Epidemiologic Profile
for
HIV/STD Prevention & Care Planning

October 2008
(revised May 2009)

Division of Public Health
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Note: References to regions in this document reflect unique N.C. Communicable Disease Branch regions for HIV/STD planning. See the inside back cover for a map of regional designations and Field Services regional offices.

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

This document is for the 2008-2009 planning year and is based on data available through 2007

(revised May 2009)

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EXECUTIVE SUMMARY

Recognizing North Carolina's diverse makeup is important to understanding the impact on the state by HIV/AIDS and other STDs because these diseases are disproportionately represented among minorities and the economically disadvantaged. According to census figures, North Carolina ranks as the 10th most populous state in the nation and has experienced rapid growth. It has the seventh largest non-white population in the nation. North Carolina's immigrant population increased three and a half times between 1995 and 2007. In 2006, the racial/ethnic makeup of the state was about 22 percent black or African American (non-Hispanic), 68 percent white (non-Hispanic), and 7 percent Hispanic, with the remaining proportion consisting of primarily American Indians (1%) and Asians/Pacific Islanders (2%). 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 U.S. The state was ranked 36th in the nation for per capita income in 2007, with 25 percent of its child population (0-18 years), 14 percent of the elderly (65+), and 22 percent of the 19-64 year old population at or below the federal poverty level (2005-2006).

Using new testing methodology, it was estimated that 2,356 persons were newly infected with HIV in North Carolina in 2006 or 32.2 cases per 100,000 adult/adolescent persons. Our rate was 40 percent higher than the national rate of 22.6 cases per 100,000 adult/adolescent persons based on an estimated 56,300 cases. These incidence estimations represent the newest and most accurate data available about new HIV infections and include persons who may be unaware of their infections. For North Carolina, the new incidence data also show that our routine surveillance data of new diagnoses reported each year are correctly describing who is most affected and at greatest risk for HIV infection.

In 2007, 1,943 new individuals were reported with HIV disease (HIV/AIDS) in the state. Over recent years, North Carolina has averaged over 1,900 new reports annually, which are up from the number of cases reported in the late 1990s. This increase in new HIV reports as well as the new incidence estimate illustrates the critical need for adequate funding of HIV prevention efforts in the state. Approximately 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). This significant proportion of late diagnoses (i.e., AIDS) indicates the need for increased HIV testing within North Carolina. This supports the CDC's recommendation to include voluntary HIV testing as part of routine medical examinations for all U.S. residents ages 13 to 64. North Carolina has a *Get Real, Get Tested* campaign to encourage HIV education and testing through a two-pronged approach: the educational segment is designed to reach citizens statewide, while the testing segment targets select high-morbidity communities. The overall campaign is sponsored by WRAZ/FOX 50, Duke Medicine, UNC Health Care, and the Communicable Disease Branch. A total of 2,248 people were tested during the 2006-2007 *Get Real, Get Tested* door-to-door community campaign.

As seen with many other diseases, HIV is disproportionately distributed among the state's population. Recognizing these differences is important to knowing how to best direct prevention and care efforts. The 2007 adult/adolescent rate of HIV infection for non-Hispanic blacks (78.2 per 100,000) was more than seven times greater than for whites (10.7 per 100,000) and the rate

of infection for Hispanics (37.9 per 100,000) was three and a half times that for whites. The rate for American Indians (15.3 per 100,000) was just slightly higher than for whites. The highest rate of infection was found among adult/adolescent black males (108.5 per 100,000). The largest disparity was found in comparing adult/adolescent white and black females; the HIV infection rate for black females (52.4 per 100,000) was over 16 times higher than that for white non-Hispanic females (3.2 per 100,000). The ratio of male-to-female HIV disease reports has risen from 2.2 in 2003 to 2.5 in 2007. 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

Being familiar with gender and racial/ethnic differences is important but only part of the picture. Understanding the behavioral risk is also critical. Risk of HIV transmission is very different for males and females; it is therefore important to discuss risk separately by gender. In 2007, 73 percent of new adult and adolescent HIV disease reports for males were attributed to men who have sex with men (MSM), 5 percent to injecting drug use (IDU), 3 percent to MSM who also inject drugs (MSM/IDU); and 18 percent were attributed to heterosexual sex. For adult and adolescent females, heterosexual sex accounted for 86 percent of HIV disease reports in 2007, while injecting drug use accounted for 9 percent.

The proportion of male reports with MSM as a risk factor has increased over the past few years for all racial/ethnic groups. In 2007, MSM (including MSM/IDU) accounted for 90 percent of white non-Hispanic males, 68 percent of black non-Hispanic males and 66 percent of other males. The state's partner counseling and referral services (PCRS) program showed an increasing proportion of men who indicated MSM risk during follow-up of both HIV and syphilis cases. In 2007, 61 percent of interviewed males with early syphilis indicated MSM risk and 49 percent of those interviewed with HIV. According to Counseling and Testing System (CTS) data, those reporting MSM risk have consistently had the highest percent of HIV positive test results.

Injecting drug use risk (including MSM/IDU) accounted for about 8 percent of male adult/adolescent HIV disease reports in 2007 and accounted for about 9 percent of female reports. Prevention activities aimed at reducing HIV transmission through injecting drug use remain very important to comprehensive HIV prevention strategies. There is substantial evidence that needle exchange programs are effective in reducing HIV risk behavior and HIV seroconversion among injecting drug users.

Heterosexual sex as a primary risk accounts for 38 percent of all (male and female) 2007 adult/adolescent HIV disease reports and was the principal risk for females (86%), especially younger females (89% of likely female adolescent exposures). Heterosexual HIV reports for 2007 were higher among minority males (25%-29%) 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. The male-to-female ratio for gonorrhea has remained stable and near 1.0, indicating the predominance of heterosexual transmission.

Trends in new HIV disease reports indicate prevention needs however, trends in new AIDS cases and estimates of persons living with HIV or AIDS can indicate service and care needs. An **estimated** 33,000 people were living with HIV or AIDS in North Carolina (as of 12/31/07),

including those who may have been unaware of their infection. Of the people who have been reported and were listed as living as of 12/31/07, 69 percent were males and 31 percent were females. With respect to race/ethnicity, 69 percent were black non-Hispanic; 25 percent were white non-Hispanic; and 5 percent were Hispanic.

In 2007, 953 new AIDS cases were reported in North Carolina, down slightly from the previous year (1,029). In 2005, the South had the greatest number of new AIDS diagnoses, people living AIDS (estimated) and AIDS deaths. Also in 2005, North Carolina ranked 11th among states for the number of new AIDS cases reported and 12th in the number of living AIDS cases. North Carolina ranks 6th in the nation for the proportion persons living with AIDS who are black (69 percent).

The state administers Ryan White Part B (formerly Title II) funding for several HIV-care or HIV-service based programs and currently funds 16 primary care providers, along with seven consortia and other agencies throughout the state. According to summary reports provided by service agencies, about 7,981 Ryan White Part B clients received or accessed funded services in 2007. In 2007, approximately 5,140 individuals were enrolled in the AIDS Drug Assistance Program (ADAP). The demographics of Ryan White Part B clients and ADAP enrollees were similar to the observed demographics of all persons listed as living in North Carolina with HIV or AIDS. North Carolina calculates an estimate of people who are in care (receiving testing to monitor the disease or receiving treatment) with the remainder considered to be not in care or an unmet need. In calendar year 2006, it was estimated that 62 percent of persons living with HIV in North Carolina (status aware) were in care.

In addition to HIV and AIDS, 10 other sexually transmitted conditions and diseases are reportable to the N.C. Department of Health and Human Services (NCDHHS). Chlamydia is the most prevalent STD, with 30,612 cases reported in 2007. Consistently, over 80 percent of reported cases are among females because they are more likely than males to be screened for the disease. Reported cases and rates have increased among females of all ages, largely due to the increasing number of women who are screened each year as part of the Infertility Prevention Project. Severe racial disparities exist in gonorrhea rates, though they have narrowed in recent years. Among males, the rate for blacks in 2007 is almost 24 times that for whites (non Hispanic). Disparities among females are less severe, with black female gonorrhea rates 10 times higher than rates for white females.

Early syphilis rates dropped from 15.1 cases per 100,000 population in 1999 to a low of 4.7 in 2003. Early syphilis rates began to rise in 2004 among males, and subsequently among females in 2006. The early syphilis rate for males was 9.7 per 100,000 in 2007 and the rate for females was 3.3. The increase in early syphilis rates began with an outbreak in Mecklenburg County in 2004. Many of these cases were linked to MSM activity. Mecklenburg, Guilford, Wake, Forsyth, Durham, and Cumberland counties together accounted for more than half of 2007 early syphilis reports in North Carolina. According to the CDC, North Carolina's 2003 primary and secondary syphilis rate of 1.8 cases per 100,000 was well below the national rate of 2.5. At that time, North Carolina ranked 19th among the states (including the District of Columbia). In 2004 North Carolina's ranking increased to 15th. By 2005 the North Carolina primary and secondary syphilis rate (3.2 cases per 100,000) surpassed the national rate of 3.0 and its ranking increased to 12th.

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INTRODUCTION

The North Carolina 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 versions, the majority of the data presented are drawn from surveillance systems maintained by the Communicable Disease Branch. We have also integrated other sources in the analysis and discussion where appropriate. The Epidemiologic Profile reflects a broad spectrum of information about the incidence of sexually transmitted diseases in N.C. to support the integrated activities of the Communicable Disease Branch. Along with prevention activities, the Communicable Disease Branch facilitates several key HIV/AIDS care and services programs across the state.

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. Going forward, cases of AIDS and AIDS-related 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. This pattern has been demonstrated to some extent in surveillance data.

This document is divided into three parts. Part one describes general population demographics and social characteristics of our state, 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 of 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 for North Carolinians?

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 Regions as of 12/31/2007 (see map on inside back cover). HIV/STD data for these regions and some counties are also provided in the Regional/County supplement. This is made available as a separate document, but is intended to be used with this profile.

Please note that through out this document, references to race and ethnicity may be different than those found in documents from other agencies. Unless otherwise noted, Hispanics or Latinos are counted as a separate group to allow for comparison with traditional race/ethnicity groups (i.e. “white” refers to white non-Hispanics, “black” refers to black non-Hispanics, etc). Also note that several appendices are included with this document: Maps (Appendix A), Data sources

(Appendix B), Special notes (Appendix C), and Tables (Appendix D). 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 and understanding the uniqueness of a data source is very helpful in determining the relevance of the trends. Appendix C: Special Notes has information on the definition and use of "HIV disease," HIV surveillance reporting issues, HIV risk categories and rate calculation. All calculated rates in this document are based on U.S. Census Bureau bridged race population estimates.

The HIV Disease and AIDS case totals and rates (See Appendix D: Tables A-F, N-O) presented in this document are restricted to adult/adolescent cases for comparability across states and with national data (CDC). **Please note that the case totals and rates are different from our Annual Surveillance report because adult/adolescent rates are calculated per 100,000 population, ages 13 years and older.** For example, the 2007 HIV Disease case total is 1,943 (21.9 per 100,000) and the 2007 HIV Disease adult/adolescent case total is 1,934 (26.4 per 100,000 population). Other sexually transmitted disease rates are calculated per 100,000 population (See Appendix D: Tables Q-V). Any direct comparison of other STDs to HIV Disease or AIDS should be based on a common denominator (per 100,000 population).

PART I: CORE EPIDEMIOLOGY

What are the sociodemographic characteristics of the general population? of 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

- In 2006, N.C. was the 10th most populous state in the U.S. with an estimated population of 8,856,505.
- From 2002-2006, the estimated Hispanic/Latino population increased from 451,095 to 593,896, representing a 32% increase in N.C.
- The N.C. immigrant population increased three and half times between 1995 and 2007.
- In 2007, N.C. was 36th in the nation in per capita income of $33,636 or 87 percent of the national average of $38,611.
- According to the U.S. Census Bureau, between 2000 and 2004, N.C. ranked 5th in the nation in annual net domestic in-migration.
- From 2005 to 2006, 18 percent of North Carolinians were below the federal poverty level (FPL); with an overall total of 39 percent of the population considered low income (199% or below FPL).
- From 2005-2006, 22 percent of the 19-64 year old, adult population in N.C. was uninsured.
- Nineteen percent of the population of N.C. was eligible for Medicaid coverage at some point during 2006.
- The infant mortality rate was 8.1 deaths per 1,000 live births in N.C. during 2006.

SOCIODEMOGRAPHIC CHARACTERISTICS OF NORTH CAROLINA

Knowing sociodemographic characteristics is paramount to fully understanding the health of a population. Sociodemographics can be used to identify certain populations that may be at greater risk for morbidity and mortality. They can also assist in identifying underlying factors that may contribute to a health condition. This chapter will discuss the relevant health indicators and sociodemographic characteristics of the population of North Carolina including age, race/ethnicity, gender, income, poverty, education and geography.

Population

According to the 2000 federal census, the population of the United States was 281,421,906; this was a 13.2 percent increase from the 1990 population of 248,709,873. During the same period,

North Carolina's population grew by 21.4 percent, from 6,628,637 to 8,049,313. According to census records, only eight other states grew faster during the last decade (Arizona, Colorado, Florida, Georgia, Idaho, Nevada, Texas, and Utah). In 2006, North Carolina was the 10th most populous state in the United States with an estimated population of 8,856,505 (U.S. Census 2006 population estimate).

According to the N.C. State Demographer, the 2007 North Carolina State *provisional* population estimate is 9,069,370 with county populations ranging from 4,310 (Tyrrell) to 862,835 (Mecklenburg). Over half of North Carolina's population lived in only 16 of the state's one hundred counties (Mecklenburg, Wake, Guilford, Forsyth, Cumberland, Durham, Buncombe, Gaston, New Hanover, Onslow, Davidson, Union, Catawba, Cabarrus, Pitt, and Johnston). Map 1 (Appendix A, pg. A-3) displays the population distribution among the counties in North Carolina for 2007.

Net in-migration is the difference between the number of people who arrived from other states or counties and the number who left. According to the U.S. Census Bureau, between 2000 and 2004, North Carolina ranked 5th in annual net domestic in-migration, with an annual average of 39,137. During the same period, Wake county ranked 25th in the nation in annual numbers of net domestic in-migration, with an annual average of 8,702.

Metropolitan and Micropolitan Statistical Areas are population areas that represent the social and economic linkages and commuting patterns between urban cores and outlying integrated areas. Collectively called Core Based Statistical Areas (CBSAs), a metro area contains a core urban area of 50,000 or more population, and a micro area contains an urban core of at least 10,000 (but less than 50,000) population. Each metro or micro area consists of one or more counties and includes the counties containing the core urban area, as well as any adjacent counties that have a high degree of social and economic interaction with the urban core as measured through commuting (U.S. Census Bureau, Population Division). A complete listing of all micropolitan, metropolitan and combined statistical areas can be obtained at the following website: http://www.census.gov/population/www/estimates/metrodef.html. North Carolina's Metropolitan and Micropolitan counties are displayed in Map 2 (Appendix A, pg. A-4).

Foreign-born Population

According to the Center for Immigration Studies, the most dramatic increases in the immigrant population are found in Georgia and North Carolina. The immigrant population in N.C. has increased three and half times between 1995 and 2007 (Camarota, 2007). According to the U.S. Census Bureau's Annual American Community Survey, North Carolina's foreign-born population increased by 28 percent, from 2002-2006 (480,248 - 614,198). In 2006, 26 percent of foreign-born populations in N.C. were naturalized citizens, 74 percent were not citizens. The various regions of birth are displayed in Table 1.1. The majority (59.8%) of the foreign-born population came from Latin America, 20.5 percent from Asia, 11.5 percent from Europe, 5.1 percent from Africa, 2.7 percent from North America, and 0.4 percent from Oceania.

The majority of the 2006 foreign-born population was male (55.6%) as opposed to female (44.4%). The age distributions of the foreign-born population in North Carolina (2006) are displayed in Table 1.1. Half of the foreign-born population was between the ages 25-44.

Table 1.1. North Carolina foreign-born population by region of birth, 2006

Region	2006	
	Estimate	Percentage
Europe	70,633	11.5%
Asia	125,911	20.5%
Africa	31,324	5.1%
Oceania	2,457	0.4%
Latin America	367,290	59.8%
Northern America	16,583	2.7%
Total	614,198	100.0%

Source: U.S. Census Bureau, 2006 American Community Survey

Table 1.2. North Carolina foreign-born population by age group, 2006

Age	Percentage
Under 5 years	0.9%
5 to 17 years	10.6%
18 to 24 years	13.2%
25 to 44 years	50.7%
45 to 54 years	12.2%
55 to 64 years	6.6%
65 to 74 years	3.5%
75 to 84 years	1.5%
85 years and over	0.6%

Source: U.S. Census Bureau, 2006 American Community Survey

Race/Ethnicity and Gender

Racial and ethnic differences of a population play an important role in interpreting gaps in access to healthcare among the different groups. Knowledge of these gaps can be used to identify strategies and policies to address the health disparities in North Carolina. North Carolina has the 7th largest non-white population in the United States (2,141,397) and there are noticeable variations in the demographic composition of N.C. from region to region. 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, pp.A-5 to A-8) displays the racial and ethnic make-up of North Carolina's counties, as reported in the 2007 bridged-race estimates.

Table 1.3 displays the populations for the major race/ethnicity categories in North Carolina according to the bridged-race estimates for 2006 (please see Appendix C, pg. C-6 for more information about Census data and the bridged-race categories used to calculate rates). Over the years, there has been a steady increase in the N.C. Hispanic population. From 2002-2006, the estimated Hispanic/Latino population increased from 451,095 to 593,896, representing a 32% increase. Map 5 (Appendix A, pg. A-7) displays the proportion of Hispanic population in 2005,

by county. Within North Carolina, Duplin County had the highest proportion of Hispanic residents (19%), followed by Sampson County (15%), Lee County (14%), and Montgomery County (14%).

Table 1.3. North Carolina Bridged-Race Population Estimates by Race/Ethnicity , 2006

	Male		Female		Total	
Race/Ethnicity	Population	Percent	Population	Percent	Population	Percent
White*	2,962,034	68.2%	3,098,026	68.6%	6,060,060	68.4%
Black*	903,245	20.8%	1,019,759	22.6%	1,923,004	21.7%
AI/AN*	51,491	1.2%	54,336	1.2%	105,827	1.2%
Asian,PI*	84,705	2.0%	89,013	2.0%	173,718	2.0%
Hispanic	339,823	7.8%	254,073	5.6%	593,896	6.7%
Total	4,341,298	100.0%	4,515,207	100.0%	8,856,505	100.0%

* non-Hispanic; AI/AN=American Indian/Alaska Native, PI=Pacific Islander
National Center for Health Statistics (NCHS), Bridged-Race Population Estimates, September 2007

There are also gender differences in terms of vulnerability to illness, access to preventative and curative measures, burdens of ill-health, and quality of care in N.C. (i.e. life expectancy). Table 1.4 displays the percentages of males and females for the major race/ethnicity categories by N.C. HIV/STD 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 showing the N.C. HIV/STD regions is displayed on the inside back cover.

Table 1.4. North Carolina race/ethnicity proportions by gender and HIV/STD Regions, 2006

		R1	R2	R3	R4	R5	R6	R7	N.C.
	Race/Ethn	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.
Male	White*	42.8	34.2	35.0	30.8	26.4	28.6	36.3	33.4
	Black*	2.7	9.2	8.6	11.6	14.6	16.9	9.2	10.2
	AI/AN*	0.6	0.2	0.2	0.2	3.8	0.3	0.4	0.6
	Asian, PI*	0.5	1.3	0.8	1.7	0.6	0.4	0.5	1.0
	Hispanic	2.2	4.4	4.0	5.1	3.5	2.1	3.6	3.8
	Total	48.7	49.2	48.6	49.4	48.8	48.3	50.0	49.0
Female	White*	46.0	35.5	37.3	32.0	27.3	30.0	36.3	35.0
	Black*	2.5	10.5	10.0	13.1	16.0	19.4	10.1	11.5
	AI/AN*	0.6	0.2	0.2	0.2	4.1	0.3	0.5	0.6
	Asian, PI*	0.5	1.3	0.8	1.7	0.9	0.4	0.6	1.0
	Hispanic	1.6	3.3	3.1	3.5	2.9	1.7	2.5	2.9
	Total	51.3	50.8	51.4	50.6	51.2	51.7	50.0	51.0
Total	White*	88.8	69.7	72.3	62.9	53.7	58.6	72.7	68.4
	Black*	5.2	19.7	18.6	24.7	30.6	36.3	19.3	21.7
	AI/AN*	1.2	0.3	0.4	0.4	7.9	0.5	0.9	1.2
	Asian, PI*	1.0	2.5	1.6	3.4	1.5	0.8	1.1	2.0
	Hispanic	3.8	7.8	7.2	8.6	6.3	3.8	6.1	6.7
	Total	100	100	100	100	100	100	100	100

* non Hispanic; AI/AN=American Indian/Alaska Native, PI=Pacific Islander

Age and Gender

Age also plays an important role in public health planning and in understanding the health of a community. It is a significant indicator of the prevalence of certain diseases. Substantial morbidity and social problems among youth are the result of unsafe sex practices resulting in unwanted pregnancies and STDs, including HIV infection. Nearly half of all new sexually transmitted diseases in North Carolina occur in youth 15-24 years old. Adolescents (age 13-19) are at increased risk, both behaviorally and biologically, for HIV infection. Over half of all adolescents infected with HIV are likely untested and unaware of their status (Rotheram-Borus and Futterman 2000).

Age also relates to patterns of morbidity and mortality. The median age for people 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 North Carolina population by selected age group for North Carolina. The trend in North Carolina follows the typical age trend of slightly more males under 12 years old and more females in the older age groups.

Table 1.5. North Carolina Bridged-Race Population Estimates by Age Group, 2006

	Male		Female		Total	
Age	Population	Percent	Population	Percent	Population	Percent
0-12 years	792,208	18.2%	751,596	16.6%	1,543,804	17.4%
13-14 years	124,190	2.9%	117,656	2.6%	241,846	2.7%
15-19 years	313,853	7.2%	295,912	6.6%	609,765	6.9%
20-24 years	312,051	7.2%	282,668	6.3%	594,719	6.7%
25-29 years	303,006	7.0%	302,124	6.7%	605,130	6.8%
30-34 years	309,479	7.1%	305,619	6.8%	615,098	6.9%
35-39 years	328,954	7.6%	327,368	7.3%	656,322	7.4%
40-44 years	333,018	7.7%	339,272	7.5%	672,290	7.6%
45-49 years	325,836	7.5%	338,421	7.5%	664,257	7.5%
50-54 years	291,066	6.7%	310,504	6.9%	601,570	6.8%
55-59 years	266,371	6.1%	288,939	6.4%	555,310	6.3%
60-64 years	198,504	4.6%	220,939	4.9%	419,443	4.7%
65+ years	442,762	10.2%	634,189	14.0%	1,076,951	12.2%
Total	4,341,298	100%	4,515,207	100%	8,856,505	100%

National Center for Health Statistics (NCHS), Bridged-Race Population Estimates, September 2007

Poverty, Income, and Education

Contextual factors such as poverty, income and education, as well as racial segregation, discrimination, and incarceration rates, influence sexual behavior and sexual networks and disparities in these factors likely contribute substantially to the persistence of marked racial disparities in rates of STDs (Adimora and Schoenbach 2005)

According to the U.S. Department of Commerce's Bureau of Economic Analysis, the preliminary 2007 per capita income for North Carolina is $33,636, or 87 percent of the national average of $38,611. This represents a 4.3 percent increase from 2006 ($32,247) and placed

North Carolina 36th in the nation for personal per capita income and 4th in the Southeast. As of August, 2008, North Carolina had an unemployment rate of 6.9 (the national unemployment rate was 6.1 percent in August, 2008).

From 2005 to 2006, 18 percent of North Carolinians were below the federal poverty level (FPL); with an overall total of 39 percent of the population considered low income (199% or below FPL). Table 1.6 displays the individual poverty rate by age group for the state (2005-2006) and the nation (2006). Table 1.7 displays the individual poverty rate by race/ethnicity for N.C. (2005-2006) and the U.S (2006). Map 7 (Appendix A, pg. A-9) displays the North Carolina per capita income for 2006.

Table 1.6. North Carolina (2005-2006) and U.S. (2006) poverty rates by age

Age in Years	N.C. (Pct.)	U.S. (Pct.)
Children 0-18	25%	22%
Adults 19-64	22%	15%
Elderly 65+	14%	13%

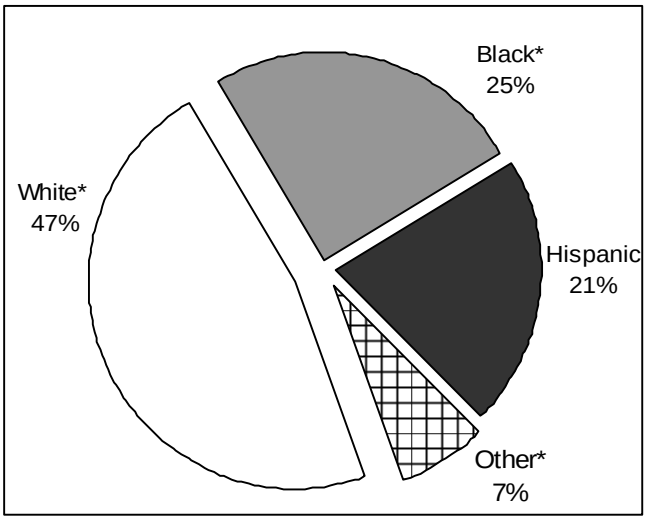
Source: Urban Institute and Kaiser Family Foundation

Table 1.7. North Carolina (2005-2006) and U.S. (2006) poverty rates by race/ethnicity

Race/Ethnicity	Individual Poverty Rate (% of each group at or below the federal poverty level)	
	N.C. (Pct.)	U.S. (Pct.)
White*	12%	12%
Black*	33%	33%
Hispanic	29%	29%
Other*	24%	20%

* non-Hispanic Source: Urban Institute and Kaiser Family Foundation

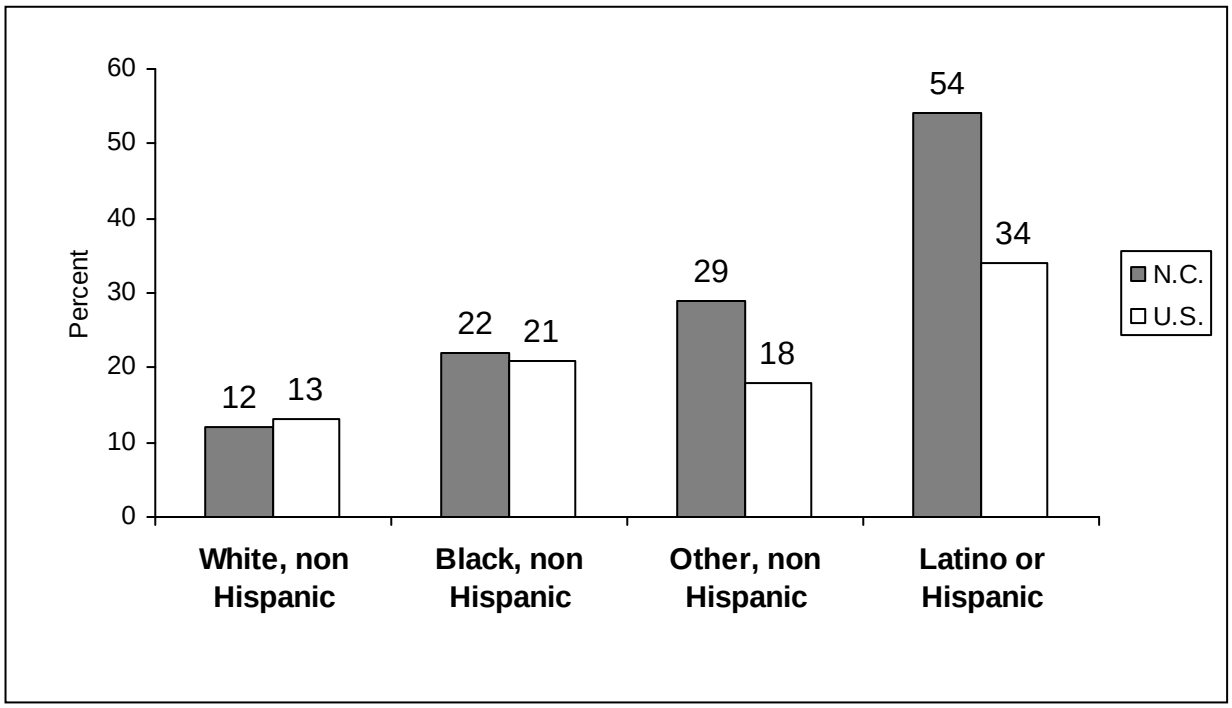
Figure 1.1. Distribution of non-elderly uninsured by race/ethnicity, 2006-2007



The percentage of the non-elderly without health insurance in North Carolina has been increasing over the years. In North Carolina (2005-2006), 22 percent of the 19-64 adult population was uninsured (N.C. Institute of Medicine, Data Snapshot 2007). The primary reason people lack health insurance is cost. According to the North Carolina Institute of Medicine, almost 57 percent of the states of the uninsured population (19-64) were low-income, with income less than 200 percent of the federal poverty level. The majority of those without health insurance in N.C. are white. The racial distribution of uninsured people in North Carolina is displayed in Figure 1.1.

Figure 1.2. displays the distribution of uninsured rates for North Carolina as compared to the United States. In 2006-2007, the uninsured rates in North Carolina were 54 percent for Latinos or Hispanic, 29 percent for other races, 22 percent for blacks, and 14 percent for whites. Although whites comprise the greatest proportion of the uninsured population, minorities have the highest rates. Latinos are more likely to be uninsured because they are often recent immigrants with low-wage jobs in industries that do not offer health insurance.

