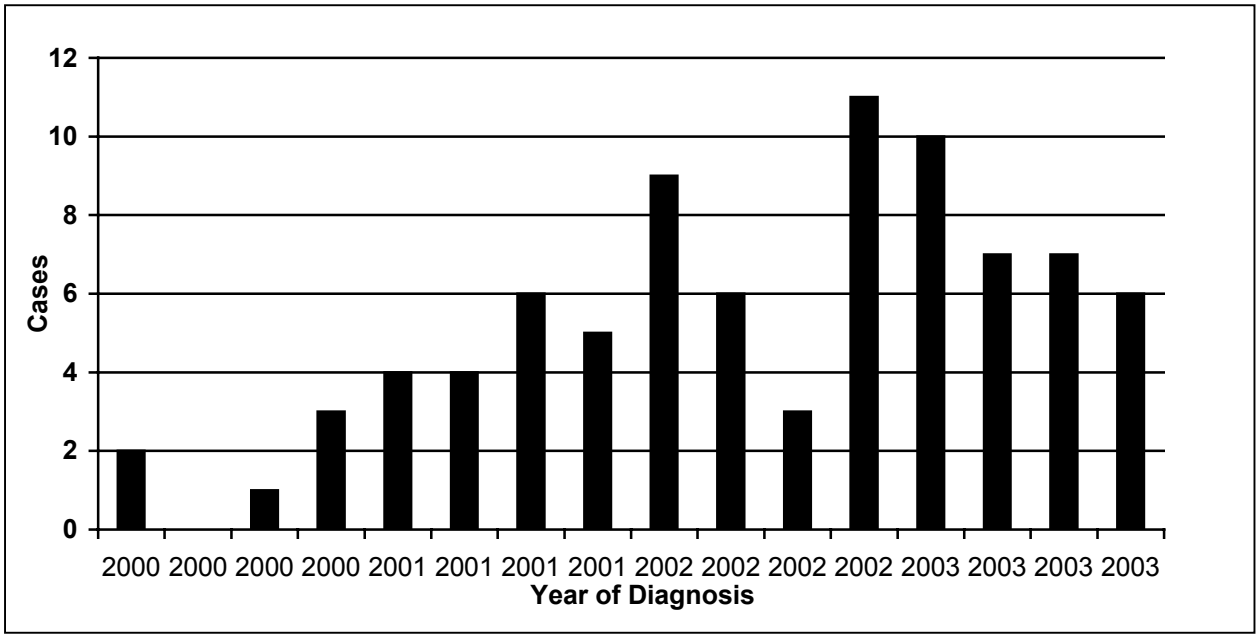
Figure 5.2. New infection rates among black men, age 18-30, at 5 N.C. colleges/universities (2000-2003)



population. A calculation of the rate of new HIV reports for males at five schools indicated alarming increases (Figure 5.2).

An expansion of the review (January 2000 to December 2003) identified a total of 84 new cases of HIV-infected males who were attending 37 colleges throughout the state (Figure 5.3). Of these, 73 (88%) were black and the vast majority of cases (92%) were either men who have sex with men (MSM) or men who have sex with men and women (MSM/W). These HIV-infected college males were compared to newly diagnosed males who were not enrolled in college. An examination of potential sexual partners and social/sexual network links was performed using disease intervention specialist (DIS) interview records and counseling and testing (CTS) data about cases. The study revealed that college students with newly diagnosed HIV infection were more likely than non-college students to be black (odds ratio 3.70, 95% CI=1.86-7.54), to report meeting sex partners at bars or dance clubs (odds ration 3.01, 95% CI=1.77-5.10) or on the Internet/chat lines (odds ratio 4.95, 95% CI=2.53-9.64), or to report use of ecstasy or club drugs (odds ratio 4.51, 95% CI=1.15-15.40). The initial outbreak demonstrated the need to increase student awareness about HIV and the need for specialized interventions to target young African American or black bisexuals and MSM (Hightow et. al 2005).

Figure 5.3. Newly-diagnosed cases of HIV among college males (n=84) by quarter, N.C. 2000-2003



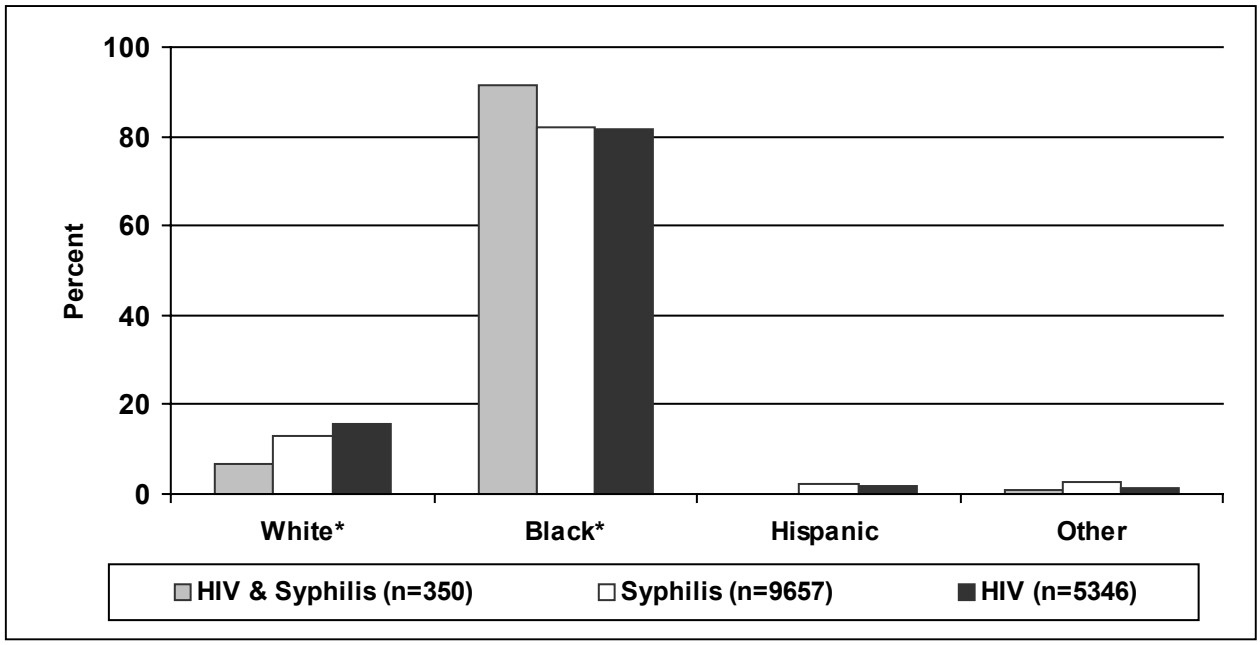
PERSONS DIAGNOSED WITH BOTH HIV AND SYPHILIS

Clinicians and managers of STD prevention programs need comprehensive information about persons at risk of contracting both syphilis and HIV. Persons who contract both diseases may be less responsive to traditional prevention messages and more likely engage in riskier behaviors. To identify and fully describe the demographic and risk factor profile of these persons, epidemiologists at the N. C. Division of Public Health's HIV/STD Prevention & Care Branch retrieved and analyzed information from multiple databases.

These databases included the state's partner counseling and referral services (PCRS) data system and the state's morbidity databases (HARS and STD-MIS). See Appendix B, page 131, for more information on these data sources. HIV/AIDS case reports (17,669) were extracted for persons newly diagnosed and reported between 1993 and 2002 from the morbidity database, and 19,510 syphilis cases (primary, secondary, early latent, and late syphilis) for the same period were extracted from the PCRS data system. Pertinent clinical, demographic and risk-behavior information for cases from each data source was combined into a single data set for analysis. Nine hundred eighty-two (982) persons who contracted both HIV and syphilis were identified and compared to persons who had contracted only syphilis or only HIV.

These 982 co-morbid cases represented about 5.5 percent of the HIV reports and 5 percent of the syphilis reports. While the co-morbid cases were somewhat similar to the respective syphilis and HIV/AIDS populations, there were some notable differences (Figures 5.4 and 5.5). For males, co-morbid cases were slightly more likely to be black non-Hispanic (87% as compared to 85% for syphilis alone and 67% for HIV alone). For females, co-morbid cases also were more likely to be black non-Hispanic (91%, as compared to 82% for syphilis alone and 81% for HIV alone).

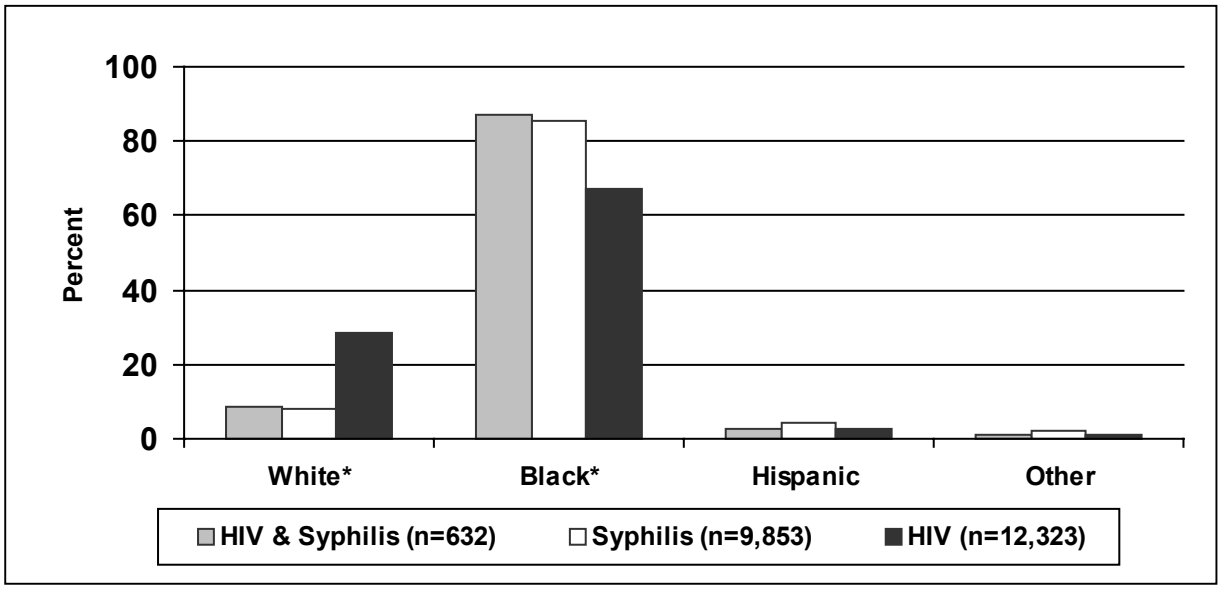
Figure 5.4. Proportion of race/ethnicity for females by diagnosis: syphilis (PSEL and late), HIV and both syphilis and HIV, 1993-2002



*non Hispanic

Although only 16 Hispanic co-morbid cases were identified, all were males and were recently reported as infected. There was also a gender difference in which disease was reported first. Of males, 28 percent were reported with syphilis first, as opposed to 41 percent of females. Some striking differences in the proportions of risk factors between genders existed for co-morbid cases (Table 5.4). Risk factor categories reported here are not exclusive; persons may be reported with more than one risk. A greater proportion of co-morbid females indicated that they had exchanged sex for drugs or money (44% compared to 29% for co-morbid males); had heterosexual sex with an HIV-positive person or IV drug user (61% compared to 46% for males); or had used crack, marijuana, or non-injecting cocaine (83% compared to 52% for males). These gender differences for risk were partly explained by homosexual activity among males–a risk category exclusive to males–but some differences remained even when controlling for this risk activity.

Figure 5.5. Proportion of race/ethnicity for males by diagnosis: syphilis (PSEL and late), HIV and both syphilis and HIV, 1993-2002



*non-Hispanic

Table 5.4. Proportion of risk factors by gender for persons with HIV and syphilis (PSEL and late), 1993-2002

Risk Factor*	Males		Females	
	n	Pct.*	n	Pct.*
MSM	307	48.6%	N/A	N/A
IDU	125	19.8%	88	25.2%
Heterosexual sex	493	78.0%	323	92.3%
Heterosexual sex with HIV+	175	27.7%	132	37.7%
Heterosexual sex with IDU	87	13.8%	80	22.9%
Exchange of sex for drugs or money	185	29.3%	153	43.7%
History of STD	154	24.4%	85	24.3%
Multiple sex partners/ past year	131	20.7%	63	18.0%
Multiple sex partners/last 90 days	58	09.2%	38	10.9%
New sex partners in last 90 days	50	07.9%	23	06.6%
Crack	130	20.6%	146	41.7%
Marijuana	136	21.5%	97	27.7%
Casual alcohol	131	20.7%	60	17.1%
Alcohol abuse	100	15.8%	61	17.4%
Cocaine (non-injecting)	61	09.7%	49	14.0%

*risk factor categories are not exclusive; proportions do not total 100

ENHANCED PERINATAL SURVEILLANCE PROJECT

The North Carolina Enhanced Perinatal Project systematically collected retrospective data on HIV-infected pregnant mothers and perinatally-exposed and HIV-infected children from 1999 to 2001. Demographic and clinical data for the mother-infant pairs were abstracted from medical records, prenatal records, adult and pediatric HIV clinic records, labor and delivery records, and birth records. HIV-exposed children were followed for approximately six months or until adequate laboratory information could classify them as infected or uninfected. These data address the prevention of perinatal transmission by evaluating prenatal care, HIV counseling and testing during pregnancy, the use of antiretroviral medications, and other treatment issues for pregnant HIV-positive women and HIV-exposed neonates. Table 5.5 summarizes the number of infants born to HIV-positive women who were followed up. Of the 410 perinatal HIV exposures identified from 1999-2001, 12 children were confirmed HIV positive (3%); 341 had seroreverted and were HIV negative (83%); 24 had indeterminate HIV test results (6%); and 33 were missing current HIV status information (8%). Over half (58%) of the women with HIV who gave birth from 1999-2001 were 20 to 24 years of age (Figure 5.6), and 73 percent are black (Figure 5.7).

Table 5.5. Number of HIV-exposed infants by year of birth, 1999-2001

Year of Birth	1999	2000	2001	Total
Number of HIV Exposed Infants	139	139	132	410

Figure 5.6. Mothers' age at delivery

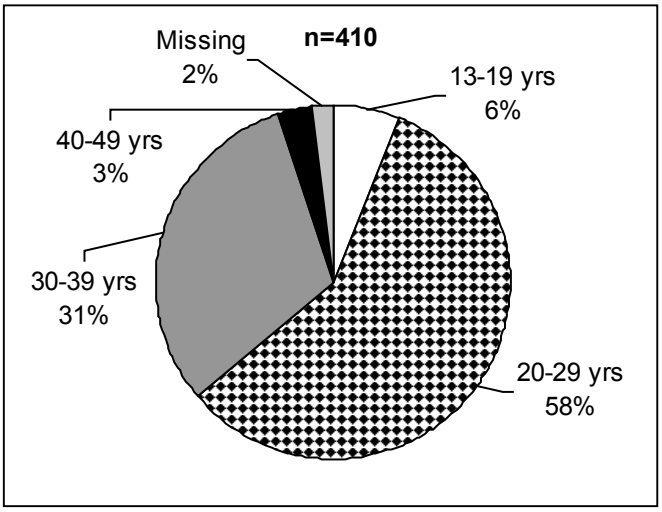
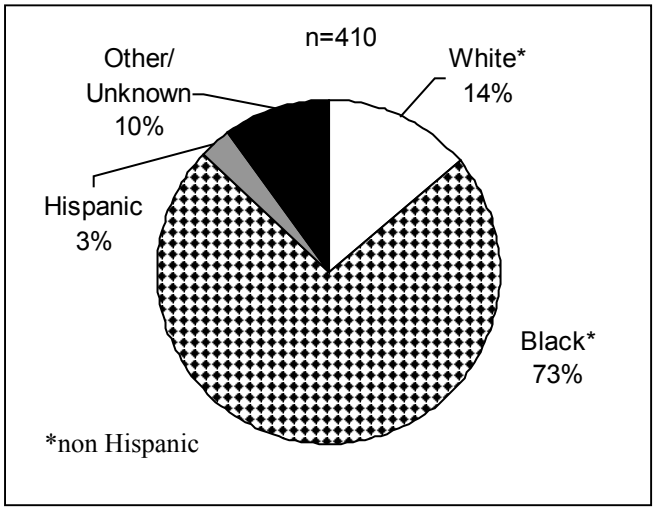


Figure 5.7. Mothers' race/ethnicity



Between 1999 and 2001, 79 percent of HIV-positive mothers had received antiretroviral therapy during pregnancy or during labor and delivery (Figure 5.8). Among mothers whose mode of HIV exposure has been identified, 82 percent had contracted HIV infection through heterosexual activity; approximately one in seven had contracted HIV through injecting drug use (data not shown). A substantial portion of HIV-positive mothers (21%) used illegal drugs during their pregnancies (Figure 5.9).

Table 5.6. Mothers' HIV positive diagnosis in relation to pregnancy, 1999-2001

HIV Diagnosis	Cases	Pct.
Before this pregnancy	238	58%
During this pregnancy	145	35%
At the time of delivery	8	2%
Before birth, exact time unknown	4	1%
After child's birth	8	2%
Mother refused testing	1	0%
Unknown when diagnosed	6	1%
Total	410	100%

Nearly all mothers (95%) had been diagnosed prior to delivery. Early HIV-positive diagnosis is essential in the effective use of antiretroviral intervention on behalf of HIV-exposed infants. Though some of these pregnancies were no doubt unintended, 58 percent of mothers were informed of their HIV status before they became pregnant (Table 5.6).

Figure 5.8. Antiretroviral therapy

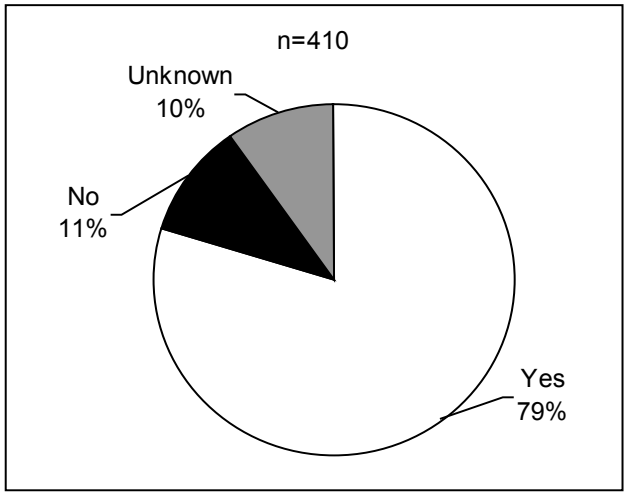


Figure 5.9. Mothers used illegal drugs

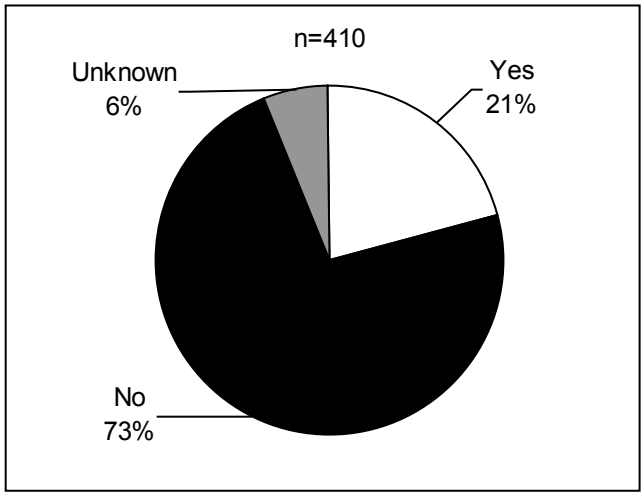


Table 5.7. N.C. HIV disease reports that were likely perinatal transmissions, 1993-2002

Year of Birth	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Reports	19	11	14	11	3	6	4	4	4	2	0	0

Table 5.7 above displays the number of pediatric reports that represent likely perinatal transmission based on exposure categories found in routine HIV surveillance data. These cases were HIV reports for children whose mother had HIV or an HIV risk, and thus represent *likely* perinatal transmission.

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PART TWO: HIV/AIDS TREATMENT & CARE IN NORTH CAROLINA

WHAT IS THE IMPACT OF AIDS IN NORTH CAROLINA? (CHAPTER 6)

WHAT ARE RYAN WHITE HIV/AIDS CARE ACT AND SERVICE CONSIDERATIONS? (CHAPTER 7)

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CHAPTER 6: THE IMPACT OF AIDS IN NORTH CAROLINA

Highlights

- As of December 31, 2004, the cumulative total of AIDS cases reported in the state was 13,796.
- 1,114 new AIDS cases were reported in North Carolina in 2004, or 13.3 cases per 100,000 persons. This represents a 4 percent increase from the previous year and is the fourth year of an increase in reported cases.
- The AIDS case rate in 2004 was eight times higher for blacks than whites. This disparity is slightly higher than observed for HIV disease.
- N.C. was 17th among other states in 2003 for new AIDS cases per 100,000 population.
- From 2000 to 2003, N.C. AIDS case rates increased by 55 percent (8.3 to 12.9 per 100,000), while AIDS case rates for the nation only increased 6 percent (14.3 to 14.7 per 100,000).
- The proportion of N.C. AIDS cases who survived longer than 36 months after diagnosis increased by 4 percent from 1998 to 2001.
- From 1998 to 2001, the proportion of cases that survived more than 36 months increased notably for females as a group, for blacks and for injecting drug users (IDU).

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AIDS

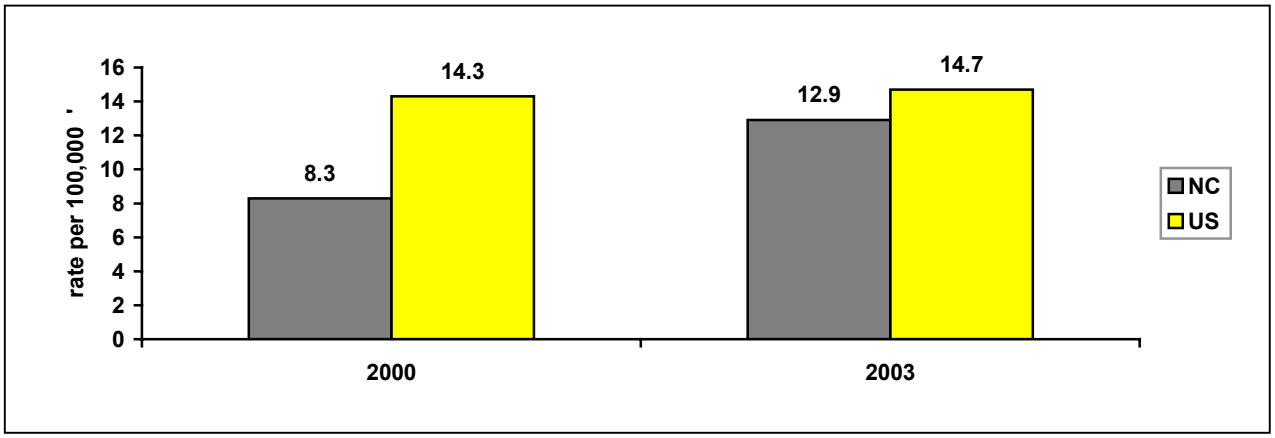
This section focuses on information that pertains specifically to AIDS in North Carolina. AIDS cases represent HIV-infected individuals who have reached a later, more serious, stage of disease and who meet the case definition for an AIDS diagnosis. This case definition includes confirmation of HIV infection along with CD4+ T-lymphocyte counts of less than 200 cells/μL or HIV infection with the presence of one of 23 clinical conditions indicating an impaired immune system. The date of AIDS report represents the date that an individual is reported as an AIDS case. Individuals are usually first reported with an HIV diagnosis and then later with an AIDS diagnosis. However, some individuals are reported with both an HIV diagnosis and an AIDS diagnosis at the same time.

Monitoring changes in AIDS cases helps provide a valuable measure of the continuing impact of treatment as well as describing those who may not have access to care. Increases in reports may indicate that more individuals are not receiving effective treatments or that current treatments are not as effective as they were earlier. Close attention should be paid to the demographic changes in AIDS cases, especially by agencies that provide care services for clients.

As of December 31, 2004, a total of 13,796 cases of AIDS had been reported in the state since 1983 with North Carolina as residence at the time of diagnosis. According the CDC, in 2004, 1,114 new AIDS cases were reported, or 13.3 cases per 100,000 persons. About 40 percent of these new AIDS cases represented new individuals reported (HIV and AIDS reported concurrently); the remaining 60 percent represented individuals who had been previously reported as infected with HIV but who subsequently had an AIDS diagnosis in 2004 (Table M, pg. 168). The 1,114 reports for 2004 represented a four percent increase in AIDS reports from 2003, making 2004 the fourth year for which an increase in AIDS cases had been reported in North Carolina. Compared to 2000 (632), the 2004 AIDS reports (1,114) represented a 76 percent increase in new reports for this five-year period. The reasons for the reported increases in AIDS reports are varied and likely represent several factors. These factors include variations in access to medical care, changes in HIV treatment effectiveness over time, the expected progression of disease for the high number of individuals infected in the mid-1990s, and enhanced surveillance efforts to capture report information. It is important to remember that reporting delays can cause changes in the report totals for recent years. In North Carolina, diagnosed cases are sometimes not reported to the HIV/STD Prevention & Care Branch in a timely manner. For instance, for cases reported between 1990 and 1994, 47 percent were reported within 3 months of diagnosis, and 78 percent were reported within 12 months of diagnosis. By comparison, CDC reports nationally that 50 percent of cases are reported to CDC within 3 months and 80 percent within one year.

Comparing North Carolina to the nation is limited to earlier years because national surveillance data is released later than in-state data. According to the CDC, the national AIDS case rate in 2000 was 14.3 per 100,000 persons. This rate increased to 14.7 in 2003, which represented a six percent increase in new reports. During the same time periods, North Carolina's AIDS case rate increased from 8.3 per 100,000 in 2000 to 12.9 in 2003, which represented a 55 percent increase (Figure 6.1). As mentioned above, enhanced surveillance efforts may be responsible for some of the apparent increase in reports in North Carolina. North Carolina's AIDS case burden is significant; the state was 17th among other states in 2003 for new cases per 100,000 population.

Figure 6.1. AIDS case rate for N.C. and U.S., 2000 and 2003



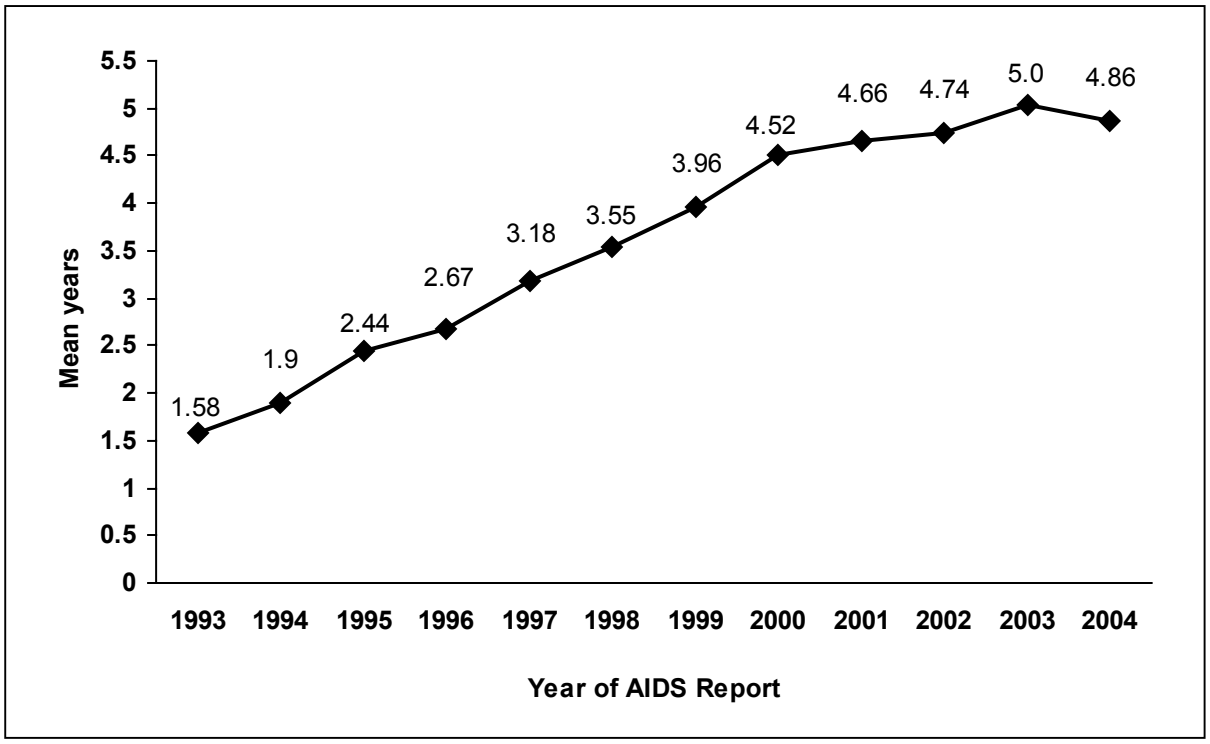
As mentioned earlier, there is growing concern about the impact of HIV/AIDS in the South (AL, AR, DE, DC, FL, GA, KY, LA, MD, MS, NC, OK, SC, TN, TX, VA, and WV). Although the South as a region comprised only 36 percent of the population, it accounted for 40 percent of the estimated AIDS prevalence and 46 percent of the AIDS incidence in 2003. In 2003, six of the top 10 states with the highest new AIDS case rates were in the South. The impact of AIDS on blacks as group is particularly substantial. In the South, 55 percent of the estimated AIDS prevalence was found among blacks in 2003. At that time, almost 68 percent of persons living with AIDS in North Carolina were black. This ranked North Carolina sixth among states in its proportion of blacks represented in persons living with AIDS (Kates, 2005).

Tables N and O (pp. 169-170) display the AIDS report cases and rates for the last five years. Changes in rates may indicate changes in anticipated care need for certain groups. In 2004, black males represented 44 percent of AIDS cases, black females represented 23 percent of cases, and white males represented 20 percent of cases. The case rate for AIDS among blacks was almost nine times higher than for whites. This disparity between blacks and whites is slightly higher for AIDS cases than for HIV disease cases.

TREATMENT

As mentioned earlier, the introduction of new, more effective AIDS treatments such as antiretroviral therapy (ART) has made a tremendous impact on delaying the progression of HIV to AIDS. This was evident in national surveillance data as AIDS incidence and deaths dropped for the first time in 1996. North Carolina surveillance data also suggest that these treatments are having an impact. Figure 6.2 shows the average number of years between a report with HIV and a report with AIDS in surveillance data. The increase in the time between reports indicates that these new treatments are likely slowing the progression from HIV to AIDS. It should be noted that the rate of increase has slowed since 2000 and actually declined in 2004. This, like the increase in AIDS reports, could indicate changes in treatment effectiveness or delivery of AIDS care. It will be important to monitor these trends closely in the near future. Table 6.1 displays the survival of AIDS cases after diagnosis

Figure 6.2. Average number of years between first reported HIV test and reported AIDS diagnosis, 1993-2004



for two years, 1998 and 2001. According to the CDC, the national survival of AIDS cases in 1998 was 90 percent for greater than 12 months, 86 percent for greater than 24 months, and 82 percent for greater than 36 months. This compares to 87 percent, 83 percent, and 79 percent (respectively) for North Carolina cases diagnosed in the same year, or about three percent less for each category of survival. For cases diagnosed in 1998, smaller proportions of cases survived more than 36 months for blacks and other
minorities, persons age 35 and older, and injecting drug users. In comparing cases diagnosed in 1998 to 2001, about four percent more cases survived longer in 2001. Most categories of persons showed an increase in proportion of cases surviving longer than 36 months except whites, persons aged 45-54 years and MSM/IDU. The largest gains (6% or greater) observed were for females as a group, persons aged 35-44 years, and IDU.

Table 6.1. Months survival after an AIDS diagnosis, by year of diagnosis, 1998 and 2001

	Survival in Months 1998 AIDS				Survival in Months 2001 AIDS			
	No.	**> 12**	**>24**	**>36**	**No.**	**> 12**	**>24**	**>36**
Total *	673	87.0%	82.5%	78.5%	816	89.2%	84.7%	82.6%
Race/Ethnicity								
White**	169	92.3%	88.7%	82.2%	168	86.4%	81.6%	81.0%
Black**	477	85.5%	80.5%	77.6%	599	89.7%	85.0%	82.3%
Other	27	77.8%	77.8%	70.4%	48	93.8%	91.7%	91.7%
*non-Hispanic								
Gender								
Male	500	88.0%	83.6%	79.2%	572	89.1%	84.6%	83.0%
Female	173	83.8%	79.2%	76.3%	244	89.4%	84.9%	81.6%
Age (dx)								
15-24 Years	51	90.2%	86.3%	84.3%	72	90.3%	88.9%	88.9%
25-34 Years	220	91.3%	86.8%	83.6%	254	92.9%	89.8%	87.8%
35-44 Years	272	83.4%	78.3%	74.6%	284	89.8%	83.1%	81.7%
45-54 Years	99	87.9%	84.9%	77.8%	154	83.0%	79.8%	76.6%
>55 Years	26	73.0%	69.2%	65.4%	48	83.4%	75.1%	68.8%
Mode of Exposure (Males)								
MSM	191	90.6%	85.4%	81.7%	169	89.9%	85.8%	85.8%
IDU	100	83.0%	80.0%	74.0%	71	88.7%	83.1%	81.7%
MSM/IDU	25	88.0%	88.0%	88.0%	29	86.2%	86.2%	79.3%
Heterosexual	67	94.1%	88.1%	83.6%	179	91.0%	86.0%	83.8%
All Other***	117	84.6%	80.3%	75.2%	124	86.2%	81.4%	79.8%
Mode of Exposure (Females)								
IDU	27	81.5%	74.1%	74.1%	30	96.6%	86.6%	83.3%
Heterosexual	82	86.6%	82.9%	80.5%	137	90.4%	86.8%	83.2%
All Other***	64	81.3%	76.6%	71.9%	77	84.4%	80.5%	77.9%

* excludes persons whose date of death is before, or in the same month as, data of diagnosis.
non-Hispanic * includes all other risk categories including NIR (no risk reported)

CHAPTER 7: RYAN WHITE HIV/AIDS CARE ACT AND OTHER SERVICE CONSIDERATIONS

Highlights

- 6,862 clients received or accessed Ryan White Title II funded services in 2004.
- The majority of services (type) for Ryan White Title II clients involved case management and client advocacy.
- During calendar year 2004, about 3,406 individuals were enrolled in North Carolina's ADAP (AIDS Drug Assistance Program).
- The demographics of Ryan White Title II clients and ADAP enrollees are generally similar to the observed demographics of all persons listed as living in North Carolina with HIV or AIDS at the end of 2004.
- The initial estimate of N. C. HIV-infected persons who were "in care" during 2003 (as defined by HRSA) was 40 percent. However, data limitations likely excluded persons who don't access public services, thus the true proportion would be much higher.
- In fiscal year 2004-2005, about 2,251 clients and families received HOPWA (Housing Opportunities for Persons with AIDS) services.

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RYAN WHITE

This section focuses on information that pertains to Health Resources and Services Administration (HRSA) HIV/AIDS care planning groups. Specifically, this section characterizes some patterns in the use of HIV care services by a number of populations in North Carolina. Some of the information provided is based on surveys of HRSA-funded programs in the state.