Figure 1.2. Uninsured by race/ethnicity, 2006-2007



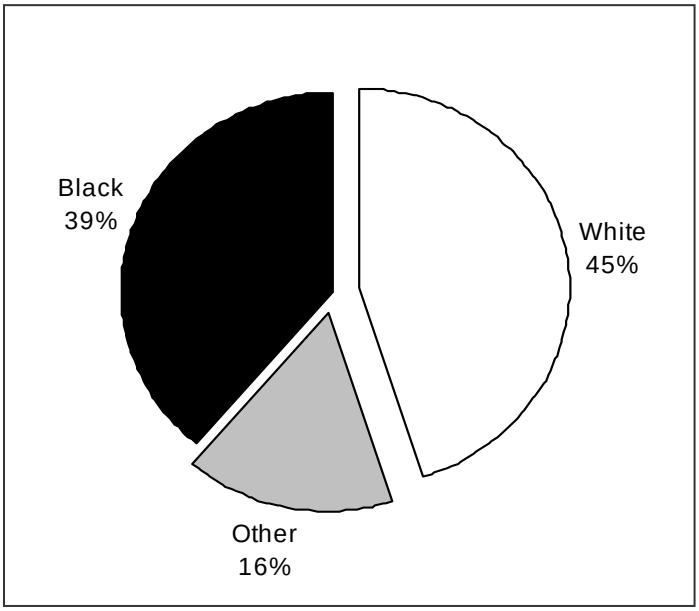
According to the 2006 American Community Survey, of North Carolinians 25 years and older, 81.9 percent were high school graduates or higher and 24.8 percent had a bachelor's degree or higher. During the 2005-06 school year, 3.6 percent of the students in seventh through twelfth grades dropped out of school. The high school dropout rate (grades 9-12) for the year was 5.2 percent (N.C. Public Schools Statistical Profile, 2007).

Public Aid

The grand total of Medicaid and Medicaid-related expenditures in North Carolina for State Fiscal Year (SFY) 2006 was approximately $8.6 billion for approximately 1.7 million Medicaid recipients (an average $5,129 per recipient). The number of Medicaid recipients increased by 1.6 percent from 2005 to 2006. During 2006, an estimated 1,644,457 North Carolinians, or 18.9 percent of the total N.C. population, was eligible for Medicaid coverage at some point during the year (DHHS, 2007).

The Elderly and Disabled accounted for about 26.0 percent of the Medicaid recipients; however, their expenditures amounted to $5.8 billion or 69 percent of the total service expenditures. Families and Children recipients comprised 69 percent of all recipients; conversely, they

Figure 1.3. N.C. Medicaid recipients by race*, SFY 2006



* Hispanics not counted as a separate group
Source: Medicaid in N. C. Annual Report 2007

accounted for $2.6 billion or only 31 percent of total service expenditures. Aliens and Refugees represented 1.7 percent of all recipients and accounted for about 60 million, or about one percent of total service expenditures. Of all Medicaid services provided, the Prescription Drug service category was the most expensive at roughly $1.4 billion, or 16 percent of total expenditures. Figure 1.3 displays the percentage of North Carolinians by race, who received Medicaid in 2007. Map 8 (Appendix A, pg. A-10) displays the percent of Medicaid eligibles by county for 2007.

OTHER HEALTH INDICATORS

Birth rates for young women can be an indirect marker for sexual activity. Although teen pregnancy rates continue to decline in North Carolina, the state still had the 15th highest teen birth rate in 2005 (Kaiser, 2007). According to the National Vital Statistics Reports (2007), the teen birth rate (women ages 15-19 years) for North Carolina in 2005 was 48.5 per 1,000. There has been a thirty percent decrease in North Carolina's teen birth rate as compared to the 1991 (most recent peak) teen birth rate of 70.0 (per 1,000). The national teen birth rates in 1991 and 2005 were 61.8 and 40.5 per 1,000 young women respectively; this representing a thirty-four percent decrease. *Please note the information above is based on the most recent data available; however, preliminary statistics released by the National Center for Health Statistics indicate an increase in the national and state teen birth rate for2006.*

Another useful health indicator is the infant mortality rate (IMR). According to the N.C Center for Health Statistics, the 2006 infant mortality rate for North Carolina was 8.1 per 1,000 live births. Due to data availability, a national infant mortality rate comparison can only be made for 2002-2004. Table 1.8 displays the North Carolina and United States infant mortality rates.

Table 1.8. N.C. and U.S. Infant Mortality Rate (deaths per 1,000 live births) by race/ethnicity, 2002-2004

Race/Ethnicity	N.C	U.S.
White*	6	6
Black*	15	14
Hispanic	7	6
Total	8	7

*Whites and blacks may include individuals of Hispanic origin

Source: Urban Institute and Kaiser Family Foundation

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

HIGHLIGHTS

- The 2007 HIV Disease case total is 1,943 (21.9 per 100,000) and the 2007 HIV Disease adult/adolescent case total is 1,934 (26.4 per 100,000 adult/adolescent population).
- The cumulative number of individuals reported with HIV disease through December 31, 2007 was 32,583 people.
- An estimated 33,000 people were living with HIV or AIDS in North Carolina (including individuals who may have been unaware of their infection) as of December 31, 2007.
- In 2007, the rate of HIV infection for adult/adolescent, non-Hispanic blacks (78.2 per 100,000) were more than seven times greater than for adult/adolescent, non-Hispanic whites (10.7 per 100,000). The rate of infection for adult/adolescent, Hispanics (37.9 per 100,000) was three and a half times greater than for whites.
- The highest rate of new HIV diagnoses in 2007 was among adult/adolescent, non-Hispanic black males, at 108.5 per 100,000. This was almost six times greater than the rate for adult/adolescent, non-Hispanic white males (18.7 per 100,000).
- The largest disparity in 2007 observed was for adult/adolescent, non-Hispanic black females, with a rate of new HIV diagnoses (52.4 per 100,000) that was more than 16 times higher than that of non-Hispanic white females (3.2 per 100,000).
- For 2007 adult/adolescent HIV disease reports, men who have sex with men (MSM) was the principal risk category indicated in 51 percent of reports; heterosexual transmission risk was indicated in 38 percent of reports, MSM/IDU was indicated in 2 percent and, injecting drug use (IDU) was indicated in 6 percent of reports.
- In 2007, MSM and MSM/IDU accounted for 76 percent of new HIV disease reports among adult/adolescent males. This represents a notable increase MSM reports over the last five years (76% in 2007 compared to 61% in 2003).
- In 2007, heterosexual contact accounted for about 86 percent of HIV disease reports for adult/adolescent females and injecting drug use accounted for 9 percent.
- Approximately, 25-30 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). This represents persons diagnosed very late in the course of the disease.
- Since the early 1990s, about 25 percent of North Carolina's HIV disease reports have consistently come from rural, or non-metropolitan, areas.

- In 2007, Hertford County had the highest 3-yr average HIV disease rate of 173.9 per 100,000 population, followed by Mecklenburg County (45.9), Edgecombe County (45.7), Washington (45.3), and Durham County (41.7). The N.C. 3-year average rate was 22.2 per 100,000 population. It should be noted that Hertford County has a large federal prison population.

- In 2006, HIV/AIDS was listed as the 7th leading cause of death for N.C. adults 25-44 years old. HIV/AIDS was listed as the 10th leading cause of death for N.C. adults 13-44 years old.

- In 2006, HIV/AIDS was listed as the 9th leading cause of death for N.C. blacks overall. The crude HIV death rate for blacks is approximately 13 times higher than for whites (16.8 vs. 1.3 per 100,000).

Special notes: "HIV disease" includes not only those diagnosed and reported with HIV, but also people newly reported 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 (pg. C-3). The HIV Disease and AIDS case totals and rates presented in the demographic tables (See Appendix D: Tables A-F, N-O) and discussed in this document are restricted to adult/adolescent only for comparability across states and with national data (CDC). All county totals and references to cumulative cases and persons living with HIV/AIDS do include the 0-12 age group.

Unless otherwise noted, references to all racial groups in surveillance data are presented in a race/ethnic designation. Hispanics are considered a separate race/ethnicity group. Thus "white" refers to white non-Hispanics, "blacks" refers to black non-Hispanics, etc.

OVERALL HIV/AIDS TRENDS

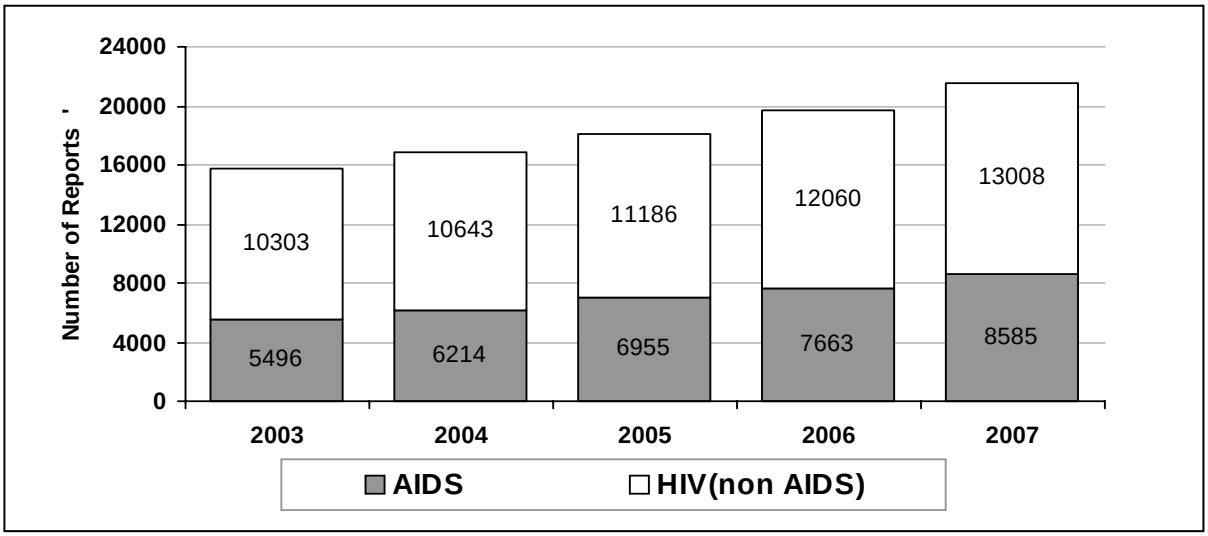
HIV Prevalence

The cumulative number of HIV disease cases reported through December 31, 2007 was 32,583, of whom 10,646 have either died or have an unknown vital status. The total number of people living with HIV disease and reported to the Communicable Disease Branch was 21,593. Figure 2.1 displays the cumulative number of people living with HIV/AIDS each year from 2003 to 2007. Please note HIV disease reports are periodically updated with vital status data available from the State Center for Health Statistics, thus "living totals" for earlier years have been revised.

Persons living with HIV/AIDS (Figure 2.1) represent individuals who have been diagnosed and subsequently reported to the North Carolina public health surveillance system. This total under-represents true HIV prevalence and must be adjusted to account for those who have been diagnosed but not reported and those who are unaware of their status. One method for estimating people who have HIV but are not aware of it is based upon the CDC estimate that two-thirds to three-fourths of the people living with HIV and AIDS have been tested and know their status. Recent studies indicate that N.C. HIV surveillance system currently captures 85 percent of new HIV diagnoses (Appendix B, pg. B-3). Applying these two statistics to our

current surveillance total of 21,593 people living in North Carolina with HIV/AIDS would increase the prevalence estimate to about 33,000 people.

Figure 2.1. Persons living with HIV/AIDS in North Carolina, 2003-2007



HIV/AIDS Prevalence Demographics

Table 2.1 displays demographics of HIV disease reports for people living with HIV/AIDS as of December 31, 2007. As expected, there is a larger representation of older individuals among the people living with HIV/AIDS, as many people live many years with a diagnosis. In addition, there is a greater percentage of males (69%) and black or African Americans (69%) living with HIV/AIDS.

Table 2.1. North Carolina HIV/AIDS cases living as of 12/31/2007 by selected demographics

	Males			Females			Total		
	No.	Pct.	Rate**	No.	Pct.	Rate**	No.	Pct.	Rate**
	14860	69%	342.3	6733	31%	149.1	21,593	100%	243.8
Race/Ethnicity									
White*	4,329	29%	146.1	1,100	16%	35.5	5429	25%	89.6
Black*	9,514	64%	1053.3	5,297	79%	519.4	14,811	69%	770.2
AI/AN*	132	1%	256.4	62	1%	114.1	194	1%	183.3
Asian PI*	76	1%	89.7	33	0%	37.1	109	1%	62.7
Hispanic	800	5%	235.4	239	4%	94.1	1039	5%	174.9
Current Age									
0-12	28	0%	3.5	34	1%	4.5	62	0%	4.0
13-19	121	1%	27.6	96	1%	23.2	217	1%	25.5
20-29	1,538	10%	250.1	722	11%	123.5	2,260	10%	188.4
30-39	3,413	23%	534.6	1,928	29%	304.6	5,341	25%	420.1
40-49	5,741	39%	871.4	2,422	36%	357.4	8,163	38%	610.8
50+	3,998	27%	333.5	1,529	23%	105.1	5,527	26%	208.3

*non=Hispanic; AI/AN=American Indian/Alaska Native; PI=Pacific Islander **per 100,000 population

HIV Incidence

There were an estimated 2,356 new HIV infections for calendar year 2006 (Table 2.2). The overall rate of estimated new infections in N.C. (32.2 per 100,000 adult/adolescent population) is 41 percent higher than the overall national rate (22.8 per 100,000 adult/adolescent population). Seventy two percent (72%) were male, 66 percent were black and, 57 percent are estimated to have occurred among MSM & MSM/IDU. Persons aged 30-39 years old had the highest rate of new infections at 48.6 per 100,000. Age specific data from N.C. also shows that persons aged 40-49 and 50 years and older had a higher rate than the national rate. The estimated state HIV incidence rate for 2006 was 9 times greater for blacks (102.2 per 100,000) than for whites (11.3 per 100,000).

Table 2.2. HIV Incidence Estimates, 2006

	North Carolina			United States	
Gender	N	Pct.	Rate	Pct.	Rate
Male	1,690	71.7%	47.6	73%	34.3
Female	667	28.2%	17.7	27%	11.9
Race/Ethnicity					
White (Non-Hispanic)	582	24.7%	11.3	35%	11.5
Black (Non-Hispanic)	1,567	66.5%	102.2	45%	83.7
Other*	210	8.9%	--	20%	--
Age					
13-29 Years	650	27.6%	31.7	34%	26.8
30-39 Years	617	26.2%	48.6	31%	42.6
40-49 Years	620	26.3%	46.4	25%	30.7
50+ Years	469	19.9%	17.7	10%	6.5
Mode of Transmission					
MSM**	1,340	56.8%	--	57%	--
IDU	185	7.9%	--	12%	--
Hetero	831	35.3%	--	31%	--
Total	2,356	100%	32.2	100%	22.8

*Other includes: Hispanics, Asian/Pacific Islanders, American Indian/Alaskan Natives

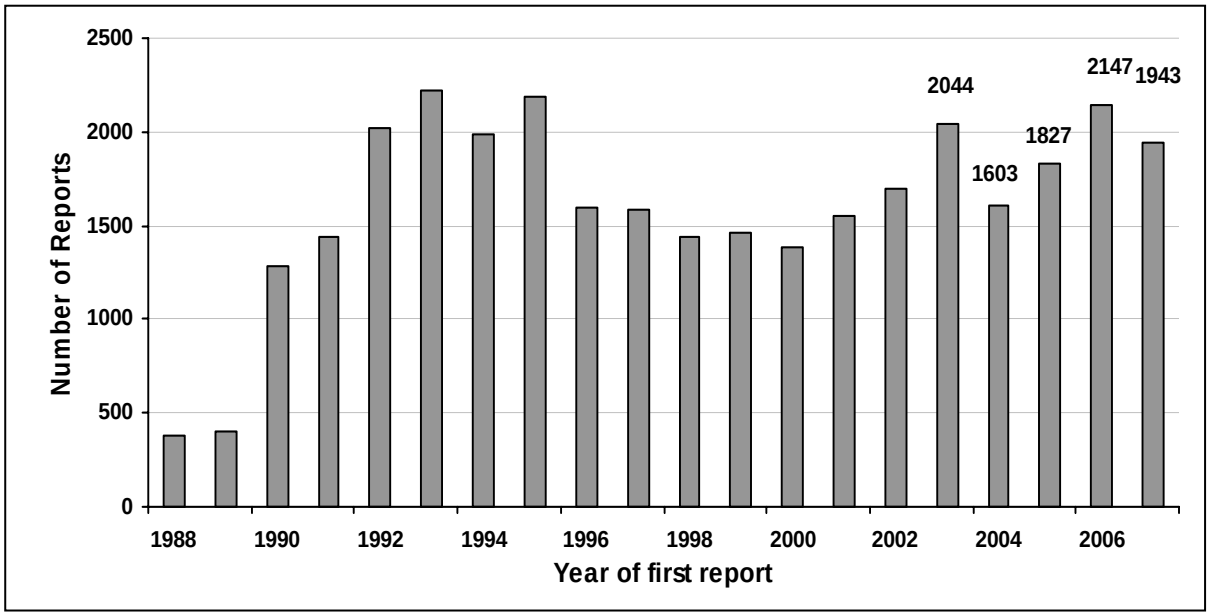
** MSM =men who have sex with men and includes MSM who inject drugs. IDU =injection drug use.

1. The case number for Hispanics, Asian/Pacific Islanders, American Indian/Alaskan Natives in NC was too small to generate rates incidence estimates
2. Because the estimate formula is applied separately to each group, numbers in the breakdowns may not total 2,356. Percentages are similarly affected
3. Incidence rates could not be calculated by risk factor, due to lack of population data for risk groups
4. Rate is expressed as cases per 100,000 adult/adolescent population
5. Cases with unknown mode of transmission were statistically redistributed into known categories.

Figure 2.2 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 the result of better reporting from providers due to enhanced awareness about HIV/AIDS and the implementation of required HIV infection

reporting. Changes in the AIDS case definition and enhanced active surveillance activities by staff also contributed to the spike, as many prevalent cases were 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 and 2006 were likely the result of newly implemented surveillance activities that added some older prevalent cases to the system.

Figure 2.2. HIV disease reports, 1988-2007



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 approximately 1,900 new reports per year. Reporting by type of initial case (HIV or AIDS) has been fairly consistent since the mid-1990s. Roughly, 25-30 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). This significant proportion of late diagnoses (i.e., HIV with AIDS) indicates the need for increased HIV testing within North Carolina. This supports the recommendation to include voluntary HIV testing as part of routine medical examinations for all U.S. residents' ages 13 to 64 (Kaiser, 2006).

HIV/AIDS BY RACE/ETHNICITY AND GENDER

Table 2.3 displays the gender and race/ethnicity distribution of HIV disease reports for 2007. The highest rate of new HIV disease diagnoses in 2007 is among black males (108.5 per 100,000 adult/adolescent population); almost six times that for white males (18.7 per 100,000 adult/adolescent population). The second highest rate of HIV diagnoses is among adult/adolescent black females (52.4 per 100,000 adult/adolescent population), which is more than 16 times higher than the rate for adult/adolescent white females (3.2 per 100,000), representing the largest disparity noted within gender and race/ethnicity categories.

Disparities also exist for Hispanics as compared to whites; the rate for Hispanic men (51.2 per 100,000) is almost three times that for white men and the rate for Hispanic women (18.2 per 100,000) is over five and a half 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 2.3). Figure 2.3 displays the proportions of HIV disease reports from 2003 through 2007 attributed to black and white males and to black and white females. As shown, black males make up the greatest proportion of all reports.

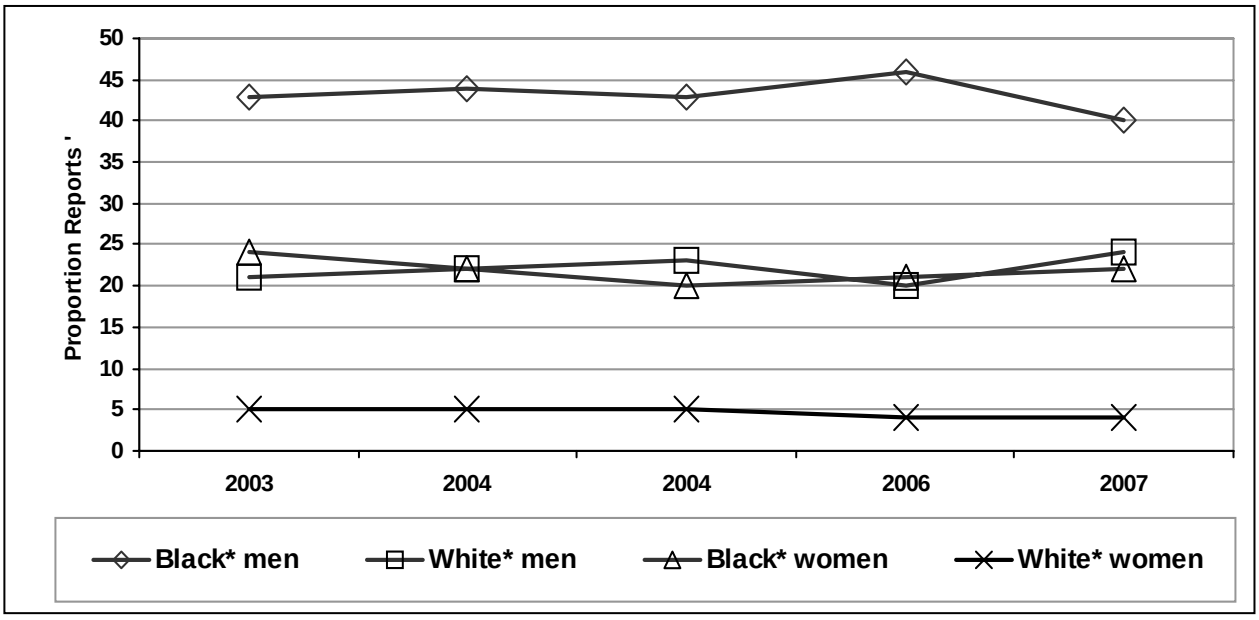
Table 2.3. North Carolina adult/adolescent HIV disease by gender and race/ethnicity, 2007

Race/ Ethnicity	Males			Females			Total		
	No.	Pct.	Rate**	No.	Pct.	Rate**	No.	Pct.	Rate**
	1,377	100%	38.8	557	100%	14.8	1,934	100%	26.4
White*	466	34%	18.7	86	16%	3.2	552	29%	10.7
Black*	766	56%	108.5	434	78%	52.4	1,200	62%	78.2
AI/AN*	8	1%	19.5	5	1%	11.3	13	1%	15.3
Asian PI*	7	1%	10.4	0	0%	0.0	7	0%	5.0
Hispanic	128	9%	51.2	31	6%	18.2	159	8%	37.9
Unknown	2	0%	--	1	0%	--	3	0%	--

*non=Hispanic; AI/AN=American Indian/Alaska Native; PI=Pacific Islander **per 100,000 adult/adolescent population

The gender distribution of HIV disease reports is about two and one-half male reports for each female report (i.e., 2.7 male reports: 1 female report). This disparity has been widening over the past five years. In 2002, the ratio was about two male reports for each female report (i.e., 2.2 male reports: 1 female report). Concurrently, there has been a corresponding increase in the number of MSM reports. In 2002, MSM and MSM/IDU comprised 59 percent of all new male adult/adolescent reports; in 2006 this number has risen to 71 percent (Table D, pg. D-7).

Figure 2.3. HIV/AIDS by race/ethnicity and gender over time, 2003-2007



* non-Hispanic

HIV/AIDS BY AGE GROUP

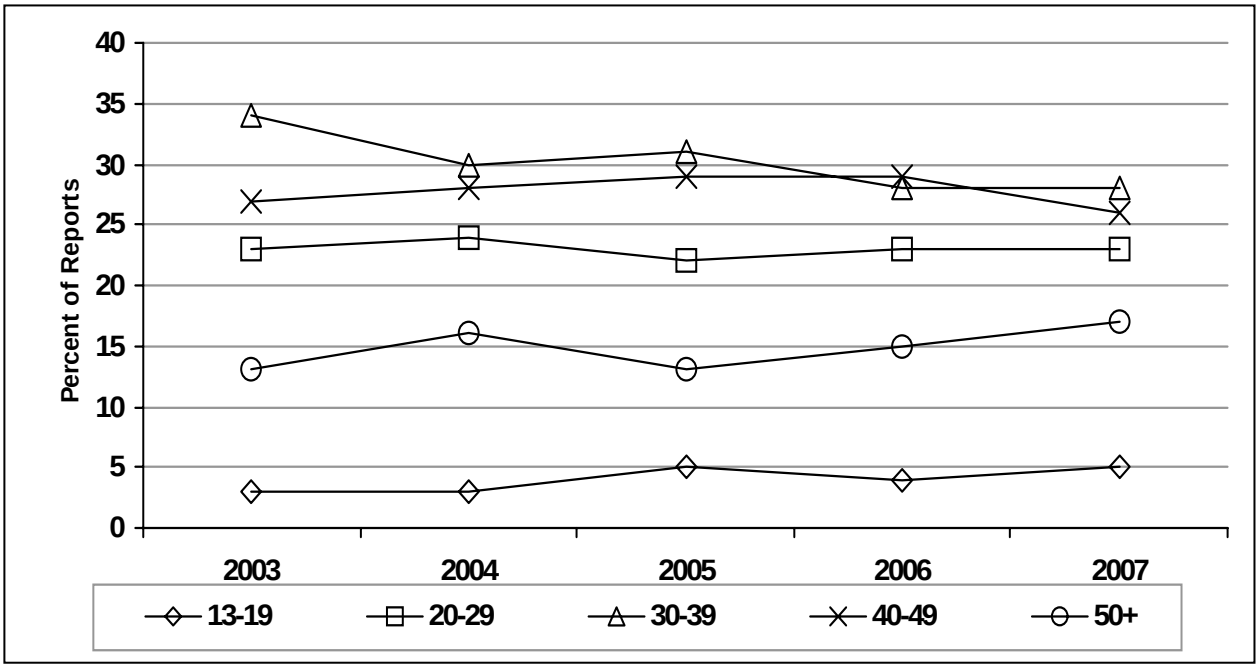
Most HIV disease reports are for adults and adolescents. HIV is reported among an older population when compared to other sexually transmitted diseases like gonorrhea and chlamydia. However, the age distribution of HIV cases is similar to that of syphilis reports (Chapter 8). Less than one percent of new reports represent infants or children younger than 13. In 2007, adults aged 30 to 39 years and 40 to 49 years accounted for the greatest proportion of reports (see Table 2.4). Together, these two groups accounted for about 54 percent of all 2007 reports. Figure 2.4 displays trends for age groups from 2003 to 2007 by their proportion of overall reports. Note that proportions have changed over time for some groups: the proportions have increased for those 50 and older.

Table 2.4. North Carolina HIV disease by age group and gender, 2007

Age	Males			Females			Total		
	No.	Pct.	Rate**	No.	Pct.	Rate**	No.	Pct.	Rate**
13-19	70	5%	16.0	32	6%	7.7	102	5%	12.0
20-29	333	24%	54.1	110	20%	18.8	443	23%	36.9
30-39	385	28%	60.3	162	29%	25.6	547	28%	43.0
40-49	367	27%	55.7	142	26%	21.0	509	26%	38.1
50 & over	222	16%	18.5	111	20%	7.6	333	17%	12.6
Total	1,377	100%	38.8	557	100%	14.8	1,934	100%	26.5

** per 100,000

Figure 2.4. HIV/AIDS by age group, 2003-2007



ADULT/ADOLESCENT HIV DISEASE 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. Adult/adolescent HIV disease by exposure category, NIR* included, 2007

Exposure category	Males		Females		Total	
	No.	Pct.	No.	Pct.	No.	Pct.
MSM	690	36%	---	---	690	36%
IDU	45	2%	25	1%	70	4%
MSM/IDU	25	1%	---	---	25	1%
Blood Products	7	0%	14	1%	21	1%
Heterosexual	49	3%	105	5%	154	8%
NIR* (presumed heterosexual)	125	7%	133	7%	258	13%
NIR*	436	23%	280	15%	716	37%
Total	1,377	71%	557	29%	1,934	100%

Table 2.6. Adult/adolescent HIV disease by exposure category, NIR* redistributed, 2007

Exposure category	Males		Females		Total	
	No.	Pct.	No.	Pct.	No.	Pct.
MSM	1,010	73%	---	---	1,010	52%
IDU	66	5%	50	9%	116	6%
MSM/IDU	37	3%	---	---	37	2%
Blood Products	10	1%	28	5%	38	2%
Heterosexual	255	18%	479	86%	733	38%
Total	1,377	100%	557	100%	1,934	100%

*no indicated risk

Table 2.5. displays the reported mode of transmission for adult/adolescent HIV disease cases for 2007. Three principal risk categories are: men who have sex with men (MSM), injection drug use (IDU), and heterosexual sex. Note that the proportion of cases for which there is no identified risk (NIR) reported is substantial, and is higher among males than among females when proportions are compared for each gender separately. A portion of these heterosexual NIR cases are classified as NIR not because of missing or incomplete information, but because the reported risk(s) do not meet one of the CDC-defined risk classifications (sex with known MSM or IDU, or sex with known HIV positive person). Consequently, some NIR cases have been reevaluated and reassigned to a "presumed heterosexual" risk category based on additional information gathered 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). Even with the reassignment of presumed heterosexual risk for some NIR reports, a substantial proportion of NIR reports remain unassigned. To 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 2.5). More explanation of this general risk reassignment of NIR cases can be found in Appendix C (pg. C-5). In addition, the redistributed risk assignment of NIR cases for all living cases can found in Table G (pg. D-10). ***Please note all further discussions of risk or exposure categories in this profile will be based on the fully redistributed risk of all HIV/AIDS cases.***

Heterosexual transmission risk represents about 38 percent of all 2007 reports; MSM and MSM/IDU (men who have sex with men and inject drugs) represent about 54 percent of all reports; and IDU represents about 8 percent (including MSM/IDU). Risk is very different for males and females, thus, it is necessary to discuss risk for each gender separately. Figures 2.5 and 2.6 display adult/adolescent risk for each gender. For males, MSM and MSM/IDU together account for about 76 percent of HIV disease reports; heterosexual contact cases account for about 18 percent of reports; and IDU account for about 5 percent. For females, heterosexual contact accounts for about 86 percent of reports and IDU about 9 percent. Tables E and F (pp. D-8 to D-9) display the risk categories by gender from 2003 to 2007. For males, the proportion of MSM reports has risen in recent years, from 58 percent in 2003 to 73 percent in 2007. This is consistent with the recent overall increase in male reports observed during the same time period. The proportion of IDU reports (2003-2007) for males has declined from 9% to 5% from 2003-2007. IDU-associated reports for females do not show a discernable trend. For females, the proportion of heterosexual contact reports has remained fairly constant.

Figure 2.5. Adult/adolescent female HIV disease reports, 2007

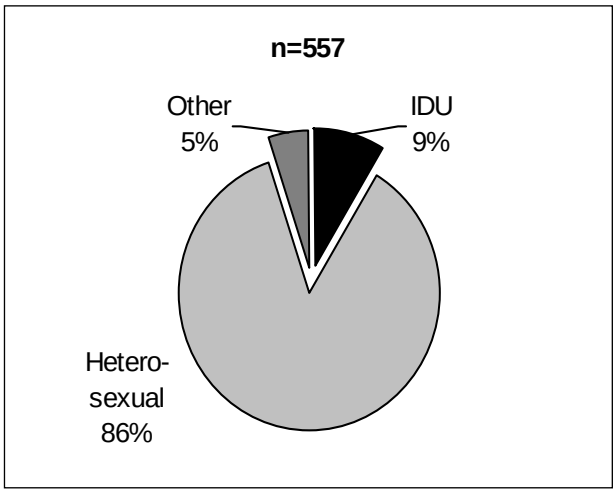
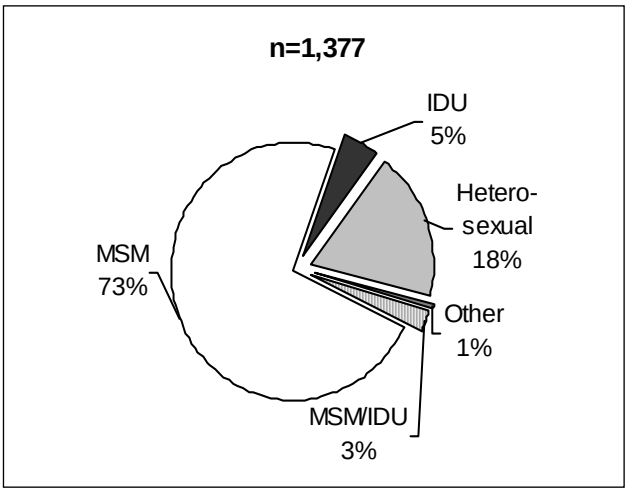


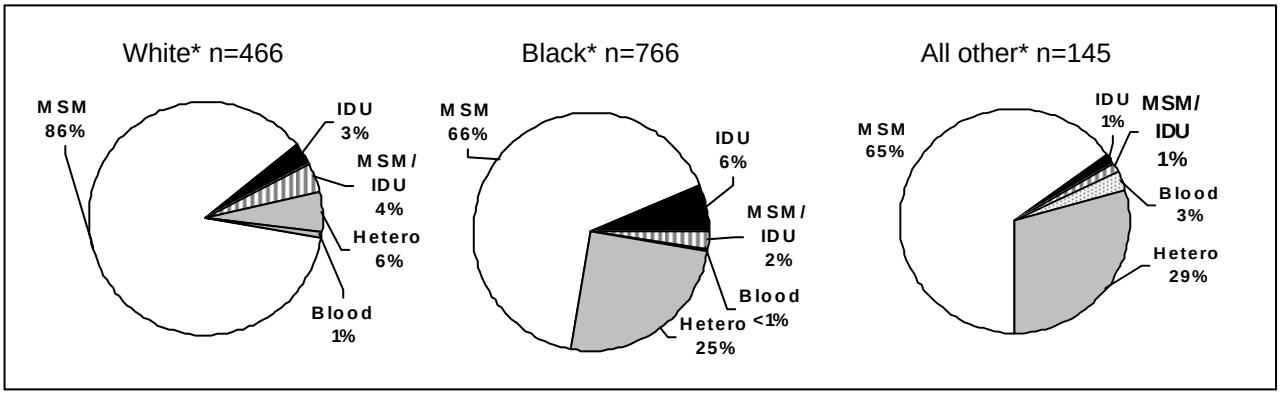
Figure 2.6. Adult/adolescent male HIV disease reports, 2007



HIV is distributed differently among racial/ethnic groups with respect to risk. Figures 2.7 and 2.8 display the 2007 adult/adolescent HIV risk information (exposure categories) by racial/ethnic groups and gender. Note that for white males, MSM represented 86 percent of reports, heterosexual risk represented six percent of reports, and IDU risk represented three percent of reports. For black males, MSM represented about 66 percent of reports, heterosexual risk represented about 25 percent of reports, and IDU risk about 6 percent of reports. The risk breakdown for other races/ethnicities (Hispanics, American Indians, and Asian/Pacific Islanders) are grouped together because of low case numbers. Within this aggregated group, 'all other" MSM risk was reported for 65 percent of male reports, heterosexual risk for 29 percent of

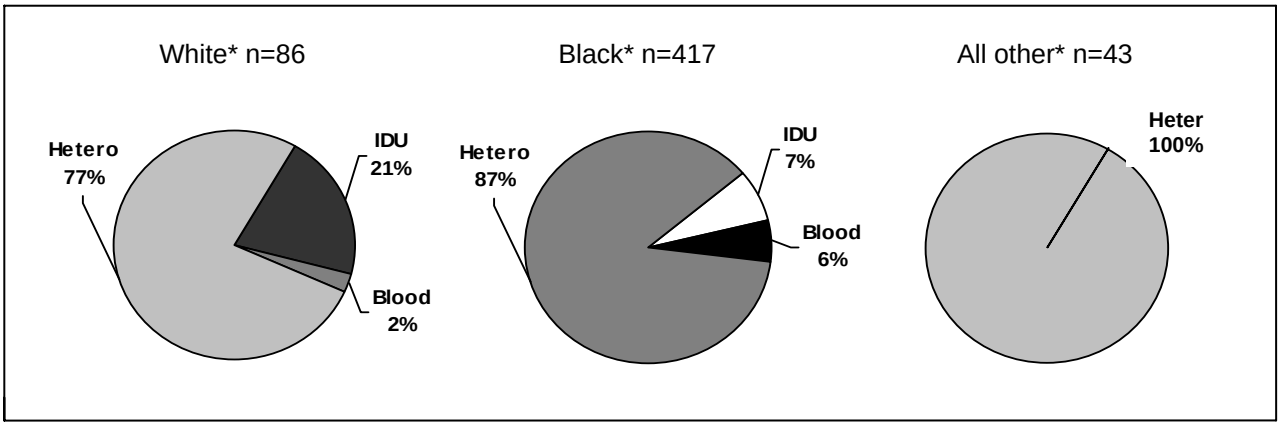
reports, and IDU risk for one percent of reports. Although some of this observed difference may be due to underreporting of MSM activity among minority males, some is attributed to the difference in prevalence of the disease for each racial/ethnic group. Unlike the differences in risk observed for males among the racial/ethnic groups, the majority of all HIV cases among females, regardless of race/ethnicity are attributed to heterosexual sex. IDU is attributed to a greater proportion of non Hispanic, white female cases than to minority females (see Chapter 3 for further discussion of HIV risk).

Figure 2.7. Male HIV disease reports, 2007



*Pediatric reports excluded

Figure 2.8. Female HIV disease reports, 2007



*Pediatric reports 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.

There is growing concern about the disproportionate increase of HIV and AIDS in the South as compared to other regions of the nation. 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 are contributing to the epidemic's regional rise (Southern State AIDS Directors workgroup, 2003). See Chapter 6 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. A-11 to A-12). Cases are assigned to the county of residence at first diagnosis. This distribution can be partly explained by the population distribution in Map 1 (Appendix A, pg. A-3), as the epidemic tends to be concentrated in urban areas. While 85 percent of new reports in 2007 were reported from Metropolitan counties, (See Map 9, Appendix A, pg. A-11), some of the highest rates are found in more rural counties (See Map 10, pg. A-12).

Tables J-K (pp. D- 13-16) give individual county totals of HIV disease and AIDS cases reported, cases listed as living at the end of 2007, and a ranking of case rates (per 100,000 population) based on a three-year average (2005-2007). Hertford County (which houses a large federal prison facility) ranked number one with the highest three-year average rate (per 100,000 population) of HIV in 2007 (173.9), followed by Mecklenburg County (45.9), Edgecombe County (45.7), Washington (45.3) and Durham County (41.7). Readers are cautioned to view rates carefully, as rates based on small numbers (generally less than 20) are considered unreliable. *Please note that people in long-term institutions are considered residents of the institution. Therefore, HIV disease cases first diagnosed in an institution, such as federal or state prison, are included in the HIV disease counts of the county in which it is located. Some North Carolina counties, like Hertford County, have substantial institutionalized populations.*

HIV/AIDS-RELATED DEATHS

Unlike chronic diseases with high death rates among older populations (such as cancer or cardiovascular diseases) HIV/AIDS death rates are concentrated among the young and middle-aged. According to the North Carolina State Center for Health Statistics, 425 HIV/AIDS deaths were reported in 2006. HIV disease was also listed as the 9th leading cause of death among adult/adolescent blacks of all ages (Table 2.7). The crude death rate per 100,000 is about 13 times higher for blacks (16.8) than for whites (1.3). Although HIV/AIDS did not rank among the top 10 causes of death for all ages, it was listed as 10th for ages 13 to 24 years (Table 2.8) and 7th for ages 25 to 44 years (Table 2.9).

Table 2.7. N.C HIV/AIDS-related deaths by race/ethnicity and gender, 2006

Race/	Males			Females			Total		
ethnicity	No.	Pct.	Rate*	No.	Pct.	Rate*	No.	Pct.	Rate*
White**	66	23%	2.2	10	7%	0.3	76	18%	1.3
Black**	204	70%	22.6	119	88%	11.7	323	76%	16.8
Hispanic	15	5%	4.4	5	4%	2.0	20	5%	3.4
Other/Unk	5	2%	3.7	1	1%	0.7	6	1%	2.1
Total	290	100%	6.7	135	100%	3.0	425	100%	4.8

**non-Hispanic * per 100,000 population Source: N.C. State Center for Health Statistics

Table 2.8. Leading causes of death for North Carolina residents 13-24 years, 2006

Rank	Cause	Number	Pct.
1	Motor vehicle injuries	396	33.2%
2	All other unintentional injuries	177	14.8%
3	Assault (homicide)	169	14.2%
4	Intentional self-harm (suicide)	149	12.5%
5	Diseases of heart	47	3.9%
6	Cancer	44	3.7%
7	Congenital malformations	20	1.7%
8	Cerebrovascular diseases	12	1.0%
9	Influenza and pneumonia	11	0.9%
10	HIV Disease	10	0.8%
	All other causes (Residual)	158	13.3%
Total Deaths -- All Causes		1193	100%

Source: N.C. State Center for Health Statistics

Table 2.9. Leading causes of death for North Carolina residents 25-44 years, 2006

Rank	Cause	Number	Pct.
1	Unintentional Injuries	606	14.3%
2	Cancer	586	13.9%
3	Diseases of heart	542	12.8%
4	Motor vehicle injuries	524	12.4%
5	Intentional self-harm (suicide)	366	8.7%
6	Assault (homicide)	276	6.5%
7	HIV disease	189	4.5%
8	Cerebrovascular diseases	117	2.8%
9	Diabetes mellitus	103	2.4%
10	Chronic liver disease and cirrhosis	72	1.7%
	All other causes	847	20%
Total Deaths -- All Causes		4228	100%

Source: N.C. State Center for Health Statistics

ADOLESCENT ACQUIRED HIV/AIDS

Tables H and I (pp. D-11 to D-12) and Figures 2.9 and 2.10 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 2006, while just 4 percent of reports were found among teenagers aged 13 to 19, the percentage increased to 13 percent of all cases when 20- to 24- year olds were included.

Figure 2.9. Adolescent Male HIV disease reports (13-24 yrs), 2007

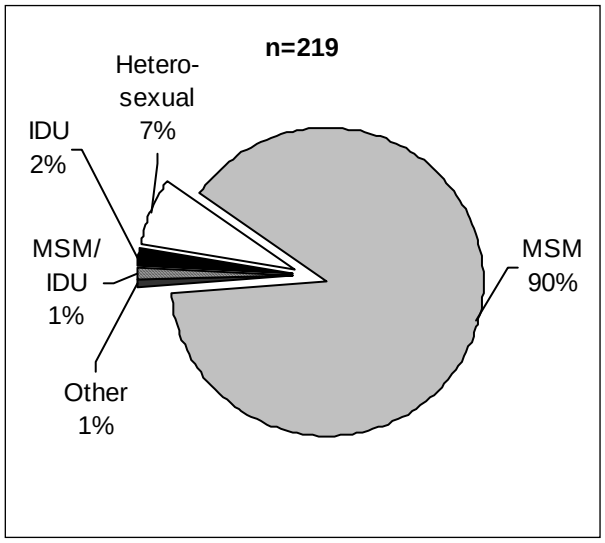
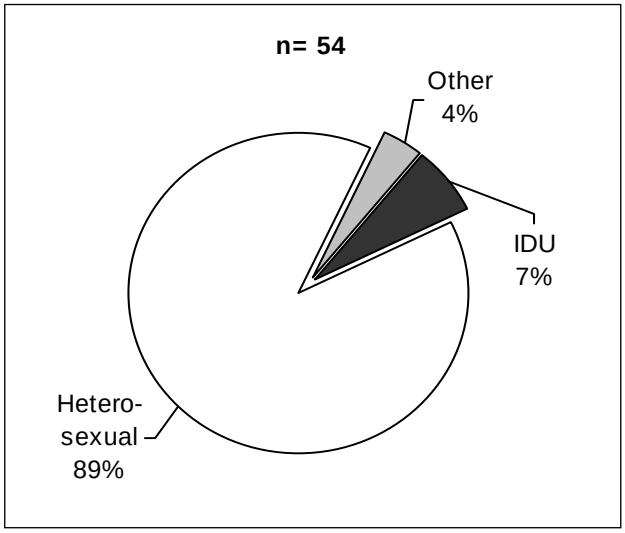


Figure 2.10. Adolescent Female HIV disease reports (13-24 yrs), 2007



The exposure or risk categories for male adolescents and for female adolescents are very different. For adolescent females, the proportion of HIV disease reports attributed to heterosexual contact in 2007 accounted for almost 89 percent of the cases. For adolescent males, the proportion of HIV disease reports attributed to MSM risk accounted for 90 percent of the 2007 reports, up from the 81 percent of reports in 2003.

PERINATAL HIV/AIDS

Perinatal transmission of HIV 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 in N.C. 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.

Table 2.10. Female HIV disease by special age groups, 2003-2007

Age	2003		2004		2005		2006		2007	
	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.
0-14 yrs	7	1%	4	1%	7	1%	9	2%	6	1%
15-44 yrs	489	77%	320	70%	372	75%	390	67%	390	70%
45 + yrs	143	22%	134	29%	120	24%	181	31%	165	29%
Total	639	100%	458	100%	499	100%	580	100%	561	100%

Table 2.11 displays the number of likely perinatal HIV transmissions that have occurred from 1998 to 2007 by year of birth. These represent pediatric reports that indicate 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.

Table 2.11. HIV disease reports that were likely perinatal transmissions, 1998-2007

Year of birth	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Reports	7	5	4	6	3	4	2	1	5	1

HIV DISEASE AMONG FOREIGN-BORN RESIDENTS

Table 2.12 displays the number of HIV reports that were identified among foreign-born people in North Carolina. Substantial increases in the number of reports for this group have been noted over the last six years. In 2007, these HIV reports represented approximately seven percent (n=128) of all reports (1,943). In the last ten years (1998-2007), for foreign-born blacks, the principal countries of origin were South Africa, Zambia, Kenya, Haiti and Nigeria. For HIV-infected Hispanics, the principal country of origin was Mexico, followed by Honduras, El Salvador and Guatemala. This information is important to keep in mind as outreach and prevention initiatives are planned, because messages and information must need to be tailored for or designed to include North Carolina's foreign-born population. See Chapter 1 for more information on foreign-born population in North Carolina.

Table 2.12. HIV disease among foreign-born residents, 1998-2007

Year	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Reports	21	24	29	22	80	91	83	102	133	128

Table 2.13. HIV disease among foreign-born residents, 1998-2007

Race/ethnicity	No.	Pct
White, non-Hispanic	18	3%
Black, non-Hispanic	215	30%
Asian/Pacific Islander	30	4%
Hispanic	420	59%
Unknown	30	4%
Total	713	100%

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

HIGHLIGHTS

Men who have sex with men (MSM)

- In 2007, MSM activity accounted for 54 percent of all new adult/adolescent HIV disease reports (including MSM/IDU). This represents a 29 percent increase in overall MSM activity has increased as a percentage of new reports from 2003 to 2007 (42%-54%).

- In 2007, 76 percent of HIV Disease reports among adult/adolescent men were associated with MSM activity. Ninety one percent (91%) of adolescent male (age 13-24 years) HIV disease reports were attributed to MSM activity.

- In 2007, MSM activity accounted for 90 percent of HIV disease risk among white, non-Hispanic male reports, 68 percent of black, non-Hispanic male reports and, 66 percent of reports among males of other race/ethnicity groups.

Injecting Drug Use (IDU)

- In 2007, injecting drug use accounted for eight percent (8%) of all HIV disease reports (including MSM/IDU).

- Overall IDU risk as a proportion of new reports has decreased from 11% to 8% in the past five years (2003-2007).

- In 2007, the male-to-female ratio of HIV disease reports associated with IDU was 2:1.

Heterosexual Sex

- In 2007, heterosexual sex accounted for 38 percent of all adult/adolescent HIV disease reports; 86% of female adult/adolescent HIV disease reports and 18 percent of male adult/adolescent HIV disease reports were attributed to heterosexual sex.

- Heterosexual sex accounted for 89 percent of female adolescent (age 13-24 years) HIV disease reports and 7 percent of male adolescent (age 13-24 years) HIV disease reports.

- In 2007, heterosexual sex accounted for 87 percent of HIV disease risk among black, non Hispanic females reported and 25 percent among black, non Hispanic males. Heterosexual sex accounted for 77 percent of HIV disease among white, non Hispanic females reported in 2007 and 6 percent among white, non Hispanic males. Heterosexual sex was reported as the only risk for 100 percent of HIV reports among women of other race/ethnicity groups and 29 percent among males of other minority groups.

INTRODUCTION TO RISK

HIV is most often transmitted by sexual contact with an infected person or by sharing needles/syringes with someone who is infected. Less commonly HIV is transmitted through transfusions of infected blood products or from HIV infected mother to child before or during birth and/or through breast-feeding. The at-risk populations in Chapter Three include men who have sex with men (MSM), injection drug users (IDU) and their sexual partners, and heterosexually active women and men. *Please note that because the risk behaviors of MSM/IDU overlap, MSM/IDU reports are discussed in both the MSM and the IDU category.*

MEN WHO HAVE SEX WITH MEN (MSM)

HIV/AIDS has taken a tremendous toll on men who have sex with men (MSM). Sexual risk factors account for most HIV infections among MSM. Not using a condom during anal sex with someone other than a primary partner of known negative HIV status continues to be a significant health risk of MSM. Many MSM feel isolated or rejected by family and society, and oftentimes motivations of companionship and intimacy take priority over protecting one's health. MSM who struggle with societal problems such as homophobia, racism and poverty as well as individual problems such as depression and mental illness, a history of childhood sexual abuse, abuse due to homophobia and internalized homophobia, drug abuse, alcohol abuse, and partner violence have all been shown to increase high risk sexual behavior, and may be at greater risk for HIV infection (CDC July 2005).

Men who have sex with men continue to account for a substantial proportion of HIV Disease reports, in North Carolina. MSM (including MSM/IDU) account for 45 percent of all people living with HIV Disease and 62 percent of all men living with the disease as of 12/31/07 (Table G, pg. D-10). Reports with MSM (including MSM/IDU) associated risk accounted for 54 percent of all 2007 HIV disease reports. MSM-associated risk as a proportion of new reports has increased 29 percent since over the past five years (2003-2007). Among men, MSM activity is associated with 76 percent of all 2007 HIV disease reports (Table D, pg. D-7). The proportion of white male HIV cases with MSM risk is much greater (90%) than the proportion of black male HIV cases with MSM risk (68%) or other non-white males (66%). Over the past five years (2003-2007) HIV reports with MSM risk have increased as a proportion of new cases 28 percent (53% to 68%) among black males, 11 percent (81% to 90%) among white males and, 32 percent (50%-66%) among males of other race/ethnicity groups (Table F, pg. D-9).

Young MSM

In 2007, 64 percent of all reported HIV disease cases among all young people in N.C. aged 13-24 years were attributed to male-male sexual contact (Table H, pg. D-11). This represents a 36 percent increase from 2003-2007 in the proportion of new cases attributed to MSM activity. Among young men (age 13-24), MSM and MSM/IDU risk account for 91 percent of HIV reports in 2007. Comprehensive health programs that educate young MSM about HIV risk should address sexuality in the context of their lives, taking into account sexual identity (gay, bisexual or MSM who identify as neither), and the unique problems many MSM face.

Partner Counseling and Referral Services Data (PCRS)

Disease Intervention Specialists (DIS) attempt to interview all people newly diagnosed with HIV and syphilis in North Carolina in order to inform them of their disease status, to educate them about the control measures they must take in order to avoid infecting others and to assist with partner notification. PCRS data includes risk and partner data collected by DIS during the follow-up field interview. More information about the Field Services and the PCRS data source can be found in Appendix B (pg. B-9).

Among all males interviewed with syphilis in 2007 (n=381), MSM activity was identified in 61 percent of cases (Table 3.1). This represents a 110 percent increase from 2003-2007 (29%-61%) in MSM-associated activity as a proportion on new syphilis cases. MSM risk was associated with 49 percent of males interviewed with HIV in 2007 (n=1,179). MSM activity has increased 11 percent (44% to 49%) as a proportion of new male HIV disease cases interviewed through PCRS (2003-2007).

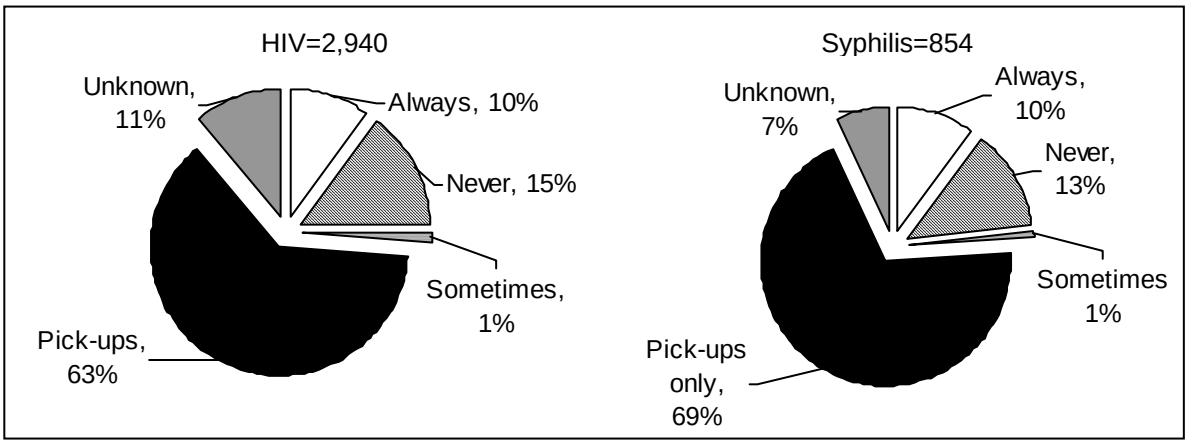
Table 3.1. Males interviewed with HIV or syphilis who reported MSM activity, 2003-2007

Disease	2003		2004		2005		2006		2007	
	n	Pct.	n	Pct.	n	Pct.	n	Pct.	n	Pct.
HIV	573	44%	552	47%	595	47%	637	49%	583	49%
Syphilis	72	29%	129	40%	180	48%	239	55%	234	61%

Condom use and Sex Partners

Patients with HIV and/or syphilis infection are asked about condom usage in five categories: always, never, sometimes, pick-ups only, and unknown. "Pick-ups" are described as sex with a casual partner, sometimes involving exchange sex (sex for drugs, money, etc.). Of MSM with HIV interviewed from 2003 to 2007 (n=2,940), ten percent (10%) indicated that they always used a condom, 15 percent indicated they never used a condom, and 63 percent indicated they used condoms with pick-ups only (Figure 3.1). Similarly, of MSM interviewed with early syphilis from 2003-2007 (n=854), ten percent (10%) indicated they always used condoms, 13 percent indicated never used condoms and 69 percent indicated they used condoms with pick-ups only.

Figure 3.1. Condom use among males with HIV or syphilis reporting MSM activity, 2003-2007



Among men with HIV interviewed from 2003 to 2007 who indicated MSM activity, 12 percent indicated having had more than one sexual partner in the past 90 days; 39 percent indicated having had multiple partners in the past year and, 13 percent indicated that they had a new sex partner within the past 90 days. Twenty-five percent (25%) of MSM interviewed with HIV from 2003-2007 indicated they had female as well as male sexual partners. Twenty two percent (22%) of MSM with HIV infection indicated that they had experienced a previous STD. Among men interviewed with syphilis (2003-2007) who indicated MSM activity, 26 percent indicated having multiple sexual partners in the past 90 days; 56 percent indicated that they had multiple sexual partners in the past year; 26 percent indicated that they had a new sex partner within the past 90 days (Table 3.2). Sixteen percent (16%) of men with syphilis also indicated they had female as well as male sexual partners. Thirty eight percent (38%) of men indicating MSM activity with syphilis indicated they had been previously infected with a STD.

Table 3.2. Sex partners among men interviewed with HIV or syphilis who indicated MSM activity, 2003-2007

	Men with HIV (n= 2,940)		Men with Syphilis (n= 854)	
Partners	n	Pct.	n	Pct.
>1 partner, 90 days	362	12%	221	26%
>1 partner, one year	1156	39%	475	56%
New partner, 90 days	377	13%	219	26%
Sex with men and women	744	25%	137	16%
History of STDs	644	22%	323	38%

Drug use among MSM

People with a history of substance abuse are more likely to engage in high-risk sexual activities (Leigh 1993). 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 within these networks more likely. The most common drugs used among men with MSM risk diagnosed with HIV and interviewed by DIS from 2003-2007 were: marijuana (26%), cocaine (8%), crack-cocaine (8%), methamphetamine (2%), heroin (0.4%) and narcotics (2%). Similarly, the most common drugs used among men with MSM risk diagnosed syphilis and interviewed by DIS from 2003-2007 were: marijuana (23%), cocaine (6%), crack-cocaine (4%), methamphetamine (2%), heroin (0.2%) and narcotics (1%).

NC Rapid Behavioral Assessment

Men attending gay Pride events in NC during 2006-2007 were systematically sampled and recruited for participation in an anonymous 10 minute survey. Eligible men were asked about their basic demographics, sexual behavior, drug and alcohol use, HIV testing, STD diagnoses, receipt of prevention services, attitudes about circumcision, and being “out.”

Data were gathered from eight hundred and thirty seven (837) men; 545 (65%) were considered sexually active MSM of HIV negative or unknown HIV status. The results indicated that 90% of

the participants had been previously tested for HIV. Of those tested, 78 percent had been tested during the preceding 12 months. Noninjection drugs were used by 31 percent of participants during the preceding 12 months; the most commonly used drugs were marijuana (81%), poppers (19%), cocaine (19%), pain relievers (15%), downers (10%), ecstasy (9%), and crystal meth (6%). Less than 1% reported injecting drugs in the past year. Twenty nine percent (29%) drank alcohol at least half of the time before sex.

Of the 545 men who had at least one male sex partner during the preceding 12 months; 281 (52%) reported having unprotected anal intercourse (UAI) and 75 (14%) reporting having UAI with multiple partners in the past 12 months. Among sexually active MSM (n=545), the median number of male sex partners in the past 12 months was 2.0 (Range: 1-200 partners). Thirty four percent (34%) met their sex partners at a bar or club and 35 percent met over the internet. Six percent (6%) of sexually active MSM surveyed had been diagnosed with a sexually transmitted disease in the 12 months prior; 11 men were diagnosed with syphilis. Of the 545 men who reported having sex with a man in the past 12 months, 41 percent were with concordant partners (i.e., the respondent and their sex partners were negative), two percent (2%) were discordant partners (partner was HIV-positive, respondent was HIV-negative) and 57 percent were with partners of unknown HIV status.

INJECTING DRUG USE (IDU)

Drug use and drug dependence are widespread in the United States. SAMHSA estimates that as many as 2.4 million Americans may be injecting drug users. Combined data from 2002 to 2005 indicate an estimated 424,000 persons (aged 12 or older) annually injected heroin, cocaine, methamphetamine, or other stimulants. Males were twice as likely as females to have injected drugs in the past year (0.24% vs. 0.11%). Rates of injection was the highest among adults aged 18 to 34. Whites were more likely than blacks to have injected these drugs in the past year, but overall injection drug use rates did not vary by county type or region.

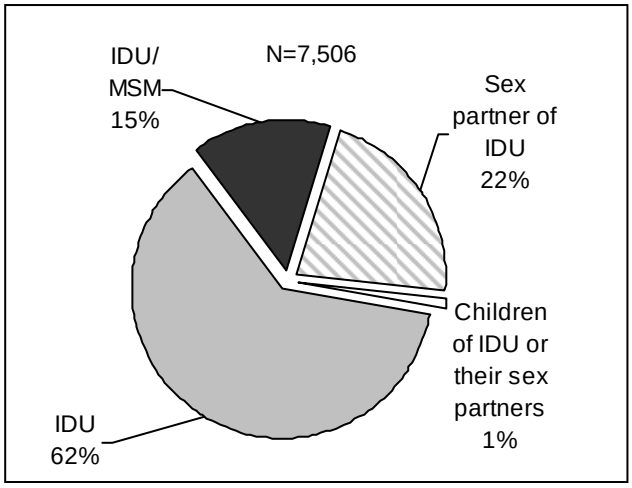
The Centers for Disease Control and Prevention (CDC) estimates that 36 percent of the more than one million people currently living with HIV in the United States can be attributed to risk factors related to injecting drug use (CDC, IDU Fact Sheet, 2002). This estimate includes mother-to-child HIV transmission and transmission through sexual contact with an injecting drug user. For injecting drug users, HIV infection is not only caused by injecting drugs with dirty needles, but by unsafe sexual behavior within certain sexual networks. Sexual networks of substance abusers might include people who have used dirty 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.