In 1990, Congress enacted the Ryan White CARE Act to provide funding for states and territories, eligible metropolitan areas (EMAs), and direct grants to individual providers to offer primary medical care and support services for persons living with HIV disease who lack health insurance and financial resources for their care. Congress reauthorized the Ryan White CARE Act in 1996 and in 2000 to support Titles I-IV, Special Projects of National Significance (SPNS), the HIV/AIDS Education Training Centers and the Dental Reimbursement Program, all of which are part of the CARE Act. The program is now up for reauthorization in 2005. Title program support varies from state to state depending on program requirements and mandates, distribution of HIV/AIDS cases and other factors.

Title II funding

Title II funding is state/territory-based and is designed to improve the quality, availability, and organization of health care and support services for individuals and families with, or affected by, HIV disease in each state or territory. The state administers the Title II program and provides funding for services to care consortia and other local service providers. Some Title II-funded services in North Carolina are administered and provided through local consortia. Descriptions of the clients and services provided through consortia and all other funded providers are collected through a HRSA-sponsored computer software program called CAREWare. At its core, CAREWare collects and stores data for completion of the annual Care Act Data Report (CADR). Moreover, CAREWare is a tool used to move programs beyond mere data reporting and into information management and quality improvement (QI). Using the various components of CAREWare allows programs to monitor a number of clinical and psychosocial indicators in a way that satisfies both CQI initiatives and CADR requirements. Calendar year (CY) 2004 marks the second full year in which data was collected and submitted via the CAREWare computer software program. Table 7.1 summarizes the CAREWare service information for Title II clients during 2004. The majority of visits involved case management (n=30,574) and client advocacy (n=14,650). The complete data includes service information as well as clinical information. The baseline data provided by CY 2004 will be used to evaluate the Quality Improvement/Quality Assurance initiative that began in January 2004 and continues through 2005.

In CY 2004, a total of 6,862 clients received services funded through Ryan White Title II awards in North Carolina. During 2004, the distribution of Title II CARE Act clients by race/ethnicity, gender and age was similar to the distribution of these characteristics among persons known to be living with HIV/AIDS in North Carolina at the end of 2004 (Table 7.2).

State estimates of the number of persons reported with HIV/AIDS and listed as living by county of residence and sorted by consortia are found in Table K on pages 163-165. This estimation of reported persons living with HIV can be used to approximate care needs or anticipated care needs within the consortia.

Table 7.1. Services provided to Ryan White Title II clients, 2004 (CAREWare)

SERVICES	No. Clients	Pct. Clients Receiving Service (n=6,862*)	No. of Services Provided (n=76,141*)
Ambulatory/outpatient medical services	3,257	47.5%	11,473
Oral health services	419	6.1%	1,138
Case management services	3,110	45.3%	30,574
Child care services	12	0.2.%	53
Client advocacy	2,588	37.7%	14,650
Day or respite care for adults	3	0%	6
Early intervention service	1	0%	1
Emergency financial assistance	2,104	30.7%	6,246
Food bank/home-delivered meals	1,208	17.6%	3,947
Health education/risk reduction	274	4.0%	16
Home health: para-professional care	6	0.1%	17
Home health: professional care	3	0%	11
Legal services	191	2.8%	275
Mental health services	118	1.7%	441
Nutritional counseling	28	0.4%	31
Permanency planning	34	0.5%	46
Psychosocial support services	28	0.4%	89
Referral Clinical Research	11	0.2%	35
Referral for health care/supportive services	419	6.1%	686
Rehabilitation services	2	0%	2
Substance abuse services: outpatient	9	0.1%	45
Substance Abuse - Residential	2	0%	1
Transportation services	1,218	17.8%	4,683
Treatment adherence counseling	75	1.1%	270
Other services	859	12.5%	901

*persons may receive more than one service

Measuring "Unmet Need"

As part of its cooperative funding agreements, the Health Resources and Administration (HRSA) requires that each state estimate its "unmet need" for HIV-infected persons. HRSA has defined "unmet need" as an estimate of persons who know they are HIV positive, but are not accessing

health care or considered "in care." "Health care" for this purpose is defined as 1) receipt of a CD4 or an HIV viral load test within a 12-month period, or 2) receipt of antiretroviral drugs for HIV within a 12-month period. Note that all other testing, including routine diagnostic tests such as EIA/WB screening, is not considered as part of the definition of "in care."

Unfortunately, no single source of data exists that contains this level of information for all HIV infected persons in North Carolina. Public health surveillance data, which is very comprehensive, contains information about initial diagnosis of HIV and AIDS, but has very limited information about ongoing health care. Additionally, agencies and programs that serve HIV-infected clients generally contain only information about clients that they serve. Because some providers receive public funding to provide care, some outside documentation is available; however, private providers generally do not report such information to outside (or centralized) agencies, so estimating "unmet need" is problematic.

To initially estimate "unmet need" in North Carolina, information from a variety of data sources was examined. An initial or reference data set of HIV-infected persons living on 12/31/2002 was identified from surveillance records (HIV/AIDS reporting system or HARS). HIV care-related data for a 12-month period (1/1/2003 through 12/31/2003) was then extracted from a number of sources and reviewed to estimate how many persons from the reference data set were "in care." These data sources included Medicaid, ADAP (AIDS drug assistance program), and CAREWare. Other data sources were reviewed but did not provide the level of information needed to be included in the initial estimate of "care."

Of the approximately 14,500 persons listed in the reference data set, only about 40 percent could be identified as "in care" during 2003. This estimate likely underrepresented the true number of persons "in care" as there was no source of reliable information for persons accessing care through private providers. Steps have been taken to improve future estimates, including expanding laboratory reporting of CD4 and viral load results to the Division of Public Health, working directly with large providers who receive Ryan White Title III funding to identify additional patients who are "in care" and initiating an enhanced surveillance project that will sample providers across the state to provide more detailed information about HIV testing, treatment and care in the state.

AIDS DRUG ASSISTANCE PROGRAM (ADAP)

Since 1987, Congress has appropriated funds to assist states in providing AIDS patients antiretroviral therapy (ART) approved by the Federal Drug Administration (FDA). With the initial passage of the Ryan White CARE Act in 1990, the assistance programs for ART were incorporated into Title II and became commonly known as ADAP. ADAP now provides FDA-approved HIV-related prescription drugs to underinsured and uninsured persons living with HIV/AIDS. For many people with HIV, access to ADAP serves as a gateway to a broad array of health care and supportive services as well as other sources of coverage, including Medicaid, Medicare and private insurance.

North Carolina's HIV Medications Program (or ADAP) uses a combination of state and federal funds to provide low-income residents with assistance in purchasing medications to fight HIV/AIDS and the opportunistic infections that often accompany the disease. In order for someone to be eligible for ADAP in North Carolina, the individual must have a net family income that is at or

below 125 percent of the federal poverty level, not have third-party coverage (e.g., private insurance or Medicaid), and meet other program criteria. During CY2004, just over 3,400 individuals were enrolled in N.C. ADAP. Table 7.2 displays the demographics on enrollees at that time. ADAP enrollees represent a population that is generally similar demographically to the total number of persons who were living with HIV or AIDS during CY 2004.

Table 7.2. N.C. living HIV/AIDS cases, Ryan White Title II and ADAP clients, 2004

	Ryan White Title II clients	ADAP enrollees CY 2004	Persons living with HIV/AIDS (12/31/2004)
	(n=6,862)	(n=3,406)	(n=17,960)
Gender			
Male	63.6%	73.1%	68%
Female	35.9%	26.9%	32%
Transgender	<1%		-
Race/ethnicity			
White*	24.2%	30.2%	25%
Black*	61.4%	59.2%	71%
Am Indian/ Al Native*	1.4%	1.2%	<1%
Asian/PI*	<1%	<1%	<1%
Hispanic	4.5%	8.3%	3%
Unknown	11.3%	<1%	
Age Group			
<2	<1%	0%	0%
2-12	1.1%	<1%	<1%
13-24	3.8%	3.6%	4.0%
25-44	56.7%	59.3%	58.8%
45-64	36.6%	35.4%	34.7%
65 and over	1.0%	1.6%	1.8%
Unknown	<1%		

* includes Hispanics for Title II groupings; represents non-Hispanics for the others

North Carolina's ADAP Program had a waiting list for part of CY2004. People in the state benefited greatly by the Special Presidential ADAP Initiative announced in June 2004. Under this Initiative, a total of $20 million was made available to 10 states that had waiting lists in June 2004. North Carolina, with 800 individuals on the waiting list as of that date, received the largest share of the benefit. People were enrolled in and began to receive services under this Initiative in October 2004. As of May 2005, North Carolina had enrolled its allotment of 800 into the Program. The major concern is that although the initial announcement of the initiative described it as a two-year initiative, no funding has yet been identified for the second year. Year-one funds are expected to be available through September 2005, but the future of the initiative—and the continuity of services for the 800 North Carolina clients (and close to 1,600 nationwide)—is unclear.

As part of an effort to make existing resources go farther, the N.C. ADAP Program had been considering the possibility of changing its basic operation from the current "reimbursement" model to a "direct purchase" model program for some time. Reasonable information and evidence were obtained that suggested that by changing to a direct purchase model, the program might be able to reduce its expenditures (i.e., save some funds in acquiring the HIV medications it provides to its clients), and thereby be able to serve some additional number of clients with the accrued cost savings. This was confirmed by work done for the program by a consultant between October 2003 and February 2004.

The results of this work were presented at a community meeting in early March 2004. The meeting was extremely positive and constructive, with great thought being given to the implications – both positive and negative – of such a transition. The general consensus was that moving to a "direct purchase" model was appropriate if (1) sufficient funds could be saved to enable the program to serve additional clients, and (2) the new program could be developed and implemented with a measure of flexibility that would allow clients to access their medications in a manner that they and their clinicians agreed was most appropriate for them (e.g., mailed directly to their homes, picked up at an alternative delivery site, etc.).

On October 28, 2004, the ADAP Program prepared and issued a Request for Proposal (RFP) for a company to serve as ADAP's "central pharmacy." Five proposals were submitted in response to the RFP, with PharmaCare, a specialty pharmacy that serves that same role for ADAP Programs in Illinois, Ohio and Hawaii, being awarded the contract in February. The transition of the N.C. ADAP Program to the "direct purchase/central pharmacy" model occurred on July 1, 2005.

The program intends to use whatever savings are obtained to increase the number of individuals served, either by enrolling additional clients, moving individuals from the Special Presidential Initiative to the regular N.C. program, or by increasing the financial eligibility of the program. The exact amount that the program might save, and the number of additional clients that might be able to be enrolled in and served by the program, are extremely dependent on a variety of variables, including the medication regimens that clients are actually using, the actual utilization of the medications and the program by enrolled clients, the availability of new medications, and the price of all covered medications, etc. It should be noted, however, that while the anticipated result of such a change to a direct purchase model should be the ability to serve some additional clients, it is not currently anticipated that the savings obtained by this change will allow the program to permanently eliminate the existence of waiting lists and/or to enable the program to significantly increase the financial eligibility criterion. The actual amount of savings will likely not be known until the revised program is actually in place and running for at least a year.

HOUSING OPPORTUNITIES FOR PERSONS WITH AIDS (HOPWA)

Since 1992, the federal government has allocated more than $2 billion for the HOPWA program to support community efforts to create and operate HIV/AIDS housing and provide related services. In the first year of the program, 27 eligible metropolitan statistical areas (EMSAs) and 11 eligible states received formula allocations of $42.9 million. EMSAs and states receive direct allocations of HOPWA funding when 1,500 cumulative cases of AIDS are diagnosed in a U. S. Department of Housing and Urban Development (HUD)-determined geographic region. For FY 2005, HUD

awarded formula HOPWA grants to 122 jurisdictions, including 83 cities on behalf of their Eligible Metropolitan Statistical Areas (EMSA), and 39 states for areas outside of any EMSA in that state.

The purpose of the HOPWA Program is to devise long-term comprehensive strategies for meeting the housing needs of persons and their families who are living with acquired immunodeficiency syndrome (AIDS) or related diseases. The AIDS Care Unit of the HIV/STD Prevention & Care Branch administers HOPWA on a statewide level. Originally, HOPWA funds were used solely for emergency rent, mortgage and utility payments. Currently, the program provides funds to family care homes, adult day care/day health service centers, HIV care consortia, housing authorities and other nonprofit agencies that provide housing and related services to persons living with HIV/AIDS. In order for someone to be eligible for HOPWA, the individual must be HIV-positive and have an individual or family income that does not exceed 30 percent of the median income for the state of North Carolina and the county of residence.

In fiscal year (FY) 04-05, approximately 2,251 clients and families received HOPWA services. The services provided include, but are not limited to, short-term rent, mortgage and utility payments, tenant-based rental assistance, and supportive services (i.e., nutrition, transportation).

The HOPWA program continues to collaborate with the Consolidated Plan Partners, Department of Community Assistance (CDBG Program), Office of Economic Opportunity (ESG Program) and the North Carolina Housing Finance Agency (HOME Investment Program), to assess the housing and community development needs and priorities of low- to moderate-income individuals throughout the state.

PART THREE: SEXUALLY TRANSMITTED DISEASES OTHER THAN HIV/AIDS IN NORTH CAROLINA

QUESTION: WHAT IS THE IMPACT OF SEXUALLY TRANSMITTED DISEASES OTHER THAN HIV/AIDS IN NORTH CAROLINA? (CHAPTER 8)

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CHAPTER 8: STDS OTHER THAN HIV/AIDS IN NORTH CAROLINA

Highlights

- Gonorrhea rates decreased 21 percent among males and 17 percent among females from 2000 to 2004. Large decreases among Hispanic and non-Hispanic black males and non-Hispanic black females accounted or the major part of the decline.

- Severe racial disparities in gonorrhea incidence rates are on the decline among males. In 2000, rates among non-Hispanic black males were 30 times the rates for white males. The disparity decreased to 25 times higher in 2004. Disparities among females were steady for 2000-2002, with non-Hispanic black female gonorrhea rates approximately 14 times higher than rates for white females. The disparity began to decline, with gonorrhea rates among non-Hispanic black females 11 times higher than for white females in 2004.

- Chlamydia reported cases and rates have increased among 20- to 29- year-old females from 2000 to 2004, reflecting changes in recommended screening protocols that have added more screened women in this age group.

- Racial disparities in female chlamydia reports have remained stable over the past five years (2000-2004), with seven to eight times more cases reported among black females than whites, and three to five times more cases among American Indian/Alaska Native and Hispanic females.

- Chlamydia prevalence among women tested in publicly funded clinics has declined 28 percent, from 7.4 percent prevalence in 2000 to 5.3 percent prevalence in 2004.

- All reportable syphilis stages are on the decline, with primary/secondary syphilis down 60 percent, early latent syphilis down 58 percent, and late syphilis down 24 percent from 2000 to 2004. Congenital syphilis cases have remained stable at about 20 cases per year, by year of report, until 2004 which only had 13 cases reported.

- Durham, Guilford, Mecklenburg, Robeson and Wake counties accounted for 66.1 percent of early syphilis reports (primary, secondary, early latent) and ranked as the top five counties in number of syphilis reports for 2004.

- Racial disparities in syphilis rates are greater among males than females. Relative rates among males have declined from 2000 to 2004 because minority rates are dropping faster than white male rates. The opposite trend is true for females, where minority rates are dropping more slowly than white rates, widening the disparity between the two groups.

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Reportable STDs in North Carolina

In addition to HIV and AIDS, 18 other sexually transmitted conditions are reportable to the North Carolina Department of Health and Human Services (N.C. DHHS). Cases of syphilis (eight possible stages), gonorrhea (genito-urinary/non-PID or opthalmia neonatorum), chancroid, and granuloma inguinale must be reported to the local health department within 24 hours of diagnosis. Lab-confirmed chlamydia, lymphogranuloma venereum (LGV), nongonococcal urethritis (NGU – usually assumed to be non-lab confirmed chlamydia; in females this is referred to as mucopurulent cervicitis or MPC), and pelvic inflammatory disease (PID – due to any cause, usually gonorrhea or chlamydia, females only) must be reported within seven days. Hepatitis A and B can be transmitted through sexual contact, but the HIV/STD Prevention & Care Branch does not provide surveillance for those reports. Acute cases are reportable within 24 hours to the local health department and statewide surveillance is directed by the General Communicable Disease Branch at N.C. DHHS.

Table 8.1 describes all STD cases reported to the HIV/STD Prevention & Care Branch in 2004. The remainder of this report will focus on the three most commonly reported conditions: lab-confirmed chlamydial infection, gonorrhea and syphilis. Although NGU and MPC are reported in relatively high numbers, they will not be discussed in detail because they are difficult to interpret. Each is a diagnosis of exclusion, with given physical characteristics and the

Table 8.1. North Carolina reportable sexually transmitted diseases, 2004

	Sex			
	Male	Female	Unknown	Total
Chlamydia (lab-confirmed)	5064	23935	0	28999
Gonorrhea	7811	7387	0	15198
Syphilis				
Primary Syphilis	52	10	0	62
Secondary Syphilis	92	39	0	131
Early Latent Syphilis	162	99	0	261
Late Syphilis	89	59	0	148
Late Latent Syphilis	64	61	0	125
Late Syphilis w. symptoms	0	0	0	0
Neurosyphilis	8	4	0	12
Congenital Syphilis	6	7	0	13
Syndromic Diagnoses				
Nongonococcal Urethritis (NGU)	5057	n/a	0	5057
Mucopurulent Cervicitis (MPC)	n/a	37	0	37
Pelvic Inflammatory Disease (PID)	n/a	434	0	434
Other STDs				
Chancroid	1	0	0	1
Granuloma Inguinale	0	0	0	0
Lymphogranuloma Venereum (LGV)	3	0	0	3
Opthalmia Neonatorum (gonorrhea)	0	0	0	0

documented absence of *Neisseria gonorrhoeae*. Though they can be caused by several different organisms, most cases of NGU and MPC are assumed to be *Chlamydia trachomatis*, but since they are not laboratory confirmed it would not be accurate to group these diagnoses with the chlamydia cases. Similarly, PID is a syndromic diagnosis with multiple possible causes, the most common being gonorrhea and chlamydia. In 2004, there were 434 cases of PID reported to N.C. DHHS. Since an estimated 10 percent of female chlamydia infections will eventually lead to PID (Westrom, 1999), this represents a drastic underreporting of PID cases. Other reportable STDs are almost non-existent in the state of North Carolina. In 2004 there was one case of chancroid reported (2 in 2003, 0 in 2002, 3 in 2001) and three cases of lymphogranuloma venereum (2 in 2003, 0 in 2002, 4 in 2001). There were no cases of granuloma inguinale reported for 2003 or 2004, though there had been one in 2001 and in 2002, and no cases of cases of opthalmia neonatorum (opthalmic infection with *N. gonorrhoeae* in infants) for the past four years (2001-2004).

Hepatitis A virus (HAV) is spread from person to person by the fecal-oral route. Many outbreaks are due to food or waterborne transmission, but others can be traced to sexual contact. Increases in the male-to-female ratio of cases may indicate sexual transmission among men who have sex with men (MSM). Hepatitis B (HBV) is a bloodborne virus, spread from person to person through sharing injection equipment, accidental needle sticks, and sexual activity. Transmission via donated blood products is also possible but rare, due to careful screening of the blood supply. As with hepatitis A, changes in the male-to-female ratio may indicate MSM transmission. However, it should be noted that a greater percentage of injection drug users may also be male, making this interpretation less clear than that for HAV. Both HAV and HBV infection can be prevented through vaccination.

Hepatitis C (HCV) is also a bloodborne infection but, unlike HBV, there is no available vaccine. It also differs from HBV in that transmission is most commonly associated with sharing needles, syringes or other injection equipment, or sharing other personal items that may have blood on them (e.g., razors, toothbrushes). The efficiency of sexual transmission of HCV appears to be low compared to HBV (Lemon 1999). Nonetheless, approximately 15 percent of reported chronic HCV cases in the U.S. may be associated with sexual transmission (Alter 1998).

Table 8.2 shows Hepatitis A, B, and C cases and male-to-female ratios for 1999-2003. For the most part, the pattern remains consistent with more male HAV and HBV cases than female, and that trend appears to be increasing. The number of HCV cases reported is quite small, making interpretation difficult, but for most years the ratio is near 1.0.

Table 8.2. Hepatitis A, B, and C male : female ratios and cases, 2000-2004

	2000	2001	2002	2003	2004
Hepatitis A	1.0 (76/77)	2.1 (164/78)	3.3 (160/48)	1.9 (81/43)	1.1 (54/51)
Hepatitis B acute	1.9 (169/87)	1.7 (139/82)	1.7 (145/87)	2.0 (109/54)	1.9 (119/63)
Hepatitis B chronic	1.3 (360/268)	1.5 (388/255)	1.3 (500/379)	1.3 (568/448)	1.4 (433/314)
Hepatitis C	0.8 (9/11)	1.8 (14/8)	1.1 (15/14)	0.1 (1/12)	0.5 (4/8)

Non-Reportable STDs in North Carolina

It is worth noting that there are a number of important sources of sexually transmitted illnesses that are not reportable in the state of North Carolina. There are approximately 30 strains of human papillomavirus (HPV) that can be sexually transmitted. Most strains produce no symptoms in infected individuals, but there are a few strains associated with genital warts and others associated with the development of cervical cancer in females. Because most infected people are asymptomatic, extensive screening would be required to diagnose most infections. Screening is costly and most infected people have no serious health outcomes associated with HPV infection. Therefore, the available screening efforts focus on the detection of cervical cancer rather than HPV infection. On average, over 300 cases of cervical cancer are reported in North Carolina each year (NC SCHS 2005). Infection with HPV is not reportable, but the CDC estimates that at least 50 percent of sexually active adults will acquire HPV at some point during their lives (approximately 6.2 million new infections per year in the U.S.)(CDC 2004, HPV Fact Sheet).

Most cases of genital herpes are caused by type 2 herpes virus (HSV-2), though some are also caused by type 1 virus (HSV-1) which also causes oral cold sores. Symptoms are worst immediately following infection; subsequent outbreaks decrease in severity. The most severe consequence of genital herpes is transmission to newborns during birth, a rare event. The CDC estimates that 45 million adolescents and adults in the U.S. have had genital herpes infection (CDC 2004, HSV Fact Sheet). Herpes is not reportable for a number of reasons. Historically, good diagnostic tests have not been available. Also, many incident cases are likely to be missed and reporting therefore would largely represent prevalent cases of unknown duration. This may change in the future, given that testing procedures have improved and new evidence indicates that HSV-2 infection may increase susceptibility to HIV infection.

Trichmoniasis is an STD caused by infection with the parasite *Trichomonas vaginalis*. Most males and some females are asymptomatic. Identified cases (primarily females) can be treated with antibiotics. The CDC estimates approximately 7.4 million new infections per year in the U.S. (CDC 2004, Trichmoniasis Fact Sheet). Like herpes, diagnostic testing issues and underestimation of the seriousness of the disease kept *T. vaginalis* infection off the reportable disease lists.

Bacterial vaginosis (BV) is the most common vaginal infection in women of childbearing age. It can be caused by a number of different bacteria. The role of sexual transmission is not well understood and no single causal organism has been isolated. Women can be treated for the infection but there is no evidence that treatment of partners prevents it. However, women who have not had sexual intercourse rarely have BV. Most of the time, BV causes minor discomfort but no major complications. However, some studies have found associations between BV and increased risk of PID, complications of pregnancy, susceptibility to other STDs, and transmissibility of HIV (CDC 2004, BV Fact Sheet). The condition is not reportable largely because it is syndromically diagnosed and it is unclear how reporting will aid in case reduction.

CHLAMYDIA

Chlamydia Disease

Chlamydia is the most frequently reported bacterial STD, and is easily treated with antibiotics. When symptoms occur, they include discharge and painful urination. However, approximately three-quarters of infected females and half of infected males have no symptoms at all (CDC 2004, Chlamydia Fact Sheet). Nevertheless, the infection can cause severe damage to the female reproductive tract, including infertility and PID. For this reason, the CDC and the N.C. HIV/STD Prevention & Care Branch currently recommend that all sexually active females age 24 and under be screened for asymptomatic chlamydia, as well as all pregnant women. There are no comparable screening programs for young men.

Chlamydia Reporting

North Carolina law states that all cases of chlamydial infection must be reported to the local health department within seven days. Laboratory confirmation of chlamydia cases takes place at a number of private labs; most public clinics send their samples to the State Laboratory of Public Health. Results are returned to the provider, who reports them to the local health department. Infected patients are treated and encouraged to bring their partners in for treatment, but there is no formal partner notification procedure. Morbidity reports are forwarded to HIV/STD Prevention & Care Branch at the state Division of Public Health where information on patient demographics and disease diagnosis is compiled for analysis.

Chlamydia cases for males are severely underreported and are of little use in estimating prevalence or incidence of disease. The data for females is better, although cases are still underreported and may be biased toward public clinics that are more likely to both screen and report cases found. Case information is collected in aggregate, so it is possible for accidental duplicates to occur.

Chlamydia Trend Analysis

Chlamydia is predominantly found in younger age groups. For males, the highest rates are consistently found in the 20- to 29- age group followed by 13- to 19- year-olds. For females the trend is reversed, with 13- to 19- year-olds having the highest rates, followed by 20- to 29- year-olds (Table Q, pg. 173). Reported cases and rates have been on the rise for all age groups, most likely reflecting more screening. Rates among 20- to 29- year-old females rose by over 30 percent from 2000-2004, compared to a 15 percent rise for ages 13-19. This is most likely due to changing standards for screening. Prior to January 1, 2002, chlamydia screening was recommended for all asymptomatic women age 19 and under receiving care at publicly funded clinics. On that date, the age was raised to 22 and then on July 1, 2002 it was raised again to women aged 24 and under. Correspondingly, both the number of women screened and the number of cases identified has increased in the 20- to 29- age group.

Chlamydia case reports reflect severe racial disparities that have remained relatively consistent over the past five years. The rates among black, non-Hispanic males are 9-10 times the rates for whites, and the rates for Hispanics are 4-5 times the rates for whites (Table R, pg. 174).

The data for females, which are slightly more reliable, is nearly as severe, with black chlamydia rates 7-8 times higher than white rates, and American Indian/Alaska Native and Hispanic rates each 3-5 times higher. It is very likely that these disparities are due, at least in part, to screening and reporting bias.

Chlamydia Prevalence Data

Most county health departments in North Carolina do not have adequate laboratory facilities to process chlamydia tests, so they use the State Laboratory of Public Health in Raleigh (State Lab). Information is collected on both positive and negative tests for estimating prevalence and for program evaluation. This data is subject to a certain degree of bias because it reflects testing that occurred only in publicly funded clinics and does not include most tests from the five counties with the largest health departments (Durham, Forsyth, Guilford, Mecklenburg, Wake). In 2004, most of the women tested came to the clinics for family planning, prenatal, or other regular services and met the age criteria for screening. Around a fifth of the women tested came to the clinics for a medical problem (which could include STDs) or to request testing. Almost 70 percent of the women screened were in the recommended age group of age 24 and under. This is consistent with data from prior years.

In May of 2004, the State Lab changed to a more sensitive test for all chlamydia testing. This has had a major impact because the new test is detecting cases of chlamydia that the older, less-sensitive test was missing. So, the overall positivity went up in 2004 after five years of consistent decline (from 7.4% in 2000 down to 7.1% in 2003, Table 8.3). In order to better assess the changes in positivity, Table 8.4 shows only the 2004 tests that were done before the switch. This illustrates that the downward trend did indeed continue into 2004. The remainder of this discussion will use that same 2004 data that is more fairly compared to 2000-2003.

The decline has occurred in nearly all age and racial groups. Each year, positivity remains highest among the 10- to 14- age group (10.5% in 2000 vs. 10.9% in 2004), then 15- to 19- (10.3% in 2000 vs. 8.5% in 2004), then 20- to 24- (7.3% in 2000 vs. 4.9% in 2003), and continues to drop with each older age group.

Racial disparities exist in the screening data but are not as severe as those posed in the data for reported cases. Over the past five years, the annual positivity rates for white and black females has declined steadily, to 3.0 percent for whites and 8.2 percent for blacks in 2003. Despite these declines, the positivity rate for black females is consistently 2.6-2.7 times higher than the white positivity rate. To some extent this may be due to the fact that more black women use the publicly funded sites. As an example, in the census year of 2000, 70.6 percent of the females in North Carolina were white but only 53.4 percent of those screened for chlamydia at these public clinics were white, while 36.5 percent of tested patients were black even though they represented only 22.6 percent of the state female population. A more thorough study would be needed to determine if there could also be a genuine difference in prevalence among these different racial groups.

Table 8.3. Women tested for chlamydia in publicly funded clinics, 2000-2004

	2000	2001	2002	2003	2004*
Women tested (N)	95,570	97,930	99,026	102,225	103,708
Positive (N)	6,963	6,433	5,991	5,764	7,292
Positivity (%)	7.4	6.7	6.1	5.7	7.1

* Testing technology changed in May, 2004

Table 8.4. Women tested for chlamydia in publicly funded clinics, one test type, 2000-2004

	2000	2001	2002	2003	2004
Women tested (N)	95,570	97,930	99,026	102,225	35,726
Positive (N)	6,963	6,433	5,991	5,764	1,891
Positivity (%)	7.4	6.7	6.1	5.7	5.3

NGU and MPC

Nongonococcal urethritis (NGU) in males and mucopurulent cervicitis (MPC) in females are both clinical diagnoses of exclusion. Although the CDC does have a specific case definition for MPC, in North Carolina it is not listed as a reportable disease. Rather, female NGU cases are recoded and listed as MPC in Table 8.1. The NGU case definition requires a certain set of physical symptoms to be present along with documented absence of infection with *N. gonorrhoeae.* This leaves the most likely cause of such infections as *C. trachomatis*. This diagnosis is often made locally without having to send samples to an outside lab for *C. trachomatis* testing. Antibiotics appropriate for chlamydia infection are most often used to treat the patient. However, there are other possible causes for NGU and MPC, making it inappropriate to group them with laboratory-confirmed cases of *C. trachomatis*.

There were 5,057 male cases of NGU reported in 2004 (Table 8.1). It is likely that a large number of these are actually unconfirmed chlamydia cases. In fact, the age and race distributions of male chlamydia and NGU cases are virtually identical. There were only 37 MPC cases reported, which may reflect the widespread use of chlamydia testing in females.

GONORRHEA

Gonorrhea Disease

Gonorrhea is the second-most commonly reported STD, behind chlamydia. Nearly all infected males experience symptoms, including discharge and burning on urination (Hook, 1999). Many women also experience symptoms, though they may be mild. Like chlamydia, untreated gonorrhea can cause severe damage to the female reproductive tract, including PID and infertility.

Gonorrhea Reporting

North Carolina law states that all cases of gonorrhea must be reported to the local health department within 24 hours. Laboratory confirmation of cases generally takes place at the local level and is reported directly to the local health department. Infected patients are treated and encouraged to bring their partners in for treatment, but there is no formal partner notification procedure. As with chlamydia, morbidity reports are forwarded to HIV/STD Prevention & Care Branch at the State Division of Public Health where information on patient demographics and disease diagnosis is compiled for analysis.

Gonorrhea is often symptomatic in males and slightly less so in females. Females entering publicly funded prenatal care, family planning, and STD clinics are screened for asymptomatic gonorrhea. Males are screened at STD clinics only. Since males are more likely to have symptoms that would bring them to the STD clinic, the gender bias in gonorrhea reporting is not as severe as that for chlamydia reporting. Required laboratory reporting may also reduce some private vs. public provider bias in reporting.

Public clinics and local health departments are more likely to screen for asymptomatic infection and may do a better job of reporting gonorrhea cases than private doctors. This may contribute to racial bias in the data because larger proportions of public patients than private clinic patients are minorities. Case information is collected in aggregate, so it is possible for accidental duplicates to occur.

Gonorrhea Trend Analysis

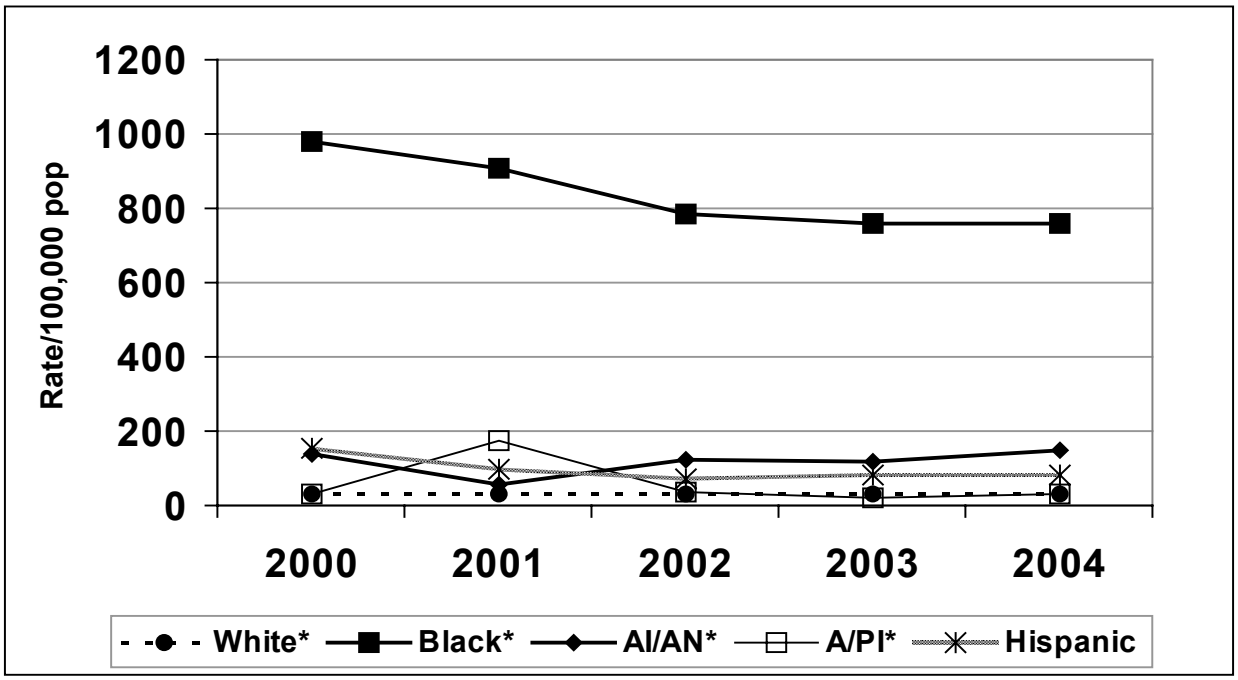
For most age, race, and gender groups, gonorrhea reports are on a steady decline (Table S, pg. 175; Table T, pg. 176). Among males, rates dropped 21 percent from 2000 to 2004; females experienced a similar decline of 17 percent. Decreasing rates among black and Hispanic males, and among black and American Indian females, accounted for the largest decreases. Rates among white males and females were comparatively low in 2000 and did not change greatly over the five-year period. Because gonorrhea reporting is of reasonable quality (at least, compared to chlamydia reporting), it is safe to assume that, at least in part, this represents a true decline in incidence.

Gonorrhea is predominantly found in younger age groups, and the relative rates mirror the chlamydia trends with respect to age. For males, the highest rates are consistently found in 20- to 29- year-olds, followed by 13- to 19-; for females the trend is reversed, with 13- to 19- year-olds having the highest rates followed, by 20- to 29- year-olds (Table S, pg. 175).