IDU associated HIV transmission was attributed to six percent (6%) of all adult/adolescent reports in 2007 (including MSM/IDU). IDU risk (including MSM/IDU) represented eight percent (8%) of all male HIV disease reports in 2007. Among adult/adolescent females, IDU risk represented nine percent (9%) of 2007 reports. Overall, IDU-associated risk as a percentage of new reports decreased 27 percent from 2003-2007 (11%-8%). The male to female ratio of HIV disease reports associated with IDU was 2:1.

Other persons with IDU-associated risk include sex partners of injection drug users and perinatal cases where the mothers were injection drug users or had sex partners who were injection drug

users. Since AIDS reporting began in North Carolina, 7,506 persons have been reported with IDU or IDU-associated HIV infection (Figure 3.2). Sixty two percent (62%) were injecting drug users, 15 percent were MSM/IDU, 22 percent were sex partners of injecting drug users, and one percent (1%) was children of mothers who were injecting drug users or sex partners of injecting drug users.

Figure 3.2. Proportion of IDU-associated HIV disease cases in N.C., 1983-2007



Partner Counseling and Referral Services Data (PCRS)

People newly diagnosed with HIV or syphilis are asked about drug use in two general categories: intravenous drug use (IDU) and non-intravenous drug use. Of HIV cases interviewed through PCRS from 2003-2007, the majority reporting IDU risk were male (72%), black, non-Hispanic (58%), and ages 40 and older (76%). In 2007, IDU risk was reported by five percent of males (n=58) and four percent of females (n=18) interviewed with HIV Disease. Among HIV cases interviewed through PCRS, IDU risk has slightly decreased from 2003 to 2007 (7%-5%). Among all people reporting IDU interviewed through PCRS in 2007 more than half (51%) used crack cocaine, 46 percent used marijuana, 34 percent used cocaine, 17 percent used methamphetamine, 8 percent used heroin, and 7 percent used narcotics (PCRS data has limitations, for more information see Appendix B, pg B-9).

HETEROSEXUAL RISK

North Carolina continues to experience an HIV epidemic in which a substantial proportion of the cases are among people for whom heterosexual sex is their only risk. Heterosexual transmission of HIV represented 38 percent of all new adult/adolescent HIV disease reports in 2007 (Table D, pg. D-7). In 2007, heterosexual risk reports represented 86 percent of the adult/adolescent female cases, whereas they represented only 18% of male reports. Black females and females of other racial/ethnic minorities are more likely to be classified with heterosexual risk as compared to white females (Table E, pg. D-8). Likewise in 2007, black males and males of other racial/ethnic minorities are more likely to be classified with heterosexual risk as compared to white males (Table F, pg. D-9). For young people, ages 13-24 years, only seven percent (7%) of HIV reports among young men were attributed to heterosexual sex, whereas 89 percent of 2007 reports among young women were attributed to heterosexual sex (Table H, pg. D-11).

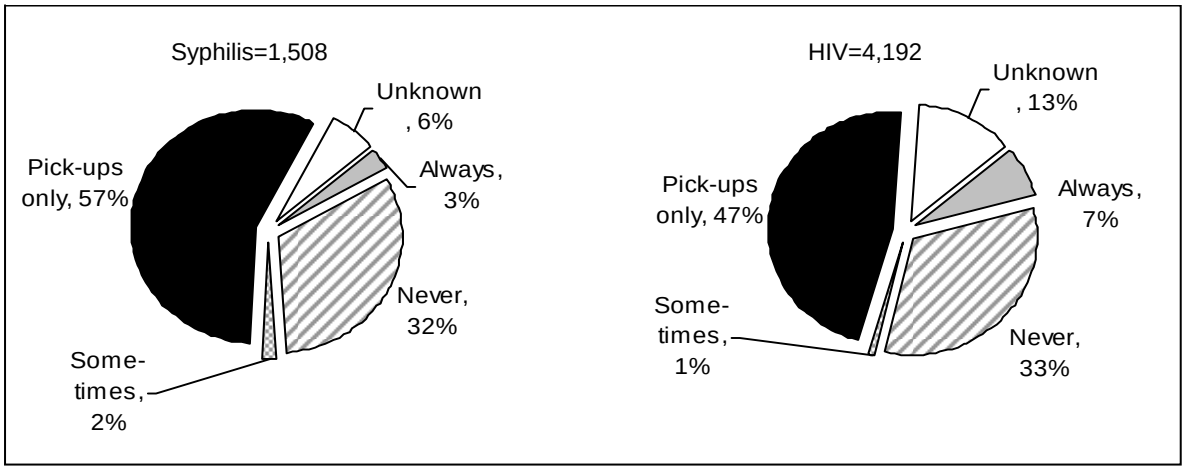
Partner Counseling and Referral Services Data (PCRS)

From 2003 to 2007, 83 percent of females with HIV interviewed through PCRS, reported heterosexual activity as their only risk factor. Of males interviewed with HIV from 2003 to 2007, 33 percent reported heterosexual sex as the only mode of HIV transmission

Condom Use and Sex Partners

Interviewed heterosexuals diagnosed with HIV or syphilis are less likely to use condoms, in comparison with other risk groups. Thirty-three percent of those HIV positive people indicated that they never use condoms and 47 percent using condoms with pick-ups only. Thirty-two percent of those interviewed with syphilis indicated that they never use condoms; 57 percent reported using condoms with pick-ups only (Figure 3.3).

Figure 3.3. Condom use by heterosexuals with HIV or syphilis, 2003-2007



One-fourth of heterosexuals with HIV interviewed from 2003 and 2007 reported multiple sexual partners in the past year. Over half of the interviewed heterosexual syphilis cases reported multiple partners in the past year (Table 3.3). Twenty-seven percent of people with syphilis interviewed from 2003-2007 had more than one sex partner in the past 90 days, and 24 percent had a new partner in the past 90 days.

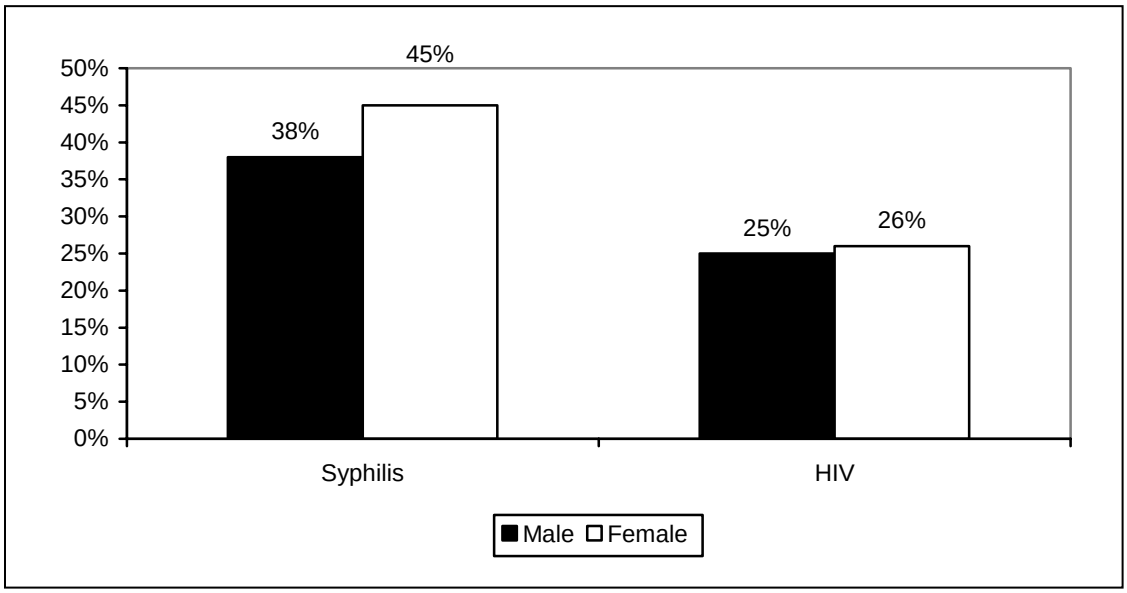
Table 3.3. Sex partners among heterosexuals interviewed with HIV or Syphilis, 2003-2007

	Heterosexual with HIV (n= 4,192)		Heterosexual with Syphilis (n= 1,508)	
Partners	n	Pct.	n	Pct.
>1 partner, 90 days	298	7%	405	27%
>1 partner, one year	1,011	24%	760	50%
New partner, 90 days	229	6%	367	24%

History of Sexually Transmitted Infection

High STD rates in North Carolina are markers for high-risk sexual practices and are cause for concern. Sexually transmitted diseases, such as gonorrhea and syphilis, increase the risk of HIV infection (Flemming and Wasserheit, 1999). Twenty five percent (25%) of interviewed males and 26 percent of interviewed females with HIV infection (2003-2007) indicated that they had previously been infected with a sexually transmitted disease. Among people interviewed with early syphilis, 38 percent of men had previously been diagnosed with a STD and 45 percent of women had a previous STD (Figure 3.4).

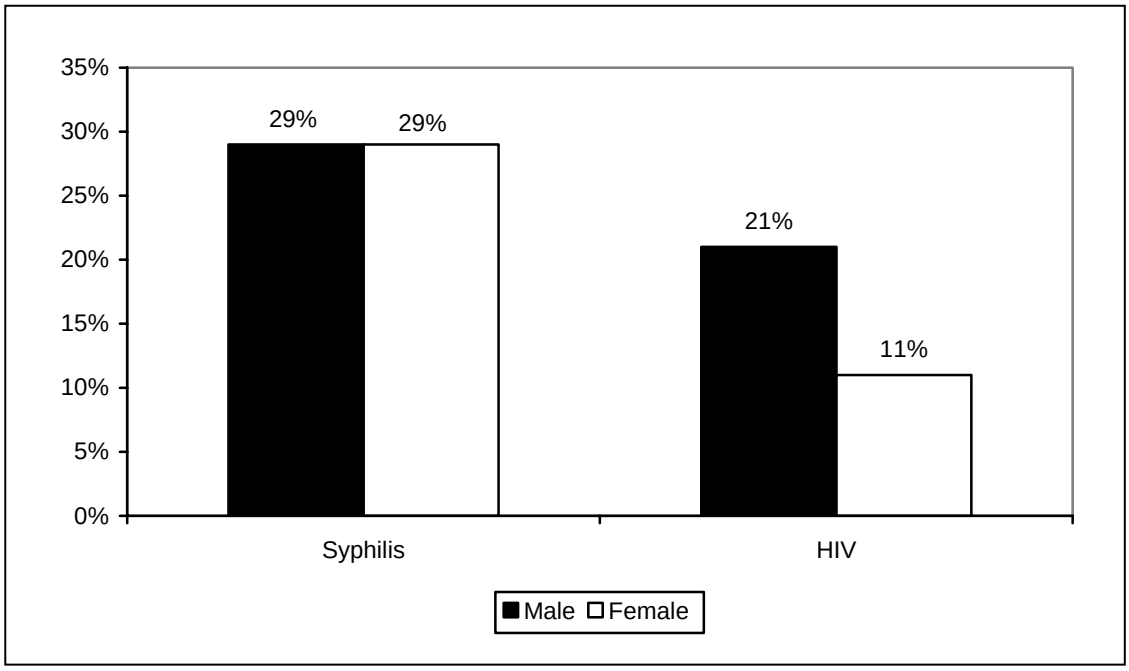
Figure 3.4. Heterosexuals with a previous STD diagnosis, 2003-2007



Exchange Sex

The exchange of sex for drugs or money (SDM) is commonly reported among high-risk heterosexuals with HIV and/or syphilis. People diagnosed with HIV or syphilis are asked if they have given or received money or drugs in exchange for sex. Proportions of people exchanging sex for drugs or money are higher among heterosexual men and women diagnosed with syphilis than with HIV. Twenty-nine percent (29%) of men and women diagnosed with syphilis and interviewed from 2003-2007 reported exchanging sex for drugs or money; 11 percent of women interviewed with HIV and 21 percent of men reported exchange sex (Figure 3.5).

Figure 3.5. Heterosexuals engaging in exchange sex, 2003-2007



Crack Cocaine and Non Injection Drug Use

Crack cocaine and other noninjection drugs contribute to the spread of both the HIV and syphilis epidemics when users trade sex for drugs or money, or when they engage in risky sexual behaviors that they might not engage in when sober. According to 2007 PCRS interview data, 26 percent of heterosexual individuals interviewed with syphilis also reported crack cocaine use and 27 percent reported a sex partner who uses crack. Of the people interviewed in 2007 with HIV who reported only heterosexual sex as a risk factor, 18 percent used crack cocaine and 16 percent reported a sex partner who used crack. Other commonly used drugs among heterosexuals interviewed were marijuana (29%) and cocaine (12%).

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 to collect various information about health behaviors from adults age 18 and older (for a more detailed description and strengths and limitations, please see Appendix B on pg. B-5). The survey is designed to include core sections (data collected by all areas), CDC-designed optional modules, and state-added questions. In 2001, 2004, and 2006 some sexual behavior questions were added to the survey in N.C. and used in those years only.

Sexual Partners and Condom Use

In 2006, adults age 18 to 54 were asked how many different people they had sexual intercourse with over the past 12 months; 8.1 percent of males and 1.5 percent of females reported three or more sexual partners over the past 12 months). Twenty-nine percent of unmarried respondents had three or more sexual partners in the past 12 months. In 2006, the question "How many new sex partners did you have during the past twelve months?" was asked; 8.1 percent responded that they had three or more new sex partners within that time period; 18.5 percent of unmarried respondents had three or more new sex partners in the past twelve months (NC SCHS, BRFSS, 2006).

Only 20 percent of respondents reported that they had used a condom during their last sexual intercourse in 2001, 22.4 percent in 2004, and 26.4 percent in 2006. Of unmarried respondents asked about condom use in 2006: 37.8 percent of divorced/separated or widowed respondents used a condom, 67.8 percent of never married respondents, and 31.6 percent of unmarried couples used condoms during the last time they had sex. In 2006, approximately 45 percent agreed that a properly used condom would be very effective in preventing an individual from getting infected with HIV; another 40 percent thought condoms would be somewhat effective. Please *note: condom use is most certainly effective in preventing HIV infection.*

History of STDs

The 2006 BRFSS Sexual Behavior Module asked the question "In the past five years, have you been treated for a sexually transmitted or venereal disease?" Three percent of the total 2,682 respondents answered "yes"; six percent (6%) of blacks responded "yes", as compared to two percent (2%) of whites and four percent (4%) of other minorities. Of those treated for a STD, 47 percent were treated at a health department/STD clinic. The standard risk question in the BRFSS

survey asked for all years 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 recent years. According to the 2007 BRFSS Survey, 42.5 percent of respondents had been tested for HIV, with 46 percent tested at a private doctors office, 16 percent in a hospital, 26 percent tested at a clinic and three percent (3%) tested at home.

CHAPTER 4: HIV TESTING & RELATED PROGRAMS

HIGHLIGHTS

- The N.C. State Laboratory of Public Health has identified 95 people with Acute HIV since November 2002.

- There were an estimated 2,356 new HIV infections in the state for calendar year 2006 using STARHS data. Demographic breakdown of NC HIV incidence data highlights that 72 percent were male, 67 percent were black and, 57 percent were estimated to have occurred among MSM & MSM/IDU combined.

- The overall rate of estimated new HIV infections in N.C. (32.2 per 100,000) is 41 percent higher than the overall national rate (22.8 per 100,000). Persons aged 30-39 years old had the highest rate of new HIV infections at 48.6 per 100,000. As expected, the incidence estimates for NC highlights that blacks are disproportionately affected by the HIV. The estimated state HIV incidence rate for 2006 was 9 times greater for blacks (102.2 per 100,000) than for whites (11.3 per 100,000).

- In 2007, 7,422 rapid HIV tests were performed in N.C., identifying 71 new cases which yielded a 1.0 percent overall rate of positivity.

Different types of HIV tests are used to diagnosis initial disease and monitor patient progress. The information presented in this chapter will focus on selected state-sponsored HIV-testing programs. Described in this chapter are programs that are designed to: identify or estimate new or recent HIV infections; increase the number of high-risk individuals being tested for HIV; and describe voluntary testing for HIV in the public sector. Collectively, these programs enhance current surveillance activities and allow for the collection of more comprehensive HIV-related data.

TESTING RECOMMENDATIONS

The Centers for Disease Control and Prevention (CDC) revised the 1993 HIV testing recommendation in 2006 to advise conducting routine HIV screening of adults, adolescents and pregnant women in health care settings. The CDC also recommends reducing barriers to HIV testing where necessary (CDC, 2006). As North Carolina continues to encourage routine testing, the number of HIV/STD reports is expected to increase.

Get Real, Get Tested Campaign

Get Real, Get Tested is a campaign sponsored by WRAZ/FOX 50, Gilead, and N.C. Communicable Disease Branch focused on increasing HIV education and the number of people who are tested for HIV in N.C. and are aware of their HIV status. The initiative is designed to reach citizens statewide with HIV prevention messages via Internet and television public service announcements. As of July 1, 2008, there have been close to 7,000 hits on the *Get Real, Get Tested* web site. Over the past year, *Get Real, Get Tested* commercials have reached over three

million viewers. According to data from WRAZ/FOX 50, there were over 14 million gross impressions among adults ages 18 years and older.

The testing component of *Get Real, Get Tested,* includes going door-to-door to offer testing and setting up at stationary sites. A total of 2,248 people were tested during the 2006-2007 *Get Real, Get Tested* door to door community campaign. There were 27 identified people who tested positive for HIV and 23 people who were positive for syphilis. The *Get Real, Get Tested* campaign has visited several more communities across the state during 2008, including Raleigh, Greenville, Winston-Salem, Sanford and Cullowhee.

RECENT INFECTIONS

STAT Program

The Screening and Tracing Active Transmission (STAT) program is an initiative that enables the State Laboratory for Public Health to detect individuals who are newly infected with HIV. Early detection and treatment of HIV can be instrumental in preventing inadvertent exposure to partners. Sera are tested for the presence of the HIV virus (not the antibody) using the polymerase chain reaction (PCR) to detect viral RNA. 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 Communicable Disease Branch, the State Laboratory for Public Health and the University of North Carolina at Chapel Hill in November of 2002.

Since the North Carolina State Laboratory of Public Health (NCSLPH) began testing seronegative specimens in November 2002, there have been 95 people identified with Acute HIV infection. Cumulatively, 78.13 percent of the 95 identified people through the STAT project are males (see Table 4.1). Five cases were identified among pregnant females. Over the past four years, the proportion of males has steadily increased from 68 percent in 2003, to 76 percent in 2004, 81 percent in 2005, and 87 percent in 2006 and 2007. Acute HIV cases tend to be identified in people in their 20's. Approximately, half (46%) of the overall acute cases were amongst people aged 20-29 years old. A little more than half of the cases diagnosed in their 20's were among people aged 20-24 years old. In 2007, the median age was 20 years old with a range of 18-53 years old. Cumulative race data reflects findings noted in core HIV/AIDS surveillance. In 2006, cases were equally distributed among blacks and whites with both groups representing 47 percent of the 15 cases. The distribution in 2006 is possibly attributed to the use of social networks to identify partners to acute cases and small sample size. Data in 2007 is consistent with the cumulative distribution for race. Information derived from this project is being incorporated into routine HIV surveillance data for the general population for use by public health officials in better developing and implementing treatment and prevention programs.

Ideally, recently infected individuals receive counseling by Disease Intervention Specialists who conduct an initial interview within 72 hours of receiving a positive STAT test. DIS counsel individuals to have a repeat HIV-antibody test within two weeks (and, if necessary, at 4 and 12 weeks) and partners (both sexual and needle sharing) of these individuals are also notified and offered testing. Branch field staff also works with medical providers in the community to identify any new HIV acute (primary infection) cases that were diagnosed through private care

providers. These patients are provided rapid and enhanced field interventions including HIV testing services through the NCSLPH for sex and needle sharing partners. Also, DIS attempt to identify any newly diagnosed people that had a recently documented HIV-negative antibody test. The cases are collectively referred to as community acute/recent cases. In 2007, 53 community recent/acute cases were identified based on follow up and additional information collected during field investigations. These cases and the associated social networks are being studied to enhance field intervention efforts.

Table 4.1. Demographics for Cases Identified through STAT: Jan. 2003 – Dec. 2007

Year	2003 (n=22)		2004 (n=21)		2005 (n=21)		2006 (n=15)		2007 (n=16)		Total (n=95)	
Gender		Pct.	N	Pct.	N	Pct.	n	Pct.	n	Pct.	n	Pct.
Male	15	68.2%	16	76.2%	17	80.9%	13	86.7%	14	87.5%	75	78.1%
Female	7	31.8%	5	23.8%	4	19.1%	2	13.3%	2	12.5%	20	20.8%
Age group												
13-19	1	4.6%	3	14.3%	1	4.8%	1	6.7%	7	43.8%	13	13.7%
20-29	7	31.8%	11	52.4%	11	52.4%	9	60.0%	6	37.5%	44	46.3%
30-39	7	31.8%	4	19.1%	7	33.3%	2	13.3%	1	6.3%	21	22.1%
40-49	7	31.8%	1	4.8%	2	9.5%	2	13.3%	1	6.3%	13	13.7%
Over 49	0	0.0%	2	9.5%	0	0.0%	1	6.7%	1	6.3%	4	5.2%
Race												
Black*	14	63.6%	16	76.2%	14	66.7%	7	46.7%	11	68.8%	62	66.3%
White*	5	22.7%	4	19.1%	5	23.8%	7	46.7%	4	25.0%	25	26.0%
Hispanic	2	9.1%	1	4.8%	2	9.5%	1	6.7%	1	6.3%	7	7.3%
Am. Ind./AN*	1	4.6%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	1.0%
Other	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%

HIV Incidence (STARHS program)

North Carolina implemented the HIV Incidence project by routinely collecting specimens and testing treatment histories for STARHS in the summer of 2005. The HIV Incidence or Serologic Testing Algorithm for Recent HIV Seroconversion (STARHS) program was developed to generate timely and relevant estimates of the annual number of new HIV infections. Data generated from this project are designed to be used by the North Carolina Communicable Disease Branch along with our federal partners at CDC to better understand populations that are impacted by HIV, help focus prevention efforts, and assist with evaluating progress toward reducing the spread of HIV. During 2007, North Carolina was one of 34 jurisdictions participating in the HIV Incidence Surveillance Program as part of a cooperative agreement with the Centers for Disease Control and Prevention (CDC).

Method

The HIV Incidence program builds upon existing HIV/AIDS case reporting system and combines a new laboratory technology to determine the proportion of individuals testing positive for HIV for the first time who may have been recently infected by HIV. Remnant sera, which has tested positive for HIV antibodies by EIA and have been confirmed as positive by Western blot, are tested by a second antibody assay, the BED HIV-1 Capture enzyme immunoassay

(BED), which distinguishes recent infections (on average, 156 days after seroconversion on standard diagnostic assays) from long standing infections. The BED assay uses antibodies to detect all HIV subtypes. The combination of diagnostic testing (confirmed HIV antibody – positive) followed by testing for recent infection known as STARHS (Serologic Testing Algorithm for Recent HIV Seroconversion) combined with additional information related to HIV testing and treatment history is used to generate estimates of new HIV infections. STARHS results cannot be returned to individuals or to care providers because the variability in antibody development in individuals, thus 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 BED HIV-1 Capture EIA and methodology being used, "For surveillance use. Not for diagnostic or clinical use".

In North Carolina, confirmed HIV antibody–positive serum samples (by Western Blot) from both the N.C. State Laboratory of Public Health (NCSLPH) and several commercial laboratories are sent to the CDC STARHS designated laboratory in New York for additional testing. Serum specimens are held in the N.C. 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. For people not previously reported in HARS, a positive HIV test result will be considered eligible for STARHS if they meet the following requirements:

- They have not been reported previously as HIV infected and included in HIV AIDS Reporting System (HARS).
- The serum specimen held in the laboratory represents their first confirmatory positive HIV test result from a confidential test.

The N.C. HIV Incidence program monitors the test results from the private laboratories. Commercial laboratories have been recruited by the N.C. HIV Incidence project to send remnant positive diagnostic specimens directly to the STARHS laboratory. In 2007, Laboratory Corporation of America, Associated Regional University Pathologist (ARUP), Quest Diagnostics, University of North Carolina Hospitals and Duke University Medical Center provided remnant HIV diagnostic specimens to the STARHS laboratory in New York for testing. The collection of private labs along with NCSLPH accounts for more than 75 percent of the new HIV/AIDS cases reported each year to the N.C. Communicable Disease branch. Collaboration of private laboratories and the NCSLPH helps ensures that data used to estimate HIV incidence are truly representative of the HIV epidemic in North Carolina.

From July 2005 through December 2007, a total of 1,559 serum specimens have been tested with the BED assay performed by the STARHS laboratory. By July 2007 the N.C. Incidence program successfully increased the overall number of specimens sent for STARHS testing by securing the assistance of several private laboratories to send remnant specimens for STARHS testing. In 2006, 544 (30.2%) of 1,800 eligible specimens were tested using the STARHS methodology. By 2007, N.C. had STARHS test results on 880 (43.1%) of the 2,041 eligible specimens.

Results

In August 2008, CDC released the first estimate of the number of new HIV infections in the Journal of the American Medical Association (JAMA) utilizing this new STARHS

methodology[1]. The number of new HIV infections is a direct estimate of the number of HIV infections that occurred in 2006. The national estimate of 56,300 includes population specific breakdowns by gender, race/ethnicity, risk and age groups. The national estimate generated by CDC indicates that 73 percent of the newly infected persons were male, 45 percent were black, 15 percent were Hispanic, and 53 percent were among men who had sex with men (MSM).

Using methodology from the CDC, N.C. was able independently calculate an estimate of 2,356 new HIV infections for calendar year 2006. The state estimate was generated by using data collected through April 30, 2008. Demographic breakdown of NC data highlights that 72 percent were male, 66.5 percent were black and, 57 percent were estimated to have occurred among MSM & MSM/IDU combined. The overall rate of estimated new infections in N.C. (32.2 per 100,000) is 41 percent higher than the overall national rate (22.8 per 100,000). Persons aged 30-39 years old had the highest rate of new infections at 48.6 per 100,000. Age specific data from N.C. also shows that persons aged 40-49 and 50 years and older had a higher rate than the national rate. The estimated state HIV incidence rate for 2006 was 9 times greater for blacks (102.2 per 100,000) than for whites (11.3 per 100,000). The new estimates reiterate the fact that there is a critical need to adequately fund HIV prevention that address the populations most impacted by HIV, especially MSM and minorities.

North Carolina was selected as one of the 25 areas selected to receive continued funding to support the STARHS project from CDC. Accurately measuring HIV Incidence will assist the N.C. Communicable Disease Branch to better understand how HIV is spreading and will help the branch effectively focus and prevention efforts in hopes of reducing the spread of HIV in North Carolina.

RAPID TEST PROGRAM

The rapid HIV antibody screening test program was created in Spring 2005. Designed to increase the number of high-risk individuals being tested for HIV and to disclose preliminary test results to individuals who potentially would not return for a traditional blood test result, rapid HIV antibody tests have provided new opportunities for improving access to testing in both clinical and non-clinical settings and have increased the number of people who are aware of their HIV status. The rapid test used in North Carolina provides test results using oral fluid or whole blood or plasma specimens (via finger stick or venipuncture). The testing can be conducted in 10-20 minutes, making it possible to provide HIV education, preliminary HIV test results and linkage to care (if the test is preliminary reactive) in the same day.

Rapid tests are primarily used in Non-Traditional Testing Sites (NTS) during targeted outreach testing events, in local health departments, hospitals, substance abuse facilities, student health clinics and correctional facilities. Rapid HIV testing is recommended during outreach or screenings in high HIV/STD morbidity areas and/or high-risk areas; in cases of accidental exposure to blood or bodily fluids; to determine the HIV status of a pregnant woman presenting to labor and delivery with an unknown HIV status; and with clients with behavioral characteristics that put them at a greater risk for contracting HIV. Since rapid HIV tests are used for the purpose of screening for HIV, a preliminary reactive test result must be confirmed using a standard ELISA (Enzyme Linked Immunosorbant Assay) and Western Blot test regimen.

At the end of 2007, rapid tests were supplied to 21 agencies statewide. Each participating agency was responsible for designing their testing program which could range from clinical testing to outreach testing. These testing programs included testing in county jails, substance abuse facilities, universities/colleges, community health centers, homeless shelters and local health departments. Table 4.2 provides the total number of tests performed in 2007 and confirmed positives identified by testing locations.

Table 4.2. Rapid Test Program Results, 2007

Testing Location	Test Performed	Number Positive	Positivity (%)
Local Health Departments	335	24	7.2
University/Colleges	1,822	18	1.0
Community-Based Organizations	3,371	26	1.0
Hospitals	309	1	0.3
Substance Abuse Facilities	1,386	2	0.1
Total	7,422	71	1.0

HIV COUNSELING, TESTING AND REFERRAL (CTS)

**** IMPORTANT NOTE: Due to changes in data collection methods, CTS screening data for 2005-2007 are currently unavailable for publication. An updated chapter will be posted on our web page when the data become available.**

CHAPTER 5: SPECIAL STUDIES

CONTENTS

- HIV RESISTANCE AND GENOTYPING
- MEDICAL MONITORING PROJECT
- NORTH CAROLINA MSM RAPID BEHAVIORAL ASSESSMENT

HIV RESISTANCE AND GENOTYPING

In the late 1990s, several new nucleoside reverse transcriptase inhibitors (NRTI), non-nucleoside reverse transcriptase inhibitors (NNRTI), and protease inhibitors (PI) were approved for treating HIV infection in the United States. These newer drugs, combined with the NRTIs already available, provide clinicians with a variety of choices for initiating and changing antiretroviral treatment for patients infected with HIV-1. A panel representing international expertise in antiretroviral research and HIV patient care continually updates recommendations for prophylaxis or therapy that includes all of the antiretroviral drugs currently approved by the FDA and in use in the United States, and for HIV drug resistance testing.

The therapeutic purposes of antiretroviral drugs include prophylaxis after occupational exposure (post-exposure prophylaxis), vertical transmission prophylaxis, treatment of primary infection (four to seven weeks after infection), initial treatment from early infection (little or no immunological damage) to late infection (substantial immunological damage), and changes in treatment regimens depending on virological and immunological response. Clinical trials are being performed to evaluate pre-exposure prophylaxis with antiretroviral drugs. Studies have demonstrated that HIV drug resistance results (both genotypic and phenotypic) can be used to predict clinical outcome and to guide drug treatment choices.

HIV genetic sequence data are incorporated into HIV/AIDS surveillance to evaluate the distribution of HIV-1 subtypes and mutations associated with HIV drug resistance among individuals newly diagnosed with HIV and the subset of recently infected people. HIV drug resistance testing is performed using standard tests that are widely used clinically. These tests are not experimental and do not require informed consent. Like drug resistance testing in other infectious disease surveillance systems (tuberculosis, urinary tract infections, and sexually transmitted diseases), testing diagnostic specimens for HIV drug resistance and HIV-1 subtype surveillance does not require informed consent (CDC, VARHS Guidance, 2005).

Genotyping results and information from the HIV surveillance case report will be used to make population-based estimates of the prevalence of HIV drug resistance and HIV-1 subtypes among individuals newly diagnosed with HIV. Prevalence estimates will also be made for relevant demographic groups and HIV exposure categories. In areas performing variant, atypical and resistant HIV surveillance (VARHS) and HIV incidence surveillance (STARHS), evaluation of recent HIV infection using a testing history and STARHS will be collected as part of HIV surveillance for most newly diagnosed individuals. HIV incidence results in combination with

the sequencing result, testing history data, and clinical information about disease progression at diagnosis will be used for population-based HIV estimates of the incidence of transmitted HIV drug resistance and HIV-1 subtypes. HIV sequence information may also be used to track the spread and clustering of atypical HIV strains of interest nationally.

Variant, atypical, and resistant HIV surveillance (VARHS) evaluates the prevalence of HIV drug resistance and HIV-1 subtypes among individuals newly diagnosed with HIV in public health settings and other clinical and diagnostic settings collaborating with the state, county or large city departments of health. Ideally, specimens from all individuals newly diagnosed with HIV in the state, county, or large city should be included. Aliquots of remnant sera are being set aside for HIV drug resistance testing from each blood specimen drawn for HIV diagnosis from eligible individuals tested at the N.C. State Laboratory of Public Health, if sufficient volume is available. Specimens are then shipped to the Stanford University Virology Laboratory for genotyping. For individuals meeting VARHS criteria, HIV genetic sequencing (genotyping) was performed on the HIV RNA to detect the presence of mutations associated with HIV drug resistance. HIV-1 subtype was identified based on the RNA sequence. To provide further information on specimens with mutations associated with resistance, additional HIV drug resistance testing, including determination of phenotypic susceptibility to all commonly used anti-HIV drugs will be evaluated in a subset of specimens identified by CDC if resources are available.

Resistance testing on serum specimens in North Carolina began in November 2005. From November 2005 through December 2007 a total of 1123 specimens were shipped to the Virology Laboratory at Stanford University. Nine hundred and ninety four of the 994 specimens were successfully genotyped and the resistance patterns were reported to the NC Communicable Disease Surveillance branch. Of the 994 analyzed specimens, 252 (25.3 %) were resistant to at least one of the antiretroviral drugs tested. The resistant specimens compared to the total number of specimens successfully genotyped (994) revealed that 96 (9.7%) were resistant to Nucleoside Analogue Reverse Transcriptase Inhibitors (NRTI), 136 (13.7 %) were resistant to Non-Nucleoside Analogue Reverse Transcriptase Inhibitors (NNRTI), 20 (2%) were resistant to Protease Inhibitors (PI), and 30 (3 %) had resistance to more than one class of antiretroviral drugs.

At the 2007 Conference on Retroviruses and Opportunistic Infections (CROI) held in February, the CDC reported on HIV resistance data from 11 states. These data represented 3130 specimens collected and tested for HIV resistance between March 2003 and October 2006. The data presented by CDC showed 10.4 percent (327) total specimens had drug resistance mutations. Resistance to NRTIs was found in 3.6 percent (111) of these specimens, resistance to NNRTIs was found in 6.9 percent (217) of the specimens and PI resistance was found in 2.4 percent (75) of the people tested. Multiple drug resistance was found in 1.9 percent (60) of the specimens tested. Data from North Carolina for November 2005 through December 2006 had a slightly higher antiviral drug resistance rates than those cited by the CDC for data collected from March 2003 through October 2006 (data from 11 states).

The drug resistance data being collected in the VARHS project was designed to provide HIV drug resistance data to assist local HIV treatment program planning and evaluation. In 2008, CDC reduced the number of sites that received federal funds to support VARHS activities and North Carolina did not receive funding. The project was completed in North Carolina as of December 31, 2007.

MEDICAL MONITORING PROJECT

HIV/AIDS surveillance programs function in all states and territories to collect a core set of information on people diagnosed with, living with, and dying from HIV infection and AIDS. Supplemental surveillance projects have historically provided complementary information about clinical outcomes of HIV infection and behaviors of HIV-infected people with respect to care seeking, utilization of care, and ongoing risk behaviors.

The adult/adolescent Spectrum of HIV Disease (ASD) project was implemented in 1990 as a supplemental surveillance system to collect information on treatment and clinical outcomes of people with HIV infection who were in care. ASD was a facility-based, observational medical records abstraction project conducted in 11 U.S. cities, and included over 60,000 people. ASD data have been used to examine trends in the incidence of AIDS-defining opportunistic illnesses, determine if eligible patients were receiving prophylactic and antiretroviral medications and to inform treatment and prevention guidelines.

The need for data on risk and health-care seeking behavior among HIV-infected persons led to the implementation of the Supplement to HIV/AIDS Surveillance (SHAS) project in 1990. SHAS surveyed persons newly reported as having HIV or AIDS in 19 geographic areas on care-seeking, HIV testing, access to health care and related services, and ongoing risk behaviors. Analyses examining reasons for late HIV testing, quality of life, drug use, and sexual behaviors have been used to inform local planning processes and tracking of behavioral trends among persons with HIV infection in care.

In the past decade, both ASD and SHAS have provided much needed information that has been used to understand the HIV epidemic. In recent years, the utility of these surveillance projects has become progressively limited due to several factors. First, early in the epidemic, HIV/AIDS cases were concentrated in large urban areas, primarily on the East and West coasts. Currently, a much larger number of cities and states are heavily impacted by the HIV/AIDS epidemic limiting the utility of data collected from the limited number of geographic areas included in the ASD and SHAS projects. Second, the lack of linked medical record and interview data has limited the ability of these surveillance systems to make estimates of key indicators, such as quality of HIV-related ambulatory care and the severity of need for HIV-related care and services. Third, the ability to generalize results from ASD and SHAS to the rest of the adult HIV-infected community was limited because they were composed of convenience samples.

To address some of these concerns, the Survey of HIV Disease and Care (SHDC) was piloted in several geographic areas in 1999. SHDC was a cross-sectional, population-based medical record abstraction project which used two-stage sampling to obtain a probability sample of HIV-infected patients in care in the U.S. SHDC-Plus, which was conducted in three areas during 2003-2004, modified SHDC by conducting an interview on a subset of persons for whom medical record abstraction had occurred. Both of these projects were conducted in limited geographic areas. The Morbidity Monitoring Project (MMP) arose out of the need for a nationally representative, population-based surveillance system to assess clinical outcomes, behaviors and the quality of HIV care without the limitations described above.

The primary objective of MMP is to obtain data from a national probability sample of HIV-infected persons receiving care in the U.S. in order to:

- Describe the clinical and virologic status of these patients,
- Describe HIV care and support services and the quality of such services,
- Describe the prevalence and occurrence of co-morbidities related to HIV disease,
- Determine prevalence of ongoing risk behaviors and access to and use of prevention services among persons living with HIV
- Identify met and unmet needs for HIV care and prevention services in order to inform community and care planning groups, health care providers and other stakeholders.

The primary purpose of the MMP protocol is to provide a consistent methodology for state and local health departments to use in collecting data on behaviors and clinical outcomes from a probability sample of adults receiving care for HIV infection or AIDS in their jurisdictions. The methodology involves selection of patients currently receiving care using a three-stage sampling design, an in-person interview of eligible patients, and the abstraction of their medical records.

Collection of data from interviews with HIV-infected patients is providing information on the current levels of behaviors that may contribute to increased HIV transmission: patients' access to, use of, and barriers to HIV-related secondary prevention services; utilization of HIV-related medical services; and adherence to drug regimens. In combination with data collected from the abstraction of medical records, MMP will also provide information on clinical conditions that occur in HIV-infected persons as a result of their disease or the medications they take as well as the HIV care and support services received by these patients and the quality of these services. Ultimately, this surveillance project will produce data about met and unmet needs for HIV care and prevention services which can be used to evaluate these services and to direct future resources for HIV-infected patients.

The proposed study design will allow for national, state or local level estimates of certain characteristics and behaviors that will be generalizable to the entire population of HIV-infected adults in care for HIV in the United States. Local HIV/AIDS surveillance programs have been in existence for over 20 years and have a history of successfully collaborating with medical providers and patients in their jurisdictions on projects involving both patient interview and medical record abstraction. Surveillance programs will build on these successes to ensure the high participation rates required for this project.

North Carolina has completed the three-stage sampling procedure for 2007. All health care providers who treat HIV patients were identified and contacted. To obtain the list of providers who treat HIV patients, all N.C. facilities that report HIV cases to the N.C. Division of Public Health were contacted and asked about treatment. From an initial list of 880 reporting facilities, a total of 270 facilities that treat patients with HIV by prescribing anti-retrovirals or monitoring patient health through CD4 counts and viral loads were identified. The general location and type of these 270 providers are summarized in Table 5.1. The majority of the HIV care providers are located in the Piedmont region of the state. All providers were asked for an estimated patient load (EPL) for the calendar year 2005. This represented the total number of HIV patients that were treated at each facility during that time period. The EPL for calendar year 2005 ranged from zero patients to a maximum of 1,581 patients. A coded list of these providers was submitted to CDC and forty-three providers were randomly chosen to participate in this project. The forty-three providers were then asked to participate by providing a list of all HIV patients seen at their facility between January 1, and April 30, 2007. Of the original 43 providers, thirty

three were eligible to participate and provided patient lists to the MMP team. A coded patient list (no names included) was sent to the CDC and 400 patients were selected for participation in the project. Patients were recruited beginning November 2007. A total of 102 interviews have been completed. Of the remaining patients, eleven refused to be interviewed, six were ineligible to participate and eighty two had incorrect contact information. The remaining 199 patients have been contacted but we have been unable to schedule interviews. Sixty nine medical record abstractions have been completed and are being prepared for shipment to the CDC. The medical record abstractors are continuing to conduct abstractions for all of the patients who have been interviewed.

Table 5.1. Health Care Providers who Treat HIV Patients in North Carolina

	VA Hospitals		Clinics		ID/Specialty Clinics		Hospitals		Total Providers	
Region[1]	n	Pct.	n	Pct.	n	Pct.	n	Pct.	n	Pct.
Mountains	1	25.0%	15	8.6%	1	12.5%	17	20.5%	34	12.6%
Piedmont	3	75.0%	106	60.9%	6	75.0%	42	50.6%	157	58.2%
Coastal Plain	0	0.0%	53	30.5%	1	12.5%	24	28.9%	79	29.2%
Total	4	100%	174	100%	8	100%	83	100%	270	100%

[1]The regions listed are geophysical regions. The Mountain region is defined as those counties west of I-77 excluding Catawba, Lincoln, Cleveland and Gaston Counties which were included in the Piedmont region. The Coastal Plain region is defined as those counties east of I-95. The Piedmont is the region lying between the Mountain and Coastal Plain regions.

A summary of characteristics of the first 46 patients interviewed is included in Table 5.2. Of these first 46 patients, there were more males than females (29 to 16), 40 were between the ages of 31 and 60, 28 are African American, and two are Hispanic. Three patients had been born outside the United States. Additionally 27 (59%) identify themselves as heterosexual, 13 were in prison, one had been admitted to a drug or alcohol treatment facility, seven (15%) said that they had used injection drugs and 21 (46%) reported that they had received free condoms from a care facility. This table is a simple description of some of the characteristics of the initial patients interviewed and are in no way meant to be interpreted as being statistically meaningful at this point. A full analysis of the data will be conducted at the end of the data collection cycle.

Table 5.2. Interviewed Patients in North Carolina, Select Demographics

	n	Pct.
Gender		
Male	29	63.0%
Female	16	35.0%
Intersex/Ambiguous	1	2.0%
Age		
0-20 years	0	0.0%
21-30 years	6	13.0%
31-40 years	14	30.0%
41-50 years	16	35.0%
51-60 years	10	22.0%
>61 years	0	0.0%

Table 5.2 (continued). Interviewed Patients in North Carolina, Select Demographics

	n	Pct.
Race		
Asian	0	0.0%
Black/African American	28	60.5%
American Indian	0	0.0%
Hawaiian/Pacific Islander	0	0.0%
White	15	33.0%
Other	3	6.5%
Ethnicity		
Hispanic - Yes	2	4.0%
Hispanic - No	44	96.0%
Education		
No School	0	0.0%
Grade 1-8	3	6.5%
Grade 9-11	9	19.5%
Grade 12 or GED	11	24.0%
Some college	17	37.0%
Bachelor degree	3	6.5%
Post graduate work	3	6.5%
Health Insurance		
No	12	26.0%
Yes	34	74.0%
Sexual Orientation		
Heterosexual	27	59.0%
Homosexual	17	40.0%
Bisexual	1	2.0%
Other	1	2.0%
Total	46	100%

NORTH CAROLINA MSM RAPID BEHAVIORAL ASSESSMENT, 2006-2007

Background

Little is known about the HIV risk behaviors among men who have sex with men (MSM) living in North Carolina, making it difficult for the health department and local Community Based Organizations (CBOs) to target and evaluate HIV prevention activities. In attempts to meet the specific needs of these men, we often rely on research findings based on MSM living in large metropolitan areas that may not be representative of local populations. To address this deficiency of HIV behavioral data from people at increased risk for HIV infection in North Carolina, the Communicable Disease Branch, in collaboration with the CDC and volunteers from local CBOs, health departments and universities, collected behavioral data from MSM attending the Charlotte Black Gay Pride in 2006 and the N. C. Pride Festival and Parade in 2006 and 2007 in Durham.

Methods

The N. C. MSM Rapid Behavioral Assessment (RBA) attempts to ascertain the prevalence of HIV risk behavior among men attending gay Pride events in North Carolina. Data about substance use and its association with HIV risk behavior, the pattern of HIV testing, and the exposure to and use of HIV prevention services were also collected. Prior to the event, CDC staff conducted training for the volunteers from local CBOs, health departments and universities about interviewing techniques and the operation of the handheld computers that were used to collect data. Persons born male and identifying as male, who resided in North Carolina and were at least 18 years old at the time of interview were systematically sampled and recruited for participation. Eligible men were enrolled in the survey and its objectives were fully explained to them and informed oral consent was obtained. Men who agreed to participate were asked about demographics, sexual behavior, drug and alcohol use, HIV testing, STD diagnoses, receipt of prevention services, pre and post exposure prophylaxis use (PREP and PEP), attitudes about circumcision and, being "out". No personal identifiers were collected, and the anonymous survey lasted approximately ten minutes. Answers were entered directly into handheld computers and data were collected with Questionnaire Development System (QDS) version 2.4 software (Nova Research, Bethesda, MD). Data were imported into SAS version 9.1 (SAS Institute, Cary, NC) for cleaning and analysis

EVENTS

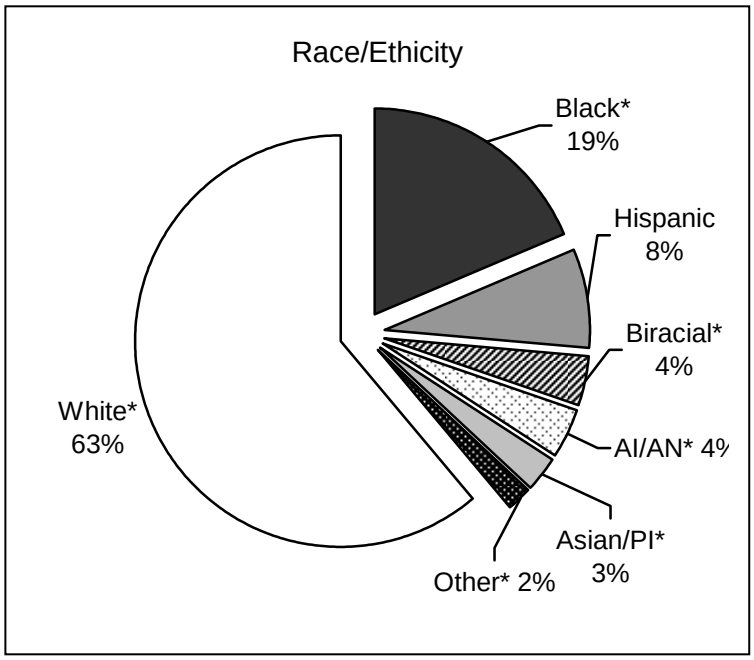
Charlotte Black Gay Pride, July 22, 2006 at Spirit Squart, Charlotte, NC
NC Gay Pride on September 30, 2006 at Duke University, Durham, NC
NC Gay Pride on September 29, 2007 at Duke University, Durham, NC

Results

837 men in attendance for the 2006-2007 Pride festivals in NC consented to participate in the survey and were interviewed. Ninety percent (90%) identified as homosexual or gay, nine percent (9%) identified as bisexual, and 0.4% as "other." Seventy nine (79%) percent had some additional education beyond high school.

Figure 5.1. Event locations for N.C. MSM RBA, 2006-2007

Figure 5.2. MSM interviewed by race/ethnicity, 2006-2007



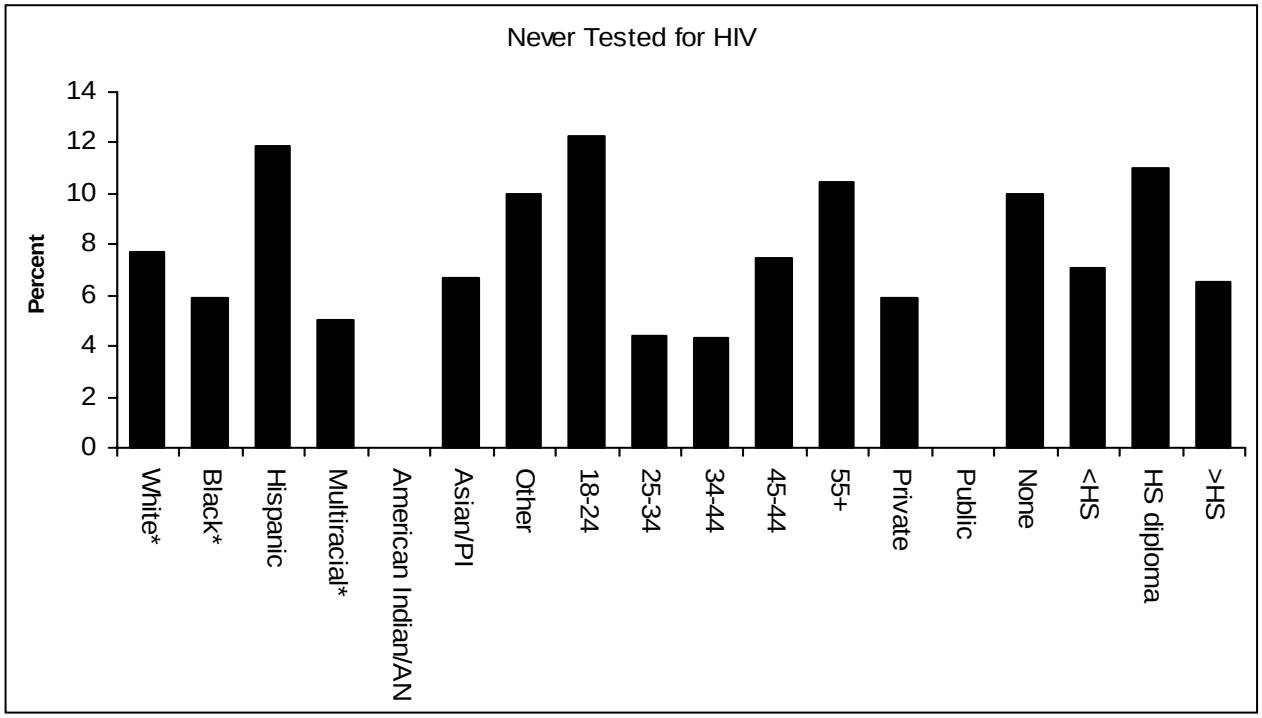
*non-Hispanic

HIV TESTING AND USE OF PREVENTIVE SERVICES

Data were gathered from eight hundred and thirty seven (837) men; 545 (65%) were considered sexually active MSM of HIV negative, or unknown HIV status. The results indicated that 90% of the participants had ever been tested for HIV (Figure 5.3). Of those, 78% had been tested during the preceding 12 months. The main reason given for not getting tested was "has not engaged in any risk behavior" (53%), "didn't have time" (19%), nine percent (9%) were "afraid to find out", five percent (5%) didn't know where to test and another six percent (6%) "didn't have money or insurance" for HIV testing.

Six percent of sexually active men surveyed had been diagnosed with a sexually transmitted disease in the 12 months prior and of the 215 men who received a syphilis test in the past 12 months, 11 were diagnosed with syphilis. In the year prior to the survey, 83% of men surveyed received free condoms, 42% received information about ways to protect themselves from getting HIV.

Figure 5.3. MSM never tested for HIV by select demograpics, 2006-2007



*non-Hispanic

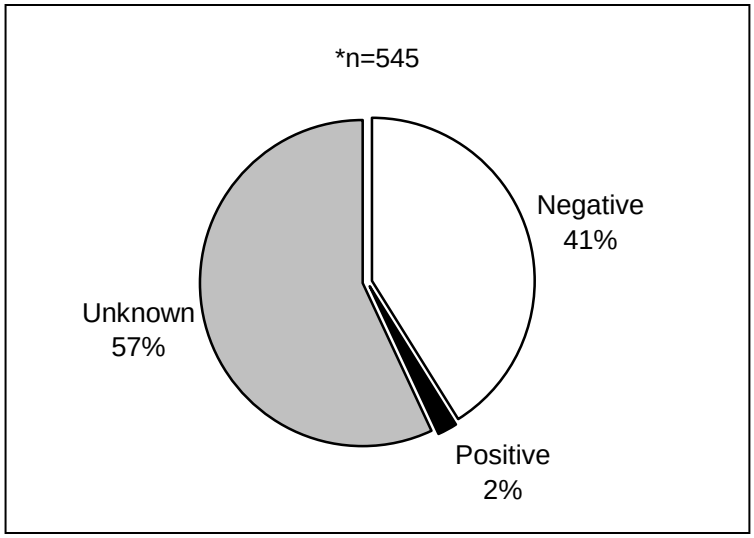
SUBSTANCE USE

Noninjection drugs were used by 31% of participants during the preceding 12 months. The most commonly used drugs were marijuana (81%), poppers (19%), cocaine (19%), pain relievers (15%), downers (10%), ecstasy (9%), and crystal meth (6%). Less than 1% reported injecting drugs in the past year (4 reported IDU in 2006 only- no IDU was reported in 2007). Twenty nine percent (29%) drank alcohol at least half of the time before sex.

PARTNERS

Of the 545 men who had at least one male sex partner during the preceding 12 months; 52 percent reported having unprotected anal intercourse (UAI) and 14 percent reporting having UAI with multiple partners in the past 12 months. Of the 75 men who engaged in unprotected anal sex with more than one partner in the preceding 12 months, 57% were White, non-Hispanic, 72% were between the ages of 18-34, and 68% had greater than a high school education. Among sexually active MSM (n=545), the median number of male anal sex partners in the past 12 months was 2.0 (Range: 1-200 sex partners). In addition to their male sex partners, six percent (6%) also had at least one female sex partner during the preceding 12 months.

Figure 5.4. HIV status of last sex partner, 2006-2007



Thirty four percent (34%) met their sex partners at a bar or club and 35% met over the internet. Six percent (6%) of sexually active MSM surveyed had been diagnosed with a STD in the 12 months prior (11 with syphilis). Forty one percent (41%) of sexually active MSM were with concordant partners (i.e., the partners were negative), two percent (2%) were discordant partners (partner was HIV-positive, respondent was HIV-negative) and 57 percent were with partners of unknown HIV status (Figure 5.4).

Circumcision

Eighteen percent (18%) of respondents were uncircumcised. Questions were asked of the uncircumcised men that explored possible concerns about circumcision as an adult. Seventy nine (79%) percent either agreed or strongly agreed that they were "concerned about getting circumcised as an adult because it might be painful." Sixty three (63%) percent either agreed or strongly agreed that they were "concerned about getting circumcised as an adult because it might cause bleeding of the penis after surgery." Forty seven (47%) percent either agreed or strongly agreed that they were "concerned about getting circumcised as an adult because it might cause an infection of the penis after surgery."

Uncircumcised respondents reported they agreed or strongly agreed that they would be willing to consider circumcision if it were scientifically proven to reduce risk of HIV infection among men in the US (25%), if it would reduce STD risk (34%), if it would reduce penile cancer risk (32%), and to a lesser extent if it would increase personal hygiene (20%), or if it would increase sexual pleasure (11%)

Exposure to Prevention Messages and Services

In the year prior to the survey, 84% of men surveyed received free condoms. Forty four percent (44%) had a counselor or outreach worker talk to them about ways to protect themselves from getting HIV and 12% had been referred for STD testing.

Twenty four (24%) percent were aware of local men's health initiative "d-UP!" Of the men who were aware of the "d-UP!" campaign, 92% knew the "d-UP!" logo symbolizes safe sex. Thirty four percent (34%) had seen the statewide "Get Real. Get Tested." HIV testing campaign logo.

GET REAL. GET TESTED.

d-UP! DEFEND YOURSELF!

Discussion

Recent outbreaks of syphilis and other sexually transmitted infections among MSM indicate a resurgence of unprotected sex in this population. High STD rates are markers for high-risk sexual practices and are cause for concern because sexually transmitted diseases, such as gonorrhea and syphilis, increase the risk of HIV infection. Although 93 percent of sexually active MSM had been tested for HIV, only 86 percent had tested in the past 12 months and 57 percent did not know their last sex partners HIV status. Although the majority of men surveyed had recently been exposed to prevention messages and services, and 86 percent had been recently tested, additional emphasis on routine HIV testing for sexually active MSM and interventions that promote interpersonal skills and encourage open discussion and disclosure of HIV status are needed. If circumcision is shown to be an effective intervention to reduce risk of HIV infection among MSM in the U.S., data on perceived benefits of and concerns about circumcision should be used to develop circumcision education programs

Conclusions

To reduce the number of new HIV infections among MSM in North Carolina, a multifaceted approach that includes programs designed to reduce risk behaviors and increase knowledge of HIV serostatus is required. To stop HIV transmission, the health department, other health care providers and community-based organizations must continue to provide testing opportunities and effective HIV prevention messages and activities to those who demonstrate HIV risk behaviors. The Rapid Behavioral Assessments allow NC the ability to monitor key behavior indicators over time and to evaluate some of our local prevention programs. Among the highest risk MSM surveyed, the Internet and bars or clubs were the most popular places to meet partners and these venues provide appropriate places for HIV prevention education and intervention.

SPECIAL ACKNOWLEDGEMENT

A special thanks to the CDC staff for all their hard work and to the RBA volunteers from various community-based organizations, health departments, colleges and universities, and private industry for their high degree of professionalism and diligent work ethic: Metrolina AIDS Project, Project Style, UNC Team Epi Aid, Mecklenburg County Health Department, Region 2 Consortium, Brother 2 Brother, Present Day Cares, Southlight, Inc., NCCU, Triad Health Project, Alliance of AIDS Services- Carolina, Wake County Human Services, Glaxo Smith Kline, and the Communicable Disease Branch staff. Thanks also to Charlotte NC Black Gay Pride and NC Pride for their permission to conduct the Men's Health Survey during their festivities.

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PART II: 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, 2007, the cumulative total of AIDS cases reported in the state was 16,680.
- 952 new adult/adolescent AIDS cases were reported in North Carolina in 2007, or 13.0 cases per 100,000 adult/adolescent population.
- The North Carolina adult/adolescent AIDS case rate in 2007 for blacks (42.9/100,000) was over ten times higher than for whites (4.0/100,000). This disparity is higher than observed for HIV disease.
- In 2006, the South had the greatest number of new AIDS cases and estimated number of people living with AIDS and AIDS deaths.
- N.C. was 9th among states reporting the highest number of AIDS cases in 2006.
- In 2006, North Carolina ranked sixth in the proportion of blacks living with AIDS (68.3% of persons living with AIDS are black).
- Over the past five year (2003-2007), approximately one-fourth to one-third of new individuals reported each year with HIV disease represented a concurrent diagnosis (i.e., HIV and AIDS were diagnosed at the same time for the individual).

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.