Overall rates for males are consistently a bit higher than the rates for females, and the male-to-female case ratio has remained stable at 1.1 to 1.0 for the last five years. In general, this would indicate a lack of large amounts of MSM transmission. However, examination of male and female trends by race indicates divergent trends. Among blacks and Hispanics, there are more male than female cases. For blacks, the ratio has remained stable at around 1.2 male cases for every female case. Among Hispanics, the ratio has seen a steady decline from 2.4 in 2000 down to 1.3 in 2004. This reflects the fact that, during this period, male cases have declined and female cases have increased. The trend is exactly opposite for whites and American Indians, where there are consistently more female than male cases. For whites, there has been around 1.6 female cases

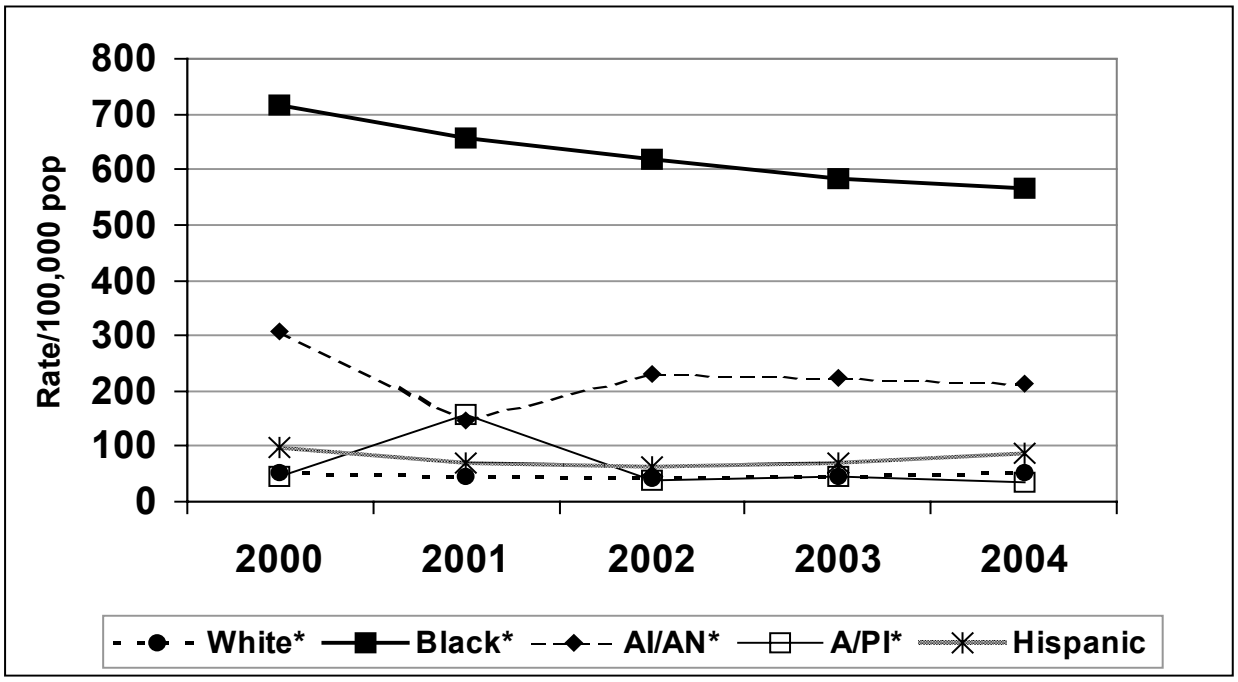
for each male case (female-to-male ratio) for the past five years; for American Indians it has varied more, from 1.5 to 2.8. This may indicate some MSM transmission of gonorrhea among black and Hispanic males or it may simply reflect some aspect of case detection or reporting. Detailed surveillance of rectal gonorrhea would assist in understanding this type of trend.

Figure 8.1. Gonorrhea rates by race - Males, 2000-2004



*non-Hispanic

Figure 8.2. Gonorrhea rates by race - Females, 2000-2004



*non-Hispanic

Gonorrhea case reports reflect severe racial disparities. The differences are most dramatic among males, where gonorrhea rates among blacks are 25-30 times higher than whites, rates for American Indians (AI/AN) are about four times higher, and for Hispanics two to five times higher than whites (Figure 8.1). Among females, the trends are similar but less severe (note the scale on the two charts), with black rates 12-14 times higher than whites, and American Indian rates 3-6 times higher (Figure 8.2). Notably, the gonorrhea rates for Hispanic females are only slightly higher than white rates (Table T, pg. 176). Rates for Asian/Pacific Islanders (A/PI) are lowest of all for most years.

Gonococcal Isolate Surveillance Project - GISP

GISP is a collaborative project between selected STD clinics, five regional laboratories, and the CDC. The project was established in 1986 to monitor trends in antimicrobial susceptibilities of strains of *N. gonorrhoeae* in the United States in order to establish a rational basis for the selection of gonococcal therapies. *N. gonorrhoeae* isolates are collected from the first 25 men with urethral gonorrhea attending STD clinics each month in 30 cities in the United States. The men are asked a number of behavioral questions, and the samples are tested for resistance to a variety of antibiotics. The project includes one site in North Carolina. From 1998 to 2001 the North Carolina site was located at Fort Bragg. Partway through 2002, the participating clinic was changed to Greensboro. The samples are collected from men who were going to have a gonorrhea test anyway, so the project does not artificially inflate gonorrhea reports from the site.

During the first full year of data collection at the Greensboro site (2003), 239 men were tested. Almost 90 percent were black, just under 30 percent were age 20-24, and less than 5 percent reported having sex with other men. About 45 percent reported ever having a previous episode of gonorrhea, half in the previous 12 months. Resistance to penicillin and/or tetracycline was detected in 13.8 percent of the samples (CDC, 2004, GISP Report).

SYPHILIS

Syphilis Disease

Syphilis is a complex disease with a natural history encompassing a number of different stages. When a syphilis case is identified, the stage must be determined and reported because the different stages have different implications for continued spread of the disease. Patients in the primary or secondary stages are the most likely to have noticeable symptoms and may present for treatment. They are also of the greatest concern for sexual transmission because they are the most infectious. Cases in the asymptomatic early latent stage may also be infectious to their sexual partners, although less so than primary or secondary cases. Such cases are generally found through screening or partner notification since the patient does not have symptoms. Primary, secondary and early latent stages all occur within the first year of infection and can result in syphilis transmission to sexual partners. Hence, they are often grouped together when discussing infectious syphilis and called ‘early syphilis.’

If a case progresses past the early latent stage, the person will move into late syphilis. There are several different ways to report late syphilis cases. But since all late syphilis cases were infected

more than a year prior to diagnosis, they may be grouped together for analysis. Some patients with late syphilis will develop symptoms, while others will be detected through screening or partner notification. Patients of either sex are not likely to be infectious to their sexual partners beyond the early latent stage, but finding them is still important in terms of morbidity and care. In addition, females can pass the infection to their infants well past the early latent stage (congenital syphilis). In this report, patients reported with late syphilis of unknown duration, late latent syphilis, late syphilis with symptoms, or neurosyphilis are grouped together as 'late syphilis.' Congenital syphilis is reported separately.

Syphilis Reporting

North Carolina law states that all cases of syphilis must be reported to the local health department within 24 hours. However, syphilis testing and case diagnosis can take several weeks. Each individual with a reactive syphilis test must be investigated thoroughly to determine (a) if the person is genuinely infected and, if so, (b) if the infection is new or failed treatment of an old infection, and, if new, (c) the stage of the disease. This investigation, conducted by local or regional health department personnel, can take days or weeks, and in some cases the patient is treated for a probable infection before the investigation is complete. Contact tracing and partner notification are also initiated for probable syphilis cases, and often partner information can aid in diagnosing the stage of the infection. Laboratories are required to report certain positive test results to the State Health Department within 24 hours, speeding up this process by initiating investigations earlier. When a new case is diagnosed, a morbidity report is forwarded to the HIV/STD Prevention & Care Branch at the state Division of Public Health, where information on patient names, demographics, and disease diagnoses are compiled for analysis.

Thorough contact tracing and partner notification activities greatly reduce bias in reporting by locating and reporting partners with asymptomatic infections that may not have been found otherwise. Due to the severity and comparative rarity of syphilis compared to other sexually transmitted diseases, it is believed that syphilis reporting, even from private providers, is quite good. Data on primary and secondary syphilis cases is particularly good because diagnosis of these stages of syphilis requires documentation of specific physical symptoms. Because syphilis cases are reported to the Division of Public Health by name, accidental duplicates in the database are unlikely.

Many latent cases of syphilis are asymptomatic and hence are found only through screening. This may bias latent syphilis case reporting toward groups that receive syphilis screening (pregnant women, jail inmates, others). It is also slightly more difficult to distinguish between the various latent stages of syphilis (early latent, late latent, latent of unknown duration) than primary and secondary, so the stage may be misdiagnosed in some cases.

Syphilis Elimination

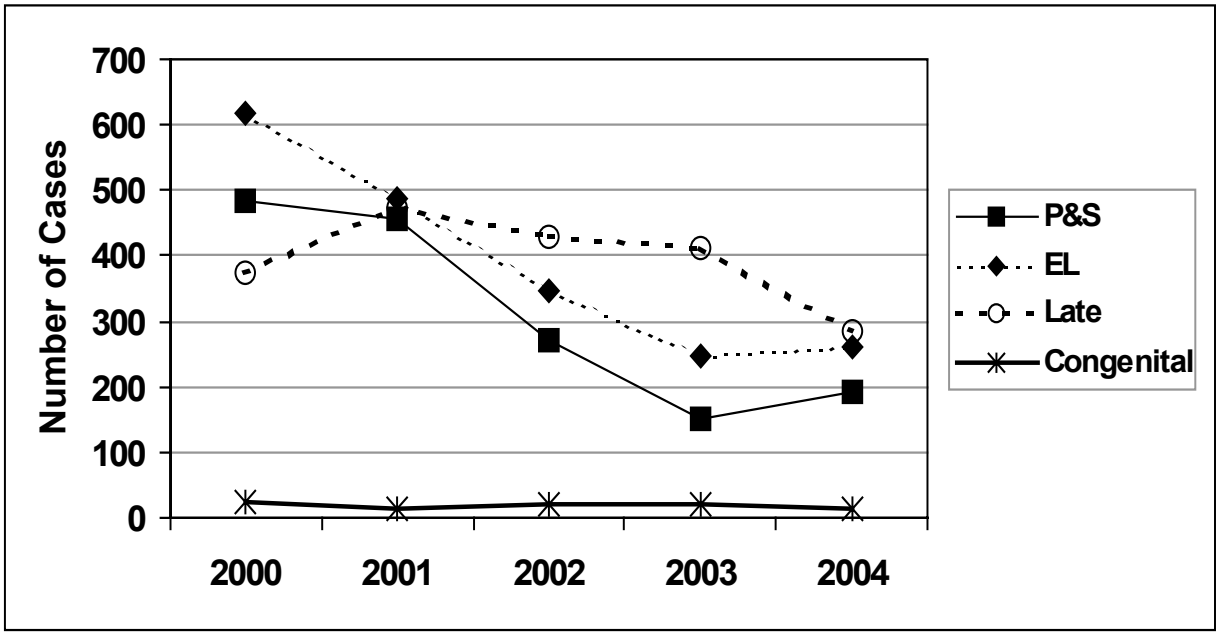
The CDC examined 1998 data and determined that over 50 percent of all U.S. primary and secondary (P&S) syphilis cases were reported from just 28 counties. This concentration of disease and the fact that rates were at all-time lows provided an opportunity for the possible elimination of U.S. syphilis transmission. In 1999, CDC announced the beginning of The Syphilis Elimination Project (SEP), which provides funding to the 28 high-morbidity areas (HMAs) for enhancements in surveillance, outbreak response, clinical and laboratory services, health promotion and community involvement.

Nearly all of the 28 counties mentioned above include major cities and in most cases, a state has just one SEP county. North Carolina is the only state with more than two counties (we have five: Forsyth, Guilford, Mecklenburg, Robeson, and Wake). The State of North Carolina receives extra funding to prevent syphilis in these counties. The HIV/STD Prevention & Care Branch in the Division of Public Health coordinates many of the SEP activities and has several CDC assignees designated to the project. The team determined that a sixth county (Durham) should be included in the SEP work because syphilis is a significant problem there, even though it did not make the CDC list of 28.

Syphilis Trend Analysis

Most reportable syphilis stages have seen a steady decline over the past five years (Figure 8.3). Specifically, primary/secondary syphilis cases declined 60.0 percent from 2000 to 2004. Early latent cases declined 57.8 percent and late syphilis cases declined 24.0 percent over the same period. From 2000 to 2003, congenital syphilis reports had been steady at around 20 cases per year, but in 2004 only 13 cases were reported.

Figure 8.3. Reported syphilis cases, 2000-2004



In large part, the decline noted is likely due to the enhanced efforts of the Syphilis Elimination Project. The SEP focuses primarily on infectious syphilis, which may explain the fact that primary/secondary and early latent cases are dropping rapidly, while cases of late syphilis are declining more slowly. Again, this may be due to the fact that prevention efforts are focused on early syphilis, which can be transmitted via sexual contact. However, women with syphilis can transmit the infection to their newborns well after the early latent stage (potentially for up to eight years). Syphilis testing is strongly recommended for all pregnant women, so the continued presence of congenital syphilis in North Carolina reflects inadequacies in prenatal care. Continued declines in syphilis rates are expected as the SEP efforts continue for 2005-2006.

Syphilis cases in North Carolina are generally found in a much older population than that affected by gonorrhea and chlamydia. For the past five years (2000-2004), the highest rates of early syphilis (primary, secondary, and early latent syphilis) have been primarily found in the 30- to 39- age group (Table U, pg. 177) for both males and females. The trend remains essentially the same when P&S syphilis and early latent syphilis are examined separately. Late syphilis cases also predominate in this age group.

Syphilis disproportionately affects minority communities. Syphilis rates for blacks, American Indians/Alaska natives, and Hispanics are up to 40 times higher than for corresponding white groups (Table V, pg. 178). Syphilis reporting is generally very good, so it is unlikely that this is due to reporting or testing bias. Rather, a complex combination of lack of health care access, poverty, social inequality, and the composition of sexual networks produces these differences in syphilis rates.

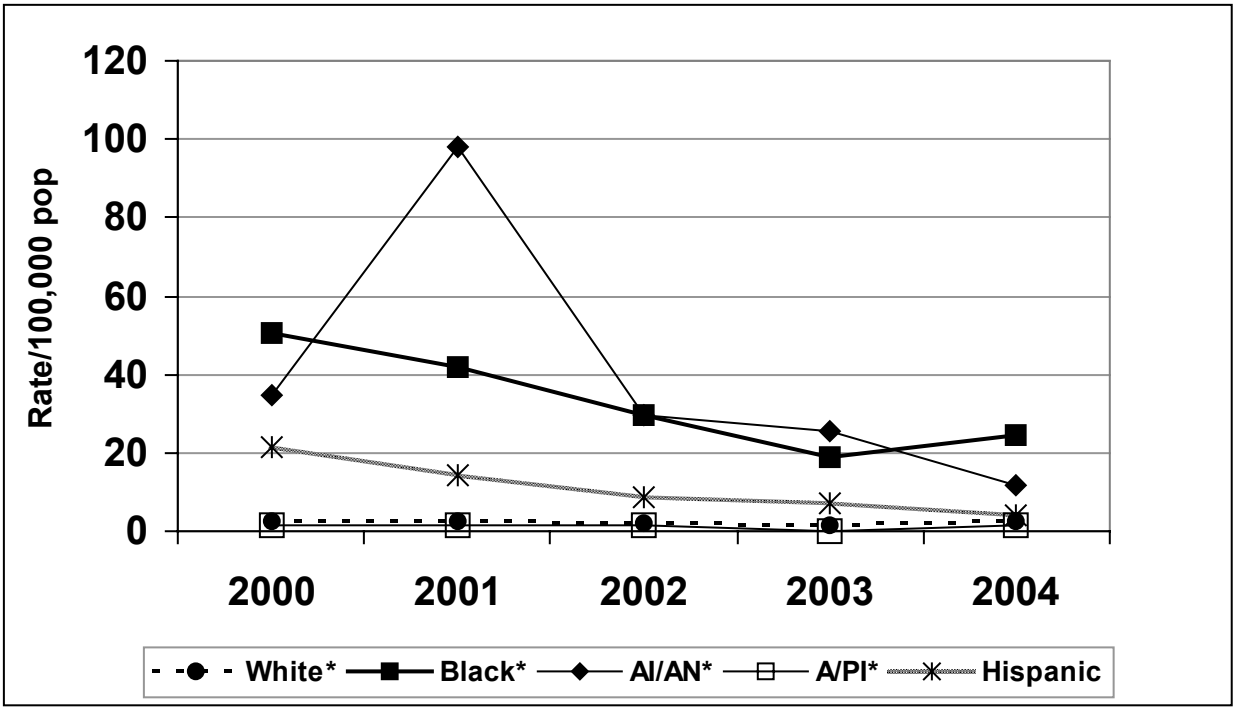
Figure 8.4 shows the early syphilis (PSEL) rates for males; Figure 8.5 shows the corresponding rates for females. For males, the racial disparity in rates is much larger than for females (note the scale on the two charts), but the disparity for black and Hispanic men has narrowed significantly from 2000 to 2004 because the rates for black and Hispanic males are dropping faster than the rates for white males. The trend for American Indians/Alaska natives is less clear. There was a spike in 2001 due to an increase in cases from Robeson and Columbus counties, which have large American Indian populations. The rates dropped in 2002, rose slightly in 2003, and dropped dramatically again for 2004.

The trend is the opposite for females. While syphilis rates for all of these groups have been on the decline, the racial disparity between the rates is on the rise for black, Hispanic, and most notably American Indian women. This is due to the fact that the rates among white females are dropping faster than rates among other groups. For example, the rate among white females dropped 83 percent from 2000 to 2004, while the rate for AI/AN dropped only 74 percent, widening the disparity between them.

Please note that some of the rates displayed in Figures 8.4 and 8.5 are based on very small numbers and may be unstable. Please see Table V, page 178, for the actual rates.

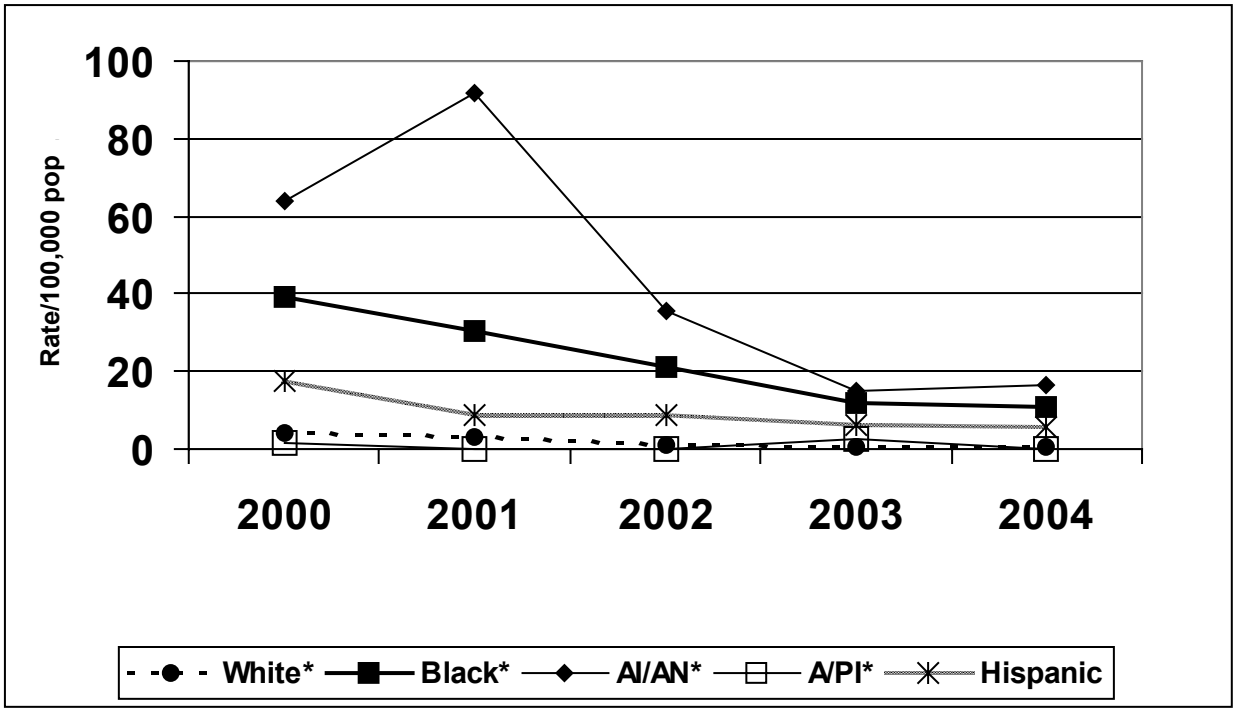
The six SEP counties accounted for 48.7 percent of the total early syphilis morbidity for the state in 2004 and all were ranked in the top ten counties by number of cases reported (Table W, p.179).

Figure 8.4 PSEL syphilis rates - Males, 2000-2004



*non-Hispanic

Figure 8.5 PSEL syphilis rates - Females, 2000-2004



*non-Hispanic

Congenital Syphilis

Untreated syphilis in pregnant women can lead to infection of the infant and serious complications, including premature birth and infant death. Women with early syphilis are the most likely to infect their infants in utero but women with late latent syphilis can also have congenitally infected children (Radolf, 1999). Infants can also be infected during delivery. Under current CDC case definitions, infants whose mothers receive treatment for syphilis less than 30 days prior to delivery will still be classified as congenital syphilis cases, regardless of symptoms.

Despite declining adult early syphilis rates, North Carolina continues to suffer from cases of congenital syphilis. In 2004, eleven infants were born to mothers who had active or inadequately treated cases of syphilis. This is down from previous years (21 infants in 2003, 15 in 2002, and 19 in 2001) but remains unacceptably high. Six of the eleven women in 2004 did not have any prenatal care (PNC) at all prior to delivery and an additional three had less than five total PNC visits.

North Carolina law states that medical providers are supposed to test all pregnant women for syphilis between 28-30 weeks gestation and again at delivery for women at high risk for syphilis. Women who do not receive adequate PNC services often miss these opportunities for screening. According to the N. C. Pregnancy Risk Assessment Monitoring System (PRAMS) survey for 2003, 18.4% of NC mothers reported a barrier to receiving prenatal care services (NCSCHS, Prams Fact Sheet, 2005). Younger mothers and those of black or Hispanic race/ethnicity were most likely to report barriers. The HIV/STD Prevention and Care Branch is currently partnering with the Women & Children's Health Section to refer at-risk women into prenatal care services.

Syphilis Screening in Jails

As part of the Syphilis Elimination Project, syphilis screening was initiated in the seven county jails in the six SEP counties. Inmates are given counseling on syphilis and other STDs and blood is collected for screening by a nurse or trained phlebotomist. Data collection began in 2002 and analysis shows that the screening is effective in identifying new cases. From 2002 to 2004 the program screened 20,552 inmates (17.5% female). There were 742 seropositives which yielded 121 new cases of syphilis. Screening female inmates seems to be of particular value because they are more likely to be seropositive (8.11% compared to 2.65% for males) and more likely to be new cases (0.97% compared to 0.51% for males).

This study also found that detainees over age 30 were more likely to be new syphilis cases than younger ones (Males: OR=3.7, 95% CI 2.2-6.3, Females: OR=2.4, 95% CI 1.0-5.5). Among men, Hispanic ethnicity (OR=2.6, 95% CI 1.5-4.3) and a history of previous STDs (OR=2.4, 95% CI 1.4-4.1) were also associated with new infections. Among female inmates, multiple sex partners (OR=2.2, 95% CI 1.0-4.6) and crack cocaine use (OR=2.4, 95% CI 1.1-5.2) were associated with new syphilis infections (Sampson, 2005).

APPENDIX A: MAPS

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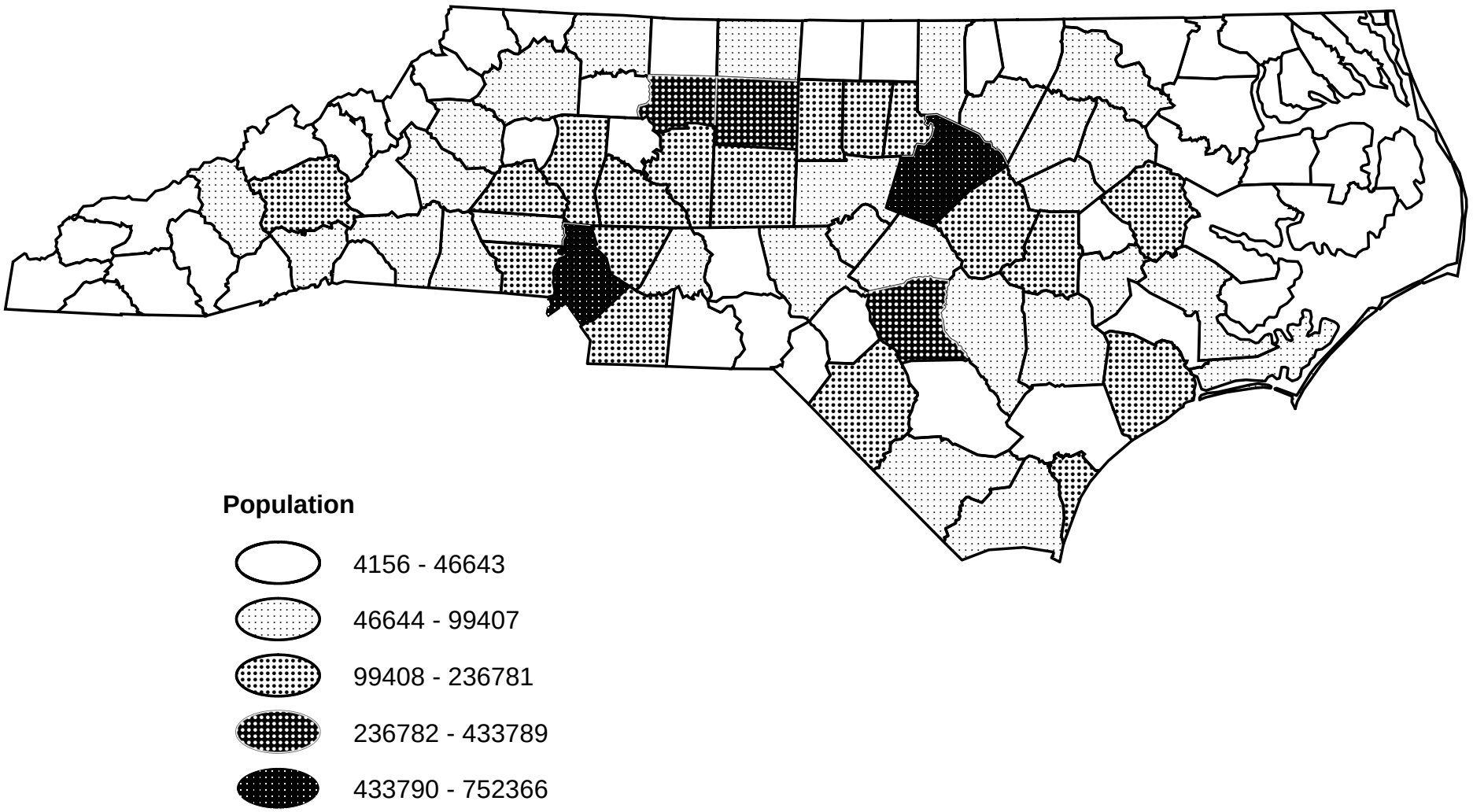
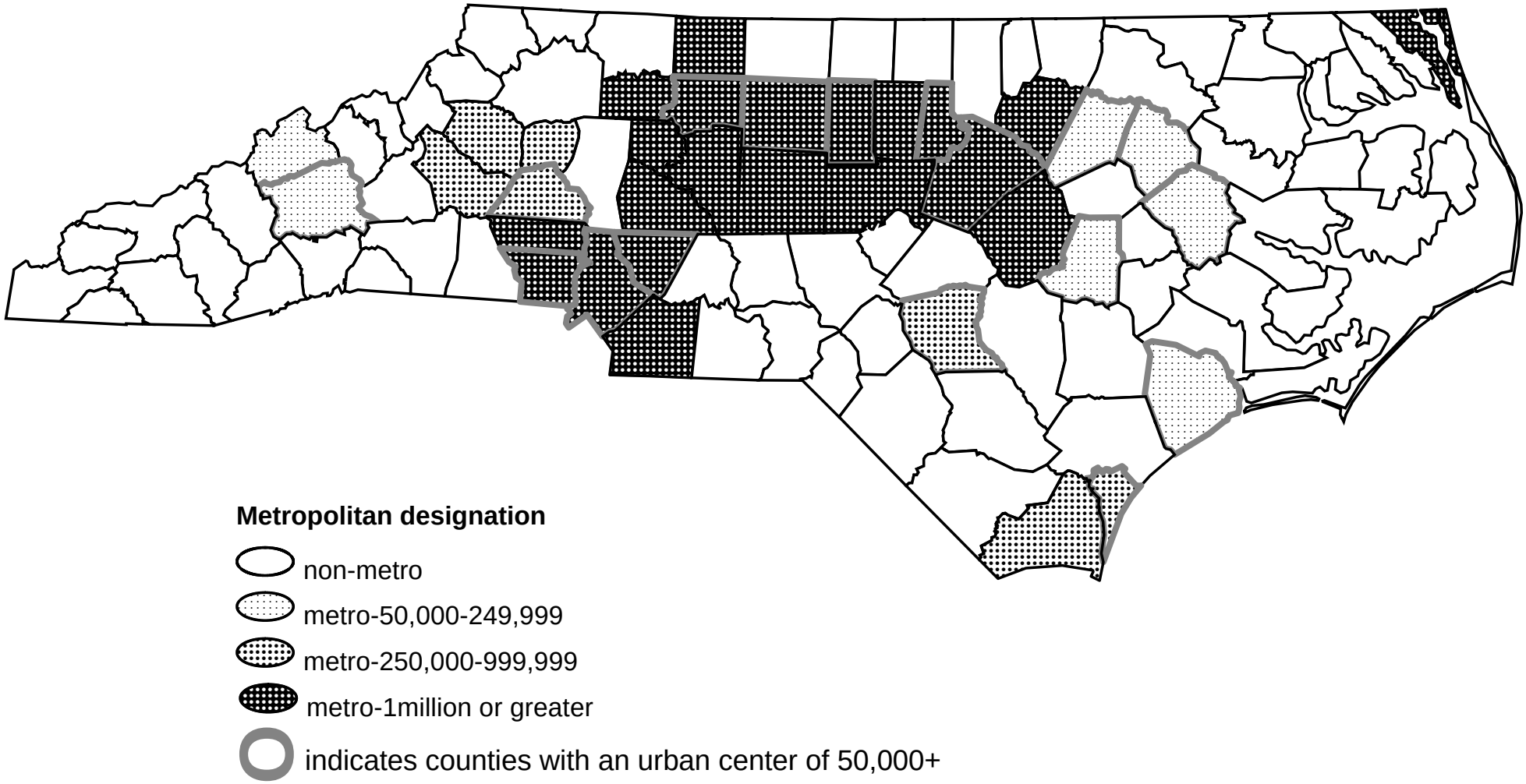
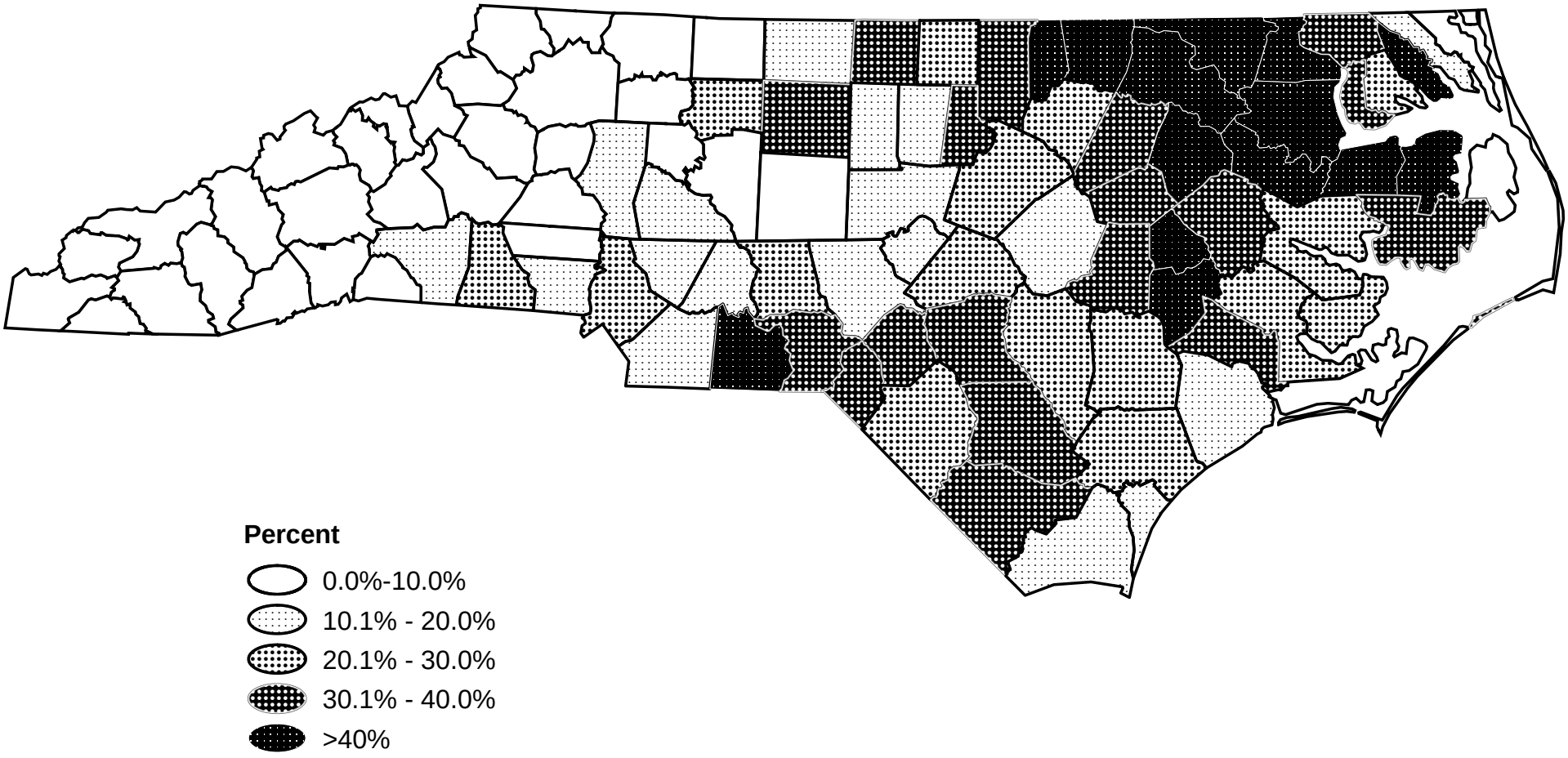
Map 1. North Carolina Individual County Populations, 2003