AIDS case reporting is helpful in comparing North Carolina to the nation; as all states have data that is acceptable for state to state comparisons. However, it should be noted that using AIDS data to describe the epidemic is problematic because the data represents older cases of infection. In addition, trends in AIDS data have fluctuated due to treatment changes.
There is growing concern about the impact of HIV/AIDS in the South. In 2006, of the top 10 states or dependent areas reporting the most new AIDS cases, five (FL, TX, GA, MD, and NC) were in the South (CDC, HIV/AIDS Surveillance Report, 2007). Six of the ten states (DC, MD, FL GA, LA and SC) reporting the highest new AIDS case rate (per 100,000) were in the South (Kaiser, 2008). North Carolina ranked eleventh. Overall, in 2006 the South had the greatest number of new AIDS cases (46% of all new cases) and estimated number of people living with AIDS (Kaiser, 2008).

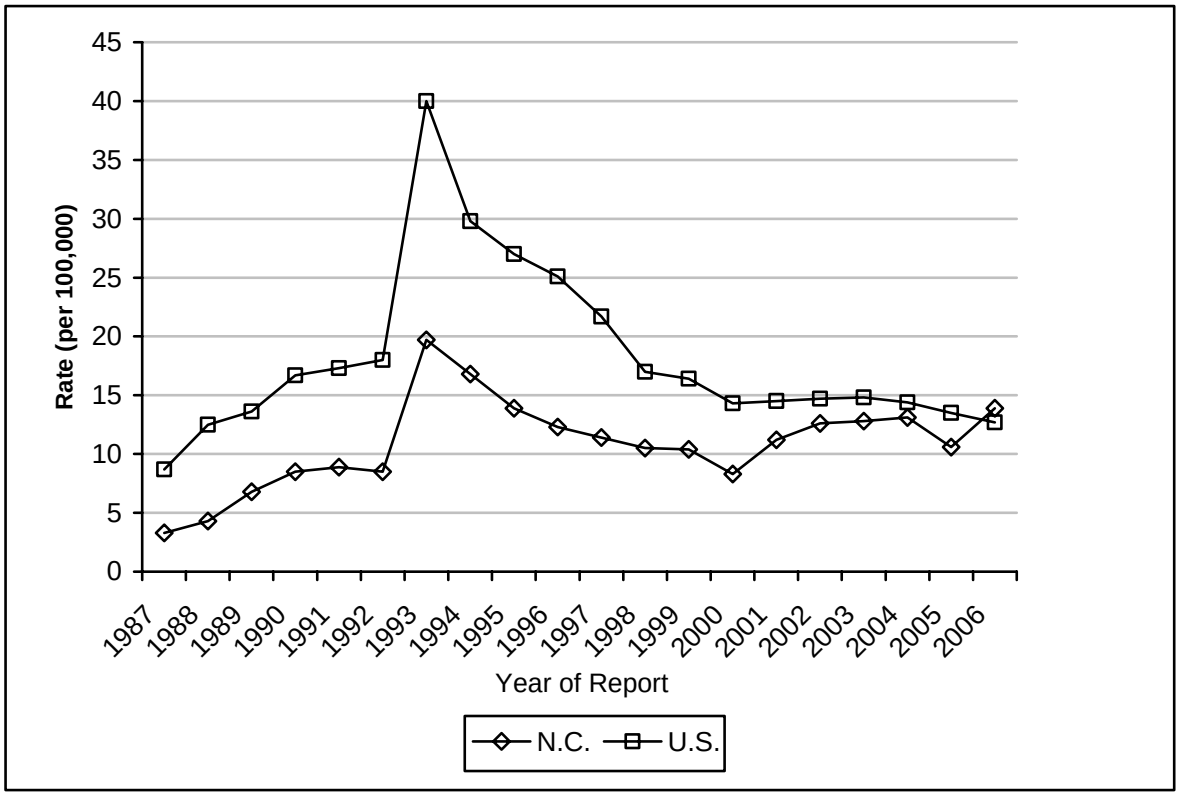
Comparing North Carolina to the nation is limited to earlier years because national surveillance data is released later than state data. According to the CDC, the national AIDS case rate (United States and dependent areas) in 2006 was 12.9 per 100,000 population (CDC, HIV/AIDS Surveillance Report, 2007). During the same time period, North Carolina's AIDS case rate was 13.9 per 100,000 population. North Carolina ranked 9th among all states and the District of Columbia, in the number of new AIDS cases reported (n=1,229) (CDC, HIV/AIDS Surveillance Report, 2007). In 2006, N.C. ranked 12th among all states in the number of living AIDS cases (CDC, HIV/AIDS Surveillance Report, 2007). Figure 6.1 compares North Carolina's AIDS case rates to the United States over the last twenty years (1987-2006). *Please note that the aforementioned counts and rates are calculated by the CDC and may differ slightly from N.C. surveillance counts and rates.*

As of December 31, 2007, 16,680 cases of AIDS (Table P, pg. D-26) had been reported in the state since 1983 with North Carolina as residence at the time of diagnosis. In 2007, 952 new adult/adolescent AIDS cases were reported in North Carolina with a rate of 13.0 per 100,000 population (Table O, pg. D-25). This represents a slight decrease from the previous year with 1,033 cases reported.

The impact of AIDS on blacks as a group is particularly notable. Blacks have the highest AIDS case rates of any racial/ethnic group. The U.S. rate for new black AIDS (adult/adolescent) cases reported in 2006 was 62.3 /100,000. The corresponding rate for North Carolina for adult/adolescent blacks was 54.8 /100,000 (Kaiser, 2008). However, North Carolina's black population is not evenly spread over the state and rates for blacks can vary considerably.

Tables N and O (pp. D-23 and D-24) display the AIDS report cases and rates for the last five years. Changes in rates may indicate changes in the anticipated care needs for certain groups. In 2007, black males represented 45 percent of AIDS adult/adolescent cases, black females represented 24 percent, and white males represented 17 percent of adult/adolescent AIDS cases. The 2007 AIDS case rate among blacks (42.9/100,000 adult/adolescent population) was over ten times higher than for whites (4.0/100,000 adult/adolescent population). This disparity between blacks and whites is higher for AIDS cases than for HIV disease cases.

Figure 6.1. AIDS Case Rates: N.C. and U.S.



Source : CDC, HIV/AIDS Surveillance Reports

LATE AIDS DIAGNOSES

Approximately one-fourth to one-third of new individuals reported each year with HIV disease represent a concurrent AIDS diagnosis (i.e., HIV and AIDS were diagnosed at the same time for the individual). Table 6.1 displays the proportion of HIV reports as compared to concurrent AIDS reports from 1998-2007. This significant proportion of late diagnoses indicate the need for increased HIV testing within North Carolina. Concurrent diagnoses likely represent late testers, who may have missed opportunities for effective antiretroviral therapy and as a result of the later stage of the disease. The Communicable Disease Branch is actively pursuing new policies and guidelines aimed at making HIV testing routine within the state, which will reduce the number concurrent AIDS diagnoses. In addition, the Branch has enacted specific initiatives addressing early HIV testing (See Chapter 4).

Table 6.1. Proportion of HIV and AIDS reports by year of report, 2003-2007

	Status at Report	
Year of Report	HIV (non-AIDS)	AIDS*
2003	69.9	30.1
2004	73.3	26.7
2005	75.0	25.0
2006	73.8	26.2
2007**	77.9	22.1

*HIV and AIDS diagnosed in less than three months **preliminary estimate

Table 6.2. Proportions of late AIDS diagnoses by sex and race/ethnicity, 2003-2007

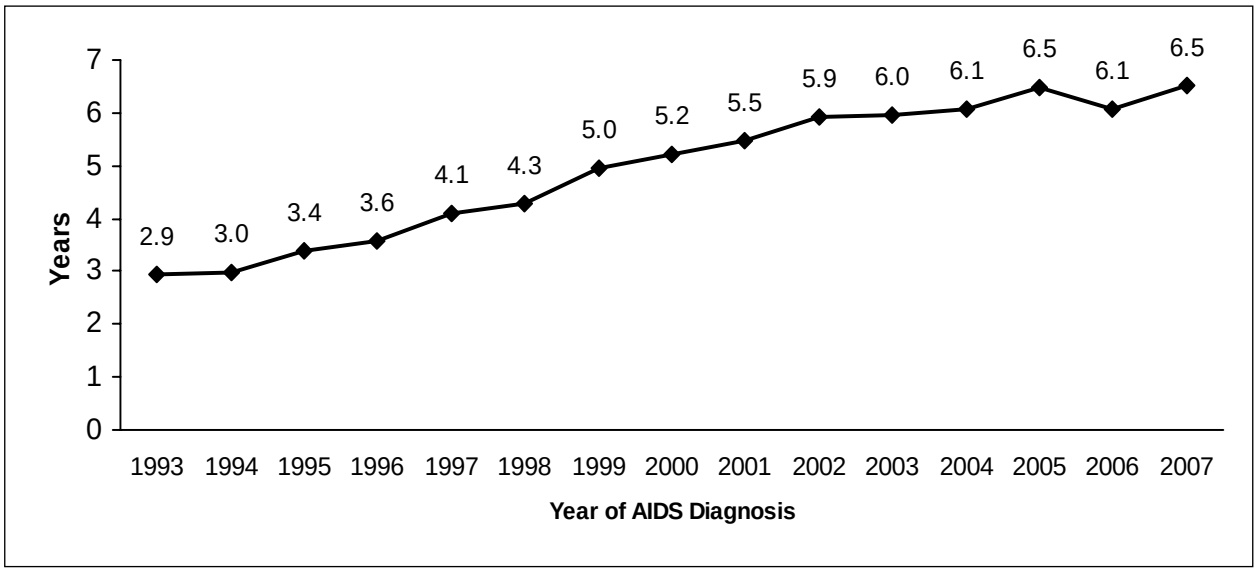
Sex	Race/Ethnicity	Year of Report 2003	2004	2005	2006	2007**
		Pct.	Pct.	Pct.	Pct.	Pct.
Male	White*	22.4	24.3	26.5	20.1	23.0
	Black*	44.7	45.7	44.1	44.4	43.2
	Hispanic	4.7	2.4	5.1	9.2	9.6
	Other/Unknown	1.2	1.0	1.3	1.3	0.4
	Total	72.9	73.3	77.1	75	76.2
Female	White*	5.3	4.0	4.5	3.6	4.1
	Black*	19.4	21.2	17.6	18.2	18.5
	Hispanic	1.8	1.2	0.4	2.9	0.6
	Other/Unknown	0.5	0.2	0.4	0.4	0.6
	Total	27.1	26.7	22.9	25	23.8
Total	White*	27.7	28.3	31.0	23.7	27.1
	Black*	64.1	66.9	61.7	62.6	61.7
	Hispanic	6.5	3.6	5.6	12.1	10.2
	Other/Unknown	1.7	1.2	1.8	1.6	1.0
	Total	100	100	100	100	100

*non-Hispanic **preliminary estimate

TREATMENT

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 first reported HIV diagnosis and first reported AIDS diagnosis. The increase in the time between reports indicates that these new treatments are likely slowing the progression from HIV to AIDS.

Figure 6.2. Average number of years between HIV/AIDS diagnosis, 1993-2007



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

HIGHLIGHTS

- 7,981 clients received or accessed Ryan White Title II funded services in 2007.
- The majority of services for Ryan White Title II clients involved ambulatory/outpatient medical services, followed by case management, transportation services and client advocacy.
- In calendar year 2006, it was estimated that 62 percent of the North Carolina population living with HIV disease (status aware) was in care.
- 5,140 individuals were enrolled in NC's AIDS Drug Assistance Program (ADAP) during calendar year 2007.
- In state fiscal year (SFY) 2006-2007, approximately 3,366 clients and families received Housing Opportunities for Persons with AIDS (HOPWA)services.

RYAN WHITE

Congress enacted the Ryan White Comprehensive AIDS Resources Emergency (CARE) Act in 1990 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 people living with HIV disease who lack health insurance and financial resources for 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 Ryan White Modernization Act of 2006 (which superseded the CARE Act) made significant changes to the HIV/AIDS care system in the United States, and has had a major impact on such services in North Carolina. While the Parts (formerly Titles) of the Act remain essentially the same as the old Act, the new legislation places additional emphasis on the role of the state as a coordinator of care services (and information), and as a facilitator to ensure better integration of services among providers.

As a result of new definitions adopted for Part A (aid to localities), North Carolina now has its first direct-funded locality (Mecklenburg County and the four other NC counties in that metropolitan area, also including one South Carolina county). This has led to a significant increase in federal resources to the State for HIV/AIDS care purposes, and allowed some of the State's Part B funding which formerly went to this region to be redirected to other areas of the State.

Two significant changes in the Part B program – Assistance to States and Territories –include:

- A requirement that at least 75 percent of all service dollars be spent on defined "core" services, with a decided emphasis on medical care; this means that only a maximum of 25 percent of service dollars can be spent on "support" services, which have been a key component of North Carolina's RW spending in previous years
- Any expenditure by HIV care consortia is now defined as a "support" service, no matter what the expenditure is for; this has led to a reevaluation of the Consortia system, and the beginning development of a Patient Management Model.

The Patient Management Model is expected to continue focusing on the regional provision of care services. However, Consortia, who presently serve as brokers of services, would no longer be the focus of service delivery. Rather, medical care providers will assume a greater role in ensuring that a continuum of HIV care services, including both core and support services, are available in an integrated fashion to all individuals who qualify to receive services funded through the Ryan White program. Further delineation of the Patient Management Model, including regional meetings to discuss the implications of the model and its impact on particular regions, is on-going. Implementation of the new Model is expected to occur in April 2010, with the beginning of the RW 2010 program year.

Part B funding

Part B 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 living with, or affected by, HIV disease in each state or territory. The state administers the Part B program and provides funding for care services to seven HIV care consortia and other local service providers. 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. CAREWare collects and stores data for completion of the annual Ryan White Data Report (RDR). CAREWare is also a tool used to move programs beyond 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 Continuous Quality Improvement (CQI) initiatives and RDR requirements. Table 7.1 summarizes the CAREWare service information for Part B clients during 2007. The complete data includes service information as well as clinical information.

The AIDS Care Unit is in the process of redesigning the state's HIV Quality Management Program in order to render it more useful for the State and its subgrantees. Data collected through CAREWare will be utilized as a major source of the information required for quality management purposes. In addition, HRSA has developed and implemented 5 Phase I clinical indicators for use by all RW-funded providers. Many of these indicators are similar to ones that the State had developed several years ago, and we have redefined our indicators to be in accord with the national indicators. In addition, there is an expectation that Phase II indicators will be disseminated in the very near future.

In CY 2007, a total of 7,981 clients (exclusive of those receiving assistance from ADAP) received services funded through Ryan White Part B awards in North Carolina (Table 7.1). During 2007, the distribution of Part B Modernization Act clients by race/ethnicity, gender and

age was similar to the distribution of these characteristics among people known to be living with HIV/AIDS in North Carolina (Table 7.2).

State estimates of the number of people reported with HIV/AIDS and listed as living by county of residence and sorted by consortia are found in Table L (pp. D-16 to D-18). This estimation of reported people living with HIV can be used to approximate care needs or anticipated care needs within the State.

Table 7.1. Services provided to Ryan White Part B clients, 2007 (CAREWare)

Services	No. Clients	% Clients Receiving Service (n=7,981*)	No. of Services Provided (n=72,684*)
Ambulatory/outpatient medical services	6,597	82.7%	22,959
Oral health services	804	10.1%	2,234
Case management services (non-medical)	3,660	45.9%	24,432
Client advocacy	1,291	16.2%	3,373
Day or respite care for adults	13	0.2%	23
Emergency financial assistance	1,166	14.6%	2,651
Food bank/home-delivered meals	1,157	14.5%	3,890
Health education/risk reduction	379	4.7%	635
Home health	7	<0.1%	107
Legal services	165	2.1%	203
Mental health services	137	1.7%	421
Medical nutrition therapy	179	2.2%	501
Permanency planning	20	0.3%	20
Psychosocial support services	306	3.8%	666
Referral Clinical Research	4	<0.1%	4
Referral for health care/supportive services	259	3.2%	788
Substance abuse services: outpatient	12	0.2%	15
Transportation services	1,547	19.4%	4,603
Treatment adherence counseling	1,147	14.4%	3,079
Pharmaceutical assistance	184	2.3%	305
Home and community-based health services	49	0.6%	274
Linguistic services	1	<0.1%	4
Medical case management	44	0.5%	917
Housing services	7	<0.1%	7
Substance abuse: residential	49	0.6%	49
Other services	1,049	13.1%	3,500

* may receive more than one service

Table 7.2. N.C. living HIV/AIDS cases, Ryan White Part B and ADAP clients, 2007

	Ryan White Part B clients	ADAP enrollees CY 2007	Persons living** with HIV/AIDS
	(n=7,981)	(n=4,025)	(n=21,593)
Gender			
Male	65%	72%	69%
Female	34%	29%	31%
Transgender	<1%	0%	-
Race/ethnicity			
White*	27%	30%	25%
Black*	63%	60%	69%
Am Indian/AN*	1%	1%	1%
Asian/PI*	<1%	<1%	1%
Hispanic	6%	7%	5%
Age Group			
<2	<1%	0%	0%
2-12	<1%	<1%	<1%
13-24	3%	3%	5%
25-44	48%	57%	51%
45-64	46%	39%	41%
65 and over	2%	2%	3%

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

**Living as of 12/31/2007

MEASURING UNMET NEED

The Health Resources and Administration (HRSA), as part of its cooperative funding agreements, require that each state estimate its unmet need for HIV-infected people. HRSA has defined unmet need as an estimate of individuals who are aware of their HIV positive status, but are not accessing HIV primary health care; therefore, designated as not “in care”. “In care” for this purpose is defined as 1) receipt of a CD4 count or an HIV viral load test within a 12-month period or 2) receipt of antiretroviral drugs for HIV within a 12-month period.

Unfortunately, no single source of data exists that contains this level of information for all HIV-infected people in North Carolina. Public health surveillance data, which is very comprehensive, contains information regarding initial diagnosis of HIV and AIDS, but has very limited information about ongoing health care. Agencies and programs that serve HIV-infected clients generally maintain only information about clients that they serve. Since 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.

An updated estimation of "unmet need" in North Carolina was determined for 2006. The most recent estimations included data extracted from a variety of data sources for each 12-month period (1/1/2006-12/31/2006). These data sources include Medicaid, ADAP (AIDS Drug Assistance Program), CAREWare and larger providers across the state. Information from the aforementioned sources was reviewed to estimate the number of individuals (living on 01/01/2006) within the North Carolina HIV/AIDS reporting system (HARS) who were in care.

In calendar year 2006, it was estimated that 62 percent of the North Carolina population living with HIV disease (status aware) was in care. The remaining 38 percent of the population living with HIV disease were estimated to be not in care; thus, representing those with unmet need (Table 7.3). As the disease progresses, people are more likely to seek out care. Therefore, as expected, there were a greater proportion of people living with HIV (non-AIDS) with unmet need than people living with AIDS. In 2006, the estimated number of people living with HIV (non-AIDS) with unmet need was (43%), as compared to (29%) people living with AIDS.

Table 7.3. North Carolina Unmet Need Estimate, 2006

In Care estimate	
Number of PLWA* w/ met need	71%
Number of PLWH** (non-AIDS) w/ met need	57%
Total HIV Disease w/ met need	62%
Unmet need estimate	
Number of PLWA* w/ unmet need	29%
Number of PLWH** (non-AIDS) w/ unmet need	43%
Total HIV Disease w/ unmet need	38%

*PLWA=People Living with AIDS **PLWH=People Living with HIV

Table 7.4 displays the percentage of unmet need in each subgroup. Note that the number of Hispanics living with HIV Disease was substantially larger as compared to others within the race/ethnicity groupings. The unmet need report in its entirety (including the estimation methodology) can be found in Special Notes (pg. C-7).

Table 7.4. Percent of Unmet Need in Selected Subgroups, CY 2006

	HIV (non-AIDS)		AIDS		HIV Disease	
	Met	Unmet	Met	Unmet	Met	Unmet
Gender						
Male	55%	45%	70%	30%	61%	39%
Female	61%	39%	77%	23%	66%	34%
Race/Ethnicity						
White*	60%	40%	68%	32%	63%	37%
Black*	46%	44%	69%	26%	63%	37%
Hispanic	50%	50%	60%	40%	54%	46%
Other**	62%	38%	75%	25%	57%	33%
Total	57%	43%	71%	29%	62%	38%

*non-Hispanic **Includes unknown

AIDS DRUG ASSISTANCE PROGRAM (ADAP)

Since 1987, Congress has appropriated funds to assist states in providing AIDS patients with selected health and medical care services, including pharmaceutical therapy as approved by the Food and Drug Administration (FDA). With the initial passage of the Ryan White CARE Act in 1990, the assistance programs for medications were incorporated into Title II (Part B) and eventually became known as the AIDS Drug Assistance Program, or ADAP. ADAPs in every state, as well as Puerto Rico, Guam, and the Virgin Islands, now provide FDA-approved HIV-related and occasionally a much broader array of, prescription drugs to underinsured and uninsured individuals 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 obtaining HIV-related 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 gross family income that is at or below 250 percent of the federal poverty level, not have third-party coverage (e.g., private insurance or Medicaid), and meet other program criteria. During CY 2007, 5,140 individuals were enrolled (~4,025 actually served) in NC's ADAP at some point during the year.

The ADAP Program and the HIV community in North Carolina had been struggling to raise the financial eligibility level of the program for a number of years. A significant change occurred effective October 1, 2008 when the financial eligibility of the NC ADAP Program was increased to a gross family income of less than/equal to 300 percent of the federal poverty level. At the previous level, i.e., 125 percent of the Federal Poverty Level, NC's ADAP Program had the lowest financial eligibility in the nation. For the first time in many years, North Carolina's ADAP Program was finally able to operate for the entire 2006 and 2007 calendar years without a waiting list. People in the state benefited greatly from the conversion of the ADAP Program from a reimbursement/rebate model to a direct purchase/central pharmacy model program; a transition which took place on July 1, 2005. The program has used savings obtained as a result of this conversion to increase the number of individuals served In addition, the Program was able to expand its formulary significantly in 2007 and early 2008 by adding two additional tiers of medications, primarily to treat other chronic conditions such as hypertension, diabetes, Hepatitis C, etc. The Program also included some prevention focused formulary additions, such as common vaccines and smoking cessation aids.

HOUSING OPPORTUNITIES FOR PERSONS WITH AIDS (HOPWA)

Since 1992, the federal government has allocated more than $2.3 billion for the HOPWA program to support community efforts to create and operate HIV/AIDS housing and provide related services. Eligible Metropolitan Statistical Areas (EMSA) 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 EMSAs, and 39 states for areas outside of any EMSA in that state. North Carolina was awarded its first HOPWA grant in 1992 and served the entire state until 1998. Charlotte and Raleigh became eligible for a HOPWA formula allocation in 1998 and the State's area was

reduced. Since 1998, North Carolina's grant serves persons living with HIV/AIDS and their families who live outside of the Charlotte and Raleigh metropolitan areas (which covers 92 of the 100 counties in NC).

The purpose of the HOPWA Program is to devise long-term comprehensive strategies for meeting the housing needs of individuals and their families who are living with acquired immunodeficiency syndrome (AIDS) or related diseases. 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 80 percent of the median income for the state of North Carolina and the county of residence. 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).

In state fiscal year (SFY) 2006-2007, approximately 3,366 clients and families received HOPWA services. 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 people living with HIV/AIDS.

The AIDS Care Unit of the Communicable Disease Branch administers HOPWA on a statewide level. 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.

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

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 N.C.

HIGHLIGHTS

- Early syphilis rates dropped from 15.1 cases per 100,000 population in 1999 to a low of 4.7 in 2003. However, male early syphilis rates began to rise in 2004 and rates for females began to rise in 2006. The overall early syphilis rate in 2007 was 6.4 cases per 100,000.

- The increase in early syphilis rates began with an outbreak in Mecklenburg County in 2004. Many of these cases were linked to MSM activity. An increase in rate was later observed in other counties as well as in females.

- In 2007, three counties had particularly high male-to-female ratios including Wake County with 8.8 male cases for every female case, Durham County with 6.8, and Forsyth County with 5.6.

- The six Syphilis Elimination Effort (SEE)counties (Mecklenburg, Guilford, Wake, Forsyth, Durham, and Robeson) together accounted for more than half of 2007 early syphilis reports in North Carolina.

- Gonorrhea case reports reflect severe racial disparities. The differences were most dramatic among males, where 2007 gonorrhea rates among blacks were almost 24 times higher than among whites, rates for American Indians were over four times higher, and rates for Hispanics were more than two times higher. Among females, the trends were similar but less severe, with 2007 gonorrhea rates for blacks 10 times higher than for whites and rates for American Indian rates over four times higher.
- The age groups with the highest 2007 chlamydia rate were 20 to 24 year olds for both females (3,318.7/100,000) and males (694.4/100,000). From 2003-2006, the female age group with the highest rates was for 15-19 year olds.

- Racial disparities in female chlamydia reports have remained stable over the past five years (2003-2007), with a rate six to seven times more among black females than among whites; and a rate two to four times more among American Indian/Alaska Native and Hispanic females than among whites.

REPORTABLE STDS IN NORTH CAROLINA

In addition to HIV and AIDS there are 18 other sexually transmitted conditions are reportable, by law, 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 are required to 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; acute cases are reportable within 24 hours to the local health department. Statewide surveillance is directed by the Communicable Disease Branch at N.C. DHHS.

Table 8.1. North Carolina reportable sexually transmitted diseases, 2007

	Sex		
	Male	Female	Total
Chlamydia (lab-confirmed)	5,493	25,111	30,612
Gonorrhea	7,724	8,941	16,665
Syphilis			
Primary Syphilis	66	12	78
Secondary Syphilis	198	48	246
Early Latent Syphilis	159	88	247
Late Syphilis	53	27	80
Late Latent Syphilis	244	184	428
Late Syphilis w. symptoms	0	1	1
Neurosyphilis	10	3	13
Congenital Syphilis	4	6	10
Syndromic Diagnoses			
Nongonococcal Urethritis (NGU)	5,000	n/a	5,000
Mucopurulent Cervicitis (MPC)	n/a	1	1
Pelvic Inflammatory Disease (PID)	n/a	373	373
Other STDs			
Chancroid	1	1	2
Granuloma Inguinale	0	4	4
Lymphogranuloma Venereum (LGV)	1	0	1
Opthalmia Neonatorum (gonorrhea)	0	0	0

Table 8.1 describes STD cases reported to the Communicable Disease Branch in 2007. 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 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 2007, there were 373 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 2007 there were two cases of chancroid reported, four cases of granuloma inguinale, and one case of lymphogranuloma venereum. There have been no reported cases of opthalmia neonatorum (opthalmic infection with N. gonorrhoeae in infants) for the past five years (2003-2007).

Hepatitis

Hepatitis A virus (HAV) is spread from person to person through fecal-oral transmission. 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. Both HAV and HBV infection can be prevented through vaccination.

Hepatitis C (HCV) is also a bloodborne infection but, there no vaccine is available. 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, et al 1998).

Table 8.2. Hepatitis A , B, and C — Male : Female ratios and cases, 2002-2006

	2002	2003	2004	2005	2006
Hepatitis A	3.3 (160/48)	1.9 (81/43)	1.1 (54/51)	1.0 (42/42)	1.2 (57/47)
Hepatitis B acute	1.7 (145/87)	2.0 (109/54)	1.9 (119/63)	2.6 (121/46)	2.7 (116/43)
Hepatitis B chronic	1.3 (500/379)	1.3 (567/448)	1.4 (433/314)	1.4 (490/348)	1.3 (464/355)
Hepatitis C	1.1 (15/14)	0.1 (1/12)	0.5 (4/8)	0.6 (8/13)	0.6 (7/11)

Table 8.2 shows Hepatitis A, B, and C cases and male-to-female ratios for 2002-2006. The ratio for HAV has declined since 2002, but there was a slight increase noted for 2006 compared to 2005. There were 10 more male cases in 2006 than female cases. The ratio for acute HBV has been gradually increasing which may indicate some male-to-male sexual transmission. The trends for chronic HBV and for HCV have been more stable.

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.

Human papillomavirus (HPV)

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, HPV Fact Sheet, 2006). 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).

In June of 2006 a new vaccine for HPV was licensed by the Food and Drug Administration (FDA). This vaccine contains four HPV strains, two that cause 90 percent of genital warts (types 6 and 11), and two that cause 70 percent of cervical cancer (types 16 and 18). The vaccine will be targeted for use in females' age 9-26 years. A second vaccine containing only the cervical cancer strains is currently in the final stages of testing (CDC, HPV Fact Sheet, 2006).

Genital Herpes

The CDC estimates that 45 million adolescents and adults in the U.S. have had genital herpes infection (CDC, HSV Fact Sheet, 2004). Herpes is not reportable for a number of reasons. Historically, there have not been good diagnostic tests 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. 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 initial infection; subsequent outbreaks decrease in severity. The most severe consequence of genital herpes is transmission to newborns during birth, a rare event.

Trichmoniasis

The CDC estimates approximately 7.4 million new infections per year in the U.S. (CDC, Trichmoniasis Fact Sheet, 2004). 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. 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)

Bacterial vaginosis (BV) is the most common vaginal infection in women of childbearing age (15-44 years). 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, BV Fact Sheet, 2004). 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 it is easily treated with antibiotics. When symptoms occur, they include discharge and painful urination. Approximately three-quarters of infected females and half of infected males have no symptoms at all (CDC 2006, Chlamydia Fact Sheet). The infection can cause severe damage to the female reproductive tract, including infertility and pelvic inflammatory disease (PID). For this reason, the CDC and the N.C. Communicable Disease Branch currently recommend that all sexually active females age 24 years and under, as well as all pregnant women, be screened for asymptomatic chlamydia. 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 the Communicable Disease Surveillance Unit 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 which are more likely to screen and report cases.

Chlamydia trend analysis

Gender

The vast majority (consistently over 80%) of reported chlamydia cases are among females due to screening bias. Male cases are often detected when a female partner tests positive through screening and refers the male for testing and treatment. The number of male cases reported increases as the number of female cases increases but the proportions of each remain relatively consistent. In 2007, 18 percent of the 30,612 cases reported were among males.

Age

Chlamydia is predominantly found in younger age groups. For males, the highest rates are consistently found in the 20 to 24 age group, followed by 15 to 19. For females the trend is usually reversed, with 15 to 19 year olds having the highest rates, followed by 20 to 24 year olds. However in 2007, the rate for females 20 to 24 years old was slightly higher than the rate for 15-19 year olds (Table Q, pg. D-27). Over the past five years, reported cases and rates have generally been on the rise for all age groups, most likely reflecting more screening. The drop in rate for 2007 compared to 2006 may be reflective of reporting issues rather than less morbidity. Rates among 20 to 25 year old females rose by over 24 percent from 2003-2007 and 37 percent for 30 to 34 year olds, compared to a slight decrease for age 15 to 19 years. This difference is

most likely due to changing standards for screening. Prior to January 1, 2002, chlamydia screening of all asymptomatic women age 19 years and under receiving care at publicly funded clinics was recommended. On that date the age was raised to 22 and then on July 1, 2002 it was raised again to women aged 24 years and under.

Race/Ethnicity

Chlamydia case reports reflect severe racial disparities that have remained relatively consistent over the past five years. The rates among black males are 9-10 times the rates for whites, and the rates for Hispanics are three to four times the rates for whites (Table R, pg.D-29). The data for females, which are slightly more reliable, is nearly as severe, with black female chlamydia rates six to seven times higher than white female rates, and American Indian/Alaska Native and Hispanic rates are each two to four times higher than white female rates. 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 N. C. 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. The data are 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 that do their own testing (Durham, Forsyth, Guilford, Mecklenburg and Wake). In 2007 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. About 66 percent of the women screened in 2007 were in the recommended age group, 24 years 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 on case numbers because the new test is detecting cases of chlamydia that the older, less sensitive test missed. So, the overall positivity went up in 2004 after years of consistent decline (Table 8.3). In order to better assess the changes in positivity, Table 8.4 shows data separated by test type. This illustrates that the downward trend did indeed continue into 2004. When the new test was introduced mid-2004, the positivity spiked from 5.4 percent under the old (EIA) test to 8.8 percent under the new nucleic acid amplification test (NAAT). Positivity has dropped since to 7.4 percent in 2007 using NAAT testing.

Table 8.3. Women tested for chlamydia in publicly funded clinics, 2003-2007

	2003	2004*	2005*	2006*	2007*
Women tested (n)	102,225	103,708	108,871	111,217	106,739
Positive (n)	5,764	7,292	8,335	8,254	7.915
Missing Result (n)	1,061	1,517	429	1030	269
Positivity (%)**	5.7	7.1	7.7	7.5	7.4

* Testing technology changed in May, 2004 ** Positivity excludes missing test results

Table 8.4. Women tested for chlamydia in publicly funded clinics, by test type 2003- 2007

	2003	2004	2004	2005	2006	2007*
Test Type	EIA	EIA	NAAT	NAAT	NAAT	NAAT
Women tested (n)	102,225	35,726	67,982	108,871	11,217	106,739
Positive (n)	5,764	1,891	5,401	8,335	8,254	7.915
Missing Result (n)	1,061	373	1,144	429	777	269
Positivity (%)**	5.7	5.4	8.8	7.7	7.5	7.4

** Positivity excludes missing test results

Age

Since 2005, the positivity rates have steadily declined for the 10 to14 and 25 to 29 age groups and increased for the 20 to 24 age group. Positivity rates for other age groups have been less consistent. In 2007, the positivity rate was highest 15 to 19 year olds at 11.8 percent followed by 10 to14 year olds at 10.1 percent and then 20 to 24 years olds at 7.6 percent.

Race/Ethnicity

Racial disparities exist in the screening data but are not as severe as those posed in the data for reported cases. From 2000 to 2004, the annual positivity rates for white and black females have declined steadily to 3.0 percent for whites and 8.2 percent for blacks. 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. In 2007, the positivity rate was highest for blacks at 13.1 percent followed by the rate for American Indians at 9.7 percent and then whites at 5.3 percent. The positivity in 2007 rate was lowest for Hispanics at 2.9 percent.

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 chlamydial infection are most often used to treat the patient. There are other possible causes for NGU and MPC, making it inappropriate to group them with laboratory-confirmed cases of *C. trachomatis*.

There were 5,000 male cases of NGU reported in 2007 (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 three MPC cases reported, which reflects the widespread use of chlamydia testing in females.

GONORRHEA

Gonorrhea disease

Gonorrhea is the second-most commonly reported STD, after 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 gonorrhea cases takes place at a number of private labs with most public clinics sending their samples to the State Laboratory of Public Health. In mid-2004, the State Laboratory of Public Health began performing nucleic acid amplification test (NAAT) testing for gonorrhea for all samples submitted for chlamydia testing. 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. As with chlamydia, morbidity reports of gonorrhea are forwarded to the Communicable Disease Surveillance Unit 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.

Gonorrhea trend analysis

Reports for gonorrhea were fairly stable from 2003-2005 with rates or 179 to 174 per 100,000 population. An increase was observed in 2006 when the rate increased to 196 per 100,000. For 2007, reports of gonorrhea are slightly down compared to 2006 with the decrease attributed to fewer male reports for almost all age groups. Reports for females however have increased in 2007 with higher rates for ages 15 to 34 years (Table S, pg. D-30 and Table T, pg. D-32). While rates for most race/ethnicity groups in 2007 remained slightly below their rate in 2006, the rates

for American Indians increased almost 24 percent from 148.4 per 100,000 to 183.3 per 100,000. It should be noted that true increases (or decreases) may be masked by changes in screening practices (affected by concomitant testing for chlamydia and broader use of urine-based testing), use of diagnostic tests with differing test performance, and changes in reporting practices. The gonorrhea positivity for samples submitted to the State Laboratory of Public Health has decreased slightly from 2.19 percent in 2006 to 2.18 percent in 2007.

Gender

From 2003 - 2006, rates for males were consistently a bit higher than the rates for females with the male-to-female case ratio stable at 1.1 to 1.0. In 2007 the rate was higher for females and thus the male-to-female ratio dropped to 0.9. In general, this would indicate a lack of substantial MSM transmission. However, examination of male and female trends by race indicates divergent trends. Among blacks, there are more male than female cases. For blacks, the ratio has dropped from around 1.3 male cases for every female case in earlier years to 1.1 in 2007. Among Hispanics, the ratio has remained fairly stable from 2002 to 2007; the ratio was just over 1.0 in 2007. The trend is exactly opposite for whites and American Indians, where there are consistently more female than male cases. For whites and for American Indians, the female-to-male ratio has varied during the past five years and in 2007 the ratio was about 2.0 for both.

Under the assumption that most people choose sex partners of their same race/ethnicity, this may indicate some MSM transmission of gonorrhea among black and Hispanic males. Conversely, the assumption about partner selection may be incorrect or the trend may simply reflect some aspect of case detection, reporting, or the disproportion of males to females within the population. Detailed surveillance of rectal gonorrhea would assist in understanding this type of trend.

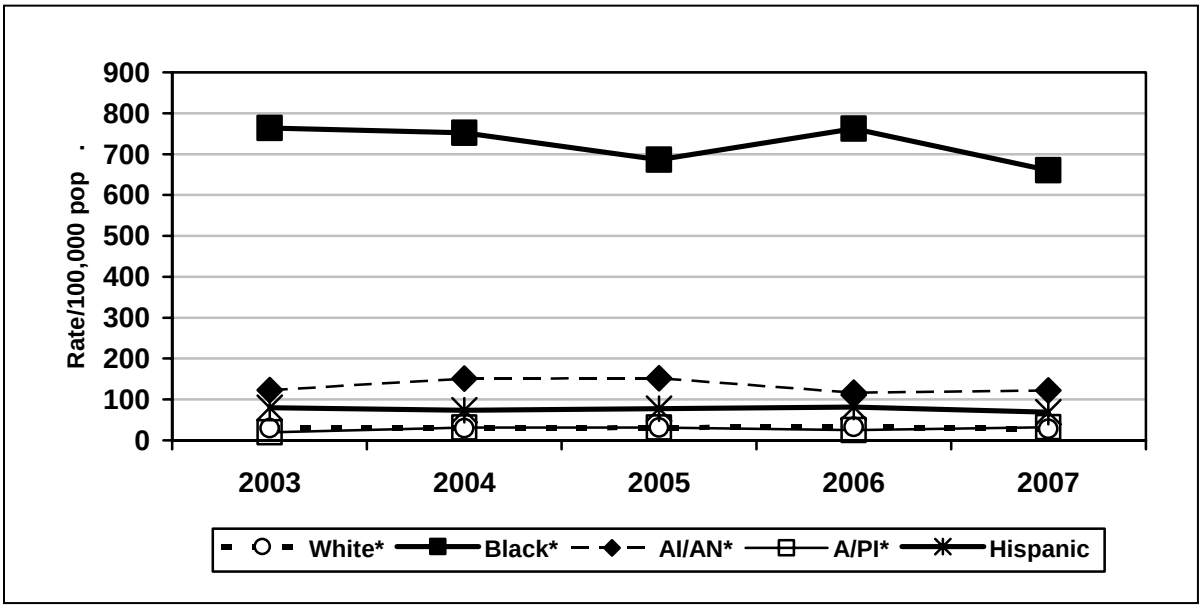
Age

Gonorrhea is predominantly found in younger age groups, and the relative rates are somewhat similar to those for chlamydia with respect to age. For males, the highest rates are consistently found in the 20 to 24 age group, followed by 25 to 29; until recently, the trend for females was reversed, with 15 to 19 year olds having the highest rates, followed by 20 to 24 year olds. From 2005 to 2007, the female rate for 20 to 24 year olds exceeded the rate for 15 to 19 year olds (Table S, pg. D-30).

Race/Ethnicity

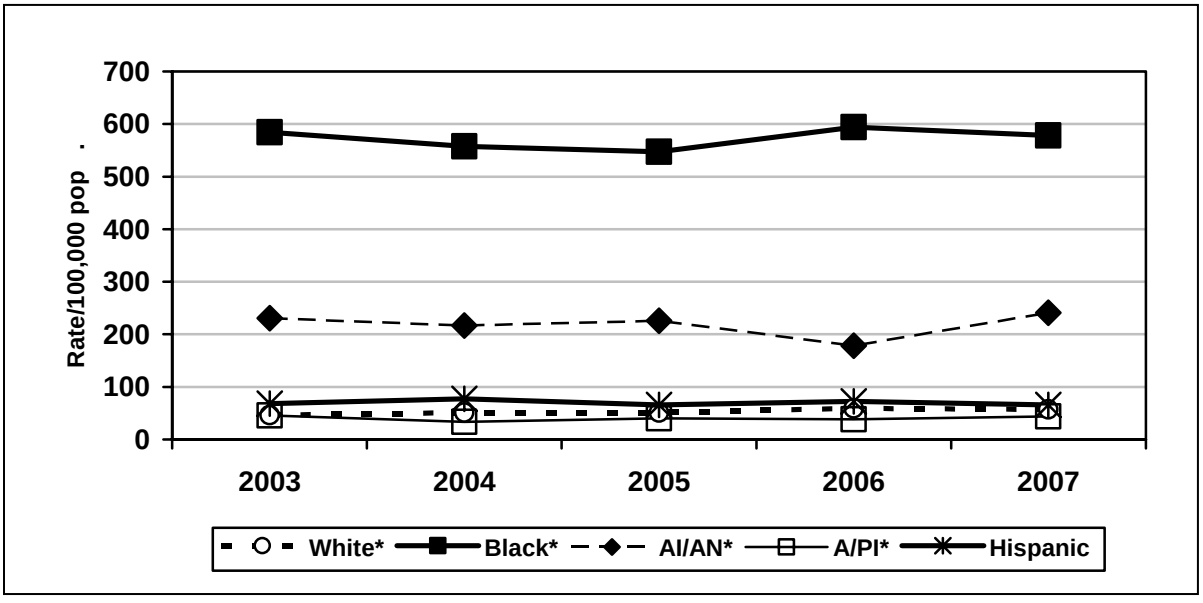
Gonorrhea case reports reflect severe racial disparities. The differences are most dramatic among males, where gonorrhea rates among blacks are more than 24 times higher than whites, rates for American Indians (AI/AN) are four or more times higher, and for Hispanics more than two times higher than whites (Figure 8.1). Among females, the trends are similar but less severe (note the scale on the two charts), with black rates 10-12 times higher than whites and American Indian rates 3-5 times higher (Figure 8.2). Notably, the gonorrhea rates for Hispanic females are only slightly higher than white rates (Table T, pg. D-32). Rates for Asian/Pacific Islanders (A/PI) are lowest of all for most years.

Figure 8.1. Gonorrhea rates by race/ethnicity – Males, 2003-2007



*non-Hispanic; AI/AN=American Indian/Alaska Native; A/PI=Asian/Pacific Islander

Figure 8.2. Gonorrhea rates by race/ethnicity – Females, 2003-2007



*non-Hispanic; AI/AN=American Indian/Alaska Native; A/PI=Asian/Pacific Islander

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 1998-2001 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 2006, 173 men were tested at the Greensboro site. Over 90 percent were black, just over 30 percent were age 20 to 24 years. About seven percent reported having sex with other men which was down from 2005. About 49 percent reported ever having a previous episode of gonorrhea and about 25 percent in the previous 12 months. Resistance to penicillin and/or tetracycline was detected in 14.5 percent of the samples (CDC, GISP Report, 2008).

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 be transmitted to sexual partners. Hence, they are often grouped together when discussing infectious syphilis and called ‘early syphilis’ or PSEL. 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, again, they may be grouped if the important distinction is that the cases were infected more than a year prior to diagnosis. 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).

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 Communicable Disease Surveillance Unit 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 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 Effort (SEE)

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), now called SEE, 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 SEE 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 Communicable Disease Branch (formerly the Communicable Disease Branch) in the Division of Public Health coordinates many of the SEE activities and has several CDC assignees designated to the project. The team determined that a sixth county (Durham) should be included in the SEE work because syphilis is a significant problem there, even though it did not make the CDC list of 28.

Syphilis trend analysis

In the years immediately following the implementation of the Syphilis Elimination Effort, syphilis rates declined steadily for a number of years. Early syphilis rates dropped from 15.1 cases per 100,000 population in 1999 to a low of 4.7 in 2003. Late syphilis rates also declined during this period but more slowly. This decline is likely due, at least in part, to the work of the Syphilis Elimination Effort (or SEE). However, since 2003 early syphilis rates in North Carolina rose to a high in 2006 of 6.8 cases per 100,000 population. The 2007 rate for early syphilis was

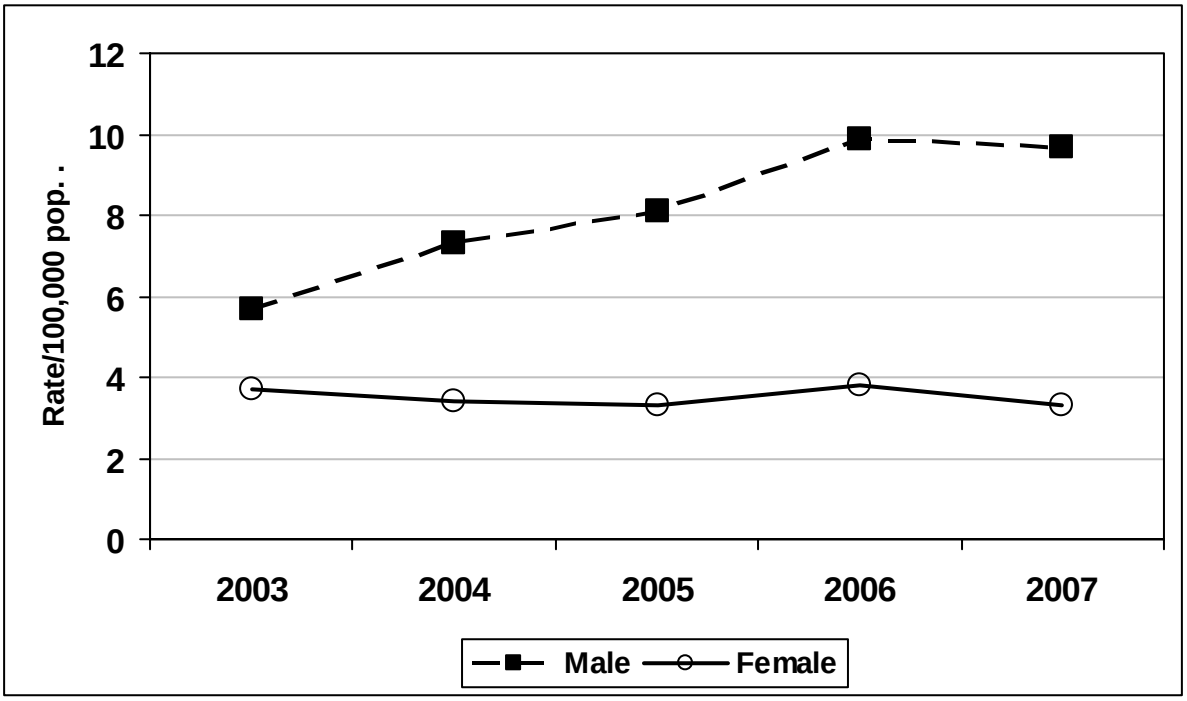
6.4 per 100,000. The six SEE counties accounted for 56 percent of the total early syphilis morbidity for the state in 2007 and all were ranked in the top ten counties by number of cases reported (Table W, pg. D-36). New Hanover County in the southeastern part of the state experienced a substantial increase in reports of early syphilis in 2006 and 2007; it was among the top five counties for early syphilis reports in 2007 with 35 reports.

For a national comparison, data is limited to following primary and secondary syphilis reports. According to the CDC, North Carolina's 2003 primary and secondary syphilis rate of 1.8 cases per 100,000 was well below the national rate of 2.5. At that time, North Carolina ranked 19th among the states (including the District of Columbia). In 2006 the North Carolina primary and secondary syphilis rate (3.6 per 100,000) was greater than the national rate of 3.3 and its ranking was 12th.

Gender

Male early syphilis rates began to rise in 2004 and continued to rise through 2006. The initial increase in male cases was highly localized with the largest number of new male reports from Mecklenburg County. There were 30 male early syphilis cases reported from Mecklenburg in 2003, growing to 125 in 2006. In 2003, less than 13 percent of the total early syphilis male cases for the state were reported from Mecklenburg, but by 2005, the county reported nearly 30 percent of the male cases in the state. Further investigation of the Mecklenburg reports revealed that many of the male cases were linked to MSM activity. This increase in male reports has since spread beyond Mecklenburg County with increases noted in many other counties. Prevention efforts targeting men who have sex with men have been enhanced to address the outbreak.

Figure 8.3. PSEL syphilis rates by gender, 2003-2007



In 2007, three counties had particularly high male-to-female ratios including Wake County with 8.8 male cases for every female case, Durham County with 6.8, and Forsyth County with 5.6. Female early syphilis cases and rates of the state continued to decline until 2005 but showed an increase in 2006 (Figure 8.3) before declining back to the 2005 rate (3.3/100,000) in 2007. The trend for females varies by county.

Age

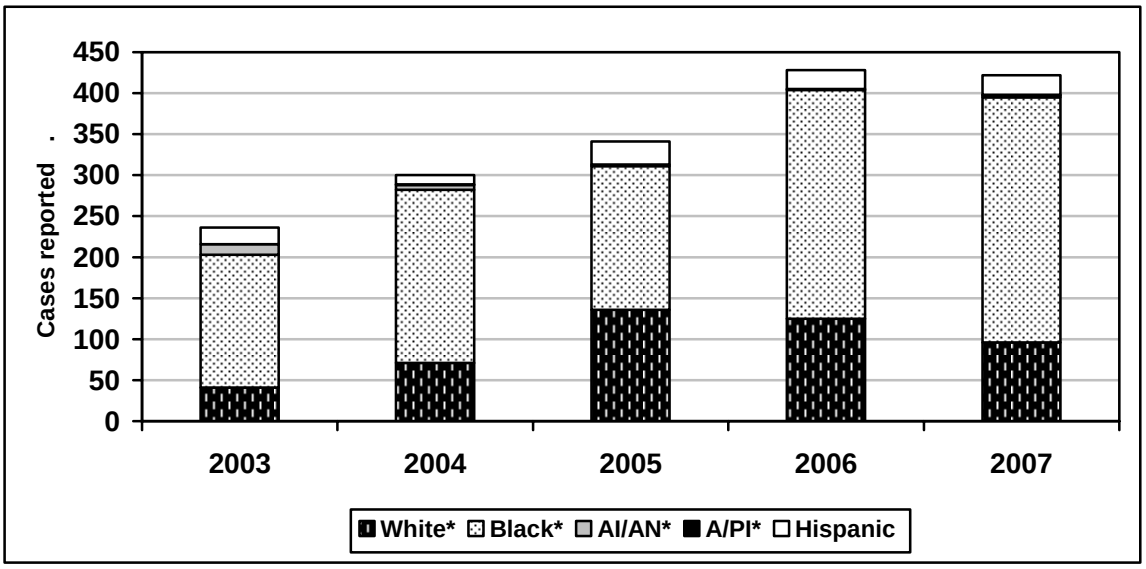
Syphilis cases in North Carolina are generally found in an older population than that affected by gonorrhea and chlamydia with the age category with the highest rates almost always older among men than women (Table U, pg. D-33). In 2004 the age groups with the highest early syphilis rate was 35 to 39 year olds or older for both men and women. Since than time, the highest rates have been found among younger age groups. In 2006 and 2007, the highest rates for males were found in 25 to 29 year olds while the highest rates for females were among 20 to 24 year olds. The trends are similar when P&S syphilis is examined separately.

Race/Ethnicity

Syphilis disproportionately affects minority communities. Syphilis rates for blacks and Hispanics are many times higher than for corresponding white groups (Table V, pg. D-35). Syphilis reporting is generally very good, so it is unlikely that this is due to reporting or testing bias. A complex combination of health care access, poverty, racism, and the composition of sexual networks produces these differences in syphilis rates.

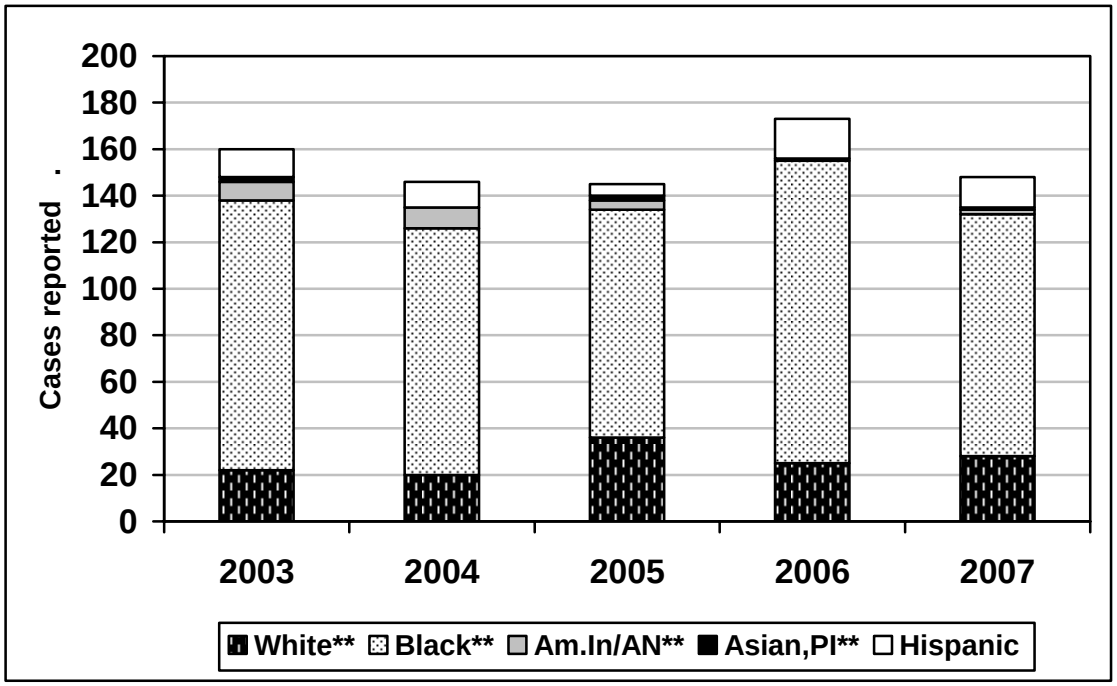
Figure 8.4 shows the early syphilis (PSEL) cases for males and Figure 8.5 shows the corresponding cases for females. The disparity for black and Hispanic men narrowed significantly from earlier years to 2003 because the cases for black, Hispanic, and American Indian males were dropping faster than the rates for white males. Then in 2004 and 2005, the number of early syphilis cases reported among white males began to increase. This decreased the disparity even further. However, since 2006, white male cases decreased while at the same time reported cases of black males increased reversing the trend. Among females, the number of reported cases declined from 2002 to 2004 among all racial groups. In 2005, the number of cases reported among white females rose slightly, further narrowing the racial disparity. However in 2006, there were increases in reports of early syphilis for black and Hispanic females, reflecting the trend observed in males. In 2007 there were slight decreases in cases among minority females. It should be noted that cases for American Indians have decreased from 2003 to 2007 for both males and females.

Figure 8.4. PSEL syphilis cases by race/ethnicity– Males, 2003-2007



*non-Hispanic; AI/AN=American Indian/Alaska Native; A/PI=Asian/Pacific Islander

Figure 8.5. PSEL syphilis cases by race/ethnicity– Females, 2003-2007



*non-Hispanic; AI/AN=American Indian/Alaska Native; A/PI=Asian/Pacific Islander

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, et al 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. As of Dec 31, 2007, seven infants were known born in 2007 to mothers who had active or inadequately treated cases of syphilis. Because of the delay in reporting and confirming congenital syphilis diagnoses, this number may be incomplete. In 2006, six infants were born to mothers who had active or inadequately treated cases of syphilis. This was down from earlier years (11 infants in 2004 and 21 in 2003). The number of congenital syphilis cases remains unacceptably high. Readers should note that some reports display congenital syphilis cases by year of report rather than year of birth.

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 2006, 21.2 percent of N.C. mothers reported a barrier to receiving prenatal care services (NCSCHS, PRAMS, 2008). Younger mothers and those of black or Hispanic race/ethnicity were most likely to report barriers. The HIV/STD Prevention & 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 Effort, syphilis screening was initiated in the seven county jails in the six SEE 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, et al 2005).