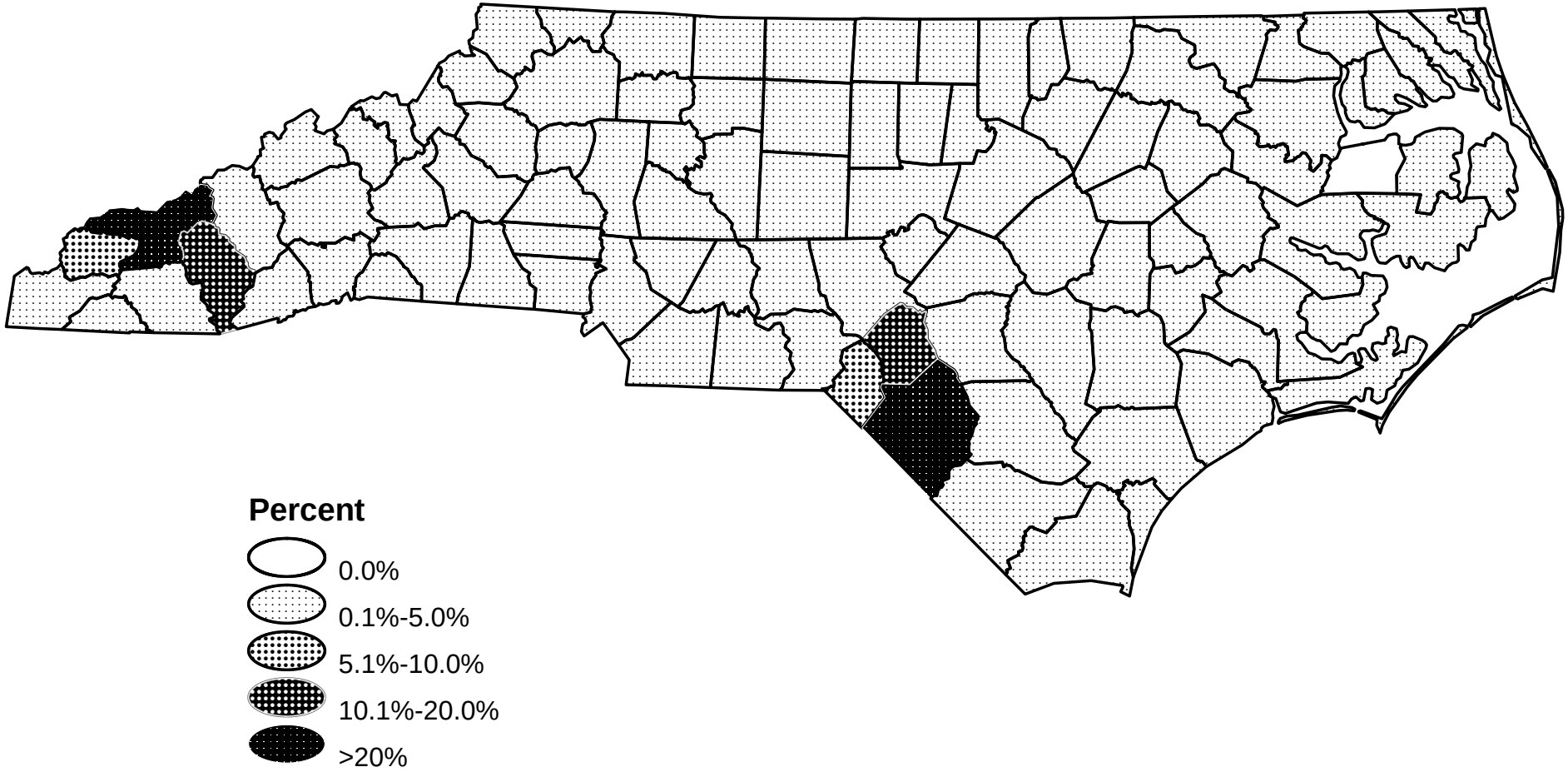
Map 2. North Carolina Metropolitan Designations



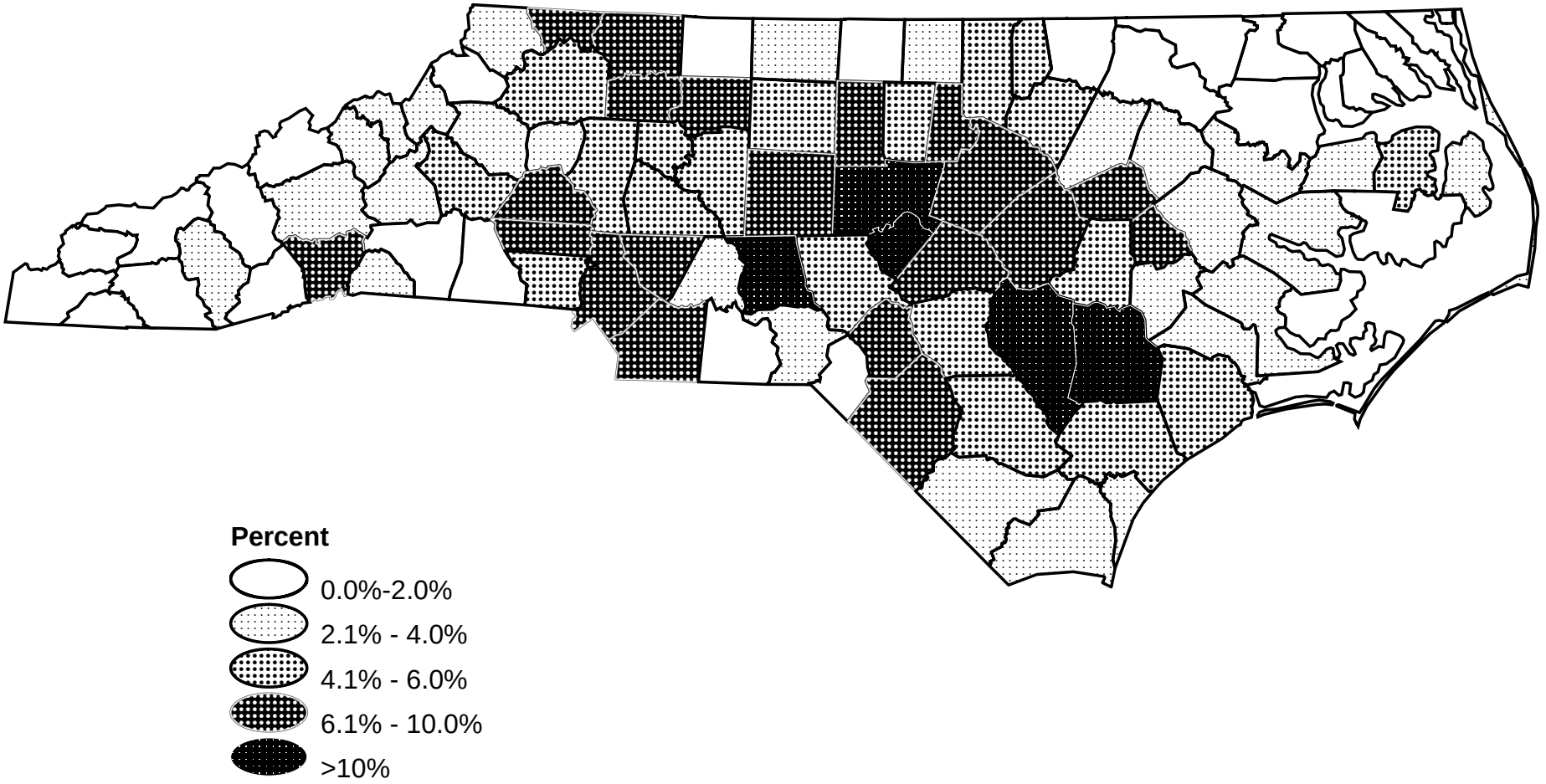
Map 3. North Carolina African American or Black Population, 2003



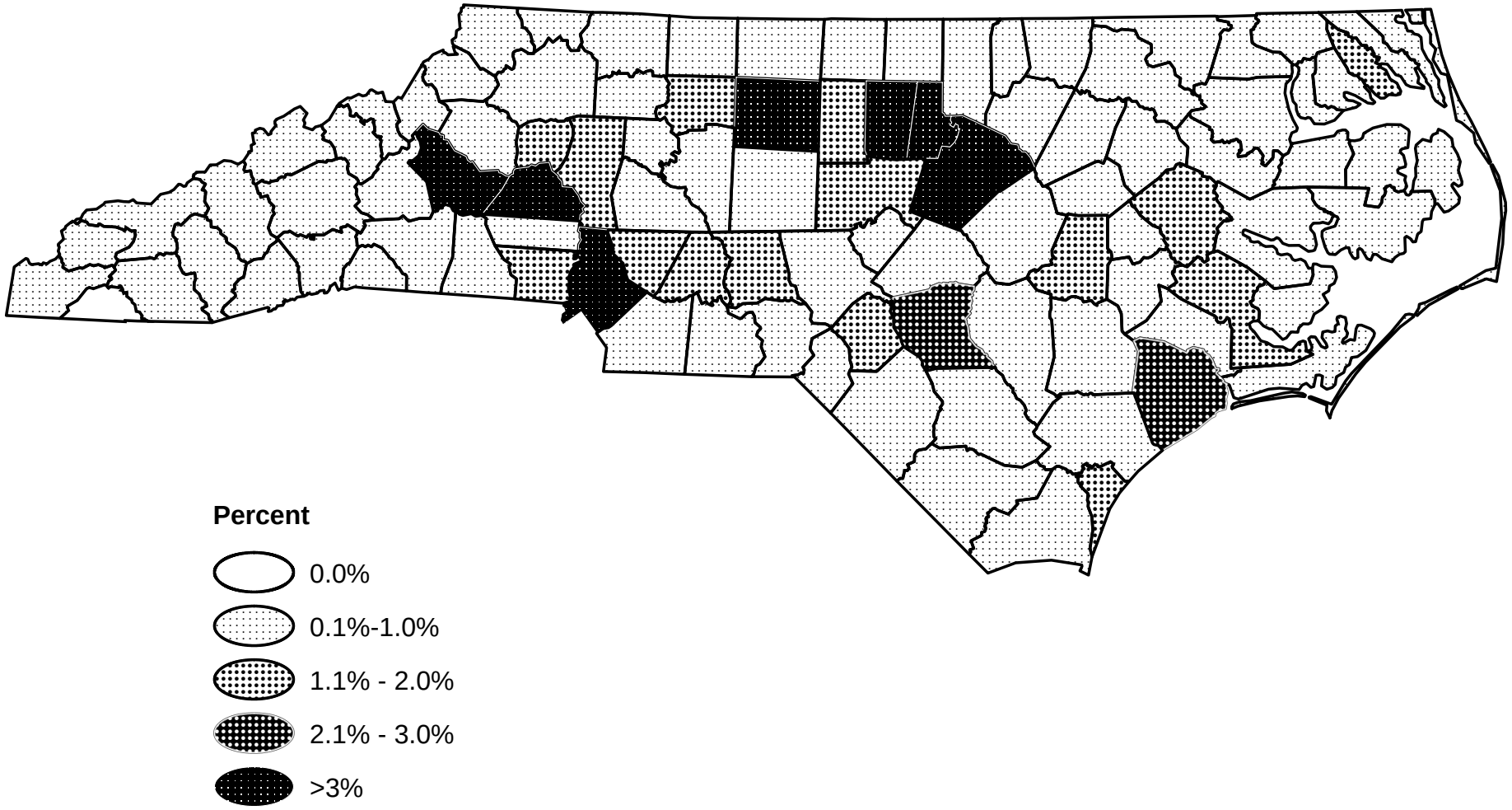
Map 4. North Carolina American Indian, Alaskan Native Population, 2003



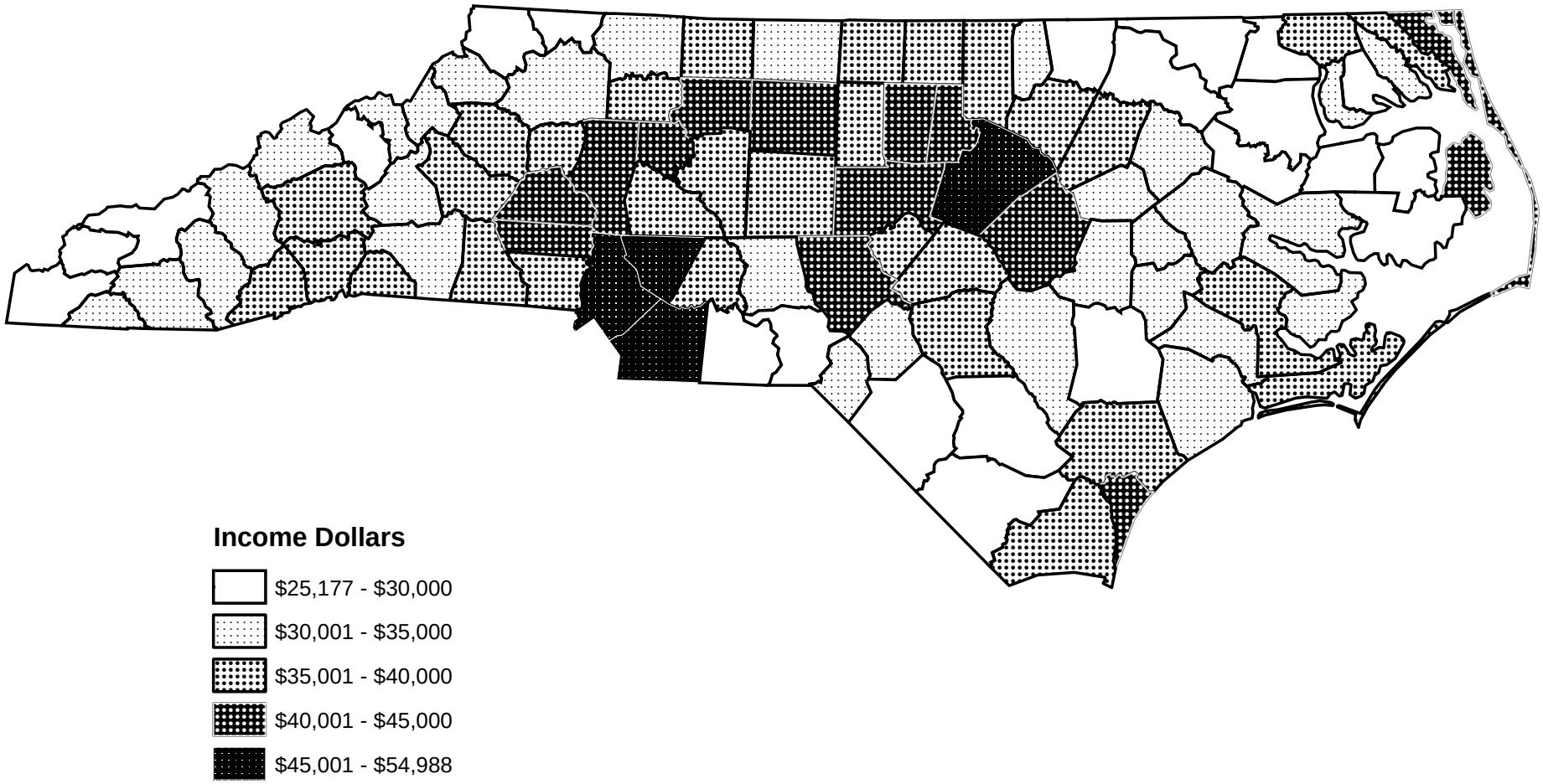
Map 5. North Carolina Hispanic or Latino Population, 2003



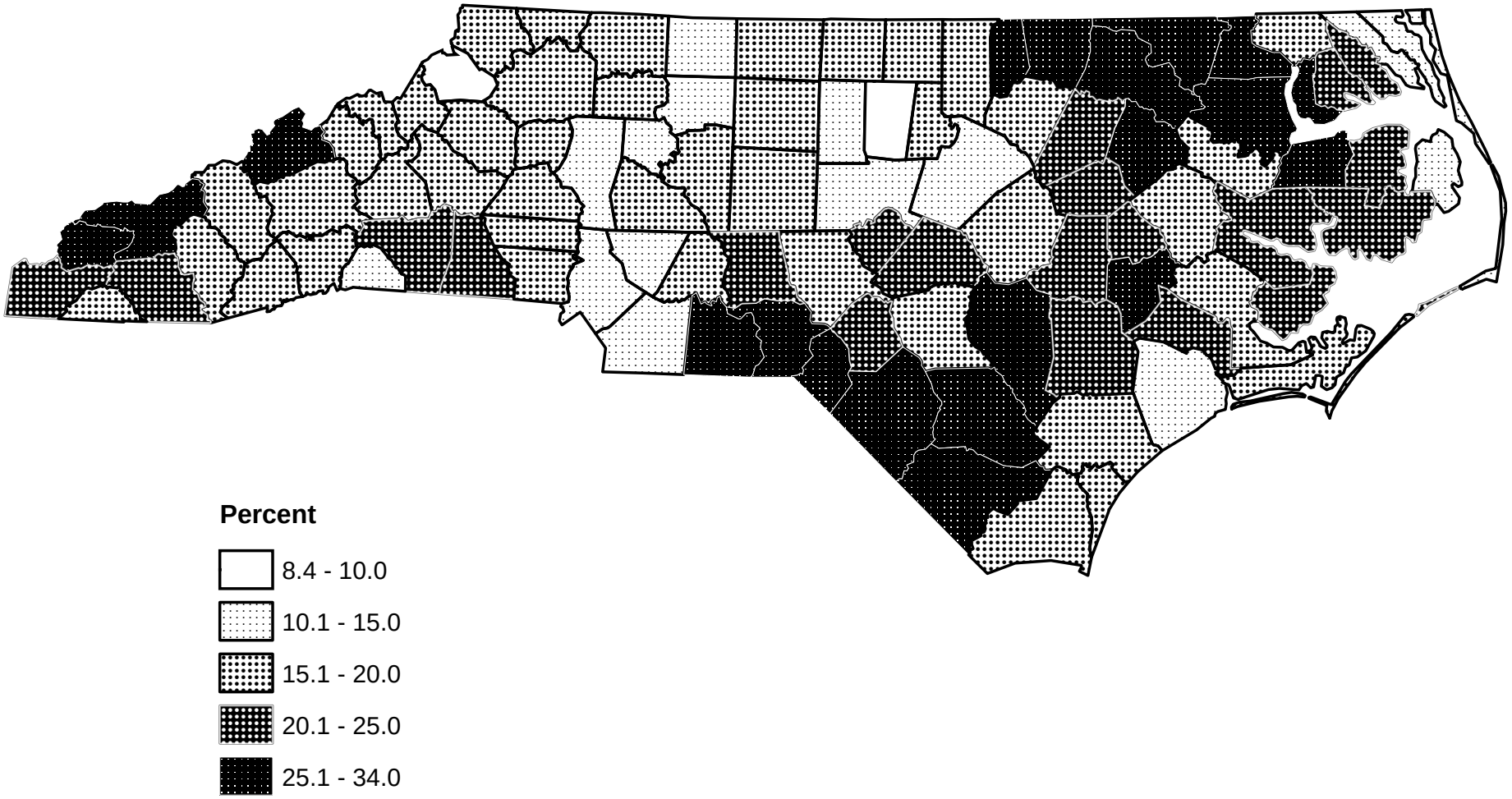
Map 6. North Carolina Asian, Pacific Islander Population, 2003



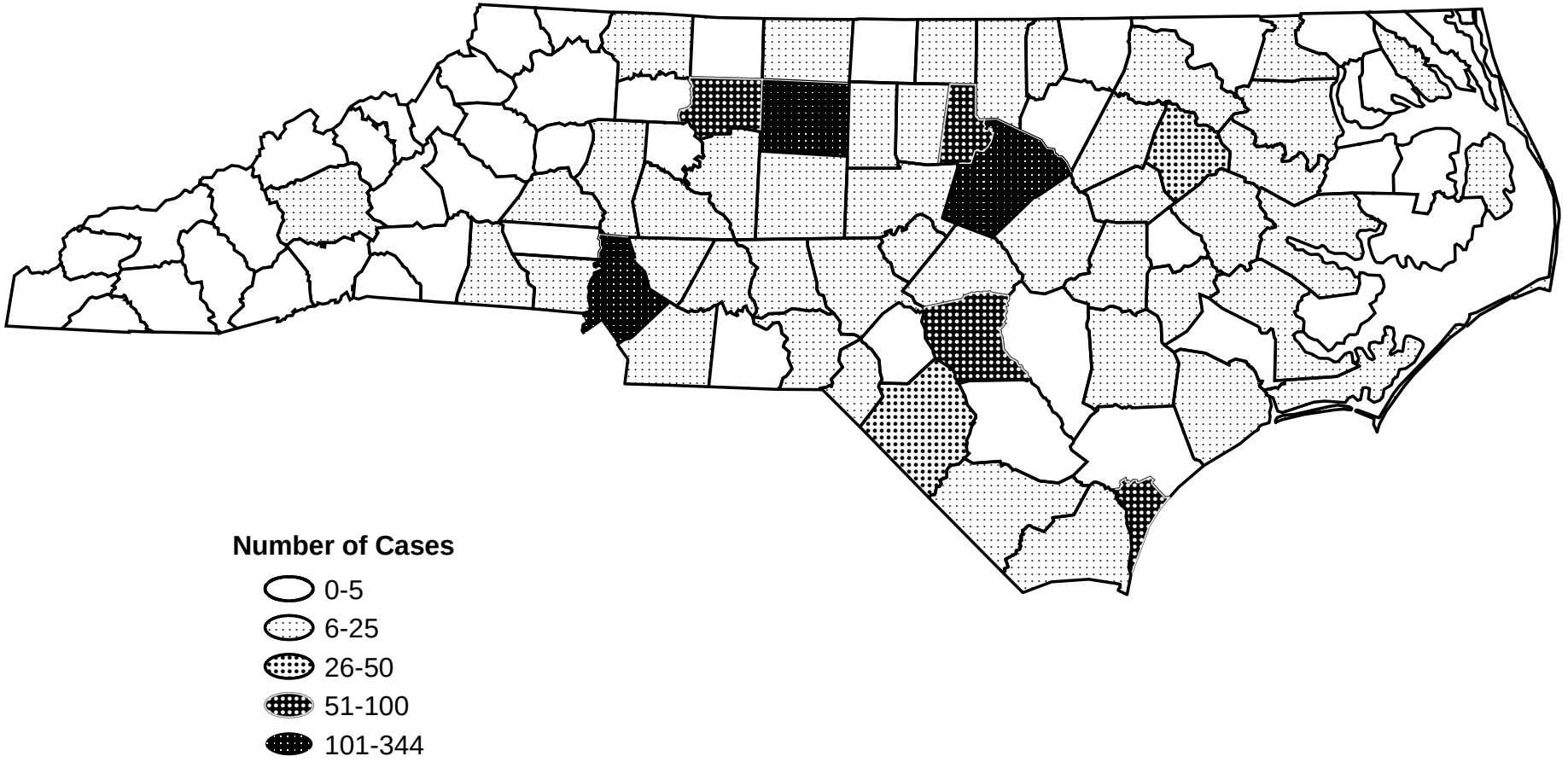
Map 7. North Carolina Per Capita Income, 2000



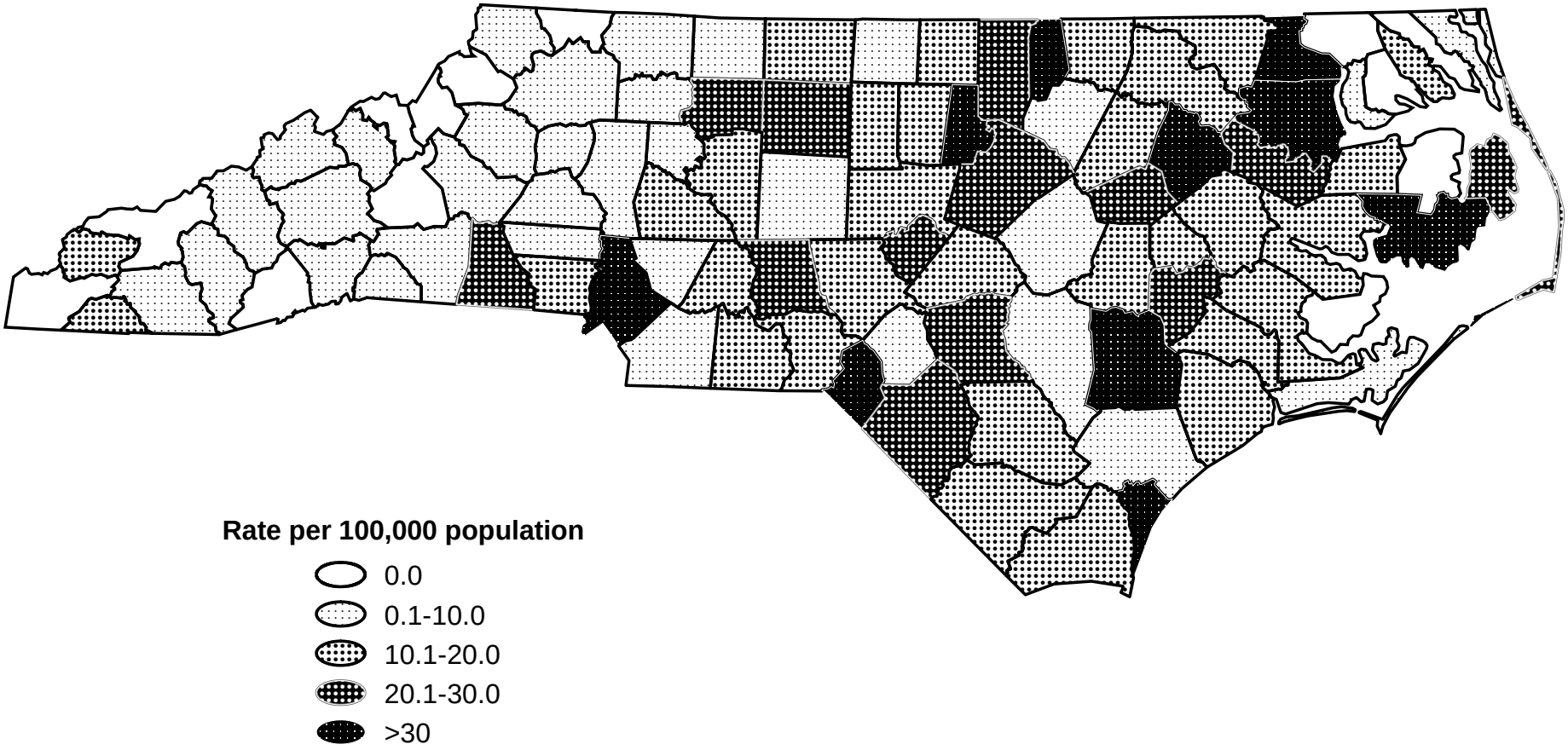
Map 8. North Carolina Medicaid Eligibles, 2003



Map 9. North Carolina HIV Disease Cases, 2004



Map 10. North Carolina HIV Disease Rates, 2004



APPENDIX B: DATA SOURCES

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Core HIV/AIDS surveillance

▪HIV/AIDS surveillance

Overview: Diagnosis of AIDS became reportable in North Carolina in 1984 and diagnosis of HIV infection (name-based) was made reportable in 1990. By state law, morbidity reports of HIV and AIDS from health providers are submitted to local health departments on confidential case report forms and communicable disease report cards. Surveillance reports include demographic and clinical information for the patient, as well as mode of exposure and vital status. These surveillance reports are forwarded to the state's HIV/STD Prevention & Care Branch, which maintains the data from the 100 counties in the electronic HARS (HIV/AIDS Reporting System) surveillance system. In addition to provider diagnoses of HIV and AIDS, laboratories that provide diagnostic services must also report HIV-positive results directly to the state.

Population: All persons who meet the CDC surveillance case definition for HIV infection or AIDS and who are reported to the North Carolina Division of Public Health.

Strengths: Morbidity surveillance data represent the most complete and comprehensive single source of information available about HIV infection and AIDS in the state. AIDS reporting is likely more complete than HIV reporting because of state-mandated laboratory reporting, which identifies AIDS cases that may not have been reported earlier as HIV cases.

Limitations: The data can only provide estimates of HIV infection because not all persons who are infected are tested and reported. Further, surveillance data alone may not provide reliable information about newly acquired infections because there may be significant delay between infection and testing. A third limitation is that reporting may not be complete (i.e., some providers may not report cases). A comparison of 2002-2003 surveillance data to outside sources of information (i.e., Medicaid, ADAP, CAREWare) indicated that completeness varies from at least 75 percent to at least 90 percent depending on the source. This estimate of completeness is used to adjust estimates of prevalence.

▪Enhanced perinatal surveillance

Overview: In 1999, the CDC received $10 million from the U.S. Congress to fund perinatal HIV elimination efforts. These funds were distributed to various state and local health departments to fund prevention efforts, Enhanced Perinatal Surveillance, and professional education/training. North Carolina is funded as an Enhanced Perinatal Surveillance site.

Enhanced Perinatal Surveillance is a collection of information on HIV positive women and their perinatally exposed infants for babies born 1999-2003. For each mother-baby pair, demographic as well as clinical information is obtained from medical records, prenatal records, mother's HIV clinic records, labor and delivery records, the child's birth record, and the child's HIV clinic records. Enhanced Perinatal Surveillance also collects information on illicit drug use during pregnancy, antiretroviral use, reason for discontinuing antiretrovirals, mother's disease status, and type of delivery. Exposed children are followed until adequate laboratory information is available to classify

them as infected or uninfected. Lab information for HIV-exposed infants in North Carolina is obtained from a central laboratory which processes most of the blood work for HIV-exposed infants.

Population: HIV-exposed children and their mothers in North Carolina.

Strengths: Previous comparisons of the number of tests performed by this laboratory and the number of exposed infants derived from the SCBW data indicated a greater than 90 percent capture by this laboratory. Data collected by the Enhanced Perinatal Surveillance Project could be used to characterize recent trends in perinatal HIV/AIDS transmission and to identify maternal risk factors.

Limitations: Because some women may not know that they are HIV-positive, perinatal data may underestimate the number of HIV-exposed infants that are born each year. Women with little or no prenatal care may also not be recorded.

▪National HIV/AIDS Surveillance data (CDC)

Overview: The Centers for Disease Control and Prevention (CDC) compiles de-identified HIV and AIDS case-report information from each of the 50 states and U.S. territories. This information (in aggregate form) is published annually, usually in the early fall, as the "HIV/AIDS Surveillance Report"; there are other publications as well. The surveillance report contains tabular and graphic information about U.S. AIDS and HIV case reports, including data by state, metropolitan statistical area, mode of exposure to HIV, sex, race/ethnicity, age group, vital status, and case definition category. General references to CDC information in this publication are usually from CDC surveillance reports. These reports and other publications are available at http://www.cdc.gov/hiv/surveillance.htm .

Population: All persons who meet the CDC surveillance case definition for HIV infection or AIDS and who are reported to their respective state or territory health departments and then to the CDC.

Strengths: Morbidity surveillance data represent the most complete and comprehensive single source of information available about HIV infection and AIDS in the country. AIDS reporting is considered the most complete, as it is mandated in all 50 states and U.S. territories.

Limitations: The same limitations listed under *HIV/AIDS surveillance (NC)* also apply. Additionally, HIV reporting is not complete in the U.S. as some states have just recently mandated HIV case reporting. Also, not all HIV state data is included in national summaries due to varying data quality. Thus, making a state-to-state or state-to-national comparison is usually limited to AIDS case data.

Behavioral Surveys

▪BRFSS – Behavioral Risk Factor Surveillance System

Overview: BRFSS is a collaborative project of the Centers for Disease Control and Prevention (CDC) and U.S. states and territories. The BRFSS, administered and supported by CDC's Behavioral Surveillance Branch, is an ongoing data collection program designed to measure

behavioral risk factors in the adult population 18 years of age or older living in households. The BRFSS was initiated in 1984, with 15 states collecting surveillance data on risk behaviors through monthly telephone interviews. The number of states participating in the survey increased so that by 2001, all 50 states, the District of Columbia, Puerto Rico, Guam, and the Virgin Islands were participating in the BRFSS.

The survey is designed to include core sections (data collected by all participants), CDC-designed optional modules, and state-added questions. In 1999, North Carolina added its own questions to collect information on sexual assault and continued them through the 2004 survey. In the 2001 and 2004 surveys, a sexual behavior module was asked that included questions on number of sexual partners and condom use. Data reported here can be found on the website for the State Center for Health Statistics at http://www.schs.state.nc.us/SCHS/about/programs/brfss/index.htm.

Population: Adults (age 18 and over) who are members of households with telephones (n = 6,909 for 2004).

Strengths: The survey is well designed to attain a representative sample of North Carolina adults.

Limitations: The survey is generalizable only to North Carolinians with telephones. The information on sexual partners does not indicate the gender of the partners or whether or not condoms were used. The condom-use questions should be interpreted with caution due to the inherent problem that those who report condom use are often a mixture of those at the very lowest risk (because they consistently use the condoms and are protected) and those at the very highest risk (using condoms due to their high-risk behavior and possibly inconsistent condom use).

YRBSS- Youth Risk Behavior Surveillance System

Overview: North Carolina high school students participated in both the 1997 and 2003 Youth Risk Behavior Survey (YRBS) that assessed sexual behavior in addition to other health related topics. The YRBS includes national, state, and local school-based surveys of representative samples of 9th through 12th grade students. These surveys are conducted every two years, usually during the spring semester. The national survey, conducted by CDC, provides data representative of high school students in public and private schools in the United States. The state and local surveys, conducted by departments of health and education, provide data representative of the state or local school district.

Population: 9th through 12th grade students.

Strengths: YRBSS has multiple strengths. The system was designed to determine the prevalence of health-risk behaviors among high school students; assess whether these behaviors increase, decrease, or stay the same over time; and examine the co-occurrence of health-risk behaviors. YRBSS was based on direct, well-documented connections between specific health-risk behaviors and specific health outcomes that are independent of subgroup membership. Multiple behaviors that are measured (e.g., alcohol and other drug use and sexual behaviors) also are associated with educational and social outcomes, including absenteeism, poor school achievement, and dropping out of school. Another strength of YRBSS is to provide comparable national, state, and local data as well as comparable data among subpopulations of youth (e.g., racial/ethnic groups). YRBSS also

was designed to monitor progress toward achieving national health objectives for 2000 and 2010 as well as other program indicators.

Limitations: YRBSS has multiple limitations. First, all YRBS data are self-reported, and the extent of underreporting or over-reporting of behaviors cannot be determined, although measures described in the report demonstrate that the data are of acceptable quality. Second, the national, state, and local school-based survey data apply only to youth who attend school and, therefore, are not representative of all persons in this age group. Nationwide, of persons aged 16–17 years, approximately 6 percent were not enrolled in a high school program and had not completed high school. The NHIS and Youth Risk Behavior Supplement conducted in 1992 demonstrated that out-of-school youth are more likely than youth attending school to engage in the majority of health-risk behaviors. Third, because local parental permission procedures are observed in the school-based surveys, procedures are not consistent across sites. Fourth, state-level data are not available for all 50 states. Fifth, when response rates are insufficient to permit weighting, state and local data represent only those students who participated in the survey and are not generalizable to the entire jurisdiction. Sixth, whereas YRBSS is designed to produce information to help assess the effect of broad national, state, and local policies and programs, it was not designed to evaluate the effectiveness of specific interventions (e.g., a professional development program, school curriculum, or media campaign). Finally, YRBSS only addresses behaviors that contribute to the leading causes of morbidity and mortality among youth and adults. However, despite this limited scope, school and community interventions should focus not only on behaviors but also on the determinants of those behaviors.

STD Surveillance

▪Chlamydia case reporting

Overview: North Carolina law states that all cases of chlamydial infection must be reported to the local health department within 7 days. Laboratory confirmation of chlamydia cases takes place at a number of private labs; most public clinics send their samples to the State Laboratory of Public Health. Results are returned to the provider, who reports them to the local health department. Infected patients are treated and encouraged to bring their partners in for treatment, but there is no formal partner notification procedure. When a new case is diagnosed, the provider sends a morbidity report to the HIV/STD Prevention & Care Branch at the State Division of Public Health where information on patient demographics and disease diagnosis is compiled for analysis.

Population: All persons who meet the CDC surveillance case definition for chlamydial infection and who are reported to the North Carolina Division of Public Health.

Strengths: Well-established screening programs for young women attending public clinics do provide relatively good data about the prevalence of disease in this subpopulation.

Limitations: Chlamydia is often asymptomatic in both males and females. It is also a major cause of pelvic inflammatory disease (PID) in females and, for this reason, the N.C. Division of Public Health recommends that all sexually active young women age 24 and under should be screened for

chlamydia during any pelvic exam. It is also recommended that all pregnant women should be tested for chlamydia as part of standard prenatal care. There are no comparable screening programs for young men. For this reason, chlamydia case reports are always highly biased with respect to gender. Public clinics and health departments may do a better job of conducting such screening programs and reporting cases, causing the reported cases to be biased toward young women attending public clinics.

▪Gonorrhea case reporting

Overview: North Carolina law states that all cases of gonorrhea must be reported to the local health department within 24 hours. Laboratory confirmation of cases generally takes place at the local level and is reported directly to the local health department. Infected patients are treated and encouraged to bring their partners in for treatment, but there is no formal partner notification procedure. When a new case is diagnosed, a morbidity report is sent in to the HIV/STD Prevention & Care Branch at the state Division of Public Health, where information on patient demographics and disease diagnosis is compiled for analysis.

Population: All persons who meet the CDC surveillance case definition for gonorrhea infection and who are reported to the North Carolina Division of Public Health.

Strengths: Gonorrhea is often symptomatic in males and slightly less so in females. Females entering publicly-funded prenatal care, family planning, and STD clinics are screened for asymptomatic gonorrhea. Males are screened at STD clinics only. Since males are more likely to have symptoms that would bring them to the STD clinic, the gender bias in gonorrhea reporting is not as severe as that for chlamydia reporting. Required laboratory reporting may also reduce some private vs. public provider bias in reporting.

Limitations: Public clinics and local health departments are more likely to screen for asymptomatic infection and may do a better job of reporting gonorrhea cases than private doctors. This may contribute to racial bias in the data because larger proportions of public patients are minorities compared to private clinic patients. Case information is collected in aggregate, so it is possible for accidental duplicates to occur.

▪Syphilis case reporting

Overview: North Carolina law states that all cases of syphilis must be reported to the local health department within 24 hours. However, syphilis testing and case diagnosis require multiple stages and can take several weeks. Each individual with a reactive syphilis test must be investigated thoroughly to determine (a) if the person is genuinely infected and, if so, (b) if the infection is new or failed treatment of an old infection, and, if new, (c) the stage of the disease. This investigation, conducted by local or regional health department personnel, can take days or weeks. In some cases, the patient is treated for a probable infection before the investigation is complete. Contact tracing and partner notification are also initiated for all probable syphilis cases because often partner information can aid in diagnosing the stage of the infection. Laboratories are required to report certain positive test results to local health departments within 24 hours, speeding up this process by initiating investigations earlier. When a new case is diagnosed, a morbidity report is sent in to the HIV/STD

Prevention & Care Branch at the state Division of Public Health, where information on patient names, demographics, and disease diagnoses are compiled for analysis.

Population: All persons who meet the CDC surveillance case definition for syphilis infection and who are reported to the North Carolina Division of Public Health.

Strengths: Thorough contact tracing and partner notification activities greatly reduce bias in reporting by locating and reporting partners with asymptomatic infections that may not have been found otherwise. Due to the severity and comparative rarity of syphilis compared to other STDs, it is believed that syphilis reporting, even from private providers, is quite good. Data on primary and secondary syphilis cases is particularly good because diagnosis of these stages of syphilis requires documentation of specific physical symptoms. Because syphilis cases are reported to the Division of Public Health by name, accidental duplicates in the database are unlikely.

Limitations: Many latent cases of syphilis are asymptomatic and hence are found only through screening. This may bias latent syphilis case reporting toward groups that receive syphilis screening (pregnant women, jail inmates, others). It is also slightly more difficult to distinguish between the various latent stages of syphilis (early latent, late latent, latent of unknown duration) than primary and secondary, so the stage may be misdiagnosed in some cases.

Supplemental HIV/STD surveillance

▪GISP – Gonococcal Isolate Surveillance Project

Overview: GISP is a collaborative project between selected STD clinics, five regional laboratories, and the CDC. It was established in 1986 to monitor trends in antimicrobial susceptibilities of strains of *N. gonorrhoeae* in the United States in order to establish a rational basis for the selection of gonococcal therapies. *N. gonorrhoeae* isolates are collected from the first 25 men with urethral gonorrhea attending STD clinics each month in 30 cities in the United States. The men are asked a number of behavioral questions and the samples are tested for resistance to a variety of antibiotics. The project includes one site in North Carolina. From 1998-2001 the North Carolina site was located at Fort Bragg. Partway through 2002, the participating clinic was changed to Greensboro.

Population: Ongoing sample of up to 25 men per month from the STD clinic in Greensboro, N.C. (n=239 in 2003).

Strengths: Random sampling design allows for good estimates of target population. The samples are collected from men who were going to have a gonorrhea test anyway, so the project does not artificially inflate gonorrhea reports from the site.

Limitations: The survey covers a relatively small sample of men from one specific clinic. Behavioral survey results likely can not be generalized to other populations in the state.

▪PCRS - Partner Counseling & Referral Services

Overview: The HIV/STD Prevention & Care Branch's Field Services Unit has responsibility for conducting patient interviews of persons newly diagnosed with HIV or syphilis. The interviews are conducted to counsel patients on prevention of subsequent risk, to assist with referrals for treatment and services, and to help with partner notification. Information is collected on clinical status and treatment, patient demographics, and detailed mode of exposure risk. The information is maintained in local STD-MIS. Information is limited to interviewed patients. It is estimated that 98 percent of syphilis cases and 90 percent HIV cases are interviewed.

Population: Persons interviewed by Field Services staff as part of HIV or syphilis case follow-up or partner notification

Strengths: A high proportion of new cases are interviewed, so it is likely that the data accurately represent the infected population as a whole.

Limitations: Does not represent all newly infected individuals, as not every person infected is tested and reported. The level of risk information available varies from case to case, so there are limitations in comparing risk among the cases.

HIV Counseling & Testing Data

▪CTS - Counseling and Testing System

Overview: The North Carolina Division of Public Health provides funds for HIV counseling and testing (CTS) at 169 sites across the state. These include 155 traditional test sites in local health departments, university health centers, and CBOs and 14 nontraditional test sites (NTS). NTS sites were added to the program in response to community concerns in order to remove barriers to HIV testing when anonymous testing was removed in North Carolina in 1997. NTS sites, most often located in CBOs and sometimes through extended health department hours, have a goal of reaching different populations than those served by traditional testing sites. The CTS collects information on counseling and testing services delivered, client demographics, insurance, risk factors, and reasons for testing. No personal identifying information is collected.

Population: All clients who receive confidential HIV testing services at a publicly funded counseling and testing site in North Carolina. (In 2004, 119,094 tests were performed in publicly funded sites.)

Strengths: CTS covers all publicly funded clinics in the state and is the only population-level source of information on negative HIV tests. Data on test results is particularly good in North Carolina because the State Laboratory receives the data sheet with each specimen and enters results directly into the database. In other states, results must be sent back to the original HIV counselor before the data sheet is sent in, which can lead to errors and underreporting.

Limitations: CTS covers only publicly funded clinics and therefore does not reflect all the HIV tests done in the state. In fact, only about 35 percent of new HIV cases reported to the state come from the

CTS. Estimation of statewide seroprevalence is not possible because clients are either self-selected for HIV testing or agree to testing after presentation to a counselor at a CTS site. Data are collected without names, making it difficult to check for duplicates in the database. Although clients are asked whether or not they have been tested before, the validity of these responses and other self-reported data is questionable.

Substance Abuse Data

▪NSDUH – National Survey on Drug Use and Health

Overview: NSDUH (formerly called the National Household Survey of Drug Abuse – NHSDA) is the primary source of statistical information on the use of illegal drugs by the U.S. population. Conducted by the Federal Government since 1971, the survey collects data by administering questionnaires to a representative sample of non-institutionalized persons over age 12 in their place of residence. Interviews are conducted using CAPI (Computer Assisted Personal Interview) technology, in which survey responses are recorded directly into the computer. A trained interviewer is present to assist with the computer but does not know the responses given. The survey is designed to be large enough to provide estimates for each of the 50 states and the District of Columbia. Youth and young adults are over-sampled. The survey is sponsored by the Substance Abuse and Mental Health Services Administration (SAMHSA) of the U.S. Department of Health and Human Services and is planned and managed by SAMHSA's Office of Applied Studies (OAS). Data collection is conducted under contract with RTI International, Research Triangle Park, North Carolina.

Population: NSDUH collects information from residents of households, noninstitutional group quarters (e.g., shelters, rooming houses, dormitories), and civilians living on military bases. Persons excluded from the survey include homeless persons who do not use shelters, military personnel on active duty, and residents of institutional group quarters, such as jails and hospitals. The 2003 survey interviewed 67,784 people in 50 states.

Strengths: This is a large survey specifically designed to provide state-level estimates for all 50 states. The use of CAPI technology reduces bias by decreasing the chance that subjects will provide socially desirable responses to please the interviewer.

Limitations: Many of the excluded populations are also those populations at risk for HIV infection.

Vital Statistics Data

▪Birth and Death Data

Overview: All births, deaths, fetal deaths, marriages, and divorces that occur in North Carolina are reported to the state. The process involves a statewide system of hospitals, funeral directors, registers of deeds, local health department staff, and others who register vital events. Statewide vital events are registered and maintained by the Vital Records Unit of the Division of Public Health. Vital Records staff code information according to specific guidelines in order to produce statistical

data that subsequently are used to characterize specific areas such as infant mortality and communicable disease. Reporting of deaths is nearly 100 percent complete. Death information includes the cause and underlying causes of death, but some causes of deaths, including HIV/AIDS, may be under reported.

Population: All births and deaths reported to the North Carolina DHHS.

Strengths: Reporting of deaths is nearly 100 percent complete.

Limitations: Some causes of death, including those associated with HIV/AIDS, may be under-reported.

▪Abortion Data

Overview: Beginning in 1978, abortion providers in the state of North Carolina began voluntarily reporting abortion data to the State Center for Health Statistics. Reports include demographics and basic medical information on the mothers, but no identifying information. Many sites report 100 percent of the procedures they perform. For those sites unable to report 100 percent, data are extrapolated from the cases they do report. Abortions provided for North Carolina residents are also reported by providers in other states, the largest number coming from those states directly bordering North Carolina.

The information reported here can be found at the State Center for Health Statistics website in the publication "Reported Pregnancies 2003" at http://www.schs.state.nc.us/SCHS/prams/2003/.

Population: Abortions performed on North Carolina state residents, 2003.

Strengths: Because no patient-identifying information is reported, providers do not need to worry about confidentiality and therefore may be more inclined to report all of their cases accurately.

Limitations: Data are reported voluntarily and sometimes at less than 100 percent. Therefore, it is safe to assume that the numbers reported are an underestimate of the true number of abortions. There are limitations to using this data for the purpose of estimating a heterosexual population at risk for HIV and other STDs. The data does not include information on the number of sexual partners, condom use, or other risk factors.

▪PRAMS – Pregnancy Risk Assessment Monitoring System

Overview: The North Carolina PRAMS survey is a random sample of live births for the period 1997-2003. Women were contacted by mail 2-6 months after delivery. If there was no response to the initial mailing, two more mailings and ultimately phone interviews were attempted (overall survey response rate = 75%). The women were asked questions about their behavior during and after pregnancy, the intention and timing of their pregnancy, and demographic information. Data come directly from the 2003 tables recently published at the State Center: http://www.schs.state.nc.us/SCHS/prams/2003/.

Population: Mothers who had given birth to a live infant in North Carolina during 1997-2003.

Strengths: This is a well-designed survey, with questions specifically designed to estimate the proportion of pregnancies that were mistimed or unwanted. All pregnancies represent unprotected heterosexual sex. However, not all such sexual activities are among high-risk partners. Mistimed or unwanted pregnancies are a reasonable proxy for unprotected, heterosexual sex that was not intended to produce a pregnancy, which may represent a population at risk for HIV and other STDs.

Limitations: There are limitations to using this data for the purpose of estimating a heterosexual population at risk for HIV and other STDs. The data does not include information on the number of sexual partners, condom use, or other risk factors.

Population Data

▪U.S. Census Bureau

Overview: For the purpose of allocating congressional seats, the U.S. Census Bureau completes an official enumeration of the national population every 10 years. The most recent census (used for denominator data in this report) was conducted in April, 2000. Questionnaires were sent to all U.S. households, most often by mail but in some cases in person by Census personnel. One in six households was sampled to receive the Census 'Long Form' which has social, economic, and housing questions in addition to seven basic questions including gender, age, race and ethnicity of all household members. The remaining five to six of households receive the 'Short Form' with just the seven basic questions. Making questionnaires available in different languages, advertising campaigns, and canvassing door-to-door are employed to increase the census count. The final response rate for the entire U.S. population was 67 percent. Tables and information can be obtained from the Census Bureau's Web site (www.census.gov), the N.C. Lookup web site (http://census.osbm.state.nc.us/lookup/), NC LINC (http://linc.state.nc.us) and from the N.C. State Data Center (http://sdc.state.nc.us/).

Population: U.S. population as of April, 2000.

Strengths: Denominator data on gender, age, race and ethnicity data are highly reliable because the Census attempts to collect this information on every person in the U.S. The 2000 census marked the first time that the mail-in response rate had improved over the previous census.

Limitations: Because the response rate is not 100 percent, the data from the non-responders will have to be estimated using data from those who did respond. Certain groups may be more likely not to respond and, therefore, may be under represented in the final counts. Such groups include those who speak and read languages other than English, those with unstable or no housing, and illegal immigrants who may avoid contact with Census personnel.

▪N.C. State Data Center Demographics Unit

Overview: The North Carolina State Data Center is a network of state and local agencies that provide information and data about the state and its component geographic areas. Besides maintaining all the decennial and economic census products, the State Data Center receives many other data products from various federal, state, and private agencies. The State Demographics unit is primarily responsible for producing population estimates and projections. County and state population projections, available by age, race (white/other) and sex, are used for long-range planning. To produce these estimates and projections, the unit develops and enhances complex mathematical computer models and collects and reviews a variety of data from federal, state, and local government sources. It annually surveys North Carolina municipalities for annexation data, municipalities and counties for selected institutional data, and military bases for barracks population data. As a member of the Federal State Cooperative Program for Population Estimates (FSCPE), the unit collects and examines data for the Census Bureau and reviews Census Bureau estimates and methods. Data are available at http://demog.state.nc.us/.

Population: North Carolina State population, all years.

Strengths: Population growth estimates are calculated for age, gender and racial groups based on a wide variety of data sources.

Limitations: Projections for racial groups are made available only for whites and non-whites. Projections become less and less reliable the farther they are away from the last census year; denominator data early in the decade is generally more accurate than data towards the end of the decade.

▪Kaiser Family Foundation: State Health Facts Online

Overview: The Henry J. Kaiser Family Foundation (KFF) is an independent philanthropy focusing on the major health care issues facing the nation. The KFF provides information and analysis on a broad range of policy issues, emphasizing those that most affect low-income and vulnerable populations. Data presented on State Health Facts Online are a selection of key health and health policy issues collected from a variety of public and private sources, including original Kaiser Family Foundation reports, data from public websites, and information purchased from private organizations. Information is available at http://www.statehealthfacts.kff.org/.

Population: Various.

Strengths: Data are synthesized from a number of different sources and made available in easy-to-use format.

Limitations: Specifics on each data source are sometimes difficult to obtain.

Ryan White CARE Act Data

Overview: In 1990, Congress enacted the Ryan White CARE Act to provide funding for states, territories and eligible metropolitan areas (EMAs) to offer primary medical care and support services for persons livings with HIV disease who lack health insurance and financial resources for their care. Congress reauthorized the Ryan White CARE Act in 1996 and in 2000 to support Titles I-IV, Special Projects of National Significance (SPNS), the HIV/AIDS Education Training Centers and the Dental Reimbursement Program, all of which are part of the CARE Act. Title program support varies from state to state depending on program requirements and mandates. Data are available about services provided.

Population: All persons who received Ryan White Care Act funded services.

Strengths: One of the few aggregate sources of care and service information for HIV-infected persons and persons affected by HIV (i.e., family members) that covers the entire state.

Limitations: Current information is based on the summation of annual CARE Act Data Reports (CADR) that each consortia or provider receiving funding is required to complete. Because persons can be served by more the one provider or service organization, there is duplication within the summary data. Currently only Title II funded agencies are required to report services provided to the state; others (Titles III, IV, etc.) report directly to HRSA. Thus, the care and service information is incomplete at the state level. In order to better monitor access to Ryan White services and assist projects with required reporting, a computer software program, CAREWare, was provided (2003) to each consortium by HRSA. At its core, CAREWare collects and stores data for completion of the annual CARE Act Data Report (CADR). Moreover, CAREWare is a tool used to move programs beyond mere data reporting and into information management and continuous quality improvement (CQI). Using the various components of CAREWare allows programs to monitor a number of clinical and psychosocial indicators in a way that satisfies both CQI initiatives as well as CADR requirements.

APPENDIX C: SPECIAL NOTES

- **HIV Disease**
- **2003-2004 HIV/AIDS Surveillance Reporting Issues**
- **HIV Risk Categories and Distribution**
- **Rate Calculation and Denominator Determination**

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HIV DISEASE

"HIV disease" is a term that includes all persons infected with HIV regardless of their stage of disease. Infected persons are counted by the date on which this infection was first diagnosed and reported. Most persons are first diagnosed with just an HIV infection and are reported again later with AIDS. However, some persons are diagnosed with HIV and AIDS at the same time. All of these persons are counted in the description of the HIV epidemic by that date of first report and referred to as "HIV disease" cases. Using the "HIV disease" definition to describe the epidemic over time in North Carolina enables the most comprehensive look at the epidemic because all infected individuals are counted. AIDS cases, on the other hand, include only HIV disease cases that also have an AIDS diagnosis; they are counted by the date of report for an AIDS diagnosis. As a general rule, AIDS case descriptions are used to define treatment and care needs, while HIV disease is used to describe the epidemic.

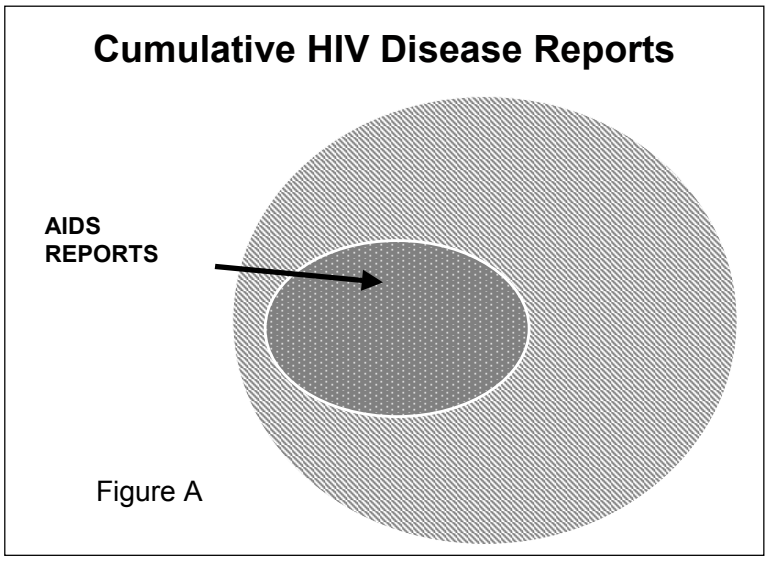

Figure A

Thus, for our discussion in this profile, "HIV disease" references all reports by date of *first report for the individual*. For most "HIV disease" reports, this new report date is determined from the date of an HIV infection report, but for some reports it is based on the date of report for an AIDS diagnosis because the infected individual was never reported with an HIV infection without an AIDS-defining condition present. The first report for that person was an AIDS diagnosis and represented a new incident case of an HIV-infected individual at that time. "HIV disease" also includes early surveillance reports of individuals when AIDS surveillance was the only reporting of infected individuals (all reports before 1990); these reports reference the AIDS report date. The reference of age for "HIV disease" is based upon the age at the diagnosis of first report. The discussion of AIDS cases is essentially a subset of HIV disease reports, since by definition all AIDS reports are included, but the report date is different for each. See Figures A and B for a visual representation of HIV disease and AIDS reports categories. For AIDS reports, the date of report is based upon when the person was reported *with an AIDS diagnosis* (usually a later date than date of first report). The reference of

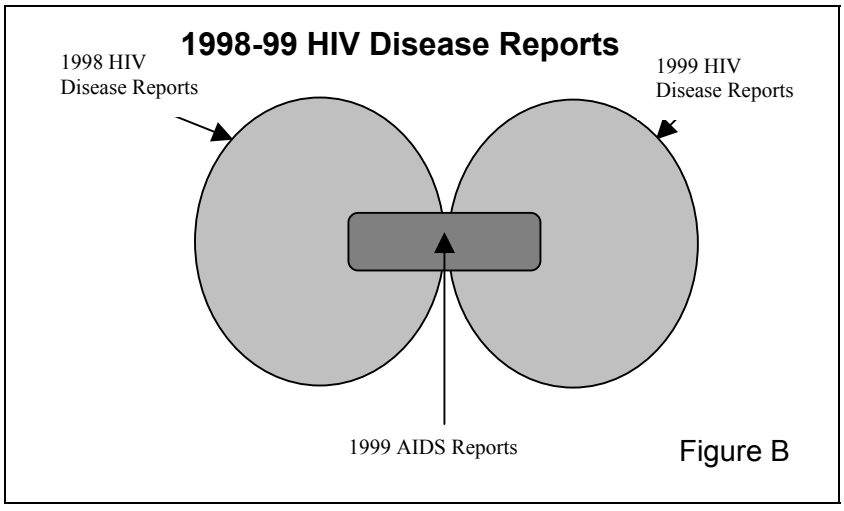

Figure B

age will also be different, based on the age when the AIDS diagnosis was made. AIDS cases are presented in the same way as they have been presented in earlier surveillance publications. Some AIDS information may be presented by the date of diagnosis rather than by the date of report. When this occurs, it will be labeled as such.

2003-2004 HIV/AIDS SURVEILLANCE REPORTING ISSUES

Readers will note that the number of HIV disease reports for 2003 was higher than the number of reports for 2002 and for 2004. This bulge of HIV disease reports for 2003 was the result of previously unreported prevalent HIV disease cases that were identified through ongoing enhanced surveillance activities. Beginning in October 2002, separate diagnostic HIV laboratory results were matched with morbidity reports from providers, and cases were updated as appropriate. If laboratory results could not be linked to an existing or previous morbidity report, contact was made with the provider and a morbidity report was solicited. Prevalent cases that had not been reported when initially diagnosed were added to the surveillance system, resulting in an increase in reports for HIV for 2003. The annual HIV disease report level appears to have stabilized to approximately 1,700 reports of new diagnoses per year.

Readers will also note that earlier annual HIV/AIDS surveillance totals, especially AIDS totals, are less than previously reported. This is the result of a CDC-initiated Interstate Duplication Evaluation Project (IDEP) that was completed in 2004. National and state HIV/AIDS surveillance systems count cases based on the patient's residency at the first diagnosis with HIV or AIDS. Because surveillance data are a snapshot of the number of persons living with HIV/AIDS in a particular state at a particular point in time, they may reflect when a person entered the state health care system with a diagnosis rather than when the person was originally diagnosed. The result of this reporting attribute over time has been the inter-state duplication or multiple counting for some persons. Through IDEP, each state consulted with all 50 states to determine the proper assignment of residency for suspect cases. This project was completed and each state's official surveillance registry adjusted to eliminate duplicative reports. Some older North Carolina HIV and AIDS morbidity reports have been dropped from our surveillance totals. Overall, the adjustment in cases for North Carolina was about average as compared to other states; we reassigned about five percent of our cases to other states with evidence of an earlier initial diagnosis.

HIV RISK CATEGORIES AND DISTRIBUTION

The assignment to individual cases of HIV risk or mode of transmission is hierarchical. This hierarchy was developed by the CDC and others based on information about the epidemic during early investigations. All possible risk information is collected for each case and a single risk is assigned for the case. This does not mean that the HIV transmission is known to have occurred via the risk assigned for a single case, but implies a likely mode of transmission based on the hierarchical risk. It is important for readers to understand that this assigned risk or mode of transmission is not absolute. Additionally, some problems with the risk assignment have been noted. First, the hierarchy was developed using methodologies formed early in the epidemic and may under- or over-represent certain groups because the epidemic has evolved since the early years. Second, not all cases are reported with adequate information to assign risk. In this *Profile*, we have attempted to deal with both of these issues.

Many HIV disease cases are classified as non-identified risk (NIR) cases not because of missing or incomplete information, but because reported risks do not meet one of the CDC-defined (hierarchical) risk classifications. In North Carolina, this occurs frequently with female cases (and some male cases) whose only known exposure is through heterosexual contact. The CDC hierarchical definition for "heterosexual contact" requires that the index cases know their partners' HIV status or risk for HIV. Without knowing their partners' HIV status, these cases are categorized as NIR cases. We have reevaluated and reassigned some of these cases to a "presumed heterosexual" risk category, based on information from field services follow-up interviews with newly diagnosed individuals such as the exchange of sex for drugs or money, previous diagnoses with other STDs, or multiple sexual partners. Including these reassigned NIR cases as likely heterosexual transmission cases gives a more accurate picture of HIV disease in the state.

Even with this reassignment of cases to "presumed heterosexual contact" we have a group of cases with insufficient information to assign risk. These remaining NIR cases do not appear to differ substantially from the overall risk profile of all HIV disease cases. To simplify the discussion and better describe the overall changes over time, these remaining NIR cases have been assigned to a risk category based on the proportionate representation of the various risk groups within the surveillance data. This reassignment is done separately for males and females because risk differs for each sex.

> For example, if 20 of 100 male cases do not have risk information (NIR), proportions are calculated for the remaining HIV disease cases and the proportions are applied to those with unknown risk. Of the 80 males cases with risk, 60 percent (48/80) were MSM, 5 percent (4/80) were IDU, 2.5 percent (2/80) were MSM/IDU, and 32.5 percent (26/80) were heterosexual contact. These fractions are then applied to the 20 NIR cases. For MSM, (20)(.60)=12. Thus, 12 of the 20 NIR cases are reassigned to MSM. For heterosexual contact, (20)(.325)=6.5 or 7 (rounded). Thus, 7 of 20 NIR cases are assigned to heterosexual contact. This process is complete for each risk group. This example is fairly simple and only an illustration of how the risk is reassigned for NIR cases. Actual reassignment takes into account the differences of racial/ethnic distributions for each risk group as well.

RATE CALCULATION AND DENOMINATOR DETERMINATION

Rates are presented throughout the *Profile* for several categories of race/ethnicity, age groups and gender. Rates are also presented for counties and regions across the state. Rates are expressed as cases per 100,000 population. Unless noted, all rate denominators were derived for the referenced year using bridged-race category estimates for North Carolina available from the National Center for Health Statistics. Estimates for 2004 were not available at press time; thus rates for 2004 were calculated using 2003 estimates. The bridged-race estimates of the resident population are based on Census 2000 counts. These estimates result from bridging the 31 race categories used in Census 2000, as specified in the 1997 Office of Management and Budget (OMB) standards for the collection of data on race and ethnicity, to the four race categories specified under the 1977 standards. More information about bridged-race categories is available at their website, http://www.cdc.gov/nchs/about/major/dvs/popbridge/popbridge.htm.

In general, rates should be viewed with caution. This is especially true of rates that are based on small numbers of cases (generally fewer than 20), because these rates have large standard errors and confidence intervals that can be wider than the rates themselves. Thus, it is important to keep in mind that rates based on small numbers of cases should be considered unreliable. For a more complete discussion of rates based on small numbers, please see the North Carolina Center for Statistics' publication, Statistical Primer No.12 : "Problems with Rates Based on Small Numbers" by Paul Buescher. This publication is available at the website, http://www.schs.state.nc.us/SCHS/. In order to better describe county rates for HIV disease, the county rankings for HIV disease, pages 161 and 162, are based on three-year averages. This helps improve the reliability of rates for counties with small numbers of cases and provides a better comparison.

APPENDIX D: TABLES

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Table A: North Carolina HIV Disease Reports
Gender and Age, 2000-2004

Age	Year														
Male	**2000**			**2001**			**2002**			**2003**			**2004**		
	Cases	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***
00-12 Years	5	0%	0.7	1	0%	0.1	4	0%	0.5	4	0%	0.5	0	0%	0.0
13-19 Years	23	2%	5.9	12	1%	3.1	32	2%	8.0	23	1%	5.6	21	1%	5.1
20-29 Years	189	14%	30.9	230	15%	37.4	243	14%	39.2	255	12%	40.8	249	15%	39.8
30-39 Years	333	24%	52.3	368	24%	57.6	421	25%	65.8	478	23%	74.9	356	22%	55.8
40-49 Years	247	18%	41.7	309	20%	51.3	337	20%	55.1	455	22%	73.6	354	22%	57.2
50+ Years	116	8%	11.7	128	8%	12.6	142	8%	13.7	229	11%	21.5	194	12%	18.2
Total	913	66%	23.1	1,048	68%	26.1	1,179	69%	28.9	1,444	69%	35.0	1,174	72%	28.4
Female	**2000**			**2001**			**2002**			**2003**			**2004**		
	Cases	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***
00-12 Years	4	0%	0.6	0	0%	0.0	5	0%	0.7	4	0%	0.5	4	0%	0.5
13-19 Years	17	1%	4.6	21	1%	5.7	18	1%	4.8	34	2%	8.8	13	1%	3.4
20-29 Years	121	9%	21.3	119	8%	20.9	126	7%	22.1	150	7%	26.2	91	6%	15.9
30-39 Years	172	12%	27.2	196	13%	30.9	185	11%	29.2	202	10%	32.2	132	8%	21.1
40-49 Years	106	8%	17.2	96	6%	15.3	133	8%	20.9	189	9%	29.4	146	9%	22.7
50+ Years	57	4%	4.6	53	3%	4.2	66	4%	5.1	77	4%	5.9	81	5%	6.2
Total	477	34%	11.6	485	32%	11.6	533	31%	12.6	656	31%	15.3	467	28%	10.9
Total	**2000**			**2001**			**2002**			**2003**			**2004**		
	Cases	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***
00-12 Years	9	1%	0.6	1	0%	0.1	9	1%	0.6	8	0%	0.5	4	0%	0.3
13-19 Years	40	3%	5.3	33	2%	4.3	50	3%	6.5	57	3%	7.2	34	2%	4.3
20-29 Years	310	22%	26.3	349	23%	29.5	369	22%	31.0	405	19%	33.8	340	21%	28.4
30-39 Years	505	36%	39.8	564	37%	44.3	606	35%	47.6	680	32%	53.7	488	30%	38.6
40-49 Years	353	25%	29.2	405	26%	33.0	470	27%	37.7	644	31%	51.1	500	30%	39.7
50+ Years	173	12%	7.8	181	12%	8.0	208	12%	9.0	306	15%	12.9	275	17%	11.6
Total	1,390	100%	17.2	1,533	100%	18.7	1,712	100%	20.6	2,100	100%	25.0	1,641	100%	19.5

*per 100,000 population

Table B: North Carolina HIV Disease Reports
Gender and Race/Ethnicity, 2000-2004

Race/ Ethnicity	Year														
Male	**2000**			**2001**			**2002**			**2003**			**2004**		
	Cases	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***
White**	230	17%	8.2	260	17%	9.2	334	20%	11.7	449	21%	15.7	369	22%	12.9
Black**	631	45%	76.4	721	47%	85.8	764	45%	89.5	890	42%	102.8	727	44%	84.0
Am. Ind./AN**	9	1%	18.3	11	1%	22.0	10	1%	19.7	11	1%	21.5	14	1%	27.3
Asian/PI**	3	0%	4.9	6	0%	9.1	8	0%	11.4	13	1%	17.6	2	0%	2.7
Hispanic	40	3%	17.4	50	3%	20.6	60	4%	23.3	77	4%	28.1	62	4%	22.6
Unknown	0	0%	-	0	0%	-	3	0%	-	0	0%	-	0	0%	-
Total	913	66%	23.1	1,048	68%	26.1	1,179	69%	28.9	1,444	69%	35.0	1,174	72%	28.4
Female	**2000**			**2001**			**2002**			**2003**			**2004**		
	Cases	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***
White**	80	6%	2.7	79	5%	2.7	75	4%	2.5	108	5%	3.6	74	5%	2.5
Black**	387	28%	41.5	383	25%	40.4	420	25%	43.7	502	24%	51.7	354	22%	36.4
Am. Ind./AN**	3	0%	5.8	6	0%	11.5	4	0%	7.5	5	0%	9.3	4	0%	7.4
Asian/PI**	0	0%	0.0	4	0%	5.8	4	0%	5.5	7	0%	9.1	1	0%	1.3
Hispanic	7	1%	4.5	13	1%	7.8	30	2%	16.8	34	2%	17.7	34	2%	17.7
Unknown	0	0%	-	0	0%	-	0	0%	-	0	0%	-	0	0%	-
Total	477	34%	11.6	485	32%	11.6	533	31%	12.6	656	31%	15.3	467	28%	10.9
Total	**2000**			**2001**			**2002**			**2003**			**2004**		
	Cases	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***
White**	310	22%	5.4	339	22%	5.9	409	24%	7.0	557	27%	9.5	443	27%	7.6
Black**	1,018	73%	57.9	1,104	72%	61.7	1,184	69%	65.3	1,392	66%	75.8	1,081	66%	58.9
Am. Ind./AN**	12	1%	11.9	17	1%	16.6	14	1%	13.5	16	1%	15.2	18	1%	17.1
Asian/PI**	3	0%	2.4	10	1%	7.4	12	1%	8.4	20	1%	13.3	3	0%	2.0
Hispanic	47	3%	12.3	63	4%	15.4	90	5%	20.6	111	5%	23.8	96	6%	20.6
Unknown	0	0%	-	0	0%	-	3	0%	-	4	0%	-	0	0%	-
Total	1,390	100%	17.2	1,533	100%	18.7	1,712	100%	20.6	2,100	100%	25.0	1,641	100%	19.5

*per 100,000 population

**White = White, non Hispanic; Black = Black or African American, non Hispanic; Am. Ind./AN= American Indian/Alaskan Native, non Hispanic; Asian/PI= Asian/Pacific Islander, non Hispanic

Table C: North Carolina HIV Disease Reports
Mode of Transmission by Gender, 2000-2004

Mode of transmission	Year									
Male	**2000**		**2001**		**2002**		**2003**		**2004**	
	Cases	**Pct.**	**Cases**	**Pct.**	**Cases**	**Pct.**	**Cases**	**Pct.**	**Cases**	**Pct.**
MSM*	344	25%	386	25%	502	29%	623	30%	534	33%
IDU*	93	7%	78	5%	99	6%	89	4%	68	4%
MSM/IDU*	24	2%	33	2%	21	1%	32	2%	21	1%
Blood Products*	18	1%	9	1%	17	1%	24	1%	11	1%
Heterosexual- CDC	134	10%	165	11%	112	7%	138	7%	77	5%
Heterosexual- NIR*	80	6%	144	9%	155	9%	146	7%	97	6%
Pediatric	5	0%	1	0%	4	0%	4	0%	1	0%
NIR*	215	16%	232	15%	269	16%	388	19%	365	22%
Total	913	66%	1,048	68%	1,179	69%	1,444	69%	1,174	72%
Female	**2000**		**2001**		**2002**		**2003**		**2004**	
	Cases	**Pct.**	**Cases**	**Pct.**	**Cases**	**Pct.**	**Cases**	**Pct.**	**Cases**	**Pct.**
IDU*	56	4%	42	3%	28	2%	46	2%	35	2%
Blood Products*	16	1%	21	1%	14	1%	22	1%	12	1%
Heterosexual- CDC	199	14%	189	12%	197	12%	203	10%	127	8%
Heterosexual- NIR*	83	6%	99	7%	119	7%	132	6%	93	6%
Pediatric	4	0%	0	0%	5	0%	4	0%	3	0%
NIR*	119	9%	134	9%	170	10%	249	12%	197	12%
Total	477	34%	485	32%	533	31%	656	31%	467	29%
Total	**2000**		**2001**		**2002**		**2003**		**2004**	
	Cases	**Pct.**	**Cases**	**Pct.**	**Cases**	**Pct.**	**Cases**	**Pct.**	**Cases**	**Pct.**
MSM*	344	25%	386	25%	502	29%	623	30%	534	33%
IDU*	149	11%	120	8%	127	7%	135	6%	103	6%
MSM/IDU*	24	2%	33	2%	21	1%	32	2%	21	1%
Blood Products*	34	2%	30	2%	31	2%	46	2%	23	1%
Heterosexual- CDC	333	24%	354	23%	309	18%	341	16%	204	12%
Heterosexual- NIR*	163	12%	243	16%	274	16%	278	13%	190	12%
Pediatric	9	1%	1	0%	9	1%	8	0%	4	0%
NIR*	334	24%	366	24%	439	26%	637	30%	562	34%
Total	1,390	100%	1,533	100%	1,712	100%	2,100	100%	1,641	100%

*MSM = Men who have sex with men; IDU = Injection drug use; Blood Products includes adult hemophilia; Heterosexual-NIR = Presumed Heterosexual (**See Appendix C pg. 146.**); NIR = No identified risk reported

Table D: North Carolina HIV Disease Reports
Mode of Transmission by Gender (NIRs* Redistributed), 2000-2004

Mode of transmission	Year									
Male	**2000**		**2001**		**2002**		**2003**		**2004**	
	Cases	**Pct.**	**Cases**	**Pct.**	**Cases**	**Pct.**	**Cases**	**Pct.**	**Cases**	**Pct.**
MSM*	446	48.8%	492	47.0%	646	54.8%	847	58.6%	769	65.5%
IDU*	123	13.5%	101	9.6%	129	11.0%	123	8.5%	99	8.5%
MSM/IDU*	31	3.4%	42	4.0%	27	2.3%	43	3.0%	30	2.6%
Blood Products*	24	2.6%	12	1.1%	22	1.9%	33	2.3%	16	1.4%
Heterosexual- All	285	31.2%	400	38.2%	350	29.7%	394	27.3%	258	22.0%
Pediatric	5	0.5%	1	0.1%	4	0.3%	4	0.3%	1	0.1%
Total†	913	100.0%	1,048	100.0%	1,179	100.0%	1,444	100.0%	1,174	100.0%
Female	**2000**		**2001**		**2002**		**2003**		**2004**	
	Cases	**Pct.**	**Cases**	**Pct.**	**Cases**	**Pct.**	**Cases**	**Pct.**	**Cases**	**Pct.**
IDU*	74	15.5%	60	12.3%	41	7.6%	74	11.3%	60	12.9%
Blood Products*	22	4.5%	29	6.0%	21	3.8%	35	5.3%	21	4.5%
Heterosexual- All	378	79.1%	396	81.7%	467	87.4%	543	82.8%	383	81.9%
Pediatric	4	0.8%	0	0.0%	5	0.9%	4	0.6%	3	0.6%
Total†	477	100.0%	485	100.0%	534	100.0%	656	100.0%	467	100.0%
Total	**2000**		**2001**		**2002**		**2003**		**2004**	
	Cases	**Pct.**	**Cases**	**Pct.**	**Cases**	**Pct.**	**Cases**	**Pct.**	**Cases**	**Pct.**
MSM*	446	32.1%	492	32.1%	646	37.7%	847	40.3%	769	46.9%
IDU*	197	14.2%	160	10.5%	170	9.9%	197	9.4%	160	9.7%
MSM/IDU*	31	2.2%	42	2.7%	27	1.6%	43	2.1%	30	1.8%
Blood Products*	45	3.2%	41	2.7%	42	2.5%	68	3.2%	37	2.3%
Heterosexual- All	663	47.7%	797	52.0%	817	47.7%	937	44.6%	641	39.0%
Pediatric	9	0.6%	1	0.1%	9	0.5%	8	0.4%	4	0.2%
Total†	1,390	100.0%	1,533	100.0%	1,713	100.0%	2,100	100.0%	1,641	100.0%

*NIR = No identified risk reported; *MSM = Men who have sex with men; IDU = Injection drug use; Blood Products includes adult hemophilia
† includes NIR cases that have been reassigned and do not represent true cases (**See Appendix C pg. 146.**)

Table E: North Carolina Female HIV Disease Reports
Mode of Transmission by Race/Ethnicity (NIRs* Redistributed), 2000-2004

Mode of transmission	Year									
White, non-Hispanic	**2000**		**2001**		**2002**		**2003**		**2004**	
	Cases	**Pct.**	**Cases**	**Pct.**	**Cases**	**Pct.**	**Cases**	**Pct.**	**Cases**	**Pct.**
IDU*	21	26.2%	19	24.5%	9	12.6%	26	23.9%	13	17.2%
Blood Products*	2	3.0%	5	5.7%	4	5.4%	5	4.2%	2	2.2%
Heterosexual- All	57	70.8%	55	69.8%	61	80.7%	78	71.8%	59	79.3%
Pediatric	0	0.0%	0	0.0%	1	1.3%	0	0.0%	1	1.4%
Total†	80	100%	79	100.0%	75	100.0%	108	100.0%	74	100.0%
Black, non-Hispanic	**2000**		**2001**		**2002**		**2003**		**2004**	
	Cases	**Pct.**	**Cases**	**Pct.**	**Cases**	**Pct.**	**Cases**	**Pct.**	**Cases**	**Pct.**
IDU*	53	13.7%	35	9.1%	30	7.0%	42	8.3%	41	11.5%
Blood Products*	18	4.6%	23	6.0%	15	3.5%	30	6.1%	16	4.5%
Heterosexual- All	313	81.0%	325	84.9%	373	88.5%	427	85.0%	295	83.3%
Pediatric	3	0.8%	0	0.0%	3	0.7%	3	0.6%	2	0.6%
Total†	387	100%	383	100%	421	100%	502	100%	354	100%
All Other	**2000**		**2000**		**2001**		**2003**		**2004**	
	Cases	**Pct.**	**Cases**	**Pct.**	**Cases**	**Pct.**	**Cases**	**Pct.**	**Cases**	**Pct.**
IDU*	0	0.0%	5	23.1%	2	4.7%	6	13.3%	7	17.4%
Blood Products*	2	15.0%	2	7.7%	2	4.7%	0	0.0%	3	8.7%
Heterosexual- All	7	75.0%	16	69.2%	33	88.1%	39	84.5%	29	73.9%
Pediatric	1	10.0%	0	0.0%	1	2.6%	1	2.2%	0	0.0%
Total†	10	100%	23	100%	38	100%	46	100%	39	100%
Total	**2000**		**2001**		**2002**		**2003**		**2004**	
	Cases	**Pct.**	**Cases**	**Pct.**	**Cases**	**Pct.**	**Cases**	**Pct.**	**Cases**	**Pct.**
IDU*	74	15.5%	60	12.3%	41	7.6%	74	11.3%	60	12.9%
Blood Products*	22	4.5%	29	6.0%	21	3.8%	35	5.3%	21	4.5%
Heterosexual- All	378	79.1%	396	81.7%	467	87.4%	543	82.8%	383	81.9%
Pediatric	4	0.8%	0	0.0%	5	0.9%	4	0.6%	3	0.6%
Total†	477	100.0%	485	100.0%	534	100.0%	656	100.0%	467	100.0%

*NIR = No identified risk reported; IDU = Injection drug use; Blood Products includes adult hemophilia
† includes NIR cases that have been reassigned and do not represent true cases **(See Appendix C pg. 146.)**

Table F: North Carolina Male HIV Disease Reports
Mode of Transmission by Race/Ethnicity (NIRs* Redistributed), 2000-2004

Mode of transmission	Year									
White, non-Hispanic	**2000**		**2001**		**2002**		**2003**		**2004**	
	Cases	**Pct.**	**Cases**	**Pct.**	**Cases**	**Pct.**	**Cases**	**Pct.**	**Cases**	**Pct.**
MSM*	163	71.0%	182	69.8%	258	77.3%	339	75.5%	305	82.8%
IDU*	22	9.5%	16	6.1%	26	7.8%	23	5.2%	26	7.0%
MSM/IDU*	13	5.8%	15	5.7%	9	2.6%	19	4.3%	12	3.3%
Blood Products*	5	2.1%	4	1.4%	7	2.2%	9	2.0%	3	0.7%
Heterosexual- All	27	11.6%	44	17.0%	34	10.0%	57	12.7%	22	5.9%
Pediatric	0	0.0%	0	0.0%	0	0.0%	1	0.2%	1	0.3%
Total†	230	100%	260	100%	334	100%	449	100%	369	100%
Black, non-Hispanic	**2000**		**2001**		**2002**		**2003**		**2004**	
	Cases	**Pct.**	**Cases**	**Pct.**	**Cases**	**Pct.**	**Cases**	**Pct.**	**Cases**	**Pct.**
MSM*	258	40.8%	281	39.0%	341	44.6%	457	51.3%	411	56.6%
IDU*	93	14.8%	78	10.8%	96	12.6%	86	9.7%	70	9.7%
MSM/IDU*	16	2.5%	27	3.8%	18	2.4%	20	2.2%	17	2.3%
Blood Products*	19	3.0%	8	1.1%	11	1.4%	22	2.5%	14	1.9%
Heterosexual- All	241	38.3%	325	45.1%	295	38.6%	304	34.1%	215	29.6%
Pediatric	4	0.6%	1	0.1%	3	0.4%	2	0.2%	0	0.0%
Total†	631	100%	721	100%	764	100%	890	100%	727	100%
All Other	**2000**		**2001**		**2002**		**2003**		**2004**	
	Cases	**Pct.**	**Cases**	**Pct.**	**Cases**	**Pct.**	**Cases**	**Pct.**	**Cases**	**Pct.**
MSM*	25	47.6%	29	44.0%	47	58.3%	51	48.8%	52	67.3%
IDU*	8	14.9%	7	10.0%	7	8.1%	14	12.9%	3	3.8%
MSM/IDU*	2	3.0%	0	0.0%	0	0.0%	5	4.3%	1	1.9%
Blood Products*	0	0.0%	0	0.0%	4	4.9%	1	1.4%	0	0.0%
Heterosexual- All	17	32.7%	31	46.0%	22	27.5%	33	31.6%	21	26.9%
Pediatric	1	1.9%	0	0.0%	1	1.2%	1	1.0%	0	0.0%
Total†	52	100%	67	100%	81	100%	105	100%	78	100%
Total	**2000**		**2001**		**2002**		**2003**		**2004**	
	Cases	**Pct.**	**Cases**	**Pct.**	**Cases**	**Pct.**	**Cases**	**Pct.**	**Cases**	**Pct.**
MSM*	446	48.8%	492	47.0%	646	54.8%	847	58.6%	769	65.5%
IDU*	123	13.5%	101	9.6%	129	11.0%	123	8.5%	99	8.5%
MSM/IDU*	31	3.4%	42	4.0%	27	2.3%	43	3.0%	30	2.6%
Blood Products*	24	2.6%	12	1.1%	22	1.9%	33	2.3%	16	1.4%
Heterosexual- All	285	31.2%	400	38.2%	350	29.7%	394	27.3%	258	22.0%
Pediatric	5	0.5%	1	0.1%	4	0.3%	4	0.3%	1	0.1%
Total†	913	100%	1,048	100%	1,179	100%	1,444	100%	1,174	100%

*NIR = No identified risk reported; *MSM = Men who have sex with men; IDU = Injection drug use; Blood Products includes adult hemophilia
† includes NIR cases that have been reassigned and do not represent true cases (**See Appendix C pg. 146.**)

Table G: North Carolina HIV Disease Reports Age 13-24 Years
Mode of Transmission by Gender (NIRs* Redistributed), 2000-2004

Mode of transmission	Year									
Male	**2000**		**2001**		**2002**		**2003**		**2004**	
	Cases	**Pct.**	**Cases**	**Pct.**	**Cases**	**Pct.**	**Cases**	**Pct.**	**Cases**	**Pct.**
MSM*	78	72.7%	82	73.4%	113	82.2%	119	81.6%	126	87.6%
IDU*	2	2.3%	1	1.1%	0	0.0%	0	0.0%	0	0.0%
MSM/IDU*	2	2.3%	0	0.0%	3	1.9%	1	0.8%	4	2.5%
Blood Products*	0	0.0%	0	0.0%	1	0.9%	0	0.0%	0	0.0%
Heterosexual- All	24	22.7%	29	25.5%	20	15.0%	26	17.6%	14	9.9%
Pediatric	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Total†	107	100%	112	100%	137	100%	146	100%	144	100%
Female	**2000**		**2001**		**2002**		**2003**		**2004**	
	Cases	**Pct.**	**Cases**	**Pct.**	**Cases**	**Pct.**	**Cases**	**Pct.**	**Cases**	**Pct.**
IDU*	4	6.0%	1	1.9%	1	1.9%	6	6.1%	3	5.3%
Blood Products*	3	4.0%	0	0.0%	0	0.0%	1	1.5%	0	0.0%
Heterosexual- All	63	90.0%	76	98.1%	74	98.1%	89	92.4%	56	94.7%
Pediatric	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Total†	70	100%	77	100%	75	100%	96	100%	59	100%
Total	**2000**		**2001**		**2002**		**2003**		**2004**	
	Cases	**Pct.**	**Cases**	**Pct.**	**Cases**	**Pct.**	**Cases**	**Pct.**	**Cases**	**Pct.**
MSM*	78	44.0%	82	43.5%	113	53.1%	119	49.2%	126	62.1%
IDU*	7	3.7%	3	1.4%	1	0.7%	6	2.4%	3	1.5%
MSM/IDU*	2	1.4%	0	0.0%	3	1.2%	1	0.5%	4	1.8%
Blood Products*	3	1.6%	0	0.0%	1	0.6%	1	0.6%	0	0.0%
Heterosexual- All	87	49.3%	104	55.1%	94	44.4%	114	47.3%	70	34.6%
Pediatric	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Total†	177	100.0%	189	100.0%	212	100.0%	242	100.0%	203	100.0%

*NIR = No identified risk reported; *MSM = Men who have sex with men; IDU = Injection drug use; Blood Products includes adult hemophilia
† includes NIR cases that have been reassigned and do not represent true cases (**See Appendix C pg. 146.**)

Table H: North Carolina HIV Disease Reports Age 13-24 Years Gender and Race/Ethnicity, 2000-2004

Race/ Ethnicity	Year														
Male	**2000**			**2001**			**2002**			**2003**			**2004**		
	Cases	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***
White**	20	11.3%	4.6	22	11.6%	5.0	29	13.7%	6.4	24	9.9%	5.3	23	11.3%	5.0
Black**	76	42.9%	46.0	84	44.4%	49.3	98	46.2%	55.7	108	44.6%	59.8	110	54.2%	60.1
All Other†**	11	6.2%	-	6	3.2%	-	10	4.7%		14	5.8%	-	11	5.4%	-
Total	107	60.5%	15.4	112	59.3%	15.8	137	64.6%	19.1	146	60.3%	20.1	144	70.9%	19.8
Female	**2000**			**2001**			**2002**			**2003**			**2004**		
	Cases	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***
White**	14	7.9%	3.4	11	5.8%	2.6	15	7.1%	3.6	16	6.6%	3.8	8	3.9%	1.9
Black**	55	31.1%	32.5	58	30.7%	33.5	51	24.1%	28.8	69	28.5%	38.0	46	22.7%	25.4
All Other†**	1	0.6%	-	8	4.2%	-	9	4.2%	-	11	4.5%	-	5	2.5%	-
Total	70	39.5%	10.9	77	40.7%	11.8	75	35.4%	11.3	96	39.7%	14.3	59	29.1%	8.8
Total	**2000**			**2001**			**2002**			**2003**			**2004**		
	Cases	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***
White**	34	19.2%	4.0	33	17.5%	3.8	44	20.8%	5.0	40	16.5%	4.5	31	15.3%	3.5
Black**	131	74.0%	39.2	142	75.1%	41.3	149	70.3%	42.2	177	73.1%	48.9	156	76.8%	43.1
All Other†**	12	6.8%	-	14	7.4%	-	19	9.0%	-	25	10.3%	-	16	7.9%	-
Total	177	100%	13.3	189	100%	13.9	212	100%	15.4	242	100%	17.3	203	100%	14.5

*per 100,000 population
**non Hispanic
† Other includes Hispanic, Asian/Pacific Islander, American Indian/Alaskan Native

Table I: HIV Disease Cumulative Reports by County of Residence, 1983-2004

COUNTY	83-89	90-99	2000	2001	2002	2003	2004	CUMULATIVE
ALAMANCE	11	190	17	16	18	27	21	300
ALEXANDER	1	16	1	0	5	1	3	27
ALLEGHANY	0	0	0	0	0	0	0	0
ANSON	1	81	2	5	4	4	3	100
ASHE	0	4	0	0	0	0	1	5
AVERY	2	6	0	0	1	0	0	9
BEAUFORT	9	94	10	14	5	6	6	144
BERTIE	3	58	6	10	7	2	9	95
BLADEN	5	53	4	6	4	13	5	90
BRUNSWICK	5	77	6	15	10	19	16	148
BUNCOMBE	16	441	33	21	26	26	21	584
BURKE	5	57	2	3	4	4	1	76
CABARRUS	11	145	10	5	18	19	7	215
CALDWELL	3	50	1	3	3	4	2	66
CAMDEN	0	9	3	1	3	1	0	17
CARTERET	7	51	2	0	2	8	6	76
CASWELL	0	16	3	1	2	5	1	28
CATAWBA	9	123	21	6	20	22	10	211
CHATHAM	5	47	3	6	3	6	6	76
CHEROKEE	1	10	0	1	1	1	0	14
CHOWAN	2	27	2	0	2	2	1	36
CLAY	0	1	0	1	1	0	1	4
CLEVELAND	10	163	10	11	9	14	21	238
COLUMBUS	10	131	9	17	8	24	8	207
CRAVEN	13	181	16	20	25	26	11	292
CUMBERLAND	61	836	61	58	62	97	71	1,246
CURRITUCK	0	12	1	0	2	2	1	18
DARE	5	25	2	0	2	3	7	44
DAVIDSON	14	154	13	6	16	17	16	236
DAVIE	1	28	3	3	2	0	1	38
DUPLIN	9	112	6	10	13	24	19	193
DURHAM	76	1,133	84	106	120	95	77	1,691
EDGECOMBE	9	201	15	14	22	43	26	330
FORSYTH	71	847	90	75	93	140	94	1,410
FRANKLIN	6	65	3	12	6	9	5	106
GASTON	18	468	41	27	35	43	21	653
GATES	0	4	0	2	2	2	0	10
GRAHAM	0	2	0	1	0	0	1	4
GRANVILLE	8	118	10	12	11	23	13	195
GREENE	2	66	2	4	4	2	3	83
GUILFORD	70	1,333	120	119	149	116	122	2,029
HALIFAX	12	181	9	13	6	10	8	239
HARNETT	10	121	7	11	12	13	14	188
HAYWOOD	5	40	1	1	4	0	2	53
HENDERSON	3	85	5	4	7	3	3	110
HERTFORD	8	52	10	6	10	17	21	124
HOKE	2	74	5	15	2	9	1	108
HYDE	0	5	0	0	0	3	2	10
IREDELL	9	94	3	8	18	13	9	154
JACKSON	1	14	1	0	0	0	1	17
JOHNSTON	16	207	18	29	28	24	12	334

Table I (continued): HIV Disease Cumulative Reports by County of Residence, 1983-2004

COUNTY	83-89	90-99	2000	2001	2002	2003	2004	CUMULATIVE
JONES	0	15	0	0	5	1	2	23
LEE	2	95	14	9	11	9	11	151
LENOIR	6	251	24	21	18	23	12	355
LINCOLN	3	42	2	3	5	8	5	68
MACON	0	19	2	1	0	1	2	25
MADISON	0	12	1	2	0	1	1	17
MARTIN	2	53	7	10	9	12	6	99
MCDOWELL	4	23	1	1	2	1	0	32
MECKLENBURG	178	2,966	208	254	310	439	344	4,699
MITCHELL	1	9	0	0	1	1	0	12
MONTGOMERY	1	32	8	1	0	1	6	49
MOORE	7	85	11	14	18	12	8	155
NASH	13	218	21	23	17	20	13	325
NEW HANOVER	29	420	37	60	49	58	51	704
NORTHAMPTON	5	55	4	7	2	6	4	83
ONSLOW	20	142	13	14	20	23	16	248
ORANGE	27	177	18	12	12	17	16	279
PAMLICO	3	16	2	1	1	4	0	27
PASQUOTANK	4	57	8	1	6	10	7	93
PENDER	5	56	0	5	5	7	4	82
PERQUIMANS	1	20	1	3	4	4	0	33
PERSON	1	52	2	5	8	6	7	81
PITT	22	439	22	34	50	37	25	629
POLK	1	19	2	1	1	3	1	28
RANDOLPH	9	77	8	9	16	19	9	147
RICHMOND	2	111	7	3	2	10	7	142
ROBESON	9	281	17	26	18	32	32	415
ROCKINGHAM	5	114	7	8	11	4	13	162
ROWAN	13	196	12	15	13	20	25	294
RUTHERFORD	3	56	9	6	2	1	5	82
SAMPSON	6	138	4	16	9	9	5	187
SCOTLAND	4	110	8	0	4	8	12	146
STANLY	1	59	7	6	6	1	8	88
STOKES	1	13	1	4	1	2	3	25
SURRY	3	34	1	8	6	4	7	63
SWAIN	3	14	1	1	1	4	0	24
TRANSYLVANIA	2	21	4	2	2	5	0	36
TYRRELL	0	4	2	1	0	0	0	7
UNION	9	113	7	12	11	13	8	173
VANCE	5	148	4	17	9	23	16	222
WAKE	151	1,514	144	150	167	230	186	2,542
WARREN	0	23	2	7	4	7	3	46
WASHINGTON	2	56	4	2	3	4	2	73
WATAUGA	3	7	0	0	0	5	0	15
WAYNE	25	245	27	22	37	23	21	400
WILKES	2	18	2	1	2	3	5	33
WILSON	19	285	26	33	26	21	17	427
YADKIN	3	15	2	0	1	4	3	28
YANCEY	1	9	0	1	0	2	1	14
MISSING	3	36	5	3	0	0	2	49
NC TOTAL	**1,164**	**17,278**	**1,390**	**1,533**	**1,712**	**2,100**	**1,641**	**26,818**

Table J: HIV Disease Cases by County Rank Order (Three-Year Average Rate*), 2002-2004

COUNTY	CASES			RATES			AVG RATE*	RANK
	2002	2003	2004	2002	2003	2004		
HERTFORD	10	17	21	44.6	76.2	94.1	71.7	1
EDGECOMBE	22	43	26	40.0	78.3	47.4	55.2	2
MECKLENBURG	310	439	344	42.2	58.3	45.7	48.8	3
DURHAM	120	95	77	51.3	40.1	32.5	41.3	4
DUPLIN	13	24	19	25.7	46.9	37.1	36.6	5
VANCE	9	23	16	20.5	52.6	36.6	36.6	6
MARTIN	9	12	6	35.8	47.9	23.9	35.9	7
FORSYTH	93	140	94	29.6	44.1	29.6	34.4	8
NEW HANOVER	49	58	51	29.6	34.5	30.3	31.5	9
BERTIE	7	2	9	35.7	10.2	46.0	30.6	10
GRANVILLE	11	23	13	21.5	44.4	25.1	30.3	11
LENOIR	18	23	12	30.6	39.3	20.5	30.1	12
HYDE	0	3	2	0.0	53.9	35.9	29.9	13
GUILFORD	149	116	122	34.6	26.7	28.1	29.8	14
WILSON	26	21	17	34.7	27.9	22.6	28.4	15
WAKE	167	230	186	24.7	33.1	26.7	28.2	16
PITT	50	37	25	36.5	26.7	18.0	27.1	17
JONES	5	1	2	48.7	9.8	19.6	26.0	18
CUMBERLAND	62	97	71	20.4	31.9	23.4	25.2	19
COLUMBUS	8	24	8	14.6	44.0	14.7	24.4	20
WAYNE	37	23	21	32.7	20.3	18.6	23.9	21
WARREN	4	7	3	20.1	35.3	15.1	23.5	22
PERQUIMANS	4	4	0	34.5	34.4	0.0	23.0	23
CRAVEN	25	26	11	27.4	28.3	12.0	22.6	24
BLADEN	4	13	5	12.3	39.7	15.3	22.4	25
SCOTLAND	4	8	12	11.2	22.4	33.6	22.4	26
WASHINGTON	3	4	2	22.3	29.9	14.9	22.4	27
ROBESON	18	32	32	14.4	25.4	25.4	21.8	28
NC TOTAL	**1,712**	**2,100**	**1,641**	**20.6**	**25.0**	**19.5**	**21.7**	
PASQUOTANK	6	10	7	16.8	27.7	19.4	21.3	29
LEE	11	9	11	22.4	18.3	22.4	21.0	30
PERSON	8	6	7	21.9	16.3	19.0	19.1	31
NASH	17	20	13	19.1	22.3	14.5	18.6	32
BRUNSWICK	10	19	16	12.7	23.3	19.6	18.5	33
NORTHAMPTON	2	6	4	9.1	27.5	18.4	18.4	34
CAMDEN	3	1	0	40.4	12.7	0.0	17.7	35
GASTON	35	43	21	18.1	22.3	10.9	17.1	36
ALAMANCE	18	27	21	13.3	19.7	15.4	16.1	37
MOORE	18	12	8	23.1	15.1	10.1	16.1	38
JOHNSTON	28	24	12	21.1	17.5	8.8	15.8	39
GREENE	4	2	3	20.5	10.0	15.0	15.2	40
CLEVELAND	9	14	21	9.2	14.2	21.4	14.9	41
ANSON	4	4	3	15.8	15.9	11.9	14.5	42
ROWAN	13	20	25	9.7	14.9	18.7	14.4	43
HALIFAX	6	10	8	10.6	17.7	14.2	14.2	44
RICHMOND	2	10	7	4.3	21.4	15.0	13.6	45
ONSLOW	20	23	16	13.3	15.6	10.8	13.2	46
HARNETT	12	13	14	12.4	13.1	14.1	13.2	47
PAMLICO	1	4	0	7.8	31.3	0.0	13.0	48
FRANKLIN	6	9	5	11.9	17.3	9.6	12.9	49

*three-year average of rates per 100,000 population. Note: rates based on case numbers <20 should be considered with caution. **See Appendix C pg. 147.**

Table J (continued): HIV Disease Cases by County Rank Order (Three-Year Average Rate*), 2002-2004

COUNTY	CASES			RATES			AVG RATE*	RANK
	2002	2003	2004	2002	2003	2004		
SWAIN	1	4	0	7.7	30.5	0.0	12.7	50
ORANGE	12	17	16	10.2	14.4	13.5	12.7	51
BEAUFORT	5	6	6	11.1	13.2	13.2	12.5	52
GATES	2	2	0	18.8	18.6	0.0	12.5	53
SAMPSON	9	9	5	14.7	14.5	8.1	12.4	54
PENDER	5	7	4	11.7	16.1	9.2	12.3	55
DARE	2	3	7	6.2	9.1	21.1	12.1	56
CATAWBA	20	22	10	13.7	15.0	6.8	11.8	57
CHOWAN	2	2	1	14.1	13.9	6.9	11.6	58
BUNCOMBE	26	26	21	12.4	12.2	9.9	11.5	59
CASWELL	2	5	1	8.5	21.2	4.2	11.3	60
RANDOLPH	16	19	9	12.0	14.1	6.7	10.9	61
DAVIDSON	16	17	16	10.6	11.2	10.5	10.8	62
HOKE	2	9	1	5.5	23.9	2.7	10.7	63
CABARRUS	18	19	7	12.9	13.3	4.9	10.4	64
IREDELL	18	13	9	13.8	9.7	6.7	10.1	65
ROCKINGHAM	11	4	13	11.9	4.3	14.0	10.1	66
CHATHAM	3	6	6	5.6	10.9	10.9	9.1	67
LINCOLN	5	8	5	7.6	11.9	7.4	9.0	68
POLK	1	3	1	5.3	15.9	5.3	8.9	69
CARTERET	2	8	6	3.3	13.1	9.9	8.8	70
ALEXANDER	5	1	3	14.6	2.9	8.6	8.7	71
MONTGOMERY	0	1	6	0.0	3.7	22.0	8.5	72
STANLY	6	1	8	10.2	1.7	13.6	8.5	73
CURRITUCK	2	2	1	10.2	9.6	4.8	8.2	74
TRANSYLVANIA	2	5	0	6.8	17.0	0.0	7.9	75
SURRY	6	4	7	8.3	5.5	9.7	7.8	76
UNION	11	13	8	7.9	8.9	5.5	7.4	77
CLAY	1	0	1	10.9	0.0	10.8	7.2	78
YADKIN	1	4	3	2.7	10.7	8.0	7.1	79
YANCEY	0	2	1	0.0	11.1	5.5	5.5	80
WILKES	2	3	5	3.0	4.5	7.5	5.0	81
HENDERSON	7	3	3	7.6	3.2	3.2	4.7	82
STOKES	1	2	3	2.2	4.4	6.6	4.4	83
MITCHELL	1	1	0	6.3	6.3	0.0	4.2	84
RUTHERFORD	2	1	5	3.2	1.6	7.9	4.2	85
GRAHAM	0	0	1	0.0	0.0	12.5	4.2	86
WATAUGA	0	5	0	0.0	11.7	0.0	3.9	87
CALDWELL	3	4	2	3.8	5.1	2.5	3.8	88
HAYWOOD	4	0	2	7.3	0.0	3.6	3.6	89
MADISON	0	1	1	0.0	5.0	5.0	3.4	90
BURKE	4	4	1	4.5	4.5	1.1	3.4	91
MACON	0	1	2	0.0	3.2	6.4	3.2	92
DAVIE	2	0	1	5.5	0.0	2.7	2.7	93
CHEROKEE	1	1	0	4.1	4.0	0.0	2.7	94
MCDOWELL	2	1	0	4.7	2.3	0.0	2.3	95
AVERY	1	0	0	5.7	0.0	0.0	1.9	96
ASHE	0	0	1	0.0	0.0	4.0	1.3	97
JACKSON	0	0	1	0.0	0.0	2.9	1.0	98
ALLEGHANY	0	0	0	0.0	0.0	0.0	0.0	99
TYRRELL	0	0	0	0.0	0.0	0.0	0.0	100

*three-year average of rates per 100,000 population. Note: rates based on case numbers <20 should be considered with caution. **See Appendix C pg. 147**.

Table K: North Carolina HIV Disease Cases Living as of 12/31/04, by County of Residence and Consortia

NC Consortia	County of Residence	Report Category		Total
		HIV (non AIDS)	AIDS	
COASTAL	BRUNSWICK	61	41	102
	CARTERET	23	19	42
	JONES	11	5	16
	NEW HANOVER	290	216	506
	ONSLOW	100	77	177
	PENDER	25	29	54
	TOTAL	**510**	**387**	**897**
DOGWOOD	BLADEN	30	26	56
	COLUMBUS	80	61	141
	CUMBERLAND	554	283	837
	DUPLIN	60	73	133
	HARNETT	72	57	129
	HOKE	40	45	85
	MONTGOMERY	23	17	40
	MOORE	74	38	112
	RICHMOND	65	21	86
	ROBESON	159	146	305
	SAMPSON	72	47	119
	SCOTLAND	66	34	100
	TOTAL	**1,295**	**848**	**2,143**
DOWNEAST	HYDE	2	7	9
	MARTIN	43	32	75
	TYRRELL	3	1	4
	WASHINGTON	21	23	44
	TOTAL	**69**	**63**	**132**
EASTERN TRIAD	ALAMANCE	134	70	204
	CASWELL	13	6	19
	GUILFORD	888	447	1335
	RANDOLPH	67	32	99
	ROCKINGHAM	75	37	112
	TOTAL	**1,177**	**592**	**1,769**
ENCHAC	BEAUFORT	46	39	85
	CRAVEN	121	82	203
	GREENE	25	34	59
	JOHNSTON	140	90	230
	LENOIR	128	103	231
	PAMLICO	8	6	14
	PITT	225	194	419
	WAKE	959	825	1,784
	WAYNE	137	104	241
	TOTAL	**1,789**	**1,477**	**3,266**

Table K (continued): North Carolina HIV Disease Cases Living as of 12/31/04, by County of Residence and Consortia

NC Consortia	County of Residence	Report Category		Total
		HIV (non AIDS)	AIDS	
JEFF JONES	CAMDEN	2	10	12
	CHOWAN	16	9	25
	CURRITUCK	8	5	13
	DARE	16	13	29
	PASQUOTANK	36	35	71
	PERQUIMANS	17	10	27
	TOTAL	**95**	**82**	**177**
NORTHWEST	ALEXANDER	14	5	19
	ALLEGHANY	0	0	0
	ASHE	2	3	5
	BURKE	28	22	50
	CALDWELL	25	14	39
	CATAWBA	67	62	129
	DAVIDSON	100	55	155
	DAVIE	13	12	25
	FORSYTH	641	323	964
	STOKES	11	9	20
	SURRY	26	18	44
	WATAUGA	2	5	7
	WILKES	11	14	25
	YADKIN	9	12	21
	TOTAL	**949**	**554**	**1,503**
PARTNERS IN ACTION	BERTIE	23	38	61
	EDGECOMBE	132	109	241
	GATES	4	3	7
	HALIFAX	76	65	141
	HERTFORD	41	44	85
	NASH	117	89	206
	NORTHAMPTON	19	29	48
	WILSON	149	116	265
	TOTAL	**561**	**493**	**1,054**
PIEDMONT	CHATHAM	39	14	53
	DURHAM	682	372	1,054
	FRANKLIN	39	33	72
	GRANVILLE	98	46	144
	LEE	86	33	119
	ORANGE	124	57	181
	PERSON	40	16	56
	VANCE	81	62	143
	WARREN	17	16	33
	TOTAL	**1,206**	**649**	**1,855**

Table K (continued): North Carolina HIV Disease Cases Living as of 12/31/04, by County of Residence and Consortia

NC Consortia	County of Residence	Report Category		Total
		HIV (NON AIDS)	AIDS	
REGIONAL	ANSON	30	37	67
	CABARRUS	90	51	141
	CLEVELAND	100	41	141
	GASTON	273	118	391
	IREDELL	57	34	91
	LINCOLN	30	20	50
	MECKLENBURG	2,180	949	3,129
	ROWAN	117	77	194
	STANLY	47	14	61
	UNION	71	38	109
	TOTAL	**2,995**	**1,379**	**4,374**
WNCHAC	AVERY	4	2	6
	BUNCOMBE	192	195	387
	CHEROKEE	4	4	8
	CLAY	1	1	2
	GRAHAM	2	1	3
	HAYWOOD	11	23	34
	HENDERSON	25	46	71
	JACKSON	3	10	13
	MACON	6	9	15
	MADISON	7	6	13
	MCDOWELL	9	16	25
	MITCHELL	5	3	8
	POLK	7	13	20
	RUTHERFORD	27	26	53
	SWAIN	4	13	17
	TRANSYLVANIA	13	9	22
	YANCEY	4	6	10
	TOTAL	**324**	**383**	**707**
MISSING		**22**	**61**	**83**
TOTAL		**10,992**	**6,968**	**17,960**

Table L: North Carolina HIV Testing at CTS Sites

County of Test	2002 Tests	2002 Positives	2003 Tests	2003 Positives	2004 Tests	2004 Positives
ALAMANCE	1,464	5	1,505	4	1,671	3
ALEXANDER	166	1	179	1	204	2
ALLEGHANY	50	0	60	0	67	0
ANSON	570	3	543	2	567	2
ASHE	119	0	87	0	100	0
AVERY	182	0	204	0	162	1
BEAUFORT	677	1	565	2	672	2
BERTIE	319	0	304	1	389	1
BLADEN	566	2	498	4	510	2
BRUNSWICK	578	3	634	5	788	2
BUNCOMBE	4,031	11	3,787	11	4,054	14
BURKE	676	1	696	1	700	0
CABARRUS	1,793	3	1,848	8	2,019	2
CALDWELL	1,334	3	1,244	0	1,166	1
CAMDEN	42	1	26	0	46	0
CARTERET	370	2	507	1	649	2
CASWELL	302	2	257	0	358	0
CATAWBA	2,447	6	2,151	5	2,468	5
CHATHAM	683	1	652	3	807	2
CHEROKEE	147	1	160	0	167	0
CHOWAN	133	1	152	1	165	1
CLAY	30	0	28	0	43	0
CLEVELAND	1,305	5	1,292	2	1,268	12
COLUMBUS	1,063	8	1,165	10	970	3
CRAVEN	601	7	607	7	964	5
CUMBERLAND	3,516	44	3,173	36	3,575	55
CURRITUCK	172	1	209	1	238	1
DARE	542	3	627	2	536	4
DAVIDSON	897	0	872	2	996	4
DAVIE	391	0	370	0	496	0
DUPLIN	656	3	615	4	618	4
DURHAM	4,133	46	3,771	43	4,817	39
EDGECOMBE	1,827	12	2,085	21	2,102	10
FORSYTH	3,172	30	3,651	40	4,101	26
FRANKLIN	530	0	711	1	831	4
GASTON	4,946	17	5,388	25	5,566	19
GATES	87	0	222	1	214	0
GRAHAM	17	0	24	0	40	0
GRANVILLE	549	2	588	6	604	3
GREENE	338	3	268	0	326	1
GUILFORD	9,065	94	9,322	81	9,425	86
HALIFAX	617	0	579	1	573	2
HARNETT	431	2	499	5	732	3
HAYWOOD	406	1	466	0	607	0
HENDERSON	927	3	1,183	0	1,337	4
HERTFORD	154	1	178	2	297	2
HOKE	434	0	390	4	493	3
HYDE	33	0	54	0	56	1
IREDELL	1,166	6	1,162	2	1,395	1
JACKSON	390	0	415	0	373	0
JOHNSTON	999	8	890	7	1,161	5

Table L (continued): North Carolina HIV Testing at CTS Sites

County of Test	2002 Tests	2002 Positives	2003 Tests	2003 Positives	2004 Tests	2004 Positives
JONES	78	0	65	0	54	0
LEE	670	5	826	7	720	5
LENOIR	1,175	6	1,070	6	1,072	1
LINCOLN	242	1	289	0	362	1
MACON	206	0	195	0	236	0
MADISON	124	0	116	0	69	0
MARTIN	308	3	282	4	370	2
MCDOWELL	537	0	500	0	553	0
MECKLENBURG	7,606	140	7,613	142	9,140	142
MITCHELL	99	1	92	1	98	0
MONTGOMERY	345	2	432	1	403	1
MOORE	682	6	483	0	576	1
NASH	1,420	5	1,365	4	1,416	4
NEW HANOVER	2,666	15	2,457	23	2,786	19
NORTHAMPTON	435	0	459	1	407	0
ONSLOW	1,706	8	1,791	8	2,140	11
ORANGE	1,445	4	1,464	5	1,620	3
PAMLICO	36	0	25	0	38	0
PASQUOTANK	409	2	410	2	458	0
PENDER	263	0	274	1	356	1
PERQUIMANS	152	2	129	1	120	0
PERSON	305	0	438	0	424	2
PITT	4,034	30	3,763	13	3,939	10
POLK	124	0	131	0	108	0
RANDOLPH	502	4	407	3	429	1
RICHMOND	488	2	463	3	377	1
ROBESON	1,792	12	1,749	13	2,144	18
ROCKINGHAM	828	0	935	2	1,095	4
ROWAN	554	0	872	5	943	7
RUTHERFORD	736	1	786	1	807	1
SAMPSON	1,259	10	1,183	3	1,474	14
SCOTLAND	982	5	1,037	6	964	4
STANLY	602	4	596	1	652	1
STOKES	256	0	181	0	156	1
SURRY	391	1	407	2	470	1
SWAIN	28	0	46	0	25	0
TRANSYLVANIA	248	0	233	2	269	0
TYRRELL	78	0	79	0	100	0
UNION	840	2	866	4	904	1
VANCE	319	2	393	5	468	2
WAKE	8,723	101	10,304	94	11,646	100
WARREN	167	0	205	2	291	0
WASHINGTON	281	0	206	0	191	0
WATAUGA	442	0	369	2	390	2
WAYNE	2,588	18	2,533	14	2,684	10
WILKES	325	2	294	1	318	0
WILSON	1,703	15	1,723	8	1,821	5
YADKIN	361	1	279	1	309	1
YANCEY	102	0	116	0	164	0
MISSING/UNK	38	1	48	0	55	0
TOTAL	**105,743**	**754**	**107,842**	**743**	**119,094**	**716**

Table M: AIDS Reporting Trends, 1983-2004

	Year of AIDS Report									
	83-89		90-93		94-95		96-97		98-99	
Reporting Category	Cases	Pct.	Cases	Pct.	Cases	Pct.	Cases	Pct.	Cases	Pct.
AIDS Only	1,153	99.9%	2,756	95.8%	1,370	68.4%	894	54.1%	847	57.5%
HIV, then AIDS	1	0.1%	122	4.2%	633	31.6%	758	45.9%	625	42.5%
Total	1,154	100%	2,878	100%	2,003	100%	1,652	100%	1,472	100%

	Year of AIDS Report									
	2000		2001		2002		2003		2004	
Reporting Category	Cases	Pct.	Cases	Pct.	Cases	Pct.	Cases	Pct.	Cases	Pct.
AIDS Only	337	53.3%	420	52.0%	496	49.1%	708	65.9%	441	39.6%
HIV, then AIDS	295	46.7%	387	48.0%	514	50.9%	366	34.1%	673	60.4%
Total	632	100%	807	100%	1,010	100%	1,074	100%	1,114	100%

Table N: North Carolina AIDS Demographic Rates
Gender and Age, 2000-2004

Age	Year														
Male	**2000**			**2001**			**2002**			**2003**			**2004**		
	Cases	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***
00-12 Years	1	0%	0.1	0	0%	0.0	1	0%	0.1	1	0%	0.1	0	0%	0.0
13-19 Years	3	0%	0.8	2	0%	0.5	1	0%	0.3	1	0%	0.2	2	0%	0.5
20-29 Years	61	10%	10.0	64	8%	10.4	86	9%	13.9	68	6%	10.9	75	7%	12.0
30-39 Years	179	28%	28.1	224	28%	35.1	262	26%	40.9	271	25%	42.4	271	24%	42.4
40-49 Years	151	24%	25.5	220	27%	36.6	252	25%	41.2	292	27%	47.2	295	26%	47.7
50+ Years	60	9%	6.1	73	9%	7.2	112	11%	10.8	146	14%	13.7	142	13%	13.3
Total	455	72%	11.5	583	72%	14.5	714	71%	17.5	779	73%	18.9	785	70%	19.0
Female	**2000**			**2001**			**2002**			**2003**			**2004**		
	Cases	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***
00-12 Years	1	0%	0.1	0	0%	0.0	2	0%	0.3	0	0%	0.0	1	0%	0.1
13-19 Years	1	0%	0.3	4	0%	1.1	2	0%	0.5	1	0%	0.3	2	0%	0.5
20-29 Years	25	4%	4.4	44	5%	7.7	39	4%	6.8	50	5%	8.7	45	4%	7.9
30-39 Years	83	13%	13.1	90	11%	14.2	124	12%	19.6	109	10%	17.4	108	10%	17.2
40-49 Years	44	7%	7.1	61	8%	9.7	89	9%	14.0	94	9%	14.6	107	10%	16.7
50+ Years	23	4%	1.9	25	3%	2.0	40	4%	3.1	41	4%	3.1	66	6%	5.0
Total	177	28%	4.3	224	28%	5.4	296	29%	7.0	295	27%	6.9	329	30%	7.7
Total	**2000**			**2001**			**2002**			**2003**			**2004**		
	Cases	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***
00-12 Years	2	0%	0.1	0	0%	0.0	3	0%	0.2	1	0%	0.1	1	0%	0.1
13-19 Years	4	1%	0.5	6	1%	0.8	3	0%	0.4	2	0%	0.3	4	0%	0.5
20-29 Years	86	14%	7.3	108	13%	9.1	125	12%	10.5	118	11%	9.9	120	11%	10.0
30-39 Years	262	41%	20.6	314	39%	24.7	386	38%	30.3	380	35%	30.0	379	34%	29.9
40-49 Years	195	31%	16.1	281	35%	22.9	341	34%	27.4	386	36%	30.6	402	36%	31.9
50+ Years	83	13%	3.7	98	12%	4.3	152	15%	6.5	187	17%	7.9	208	19%	8.8
Total	632	100%	7.8	807	100%	9.8	1,010	100%	12.2	1,074	100%	12.8	1,114	100%	13.3

*per 100,000 population

Table O: North Carolina AIDS Demographic Rates
Gender and Race/Ethnicity, 2000-2004

Race/ Ethnicity	Year														
Male	**2000**			**2001**			**2002**			**2003**			**2004**		
	Cases	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***
White**	112	18%	4.0	137	17%	4.9	193	19%	6.8	238	22%	8.3	224	20%	7.8
Black**	312	49%	37.8	417	52%	49.6	481	48%	56.3	484	45%	55.9	527	47%	60.9
Am. Ind./AN**	3	1%	6.1	7	1%	14.0	7	1%	13.8	8	1%	15.6	14	1%	27.3
Asian/PI**	1	0%	1.6	1	0%	1.5	3	0%	4.3	2	0%	2.7	2	0%	2.7
Hispanic	27	4%	11.8	21	3%	8.6	27	3%	10.5	42	4%	15.3	18	2%	6.6
Unknown	0	0%	-	0	0%	-	3	0%	-	1	0%	-	0	0%	-
Total	455	72%	11.5	583	72%	14.5	714	71%	17.5	779	73%	18.9	785	71%	19.0
Female	**2000**			**2001**			**2002**			**2003**			**2004**		
	Cases	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***
White**	32	5%	1.1	37	5%	1.3	40	4%	1.3	43	4%	1.4	57	5%	1.9
Black**	139	22%	14.9	179	22%	18.9	245	24%	25.5	237	22%	24.4	255	23%	26.3
Am. Ind./AN**	2	0%	3.9	4	1%	7.6	5	1%	9.4	2	0%	3.7	3	0%	5.6
Asian/PI**	0	0%	0.0	0	0%	0.0	0	0%	0.0	2	0%	2.6	1	0%	1.3
Hispanic	4	1%	2.6	4	1%	2.4	6	1%	3.4	11	1%	5.7	12	1%	6.2
Unknown	0	0%	-	0	0%	-	0	0%	-	0	0%	-	1	0%	-
Total	177	28%	4.3	224	28%	5.4	296	29%	7.0	295	28%	6.9	329	29%	7.7
Total	**11**			**2001**			**2002**			**2003**			**2004**		
	Cases	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***
White**	144	23%	2.5	174	22%	3.0	233	23%	4.0	281	26%	4.8	281	25%	4.8
Black**	451	71%	25.6	596	74%	33.3	726	72%	40.0	721	67%	39.3	782	70%	42.6
Am. Ind./AN**	5	1%	5.0	11	1%	10.7	12	1%	11.5	10	1%	9.5	17	2%	16.2
Asian/PI**	1	0%	0.8	1	0%	0.7	3	0%	2.1	4	0%	2.7	3	0%	2.0
Hispanic	31	5%	8.1	25	3%	6.1	33	3%	7.6	53	5%	11.4	30	3%	6.4
Unknown	0	0%	-	0	0%	-	3	0%	-	5	1%	-	1	0%	-
Total	632	100%	7.8	807	100%	9.8	1,010	100%	12.2	1,074	100%	12.8	1,114	100%	13.3

*per 100,000 population
**White = White, non Hispanic; Black = Black or African American, non Hispanic; Am. Ind./AN = American Indian/Alaskan Native, non Hispanic; Asian/PI = Asian/Pacific Islander, non Hispanic

Table P: AIDS Cumulative Reports by County of Residence, 1983-2004

County of Residence	83-89	90-99	2000	2001	2002	2003	2004	Total
ALAMANCE	11	81	7	6	5	13	21	144
ALEXANDER	1	6	1	0	2	0	1	11
ALLEGHANY	0	0	0	0	0	0	0	0
ANSON	1	37	4	3	5	1	6	57
ASHE	0	3	0	0	0	0	0	3
AVERY	2	3	0	0	0	0	0	5
BEAUFORT	7	52	8	8	4	5	6	90
BERTIE	3	38	7	3	7	3	5	66
BLADEN	5	25	1	3	4	7	8	53
BRUNSWICK	5	42	4	8	5	8	5	77
BUNCOMBE	16	262	17	23	16	18	19	371
BURKE	5	32	1	1	2	2	4	47
CABARRUS	11	67	4	4	9	9	3	107
CALDWELL	3	18	1	3	2	3	2	32
CAMDEN	0	5	1	1	3	1	0	11
CARTERET	7	30	1	1	0	6	4	49
CASWELL	0	11	1	0	0	0	0	12
CATAWBA	9	66	11	4	12	12	14	128
CHATHAM	5	18	2	1	1	2	3	32
CHEROKEE	1	6	0	0	1	1	0	9
CHOWAN	1	13	1	0	3	0	0	18
CLAY	0	0	0	1	0	0	1	2
CLEVELAND	10	45	3	6	12	6	16	98
COLUMBUS	10	59	3	10	6	15	11	114
CRAVEN	13	85	7	8	20	13	7	153
CUMBERLAND	61	319	18	31	44	51	62	586
CURRITUCK	0	9	0	0	0	1	0	10
DARE	5	13	2	0	2	1	4	27
DAVIDSON	14	80	5	4	8	11	4	126
DAVIE	1	13	3	1	1	0	1	20
DUPLIN	9	75	4	4	8	16	15	131
DURHAM	76	564	19	34	76	41	55	865
EDGECOMBE	9	107	6	11	23	18	20	194
FORSYTH	71	412	40	31	44	54	41	693
FRANKLIN	6	28	0	5	3	6	4	52
GASTON	18	199	19	15	16	24	17	308
GATES	0	3	0	1	2	0	0	6
GRAHAM	0	1	0	0	0	0	1	2
GRANVILLE	8	45	6	6	6	7	6	84
GREENE	2	41	1	5	2	1	3	55
GUILFORD	70	689	38	58	55	61	39	1,010
HALIFAX	11	92	4	8	4	13	9	141
HARNETT	10	60	5	7	7	10	12	111
HAYWOOD	5	24	0	2	5	0	3	39
HENDERSON	3	53	5	5	5	4	2	77
HERTFORD	8	26	11	3	3	6	14	71
HOKE	2	38	3	7	6	6	5	67
HYDE	0	5	0	0	0	1	3	9
IREDELL	9	51	3	2	4	8	6	83
JACKSON	1	10	1	0	0	0	2	14
JOHNSTON	16	80	11	7	18	20	14	166

Table P (continued): AIDS Cumulative Reports by County of Residence, 1983-2004

County of Residence	83-89	90-99	2000	2001	2002	2003	2004	Total
JONES	0	7	0	0	0	1	2	10
LEE	2	31	4	3	4	5	5	54
LENOIR	6	129	19	18	12	5	14	203
LINCOLN	3	15	1	1	5	2	4	31
MACON	0	12	0	2	1	1	2	18
MADISON	0	8	0	0	0	0	1	9
MARTIN	2	25	2	6	8	5	4	52
MCDOWELL	4	16	1	2	2	1	0	26
MECKLENBURG	173	1,028	66	98	150	191	197	1,903
MITCHELL	1	3	0	2	1	0	0	7
MONTGOMERY	1	17	3	2	0	1	3	27
MOORE	7	32	4	7	6	8	5	69
NASH	13	118	9	13	8	10	12	183
NEW HANOVER	28	189	14	47	39	37	24	378
NORTHAMPTON	5	40	1	6	2	4	5	63
ONSLOW	20	68	7	12	13	13	10	143
ORANGE	27	69	8	8	3	1	8	124
PAMLICO	3	7	2	0	1	3	0	16
PASQUOTANK	4	27	3	1	4	7	7	53
PENDER	5	35	0	6	2	6	1	55
PERQUIMANS	1	8	2	0	0	2	1	14
PERSON	1	18	0	2	6	4	2	33
PITT	22	251	19	18	29	26	18	383
POLK	1	16	0	0	0	3	0	20
RANDOLPH	9	38	2	1	4	6	13	73
RICHMOND	2	38	4	0	2	4	5	55
ROBESON	9	125	7	27	21	22	26	237
ROCKINGHAM	5	55	3	4	7	2	3	79
ROWAN	13	109	9	8	8	7	13	167
RUTHERFORD	3	39	4	3	2	1	2	54
SAMPSON	6	50	4	11	8	3	6	88
SCOTLAND	4	44	5	2	6	4	6	71
STANLY	1	18	2	4	1	1	2	29
STOKES	1	10	1	2	0	1	0	15
SURRY	3	16	1	3	6	1	2	32
SWAIN	3	13	0	1	1	2	1	21
TRANSYLVANIA	2	12	2	0	2	2	0	20
TYRRELL	0	2	1	0	0	0	0	3
UNION	9	51	3	4	6	7	7	87
VANCE	5	73	2	11	11	13	10	125
WAKE	151	753	93	88	107	135	136	1,463
WARREN	0	10	1	3	3	5	4	26
WASHINGTON	2	34	2	2	4	3	0	47
WATAUGA	3	6	0	0	0	3	0	12
WAYNE	25	145	12	13	25	11	12	243
WILKES	2	12	2	2	0	3	1	22
WILSON	19	113	15	18	27	12	26	230
YADKIN	3	9	2	0	1	3	2	20
YANCEY	1	5	0	1	0	1	2	10
MISSING	3	15	1	4	1	1	32	57
NC TOTAL	**1,154**	**8,005**	**632**	**807**	**1,010**	**1,074**	**1,114**	**13,796**

Table Q: North Carolina Chlamydia Reports (Lab-confirmed) by Gender and Age, 2000-2004

Age	Year														
Male	**2000**			**2001**			**2002**			**2003**			**2004**		
	Cases	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***
00-12 Years	17	0%	2.3	14	0%	1.8	35	0%	4.6	22	0%	2.8	20	0%	2.6
13-19 Years	712	3%	184.0	742	3%	189.6	887	4%	222.4	907	3%	222.1	1,058	4%	259.1
20-29 Years	2,074	9%	339.1	2,136	10%	347.6	2,666	11%	430.1	2,582	10%	412.8	3,050	11%	487.6
30-39 Years	441	2%	69.2	451	2%	70.6	557	2%	87.0	590	2%	92.4	670	2%	104.9
40-49 Years	100	0%	16.9	106	0%	17.6	162	1%	26.5	181	1%	29.3	203	1%	32.8
50+ Years	37	0%	3.7	38	0%	3.7	41	0%	3.9	61	0%	5.7	62	0%	5.8
Unknown	0	0%	-	1	0%	-	0	0%	-	0	0%	-	1	0%	-
Total	3,381	15%	85.4	3,488	16%	86.8	4,348	18%	106.6	4,343	17%	105.1	5,064	17%	122.6
Female	**2000**			**2001**			**2002**			**2003**			**2004**		
	Cases	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***
00-12 Years	89	0%	12.6	50	0%	6.9	139	1%	19.0	73	0%	9.9	44	0%	6.0
13-19 Years	8,395	38%	2,294.8	8,025	36%	2,172.1	8,915	36%	2,372.2	9,403	36%	2,434.4	10,195	35%	2,639.4
20-29 Years	8,962	40%	1,578.3	9,328	42%	1,640.1	9,934	40%	1,742.3	10,608	41%	1,854.4	11,777	41%	2,058.8
30-39 Years	1,130	5%	178.7	1,080	5%	170.4	1,79	5%	186.4	1,391	5%	221.9	1,613	6%	257.3
40-49 Years	171	1%	27.7	165	1%	26.3	181	1%	28.5	207	1%	32.2	255	1%	39.7
50+ Years	52	0%	4.2	36	0%	2.9	40	0%	3.1	39	0%	3.0	51	0%	3.9
Unknown	1	0%	-	5	0%	-	0	0%	-	0	0%	-	0	0%	-
Total	18,800	85%	456.3	18689	84%	447.4	20,388	82%	482.1	21,721	83%	507.9	23,935	83%	559.6
Total	**2000**			**2001**			**2002**			**2003**			**2004**		
	Cases	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***
00-12 Years	106	0%	7.3	64	0%	4.3	174	1%	11.6	95	0%	6.3	64	0%	4.2
13-19 Years	9,108	41%	1,210.0	8,767	40%	1,152.2	9,802	40%	1,265.4	10,310	40%	1,297.5	11,253	39%	1,416.2
20-29 Years	11,036	50%	935.7	11,464	52%	968.8	12,602	51%	1,059.0	13,191	51%	1,101.5	14,827	51%	1,238.1
30-39 Years	1,571	7%	123.8	1,531	7%	120.3	1,736	7%	136.4	1,981	8%	156.5	2,283	8%	180.4
40-49 Years	271	1%	22.4	271	1%	22.1	343	1%	27.5	388	1%	30.8	458	2%	36.3
50+ Years	89	0%	4.0	74	0%	3.3	81	0%	3.5	100	0%	4.2	113	0%	4.8
Unknown	1	0%	-	6	0%	-	0	0%	-	0	0%	-	1	0%	-
Total	22,182	100%	274.6	22,177	100%	270.6	24,738	100%	297.8	26,065	100%	310.0	28,999	100%	344.9

*per 100,000 population

Table R: North Carolina Chlamydia Reports (Lab-Confirmed) Gender and Race/Ethnicity, 2000-2004

Race/ Ethnicity	Year														
Male	**2000**			**2001**			**2002**			**2003**			**2004**		
	Cases	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***
White**	738	3%	26.4	802	4%	28.5	1,036	4%	36.4	1,062	4%	37.1	1,184	4%	41.3
Black**	2,296	10%	277.9	2,340	11%	278.3	2,875	12%	336.6	2,869	11%	331.5	3,343	12%	386.2
Am. Ind./AN**	31	0%	63.0	23	0%	45.9	41	0%	80.9	23	0%	44.9	37	0%	72.2
Asian/PI**	24	0%	39.1	26	0%	39.6	38	0%	54.3	20	0%	27.0	30	0%	40.5
Hispanic	291	1%	126.8	282	1%	116.0	350	1%	135.7	354	1%	129.0	403	1%	146.8
Unknown	1	0%	-	15	0%	-	8	0%	-	15	0%	-	67	0%	-
Total	3,381	15%	85.4	3,488	16%	86.8	4,348	18%	106.6	4,343	17%	105.1	5,064	17%	122.6
Female	**2000**			**2001**			**2002**			**2003**			**2004**		
	Cases	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***
White**	4,843	22%	166.1	4,831	22%	1,64.2	5,385	22%	181.7	5,695	22%	190.9	6,357	22%	213.1
Black**	12,315	56%	1,320.4	12,087	55%	1,275.9	13,209	53%	1,375.9	14,020	54%	1,443.4	15,114	52%	1,556.0
Am. Ind./AN**	370	2%	716.9	226	1%	431.6	314	1%	590.0	332	1%	616.3	356	1%	660.9
Asian/PI**	151	1%	232.5	188	1%	273.3	167	1%	229.1	153	1%	199.0	177	1%	230.2
Hispanic	1,110	5%	720.8	1,285	6%	774.5	1,274	5%	712.1	1,473	6%	766.4	1735	6%	902.7
Unknown	11	0%	-	72	0%	-	39	0%	-	48	0%	-	196	1%	-
Total	18,800	85%	456.3	18,689	84%	447.4	20,388	82%	482.1	21,721	83%	507.9	23,935	83%	559.6
Total	**2000**			**2001**			**2002**			**2003**			**2004**		
	Cases	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***
White**	5,581	25%	97.8	5,633	25%	97.8	6,421	26%	110.6	6,757	26%	115.6	7,541	26%	129.0
Black**	14,611	66%	830.8	14,427	65%	806.9	16,085	65%	886.7	16,890	65%	919.5	18,457	64%	1,004.8
Am. Ind./AN**	402	2%	398.6	249	1%	243.0	355	1%	341.7	355	1%	337.8	393	1%	374.0
Asian/PI**	175	1%	138.4	214	1%	159.3	205	1%	143.4	173	1%	114.6	207	1%	137.2
Hispanic	1,401	6%	365.4	1,567	7%	383.1	1,625	7%	371.9	1,827	7%	391.5	2,138	7%	458.1
Unknown	12	0%	-	87	0%	-	47	0%	-	63	0%	-	263	1%	-
Total	22,182	100%	274.6	22,177	100%	270.6	24,738	100%	297.8	26,065	100%	310.0	28,999	100%	344.9

*per 100,000 population

Table S: North Carolina Gonorrhea Reports by Gender and Age, 2000-2004

Age	Year														
Male	**2000**			**2001**			**2002**			**2003**			**2004**		
	Cases	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***
00-12 Years	25	0%	3.4	11	0%	1.5	34	0%	4.4	22	0%	2.8	6	0%	0.8
13-19 Years	1,569	9%	405.5	1,558	9%	398.0	1,324	9%	332.0	1,236	8%	302.7	1,232	8%	301.7
20-29 Years	5,004	28%	818.2	4,637	28%	754.5	4,091	27%	660.0	3,991	26%	638.0	4,076	27%	651.6
30-39 Years	1,783	10%	280.0	1,627	10%	254.6	1,526	10%	238.4	1,485	10%	232.6	1,463	10%	229.1
40-49 Years	757	4%	127.9	752	4%	125.0	612	4%	100.1	715	5%	115.6	717	5%	115.9
50+ Years	320	2%	32.3	268	2%	26.4	248	2%	23.8	270	2%	25.3	317	2%	29.7
Unknown	0	0%	-	4	0%	-	0	0%	-	0	0%	-	0	0%	-
Total	9,458	53%	239.0	8,857	53%	220.4	7,835	51%	192.2	7,719	51%	186.9	7,811	51%	189.1
Female	**2000**			**2001**			**2002**			**2003**			**2004**		
	Cases	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***
00-12 Years	42	0%	5.9	25	0%	3.5	36	0%	4.9	25	0%	3.4	16	0%	2.2
13-19 Years	3,240	18%	885.7	3,101	19%	839.3	2,886	19%	767.9	2,760	18%	714.5	2,756	18%	713.5
20-29 Years	4,068	23%	716.4	3,707	22%	651.8	3,608	24%	632.8	3,596	24%	628.6	3,622	24%	633.2
30-39 Years	939	5%	148.5	790	5%	124.7	779	5%	123.1	765	5%	122.0	747	5%	119.1
40-49 Years	206	1%	33.4	209	1%	33.3	168	1%	26.4	204	1%	31.8	210	1%	32.7
50+ Years	42	0%	3.4	38	0%	3.0	37	0%	2.9	16	0%	1.2	36	0%	2.7
Unknown	2	0%	-	5	0%	-	0	0%	-	0	0%	-	0	0%	-
Total	8,539	47%	207.3	7,875	47%	188.5	7,514	49%	177.7	7,366	49%	172.2	7,387	49%	172.7
Total	**2000**			**2001**			**2002**			**2003**			**2004**		
	Cases	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***
00-12 Years	67	0%	4.6	36	0%	2.4	70	0%	4.7	47	0%	3.1	22	0%	1.5
13-19 Years	4,809	27%	638.9	4,659	28%	612.3	4,210	27%	543.5	3,996	26%	502.9	3,988	26%	501.9
20-29 Years	9,072	50%	769.2	8,345	50%	705.2	7,702	50%	647.2	7,587	50%	633.5	7,698	51%	642.8
30-39 Years	2,723	15%	214.5	2,417	14%	189.9	2,306	15%	181.2	2,250	15%	177.8	2,210	15%	174.6
40-49 Years	963	5%	79.7	961	6%	78.2	780	5%	62.6	919	6%	72.9	927	6%	73.5
50+ Years	362	2%	16.3	306	2%	13.5	285	2%	12.3	286	2%	12.0	353	2%	14.9
Unknown	2	0%	-	9	0%	-	0	0%	-	0	0%	-	0	0%	-
Total	17,998	100%	222.8	16,733	100%	204.2	15,353	100%	184.8	15,085	100%	179.4	15,198	100%	180.8

*per 100,000 population

Table T: North Carolina Gonorrhea Reports by Gender and Race/Ethnicity, 2000-2004

Race/ Ethnicity	Year														
Male	**2000**			**2001**			**2002**			**2003**			**2004**		
	Cases	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***
White**	911	5%	32.6	811	5%	28.8	851	6%	29.9	844	6%	29.5	866	6%	30.2
Black**	8,094	45%	979.8	7,642	46%	909.0	6,695	44%	783.9	6,569	44%	758.9	6,554	43%	757.2
Am. Ind./AN**	67	0%	136.1	28	0%	55.9	63	0%	124.3	61	0%	119.1	76	1%	148.4
Asian/PI**	20	0%	32.6	114	1%	173.8	24	0%	34.3	14	0%	18.9	24	0%	32.4
Hispanic	349	2%	152.1	241	1%	99.1	191	1%	74.0	223	1%	81.2	219	1%	79.8
Unknown	17	0%	-	21	0%	-	11	0%	-	8	0%	-	72	0%	-
Total	9,458	53%	239.0	8,857	53%	220.4	7,835	51%	192.2	7,719	51%	186.9	7,811	51%	189.1
Female	**2000**			**2001**			**2002**			**2003**			**2004**		
	Cases	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***
White**	1,521	8%	52.2	1,335	8%	45.4	1,292	8%	43.6	1,390	9%	46.6	1,542	10%	51.7
Black**	6,670	37%	715.1	6,226	37%	657.2	5,944	39%	619.1	5,673	38%	584.0	5,481	36%	564.3
Am. Ind./AN**	158	1%	306.1	77	0%	147.1	122	1%	229.2	121	1%	224.6	115	1%	213.5
Asian/PI**	30	0%	46.2	109	1%	158.4	28	0%	38.4	35	0%	45.5	27	0%	35.1
Hispanic	148	1%	96.1	115	1%	69.3	115	1%	64.3	137	1%	71.3	167	1%	86.9
Unknown	12	0%	-	13	0%	-	13	0%	-	10	0%	-	55	0%	-
Total	8,539	47%	207.3	7,875	47%	188.5	7,514	49%	177.7	7,366	49%	172.2	7,387	49%	172.7
Total	**2000**			**2001**			**2002**			**2003**			**2004**		
	Cases	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***
White**	2,432	14%	42.6	2,146	13%	37.2	2,144	14%	36.9	2,234	15%	38.2	2,408	16%	41.2
Black**	14,765	82%	839.5	13,869	83%	775.7	12,642	82%	696.9	12,242	81%	666.5	12,035	79%	655.2
Am. Ind./AN**	225	1%	223.1	105	1%	102.5	185	1%	178.1	182	1%	173.2	191	1%	181.8
Asian/PI**	50	0%	39.6	223	1%	166.0	52	0%	36.4	49	0%	32.5	51	0%	33.8
Hispanic	497	3%	129.6	356	2%	87.0	306	2%	70.0	360	2%	77.1	386	3%	82.7
Unknown	29	0%	-	34	0%	-	24	0%	-	18	0%	-	127	1%	-
Total	17,998	100%	222.8	16,733	100%	204.2	15,353	100%	184.8	15,085	100%	179.4	15,198	100%	180.8

*per 100,000 population

**White = White, non Hispanic; Black = Black or African American, non Hispanic; Am. Ind./AN = American Indian/Alaskan Native, non Hispanic; Asian/PI = Asian/Pacific Islander, non Hispanic

Table U: North Carolina Early Syphilis Reports (Primary, Secondary, Early Latent) by Gender and Age, 2000-2004

Age	Year														
Male	**2000**			**2001**			**2002**			**2003**			**2004**		
	Cases	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***
00-12 Years	2	0%	0.3	0	0%	0.0	1	0%	0.1	0	0%	0.0	0	0%	0.0
13-19 Years	16	1%	4.1	16	2%	4.1	14	2%	3.5	9	2%	2.2	9	2%	2.2
20-29 Years	153	14%	25.0	128	14%	20.8	93	15%	15.0	73	18%	11.7	88	19%	14.1
30-39 Years	182	17%	28.6	166	18%	26.0	98	16%	15.3	67	17%	10.5	95	21%	14.9
40-49 Years	132	12%	22.3	122	13%	20.3	91	15%	14.9	57	14%	9.2	69	15%	11.2
50+ Years	66	6%	6.7	71	8%	7.0	45	7%	4.3	30	8%	2.8	45	10%	4.2
Unknown	0	0%	-	0	0%	-	0	0%	-	0	0%	-	0	0%	-
Total	551	50%	13.9	503	53%	12.5	342	56%	8.4	236	60%	5.7	306	67%	7.4
Female	**2000**			**2001**			**2002**			**2003**			**2004**		
	Cases	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***
00-12 Years	0	0%	0.0	0	0%	0.0	0	0%	0.0	0	0%	0.0	0	0%	0.0
13-19 Years	60	5%	16.4	45	5%	12.2	34	6%	9.0	14	4%	3.6	12	3%	3.1
20-29 Years	182	17%	32.1	137	15%	24.1	80	13%	14.0	52	13%	9.1	44	10%	7.7
30-39 Years	207	19%	32.7	166	18%	26.2	94	15%	14.9	56	14%	8.9	51	11%	8.1
40-49 Years	84	8%	13.6	66	7%	10.5	54	9%	8.5	32	8%	5.0	33	7%	5.1
50+ Years	17	2%	1.4	24	3%	1.9	12	2%	0.9	6	2%	0.5	8	2%	0.6
Unknown	0	0%	-	0	0%	-	0	0%	-	0	0%	-	0	0%	-
Total	550	50%	13.4	438	47%	10.5	274	44%	6.5	160	40%	3.7	148	33%	3.5
Total	**2000**			**2001**			**2002**			**2003**			**2004**		
	Cases	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***
00-12 Years	2	0%	0.1	0	0%	0.0	1	0%	0.1	0	0%	0.0	0	0%	0.0
13-19 Years	76	7%	10.1	61	6%	8.0	48	8%	6.2	23	6%	2.9	21	5%	2.6
20-29 Years	335	30%	28.4	265	28%	22.4	173	28%	14.5	125	32%	10.4	132	29%	11.0
30-39 Years	389	35%	30.6	332	35%	26.1	192	31%	15.1	123	31%	9.7	146	32%	11.5
40-49 Years	216	20%	17.9	188	20%	15.3	145	24%	11.6	89	22%	7.1	102	22%	8.1
50+ Years	83	8%	3.7	95	10%	4.2	57	9%	2.5	36	9%	1.5	53	12%	2.2
Unknown	0	0%	-	0	0%	-	0	0%	-	0	0%	-	0	0%	-
Total	1,101	100%	13.6	941	100%	11.5	616	100%	7.4	396	100%	4.7	454	100%	5.4

*per 100,000 population

Table V: North Carolina Early Syphilis Reports (Primary, Secondary, Early Latent) by Gender and Race/Ethnicity, 2000-2004

Race/ Ethnicity	Year														
Male	**2000**			**2001**			**2002**			**2003**			**2004**		
	Cases	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***
White**	67	6%	2.4	65	7%	2.3	50	8%	1.8	41	10%	1.4	77	17%	2.7
Black**	417	38%	50.5	353	38%	42.0	254	41%	29.7	162	41%	18.7	211	46%	24.4
Am. Ind./AN**	17	2%	34.5	49	5%	97.8	15	2%	29.6	13	3%	25.4	6	1%	11.7
Asian/PI**	1	0%	1.6	1	0%	1.5	1	0%	1.4	0	0%	0.0	1	0%	1.4
Hispanic	49	4%	21.4	35	4%	14.4	22	4%	8.5	20	5%	7.3	11	2%	4.0
Unknown	0	0%	-	0	0%	-	0	0%	-	0	0%	-	0	0%	-
Total	551	50%	13.9	503	53%	12.5	342	56%	8.4	236	60%	5.7	306	67%	7.4
Female	**2000**			**2001**			**2002**			**2003**			**2004**		
	Cases	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***
White**	122	11%	4.2	86	9%	2.9	36	6%	1.2	22	6%	0.7	21	5%	0.7
Black**	366	33%	39.2	289	31%	30.5	203	33%	21.1	116	29%	11.9	106	23%	10.9
Am. Ind./AN**	33	3%	63.9	48	5%	91.7	19	3%	35.7	8	2%	14.9	9	2%	16.7
Asian/PI**	1	0%	1.5	0	0%	0.0	0	0%	0.0	2	1%	2.6	0	0%	0.0
Hispanic	27	2%	17.5	15	2%	9.0	16	3%	8.9	12	3%	6.2	11	2%	5.7
Unknown	1	0%	-	0	0%	-	0	0%	-	0	0%	-	1	0%	-
Total	550	50%	13.4	438	47%	10.5	274	44%	6.5	160	40%	3.7	148	33%	3.5
Total	**2000**			**2001**			**2002**			**2003**			**2004**		
	Cases	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***
White**	189	17%	3.3	151	16%	2.6	86	14%	1.5	63	16%	1.1	98	22%	1.7
Black**	783	71%	44.5	642	68%	35.9	457	74%	25.2	278	70%	15.1	317	70%	17.3
Am. Ind./AN**	50	5%	49.6	97	10%	94.7	34	6%	32.7	21	5%	20.0	15	3%	14.3
Asian/PI**	2	0%	1.6	1	0%	0.7	1	0%	0.7	2	1%	1.3	1	0%	0.7
Hispanic	76	7%	19.8	50	5%	12.2	38	6%	8.7	32	8%	6.9	22	5%	4.7
Unknown	1	0%	-	0	0%	-	0	0%	-	0	0%	-	1	0%	-
Total	1,101	100%	13.6	941	100%	11.5	616	100%	7.4	396	100%	4.7	454	100%	5.4

*per 100,000 population
**White = White, non Hispanic; Black = Black or African American, non Hispanic; Am. Ind./AN = American Indian/Alaskan Native, non Hispanic; Asian/PI = Asian/Pacific Islander, non Hispanic

Table W: North Carolina Early Syphilis Reports (Primary, Secondary, Early Latent) by County Rank, 2000-2004

		Cases				
Rank*	**County**	**2000**	**2001**	**2002**	**2003**	**2004**
1	GUILFORD	112	118	63	80	91
2	MECKLENBURG	108	99	68	42	82
3	ROBESON	133	144	67	32	51
4	WAKE	89	51	43	37	44
5	DURHAM	44	37	57	40	32
6	CUMBERLAND	58	53	22	14	23
7	WILSON	11	16	15	10	21
8	EDGECOMBE	7	6	2	2	7
9	FORSYTH	50	35	18	10	6
10	NEW HANOVER	34	28	9	4	6
11	MOORE	24	17	36	4	5
12	LENOIR	4	3	4	1	5
13	BLADEN	7	1	3	1	5
14	JOHNSTON	16	16	8	4	4
15	BUNCOMBE	2	4	1	2	4
16	WARREN	5	2	0	2	4
17	ALAMANCE	11	9	12	14	3
18	CABARRUS	3	8	1	5	3
19	ROCKINGHAM	19	22	6	4	3
20	WAYNE	12	13	11	3	3
21	UNION	4	5	0	1	3
22	RICHMOND	15	11	4	0	3
23	ROWAN	4	9	2	0	3
24	NASH	12	14	7	7	2
25	RANDOLPH	17	3	7	7	2
26	CATAWBA	10	2	1	3	2
27	DAVIDSON	1	3	6	1	2
28	PITT	19	2	3	1	2
29	BEAUFORT	4	1	0	1	2
30	SURRY	0	0	0	1	2
31	DUPLIN	0	1	1	0	2
32	MARTIN	3	1	0	0	2
33	TRANSYLVANIA	0	1	0	0	2
34	RUTHERFORD	2	0	0	0	2
35	VANCE	9	7	8	11	1
36	CALDWELL	1	0	1	5	1
37	SAMPSON	2	3	6	4	1
38	GASTON	22	15	4	3	1
39	PASQUOTANK	3	6	1	3	1
40	ORANGE	3	20	13	2	1

* Rank based on number of cases reported in 2004. If cases are equal, then rank based on previous year.

Table W (cont.): North Carolina Early Syphilis Reports (Primary, Secondary, Early Latent) by County Rank, 2000-2004

		Cases				
Rank*	**County**	**2000**	**2001**	**2002**	**2003**	**2004**
41	CASWELL	16	5	4	2	1
42	CHATHAM	26	3	6	1	1
43	FRANKLIN	3	4	2	1	1
44	IREDELL	10	3	1	1	1
45	PERSON	1	3	1	1	1
46	LINCOLN	0	1	0	1	1
47	BRUNSWICK	26	18	8	0	1
48	SCOTLAND	6	1	4	0	1
49	CARTERET	1	3	2	0	1
50	HARNETT	4	6	1	0	1
51	ALEXANDER	1	1	0	0	1
52	YADKIN	1	1	0	0	1
53	WILKES	2	0	0	0	1
54	GATES	1	0	0	0	1
55	WATAUGA	0	0	0	0	1
56	COLUMBUS	6	54	30	5	0
57	HOKE	4	9	7	5	0
58	HALIFAX	4	0	4	4	0
59	MONTGOMERY	52	4	11	2	0
60	ONSLOW	3	1	1	2	0
61	STOKES	2	1	0	2	0
62	CLEVELAND	8	4	3	1	0
63	LEE	3	4	3	1	0
64	GRANVILLE	13	4	2	1	0
65	GREENE	1	0	2	1	0
66	CRAVEN	9	2	1	1	0
67	NORTHAMPTON	0	1	1	1	0
68	CAMDEN	0	0	0	1	0
69	JACKSON	0	0	0	1	0
70	BERTIE	0	2	4	0	0
71	PENDER	2	4	3	0	0
72	WASHINGTON	1	4	2	0	0
73	STANLY	6	3	1	0	0
74	JONES	0	1	1	0	0
75	HERTFORD	0	0	1	0	0
76	BURKE	4	2	0	0	0
77	CHOWAN	1	2	0	0	0
78	MCDOWELL	0	2	0	0	0
79	ANSON	3	1	0	0	0
80	DARE	0	1	0	0	0

*Rank based on number of cases reported in 2004. If cases are equal, then rank based on previous year.

Table W (cont.): North Carolina Early Syphilis Reports (Primary, Secondary, Early Latent) by County Rank, 2000-2004

		Cases				
Rank*	**County**	**2000**	**2001**	**2002**	**2003**	**2004**
81	YANCEY	1	0	0	0	0
82	ALLEGHANY	0	0	0	0	0
82	ASHE	0	0	0	0	0
82	AVERY	0	0	0	0	0
82	CHEROKEE	0	0	0	0	0
82	CLAY	0	0	0	0	0
82	CURRITUCK	0	0	0	0	0
82	DAVIE	0	0	0	0	0
82	GRAHAM	0	0	0	0	0
82	HAYWOOD	0	0	0	0	0
82	HENDERSON	0	0	0	0	0
82	HYDE	0	0	0	0	0
82	MACON	0	0	0	0	0
82	MADISON	0	0	0	0	0
82	MITCHELL	0	0	0	0	0
82	PAMLICO	0	0	0	0	0
82	PERQUIMANS	0	0	0	0	0
82	POLK	0	0	0	0	0
82	SWAIN	0	0	0	0	0
82	TYRRELL	0	0	0	0	0
	UNKNOWN	0	0	0	0	0
	TOTAL	**1,101**	**941**	**616**	**396**	**454**

* Rank based on number of cases reported in 2004. If cases are equal, then rank based on previous year.

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GLOSSARY

ADAP	AIDS Drug Assistance Program - funding program through Title II of the Ryan White Care Act to provide for medications for the treatment of HIV disease. Program funds may also be used to purchase health insurance for eligible clients and to pay for services that enhance access, adherence, and monitoring of drug treatments.
AIDS	Acquired Immune Deficiency Syndrome - late stage of HIV infection characterized by breakdown of the immune system. Individuals with documented HIV infection will be reported as AIDS cases if they meet certain immunologic criteria (CD4 T-lymphocyte count <200 or <14%) or if the patient becomes ill with one of 26 AIDS-defining conditions.
ART	Anti-Retroviral Therapy - indicates that a patient is on any antiretroviral drug or drugs for HIV infection.
average	see Mean
BRFSS	Behavioral Risk Factor Surveillance System - a collaborative project of the Centers for Disease Control and Prevention (CDC), and U.S. states and territories. Monthly telephone surveys collect a variety of information on health behaviors from adults age 18 and older.
BV	Bacterial Vaginosis - A common vaginal infection of women of childbearing age. Cause and transmission of the disease are poorly understood. It is not a reportable condition in North Carolina.
CADR	Care Act Data Report - aggregate service-level report (to HRSA) required of all Ryan White Title programs to track program services, populations, and expenditures.
CAPI	Computer-Assisted Personal Interviewing - computer programming used for telephone or in-person interviews in which the computer guides the interviewer to the correct questions by incorporating skip patterns and subject-specific questions. The interviewer enters the responses directly into the system, which then creates a database.
CAREWare	Computer software tool designed by HRSA to produce the CADR report for Ryan White programs. See HRSA, CADR.
CBO	Community-Based Organization

CD4 T-lymphocyte	Type of white blood cell that coordinates a number of important immunologic functions. These cells are the primary targets of HIV. Severe declines in the number of these cells indicate progression of an immunologic disease. When the count of these cells reaches <200/uL or 14%, the HIV-infected patient is classified as having progressed to AIDS.
CDC	U.S. Centers for Disease Control and Prevention - agency under the U.S. Department of Health and Human Services. Located in Atlanta, GA. Mission: to promote health and quality of life by preventing and controlling disease, injury, and disability.
chancroid	A sexually transmitted disease characterized by painful genital ulceration and inflammatory inguinal adenopathy, caused by infection with *Haemophilus ducreyi*. Chancroid is a reportable disease in North Carolina.
chlamydia	Chlamydial infection (infection with *Chlamydia trachomatis* bacteria). To meet the surveillance case definition, all reported cases must be confirmed by laboratory diagnosis: either isolation of *C. trachomatis* by culture or by detection of antigen or nucleic acid. Chlamydial infection is a reportable disease in North Carolina.
congenital	Of or relating to a condition that is present at birth (example: congenital syphilis).
Ct	Infection with *Chlamydia trachomatis*. See chlamydia.
CTS	Counseling and Testing System - a national CDC program administered in North Carolina by the Division of Public Health to provide HIV counseling and testing services at 169 local health departments and CBOs across the state. All patients are asked a series of questions on reasons for testing and risk behaviors. All samples are sent to the State Laboratory of Public Health for testing and data entry. State results are aggregated with national data. See NTS, TTS.
CY	Calendar Year (January 1 to December 31)
denominator	The divisor in a fraction. (In the fraction 3/4, 4 is the denominator). With respect to disease rates and proportions, it is generally the number of people in the population at risk for having the disease (a smaller number, found in the numerator, actually will have the disease).
DIS	Disease Intervention Specialists - state or local government employees who interview reported STD cases (primarily HIV and syphilis). DIS are trained to locate and counsel infected patients and their partners, draw blood for testing, and collect interview data on risk behaviors and partners.

early latent syphilis	Also 'EL'. Third stage of syphilis infection, lasting from the end of secondary syphilis through one year after initial infection. The patient is free of symptoms but remains infectious to sexual partners during this phase. Early latent refers only to cases for whom likely transmission within the past year can be documented. Patients at this stage are often identified through screening or contact tracing of known cases. If left untreated, the disease will progress to late latent syphilis.
early syphilis	Primary, secondary, and early latent syphilis cases (also PSEL). These stages represent all of the phases during which the infection can be transmitted sexually, although infectiousness drops off considerably during the early latent phase. Often reported separately from later stages of syphilis because these stages represent infections acquired less than one year prior to diagnosis and are targeted by public health interventions.
EIA	See ELISA
EL	see Early Latent Syphilis
ELISA	Enzyme-linked immunoassay - initial screening test for HIV infection. Highly sensitive. If this test is positive, the sample will then be tested with the more specific confirmatory test, the Western Blot. If this test is negative, the result is returned as negative. Alternative name: EIA.
epidemiology	The study of the distribution and determinants of health-related events in specified populations, and the application of this study to the control of health problems. (Source: J. Last, 'A Dictionary of Epidemiology', 1995)
FDA	Food and Drug Administration
FFY	Federal Fiscal Year - October 1 through September 30
Gc	Gonococcus or infection with *Neisseria gonorrhoeae*. See gonorrhea.
Genital Herpes	A common sexually transmitted disease resulting from infection with HSV types 1 or 2 (see HSV) and characterized by painful genital ulcers. Genital herpes is not a reportable disease in North Carolina. See HSV.
GISP	Gonoccoccal Isolate Surveillance Project - collaborative project between selected STD clinics, five regional laboratories, and the CDC. Established in 1986 to monitor trends in antimicrobial susceptibilities of strains of *Neisseria gonorrhoeae* in the United States in order to establish a rational basis for the selection of gonococcal therapies. The project includes one site in North Carolina, located in Greensboro.

gonorrhea	Infection with *Neisseria gonorrhoeae*. To meet the surveillance case definition, laboratory diagnosis may occur by demonstrating the presence of gram-negative diplococci in a clinical sample or by detection of *N. gonorrhoeae* antigen or nucleic acid. Gonorrhea is a reportable disease in North Carolina.
Granuloma inguinale	A sexually transmitted disease characterized by ulceration of the skin and lymphatics of the genital and perianal area. Granuloma inguinale is a reportable disease in North Carolina.
HAART	Highly Active Anti-Retroviral Therapy - indicates that a patient is on a specific combination of 3 or more anti-retroviral drugs for HIV infection.
HARS	HIV/AIDS Reporting System - the computer data system developed by the CDC that houses information on HIV-infected persons at the N.C. HIV/STD Prevention & Care Branch.
HAV	Hepatitis A Virus - A vaccine-preventable viral infection transmitted by the fecal/oral route. HAV infection is a reportable condition in North Carolina.
HBV	Hepatitis B Virus - A vaccine-preventable viral infection transmitted by sex, blood products, or shared injection equipment. HBV infection is a reportable condition in North Carolina.
HCV	Hepatitis C Virus - A viral infection transmitted by sex, blood products, or shared injection equipment. There is currently no vaccine available. Acute HCV infection is a reportable condition in North Carolina.
HIV	Human Immunodeficiency Virus - the virus that causes AIDS. To meet the case definition, infection must be confirmed by specific HIV antibody tests (screening test followed by confirmatory test) or virologic tests. In children under 18 months of age, antibody tests may not be accurate so confirmation by virologic tests is required. HIV is a reportable condition in North Carolina.
HIV Test	See ELISA, Western Blot
HPV	Human Papillomavirus - a group of viruses including over 100 different strains, 30 of which are sexually transmitted. Many strains cause no symptoms at all, while others are associated with genital warts and others with cervical cancer in women. HPV infection is not a reportable condition in North Carolina.

HRSA	Health Resources & Services Administration - agency of the U.S. Department of Health and Human Services. Mission: to assure the availability of quality health care to low-income, uninsured, isolated, vulnerable and special needs populations and to meet their unique health care needs. HRSA administers the Ryan White Care Act programs.
HSV	Herpes Simplex Virus (Type 1 = HSV-1 and Type 2 = HSV-2). See genital herpes.
IDU	Injecting drug user. Alternative name IVDU - Intravenous drug user.
incidence	Measurement of the number of new cases of disease that develop in a specific population of individuals at risk over a specific period of time (often a year). With respect to HIV, the closest we can come to incidence is reporting of newly diagnosed cases, which may or may not represent newly infected individuals. Incidence measures are most often used to assess the success of prevention efforts and the progress of epidemics. See HIV Disease.
IVDU	Intravenous drug user. Alternative name: IDU - injecting drug user.
KFF	Kaiser Family Foundation (www.kff.org)
late syphilis	Syphilis infections that have progressed beyond one year past the initial infection. Patients in late syphilis are not considered to be infectious to sexual partners, but women can pass the infection to their newborns well into the late stages. For the purposes of this report, 'late syphilis' includes late latent syphilis (asymptomatic, infection probably > 1 year prior), latent of unknown duration (asymptomatic, unable to document likely infection in last year), late with symptoms, and neurosyphilis.
LGV	Lymphogranuloma venereum - a sexually transmitted disease caused by infection with specific serovars of *Chlamydia trachomatis* that are distinct from the serovars that cause reportable chlamydial infections. LGV is a reportable disease in North Carolina.
MA	Metropolitan area - geographical designation defined by OMB for use Federal statistical activities. See OMB.
mean	Mathematical average. Example: the mean of 3 numbers is the sum of the three numbers divided by three: (a+b+c)/3.

Medicaid	A federally-aided, state-operated and administered program, authorized by Title XIX of the Social Security Act, which provides medical benefits for qualifying low-income persons in need of health and medical care. Subject to broad federal guidelines, states determine the benefits covered, program eligibility, rates of payment for providers, and methods of administering the program. (definition source: kff.org)
Medicare	A federal program that provides basic health care and limited long-term care for retirees and certain disabled individuals without regard to income level. Beneficiaries must pay premiums, deductibles, and coinsurance to receive hospital insurance (Part A) and supplementary medical insurance (Part B). Qualified low-income individuals, called Dual Eligibles, may receive assistance through Medicaid to pay for cost-sharing. (definition source: kff.org)
morbidity	The extent of illness, injury, or disability in a defined population. It is usually expressed in general or specific rates of incidence or prevalence. (source of definition: kff.org)
mortality	Death. The mortality rate (death rate) expresses the number of deaths in a unit of population within a prescribed time and may be expressed as crude death rates (e.g., total deaths in relation to total population during a year) or as death rates specific for diseases and, sometimes, for age, sex, or other attributes. (source of definition: kff.org)
MPC	Mucopurulent Cervicitis - a clinical diagnosis of exclusion involving cervical inflammation that is not the result of infection with *Neisseria gonorrhoeae* or *Trichomonas vaginalis*. MPC is not a reportable condition in North Carolina.
MSM	Men who have sex with men.
MSM/IDU	Men who have sex with men and also report injecting drug use.
n	Number - used to designate the number of people or number of cases.
NAIM	Native American Interfaith Ministry
NCCIA	North Carolina Commission on Indian Affairs
neurosyphilis	Devastating stage of syphilis affecting some untreated patients. Outcomes include shooting pains in the extremities, blindness, deafness, paralysis, and death.

NGU	Nongonococcal urethritis - a clinical diagnosis of exclusion involving evidence of urethral infection or discharge and the documented absence of *N. Gonorrhoeae* infection. The syndrome may result from infection with a number of agents, though most cases are likely to be caused by *C. trachomatis*. NGU is a reportable condition in North Carolina.
NHSDA	National Household Survey of Drug Abuse – see NSDUH.
NIR	No identified risk reported
NIDA	National Institute on Drug Abuse - one of the National Institutes of Health (NIH), under the U.S. Department of Health and Human Services. Mission: to lead the nation in bringing the power of science to bear on drug abuse and addiction.
NSDUH	National Survey on Drug Use and Health (formerly known as the National Household Survey of Drug Abuse or NHSDA). A national survey of drug use behavior collected by in-person interviews. Conducted by SAMHSA. The 2003 survey interviewed 67,784 people.
NTS	Nontraditional Test Sites - part of the N.C. CTS HIV testing program. NTS sites were added to the CTS program in 1997 as a response to the end of anonymous testing, with the goal of making HIV testing available in nontraditional settings. As of 2004, there were 14 NTS sites at CBOs and extended hours at local health departments. See CTS.
numerator	The dividend in a fraction. (In the fraction 3/4, 3 is the numerator). With respect to disease rates and proportions, it is generally the number of people with the disease.
OMB	Office of Management & Budget - agency within the Executive Office of the President of the United States. Mission: to assist the President in overseeing the preparation of the federal budget and to supervise its administration in Executive Branch agencies. See MA.
opthalmia neonatorum	*N. gonorrhoeae* infection of the eyes of an infant during birth when mother has gonorrhea. Opthalmia neonatorum is a reportable condition in North Carolina.
P & S	Primary and secondary syphilis cases. These earliest stages of syphilis are the most highly infectious and also represent cases acquired within the last year. They are often reported separately from other stages of syphilis because they most accurately represent disease incidence and have the greatest impact on continued spread of the disease.

PCP	*Pneumocystis carinii* pneumonia. One of the 26 AIDS-defining opportunistic infections.
PCRS	Partner Counseling & Referral Services conducted by the HIV/STD Prevention & Care Branch's Field Services Unit for persons newly diagnosed with HIV or syphilis. Data collected are maintained in local STD-MIS. See Appendix A: Data Sources.
percentage	A type of proportion in which the denominator is set at 100. For example, if 2 people out of an at-risk population of 50 have a disease, the proportion can be converted to a percentage by setting the denominator at 100: 2/50 = 4/100 = 4%. Any proportion can be converted to a percentage.
perinatal	Of, relating to, or being the period around childbirth, especially the five months before and one month after birth.
PID	Pelvic inflammatory disease - a clinical syndrome in which microorganisms infect the fallopian tubes or other areas of the female upper reproductive tract. The condition can have serious consequences, including infertility and ectopic pregnancy. The most common causes of PID are gonorrhea and chlamydia. PID is a reportable condition in North Carolina.
positivity	Percent of a screened population that test positive.
PRAMS	Pregnancy Risk and Monitoring System – an ongoing random survey of women who deliver a live infant in North Carolina. Conducted by the North Carolina State Center for Health Statistics.
presumed heterosexual	Refers to a "risk" or "mode of transmission" category for HIV and AIDS cases. This category is made up of NIR cases that have been determined to represent likely heterosexual transmissions, based on additional risk information collected during field services interviews. See "Appendix B: Special Notes" for more information.
prevalence	Measurement of the number of total cases of disease that exist in a specific population of individuals at risk at a specific instant in time (note that an 'instant in time' can be a single day or even a whole year). With respect to HIV, this is generally presented as the number of persons living with HIV. Prevalence measures are most often used to assess the need for care and support services for infected persons.
primary syphilis	Earliest stage of syphilis, characterized by the presence of one or more painless ulcers and lasting 10-90 days. At this stage the patient is highly infectious to sexual partners. If untreated, the infection will proceed to secondary syphilis.

proportion	A type of ratio in which the numerator is included in the denominator. For example, in an at-risk population of 50, if 3 people have a disease, this can be expressed as the proportion 3/50.
PSEL	Primary, secondary, and early latent syphilis cases. See early syphilis.
rate	A proportion that specifies a time component. For example, the number of new cases of disease that developed over a certain period of time divided by the eligible at-risk population for that time period. Note: many diseases are rare enough that if they were expressed as percentages, the numbers would be very small and confusing. For this reason, the denominators for disease rates are often converted to 100,000 so that the numerators can be expressed in terms of whole numbers. Example: 20 cases out of 333,333 at-risk population per year = 20/333,333 = .006/100 = .006%. This is difficult to think about because it involves both decimals and percentages. Converted to a denominator of 100,000, this becomes .006/100 or 6/100,000 per year.
ratio	The value obtained by dividing one quantity by another. Rates and proportions are types of ratios.
Ryan White CARE Act	The Ryan White Comprehensive AIDS Resources Emergency (CARE) Act of 1990 (Public Law 101-381) provides funding to cities, states, and other public or private nonprofit entities to develop, organize, coordinate and operate systems for the delivery of health care and support services to medically underserved individuals and families affected by HIV disease. The CARE Act was reauthorized in 1996 and 2000. A reauthorization is schedule for 2005. (source of definition: kff.org)
Ryan White CARE Act: Title II	Federal grants to all 50 states, the District of Columbia, Puerto Rico, Guam, the U.S. Virgin Islands, and eligible U.S. Pacific Territories and Associated Jurisdictions to provide health care and support services for people living with HIV/AIDS. Title II funds may be used for a variety of services, including home and community-based services, continuation of health insurance coverage, and direct health and support services. Also see ADAP. (source of definition: kff.org)
SAMHSA	Substance Abuse and Mental Health Services Administration - agency within the U.S. Department of Health and Human Services. Mission: to strengthen the nation's health care capacity to provide prevention, diagnosis, and treatment services for substance abuse and mental illnesses.

SCBW	The Survey of Childbearing Women - conducted from 1988 through 1995 in collaboration with CDC, the National Institute of Child Health and Human Development, and state and territorial health departments. Residual dried blood specimens that are routinely collected on filter paper from newborn infants for metabolic screening programs were tested for HIV antibody after the removal of all personal identifiers. The survey measured the prevalence of HIV infection among women who gave birth to live infants in participating states and territories of the United States.
SDC	State Data Center - a consortium of state and local agencies established in cooperation with the U.S. Bureau of the Census to provide the public with data about North Carolina and its component geographic areas.
secondary syphilis	Second stage of syphilis, characterized by a rash that does not itch, swollen glands, fatigue, and other symptoms. Patients at this stage are highly infectious to sexual partners. Symptoms generally appear about 4-10 weeks after the appearance of primary syphilis lesions. If left untreated, the disease will progress to early latent syphilis after 3-12 weeks.
sensitivity	Refers to the ability of a screening test to detect disease if disease is truly present. A highly sensitive test is likely to have very few false negatives but probably will have some false positives. This is why positives found with a highly sensitive test will often be tested again using a highly specific test (see specificity). Example = ELISA test for HIV.
SEP	Syphilis Elimination Project - CDC-funded project that provides funding to the 28 U.S. counties that accounted for over 50% of all U.S. syphilis cases in 1997 for enhancements in surveillance, outbreak response, clinical and laboratory services, health promotion and community involvement. North Carolina has the distinction of being the only state with more than two counties in the list; we have five. SEP efforts in North Carolina have been expanded, bringing the total of SEP counties to six: Durham, Forsyth, Guilford, Mecklenburg, Robeson, and Wake.
SFY	State Fiscal Year. In North Carolina: July 1 through June 30.
specificity	Refers to the ability of a screening test to test negative if the patient is truly uninfected. A highly specific test will have very few false positives but may have some false negatives. Generally, a highly specific test is only used on positives found using a highly sensitive screening test first (see sensitivity). Example = Western Blot test for HIV.

STAT	Screening and Tracing Active Transmission - A new HIV screening protocol applied to HIV tests performed at the State Laboratory for Public Health. Specimens that test negative on the traditional Elisa antibody test are pooled and tested for viral RNA. Reactive pools are then deconstructed to allow identification of the specimen(s) containing HIV-1 RNA. This method allows for the detection of infection within the first several weeks after transmission has occurred (acute infection) and before the body has had time to mount an antibody response. The screening is linked to a comprehensive program of immediate referral for clinical evaluation, treatment and partner notification.
STD	Sexually Transmitted Disease.
STD-MIS	Sexually Transmitted Disease - Management Information System, the computer data system developed by the CDC that houses information on patients infected with HIV, syphilis, and other STDs at the N.C. HIV/STD Prevention & Care Branch.
surveillance (public health)	The ongoing, systematic collection, analysis, and interpretation of health data essential to the planning, implementation, and evaluation of public health practice, closely integrated with timely dissemination of these data to those who need to know. Source: CDC
syphilis	Infection with *Treponema pallidum*. See: primary syphilis, secondary syphilis, early latent syphilis, early syphilis, latent syphilis.
Syphilis Elimination Project	See SEP.
TB	Tuberculosis (infection with *Mycobacterium tuberculosis*).
Trichmoniasis	A common sexually transmitted disease resulting from infection with the parasite *Trichomonas vaginalis*. Trichmoniasis is not a reportable disease in North Carolina.
TTS	Traditional Test Sites - part of the N.C. CTS HIV testing program. The 155 TTS sites include local health departments and some CBOs. See CTS.
Western Blot	WB - Confirmatory test for HIV. This test is highly specific, so it is used only as a confirmatory test on all samples positive for the screening test, the ELISA. If both the ELISA and WB are positive, the patient is considered to be HIV-infected.
WIC	Women, Infants & Children - a Federal grant program to provide nutritional assistance to low-income pregnant and postpartum women, infants, and children up to age 5.

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INDEX

A

Abortion · 51
  Data description · 139
Adolescents · 23, 29, 33, 36, 50
  see also Youth
AIDS · 15, 17-18, 87
  Data description · 131-132
  Special notes · 145-146
  Deaths · 28-29, 89
  Definition · 145, 187
  Disparity · 85, 88
  Men · 89
  Persons living · 18-20, 96
  Race/Ethnicity · 85, 89
  Surveillance · 18, 87, 145-146
  Tables · 163, 168-171
  Treatment · 88-90
  Women · 89
  Youth · 89
AIDS Drugs Assistance Program
  ADAP · 91, 95-97, 187

B

Bacterial Vaginosis · 105
Behavioral Risk Factor Surveillance System
  BRFSS · 48, 132, 187
Blood products
  HIV exposure · 25
Hepatitis · 104

C

Census · 7, 140
  Data description · 140
Chancroid · 103-104, 188
Chlamydia · 101, 103-104, 106-108, 188
  Disparity · 106-107
  Men · 106
  Race/Ethnicity · 106-107
  Screening · 106-108
  Surveillance · 103, 106
  Tables · 173-174
  Women · 106-108
  Youth · 106
College Students (HIV) · 75-76
Condoms
  Usage · 37-38, 42-43, 46, 49-50, 70
  Effectiveness · 37
Congenital Syphilis · 117
Counseling and Testing System
  CTS · 53-62
  Data description · 137
County
  Population · 7
  Demographics · 8-9
  Maps · 119-126
  Tables · 159, 161, 163, 166, 171, 179

D

Disparities · 19-21, 51, 101, 106-107, 111

E

Enhanced Perinatal HIV Project · 80

G

Gonococcal Isolate Surveillance Project
  GISP · 111
  Data description · 136
Gonorrhea · 109-111
  Disparities · 111
  Men · 109-110
  Race/Ethnicity · 109-111
  Screening · 109
  Surveillance · 108-109
  Tables · 175-176
  Women · 109-111
  Youth · 109
Granuloma Inguinale · 103

H

Health Indicators · 14
Hemophilia
  HIV risk · 25, 30, 153-157
Hepatitis · 39-40, 103-104, 190
Herpes
  HSV-2 · 105, 191

Heterosexual
HIV risk · 15, 24-26, 29, 34, 44-52, 53, 60-62, 68, 79, 146-147, 153-157
HIV Disease · 15, 17-19, 27, 145
Adolescents · 29
Age Groups · 23
College Students · 75-76
Deaths · 28-29
Definition · 17, 95, 145, 190
Disparity · 19-20, 27, 51
Foreign Born · 31
Geographic Distribution · 27
HIV Risk · 24-27, 33-52,61, 62, 146
Incarceration · 52, 117
Incidence Program · 66
Maps · 127-128
Men · 19-21, 23, 25-26, 29, 35-40, 47, 52, 58, 75, 78
Pediatric · 30, 80-81
Persons living · 18, 20
Syphilis, persons with · 33-34, 37-39, 41-48, 77-79
Race/Ethnicity · 19-21, 26-27, 31, 51, 59-60, 69, 77
Recent Infections · 65
Surveillance · 17-18, 131-132, 146
Tables · 151-167
Testing · 53-62
Treatment · 85-90
Trends · 117
Women · 19-21, 23, 25-27, 29-31, 42-43, 47, 50-51, 58, 77, 79
Homosexual
see Men who have sex with men (MSM)
Housing Opportunities for People with AIDS
HOPWA · 91, 97-98
Human papillomavirus
HPV · 105
HRSA
Health Resources & Services Administration · 91, 93, 94-95, 191

I

Incarceration · 52, 117
Infants · 14, 23, 80-81, 117, 131
Injection Drug Use
IDU · 15, 24-26, 33, 41-44, 46, 61-62, 71, 79, 89, 104, 147, 191
Tables · 153-157
see also HIV Risk

J

Jail · 117
see also Incarceration

K

Kaiser Family Foundation
Data description · 141, 191

L

Lymphogranuloma Venereum
LGV · 103, 191

M

Maps · 119-128
Medicaid · 12-13, 126, 192
Men who have sex with men
MSM · 15, 24-26, 33, 35-40, 61-62, 68, 146, 192
Tables · 153-157
see also HIV Risk
Mode of transmission
see HIV Risk
Mucopurulent Cervicitis
MPC · 103, 108, 192

N

National Household Survey on Drug Abuse
NHSDA · 41
National Survey on Drug Use and Health
NSDUH · 41, 138, 193
NIR
No Identified Risk · 24-25, 146-147, 193
Nongonococcal Urethritis
NGU · 103, 108, 193
Nontraditional Test Sites
NTS · 53, 56-62, 137, 193
North Carolina State Demographer
Data description · 141

O
Opthalmia Neonatorum · 103, 193

P
Partner Counseling and Referral Services
PCRS · 36, 41, 45, 77, 137, 194
Pelvic Inflammatory Disease
PID · 103-104, 106, 108, 194
Population · 5, 7
Data description · 140, 141
Demographic Composition · 8-13
Race/Ethnicity and Gender · 8-9
Age and Gender · 9-10
Poverty, Income and Education · 10-11
Poverty · 5, 10-11
Pregnancy · 14, 30, 50-51, 117, 139-140
Pregnancy Risk Assessment Monitoring System
PRAMS · 50, 117, 139, 194
Public Aid · 12-13
see also Medicaid

R
Race/Ethnicity
see Demographic Composition
Rate calculation · 147-148
Region · 9, 10
Risk
see HIV Risk
Ryan White Care Act · 91, 93-95, 142, 195
see also HRSA

S
Screening · 65, 101, 104-107, 111-112, 117, 134-136
Sexually Transmitted Diseases
STD · 101-115
see also AIDS
see also Chancroid
see also Chlamydia
see also Gonorrhea
see also Granuloma inguinale
see also Herpes
see also HIV Disease
see also Lymphogramuloma venereum
see also Mucopurulent cervicitis
see also Nongonococcal urethritis
see also Opthalmia neonatorum
see also Pelvic Inflammatory Disease
see also Syphilis
STAT Program · 65
Surveillance · 197
Data description · 131-136
Syphilis · 101, 102, 111-117, 188, 189, 191, 192, 193, 194, 195, 196, 197
Disparities · 101,114-116
Elimination · 113, 197
HIV, persons with · 33-34, 37-39, 41-48, 77-79
Jail · 117
Men · 37-39
Race/Ethnicity · 114-116
Risk · 33, 37-39, 41-44, 46-48
Screening · 111-112, 117
Surveillance · 112
Tables · 177-181
Women · 115-117

T
Tables · 151-181

W
Women of childbearing age · 31

Y
Youth · 50, 133
see also Adolecsents

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North Carolina HIV/STD Prevention & Care Branch Regions