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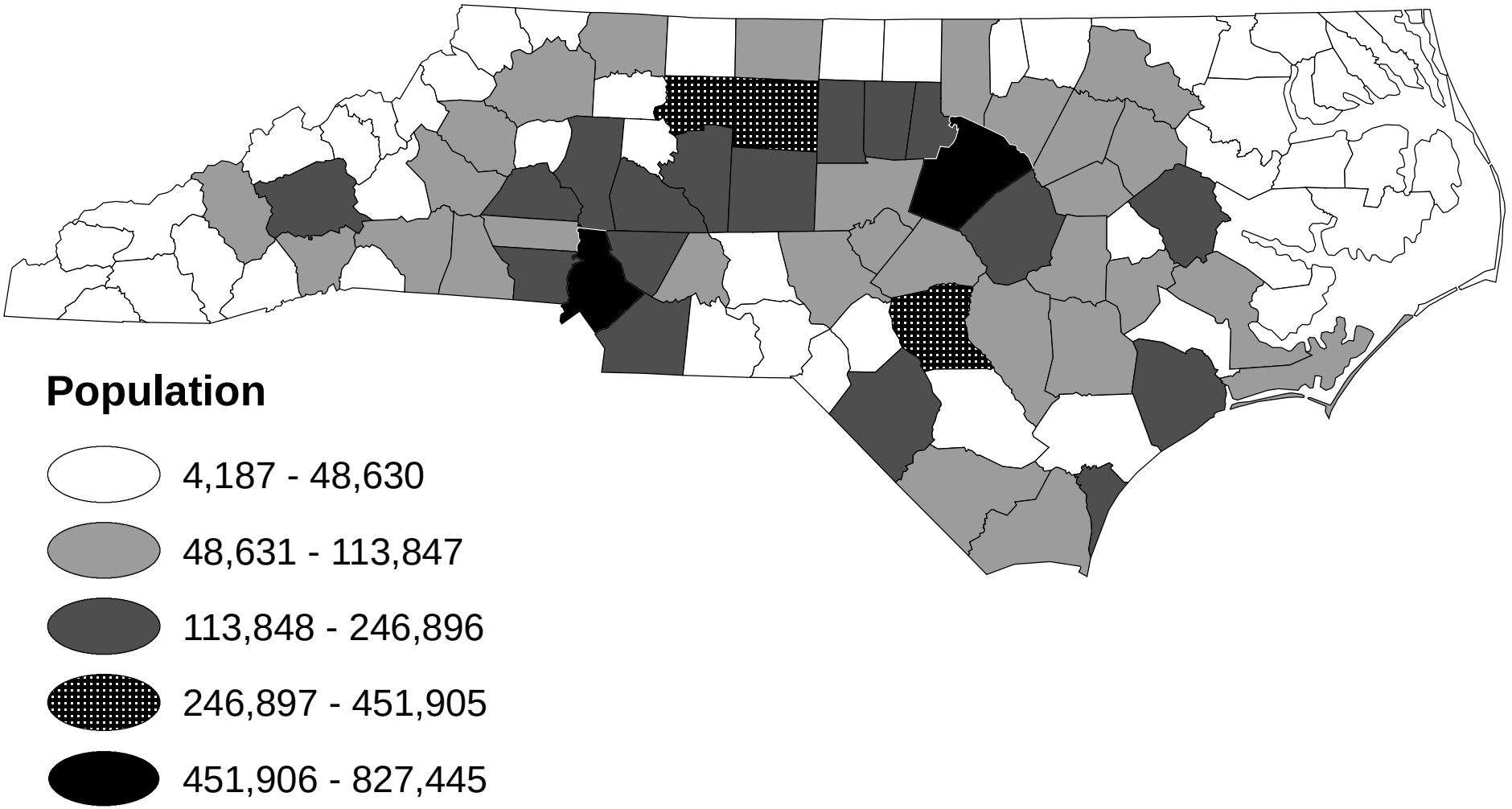
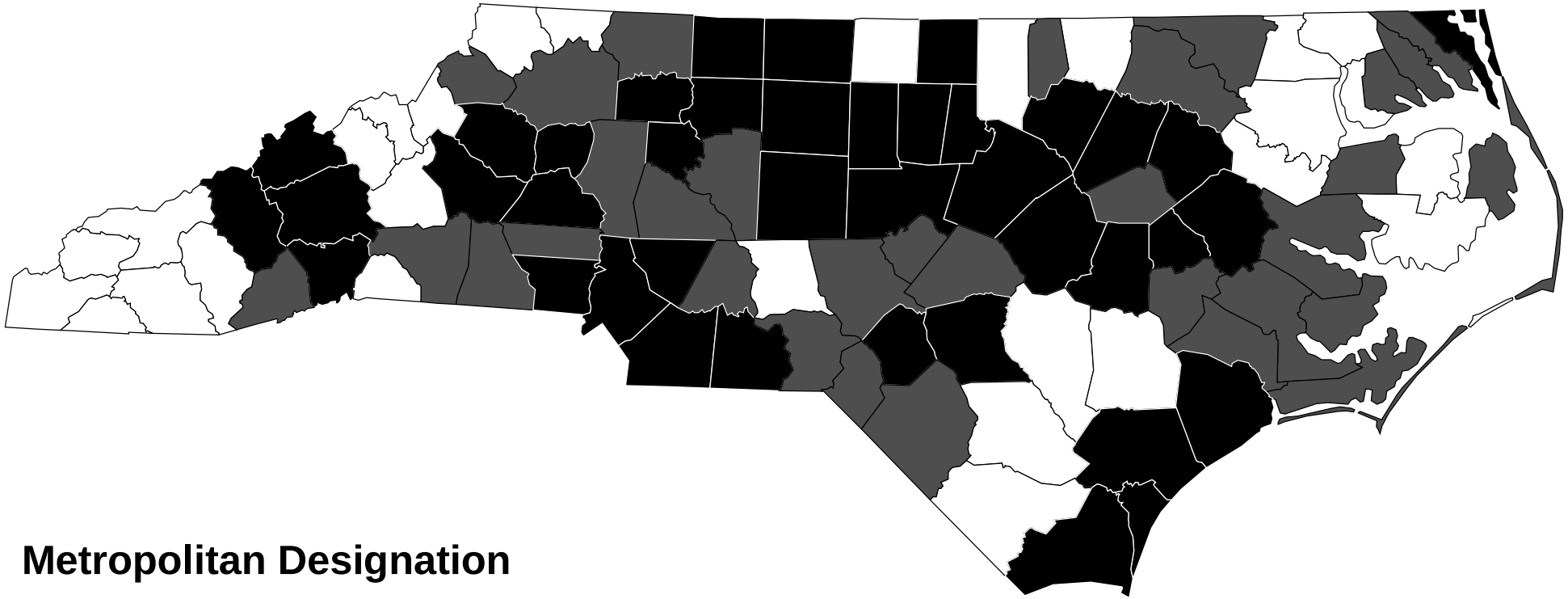
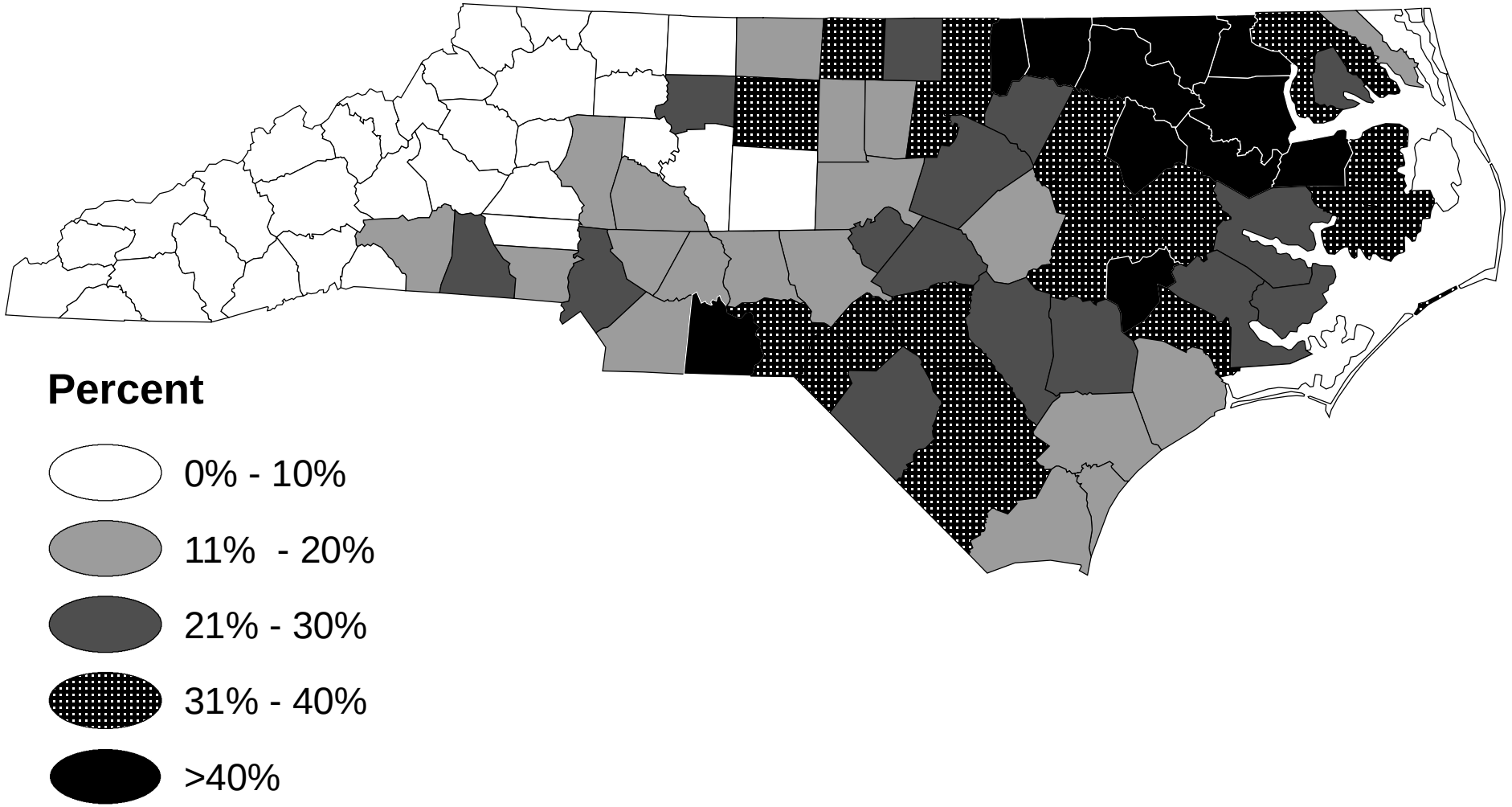
Map 1. North Carolina County Populations, 2006



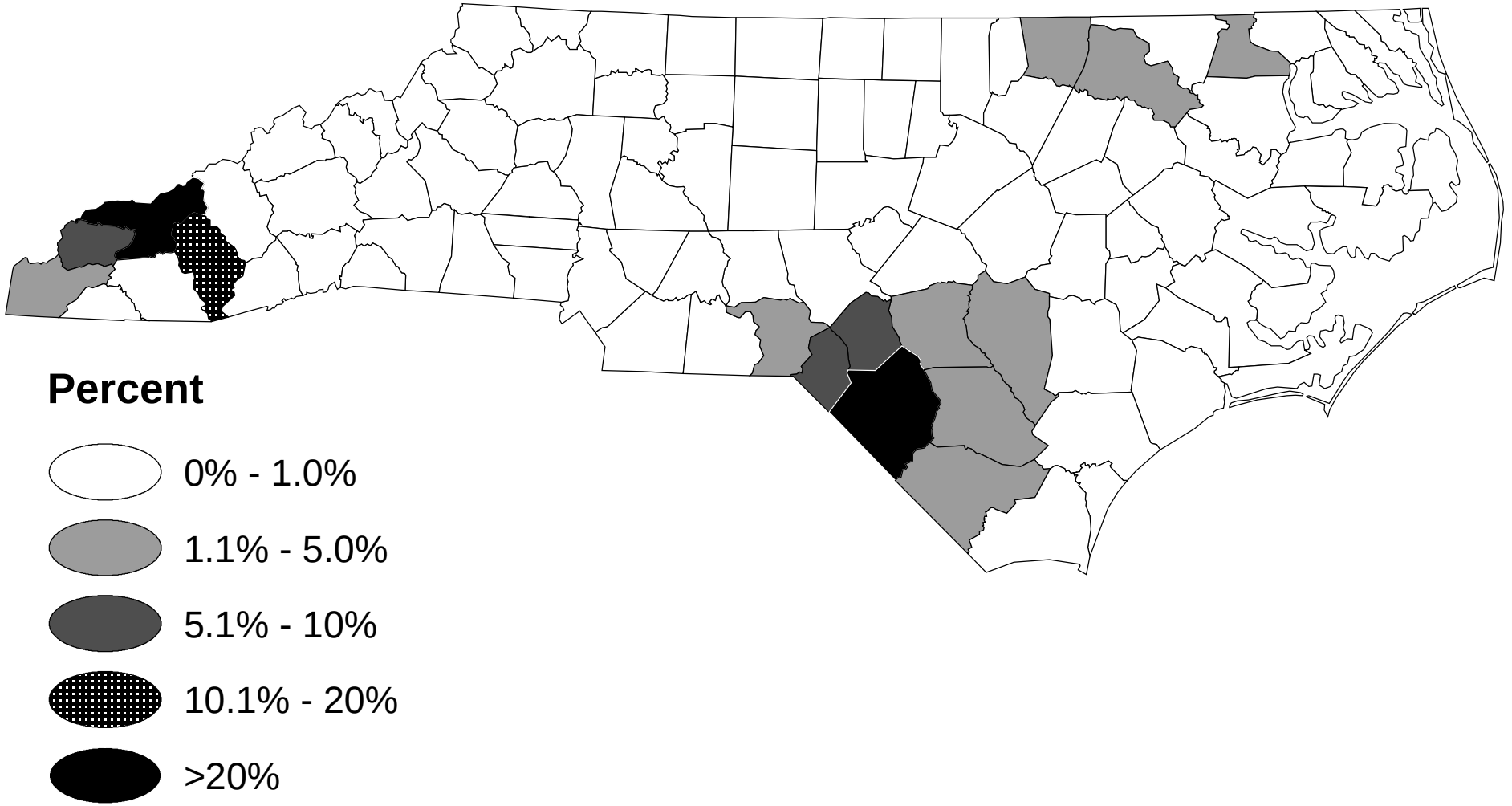
Map 2. North Carolina Metropolitan Designations



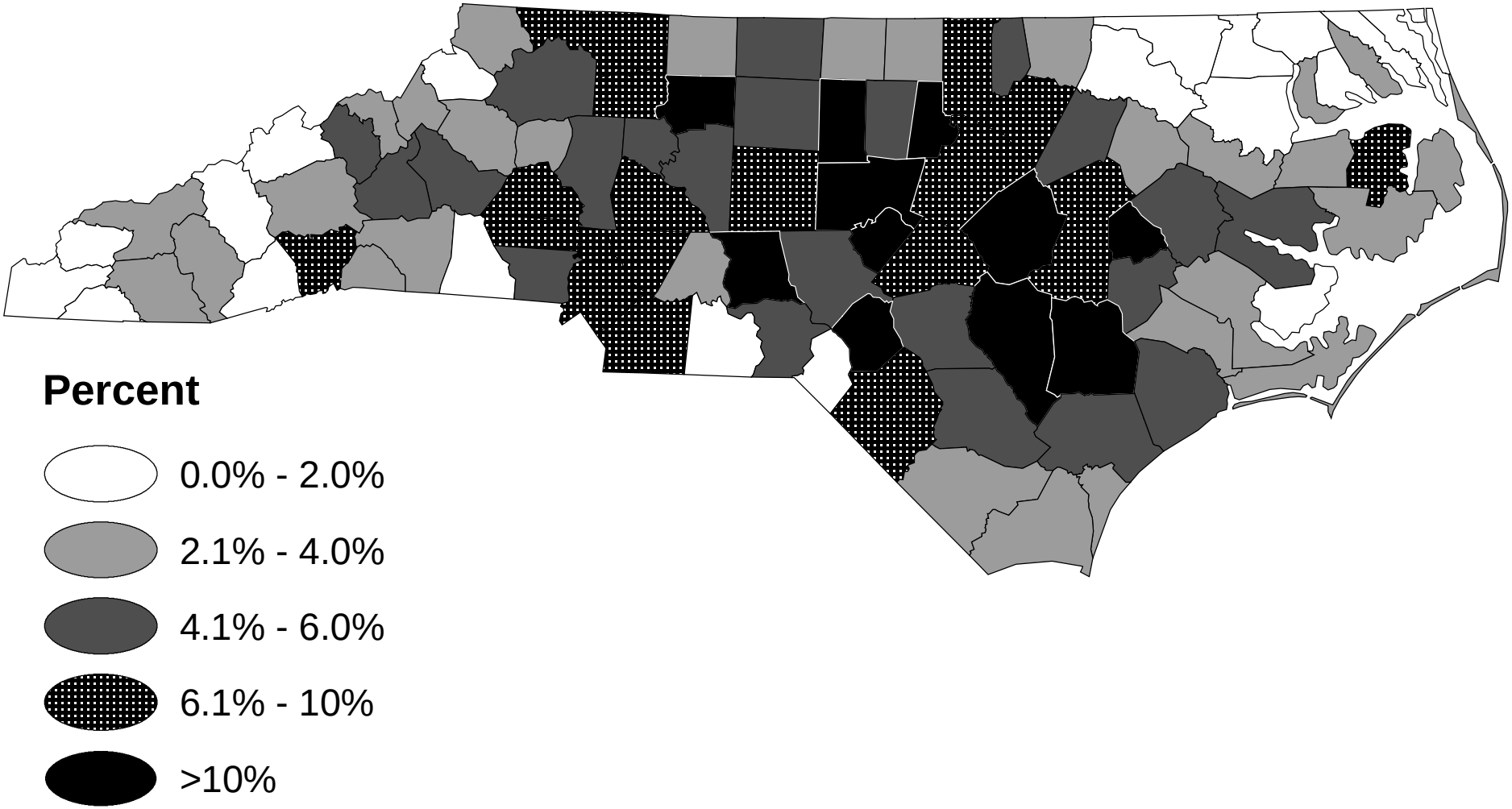
Map 3. North Carolina African American or Black Population, 2006



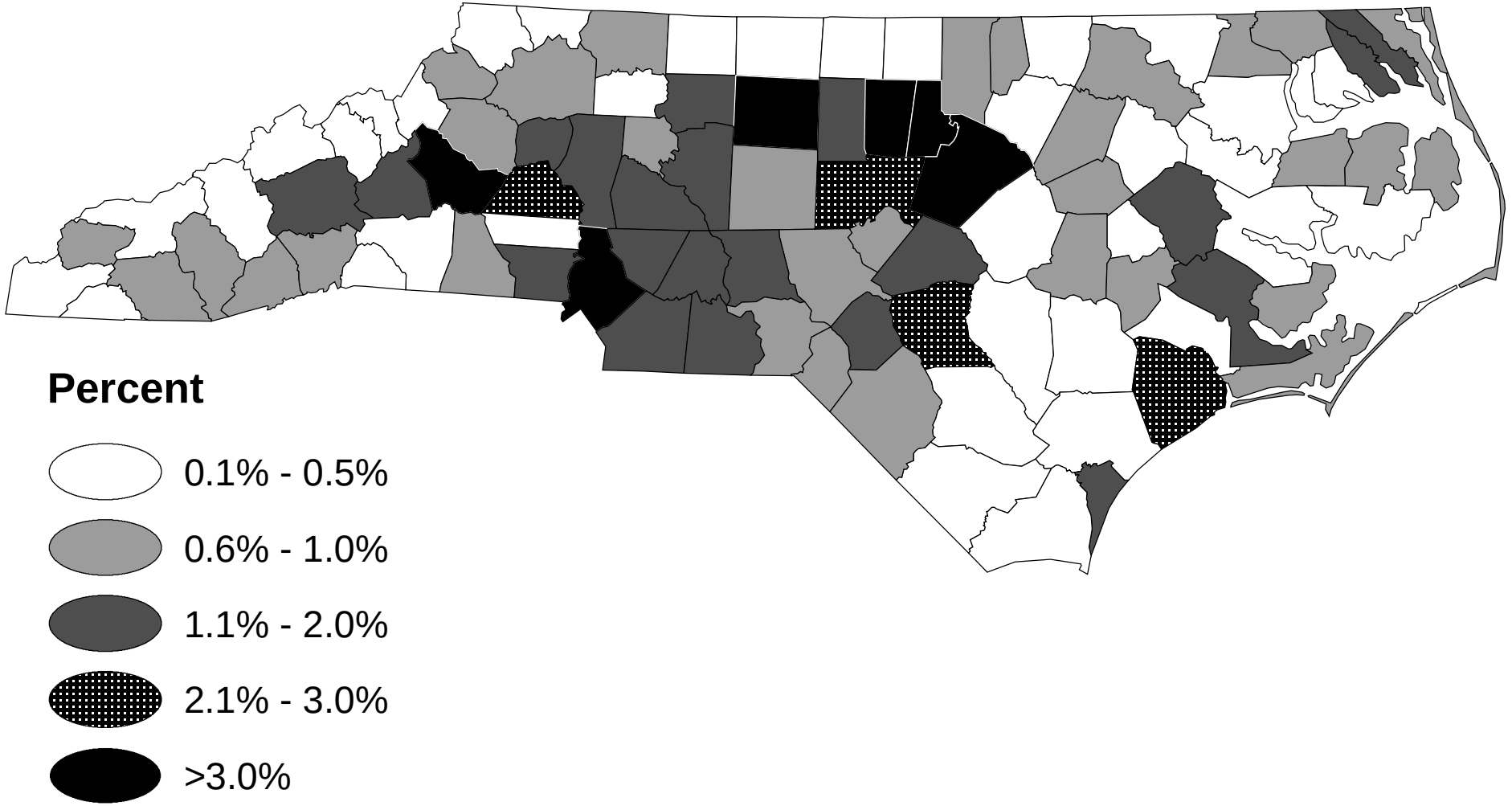
Map 4. North Carolina American Indian/Alaskan Native Population, 2006



Map 5. North Carolina Hispanic or Latino Population, 2006

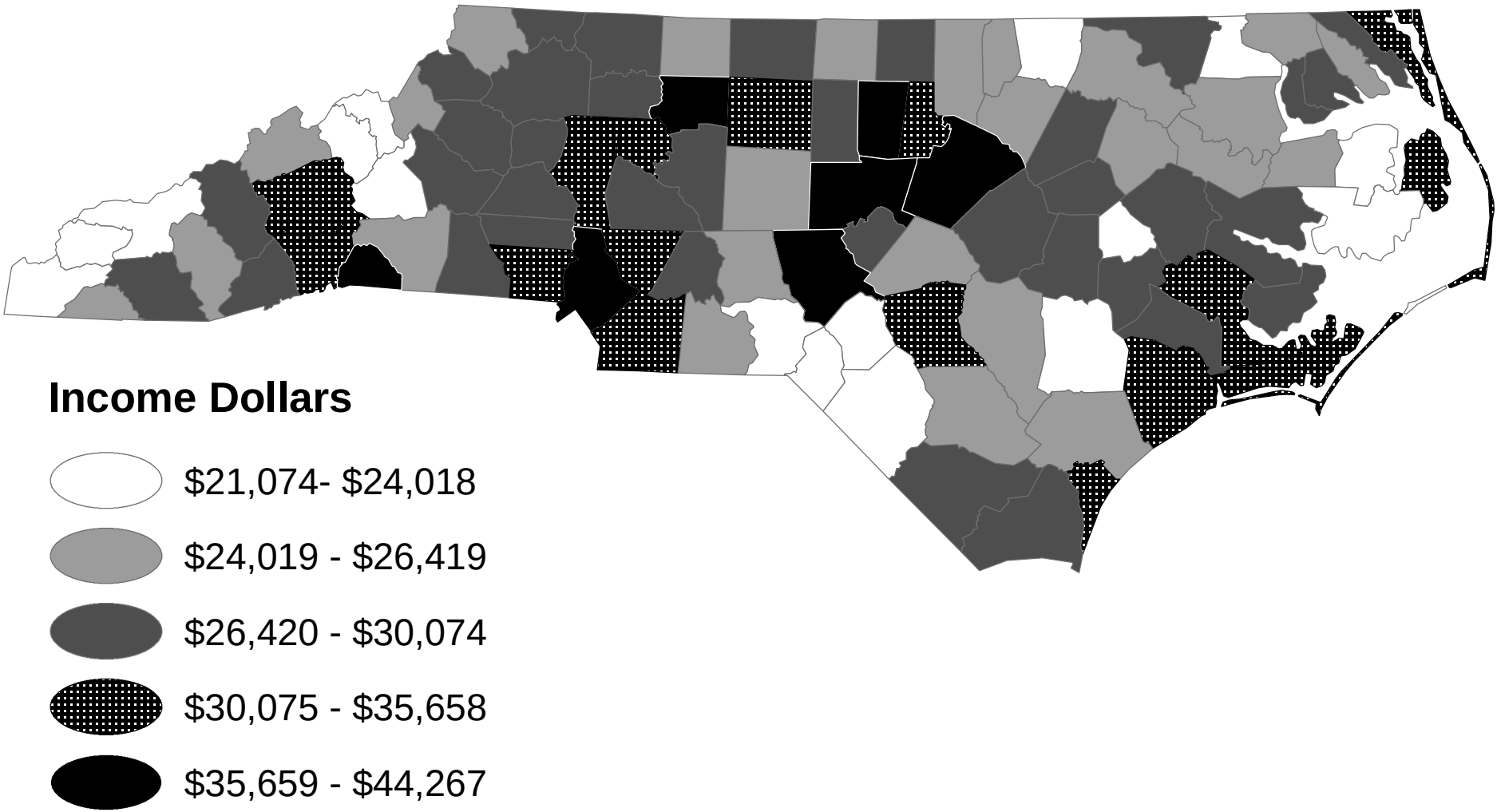


Map 6. North Carolina Asian/Pacific Islander Population, 2006



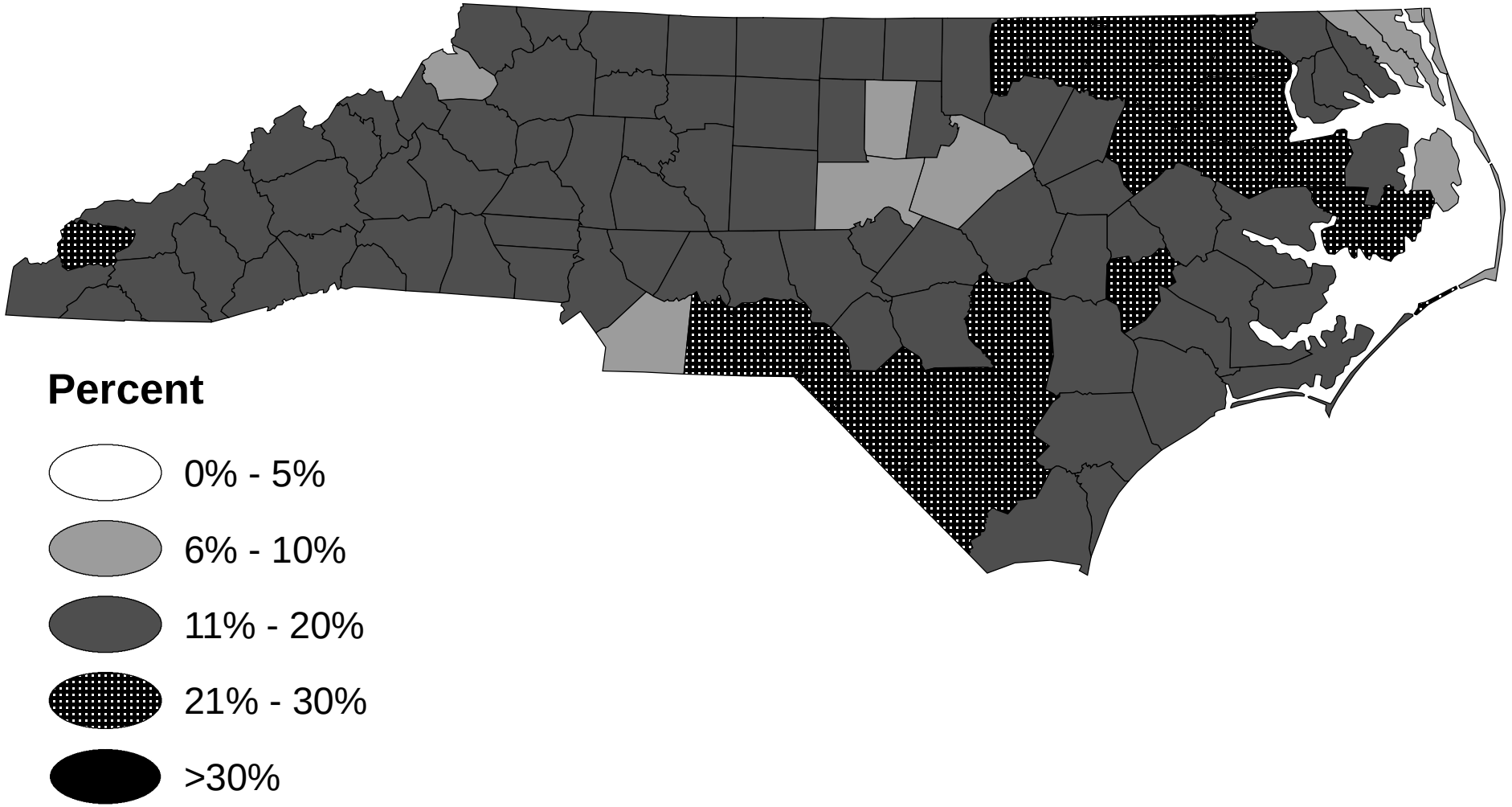
Map 7. North Carolina Per Capita Income, 2006

Source: US Bureau Of Economic Analysis

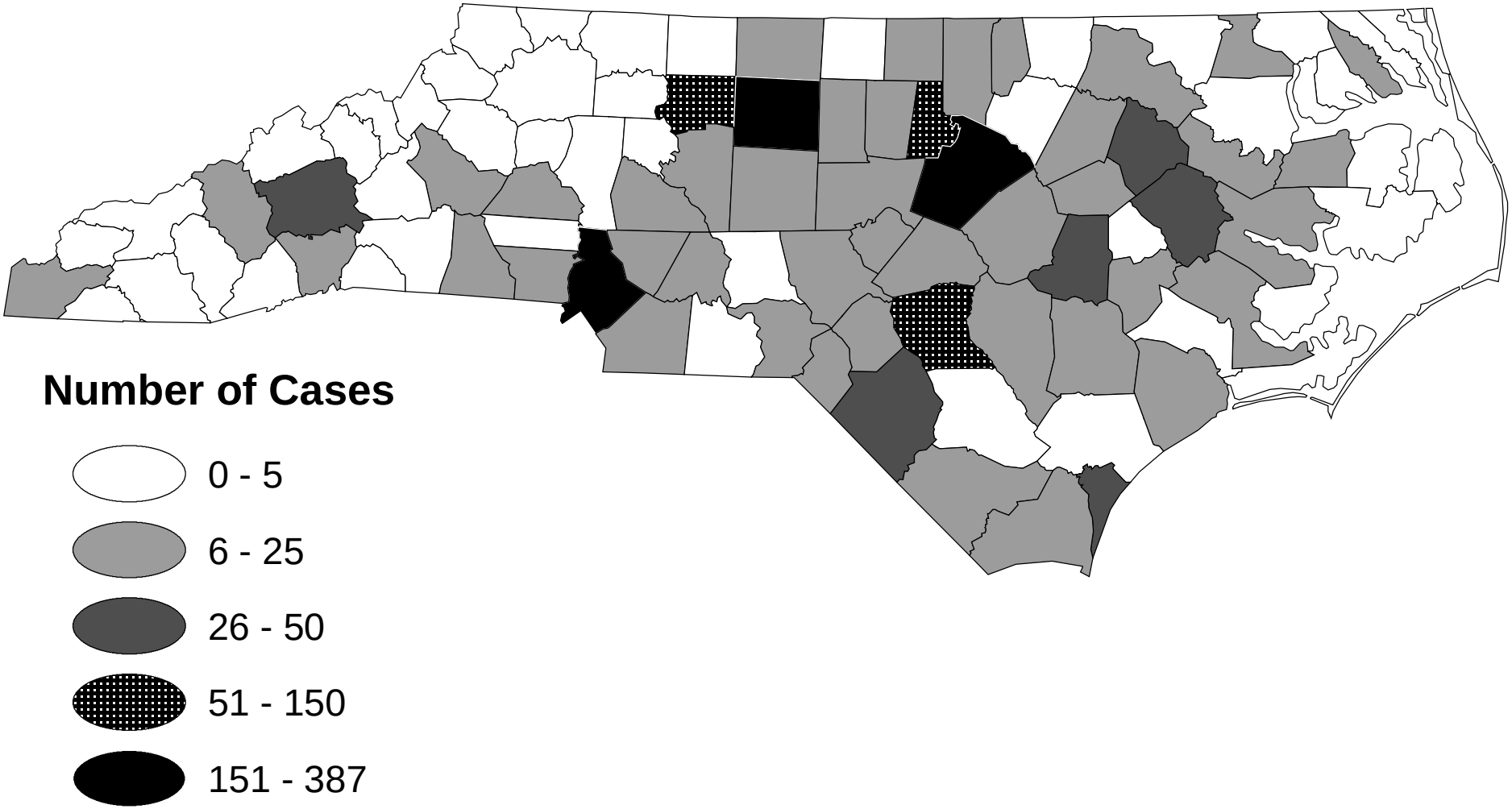


Map 8. North Carolina Medicaid Eligibles, 2007

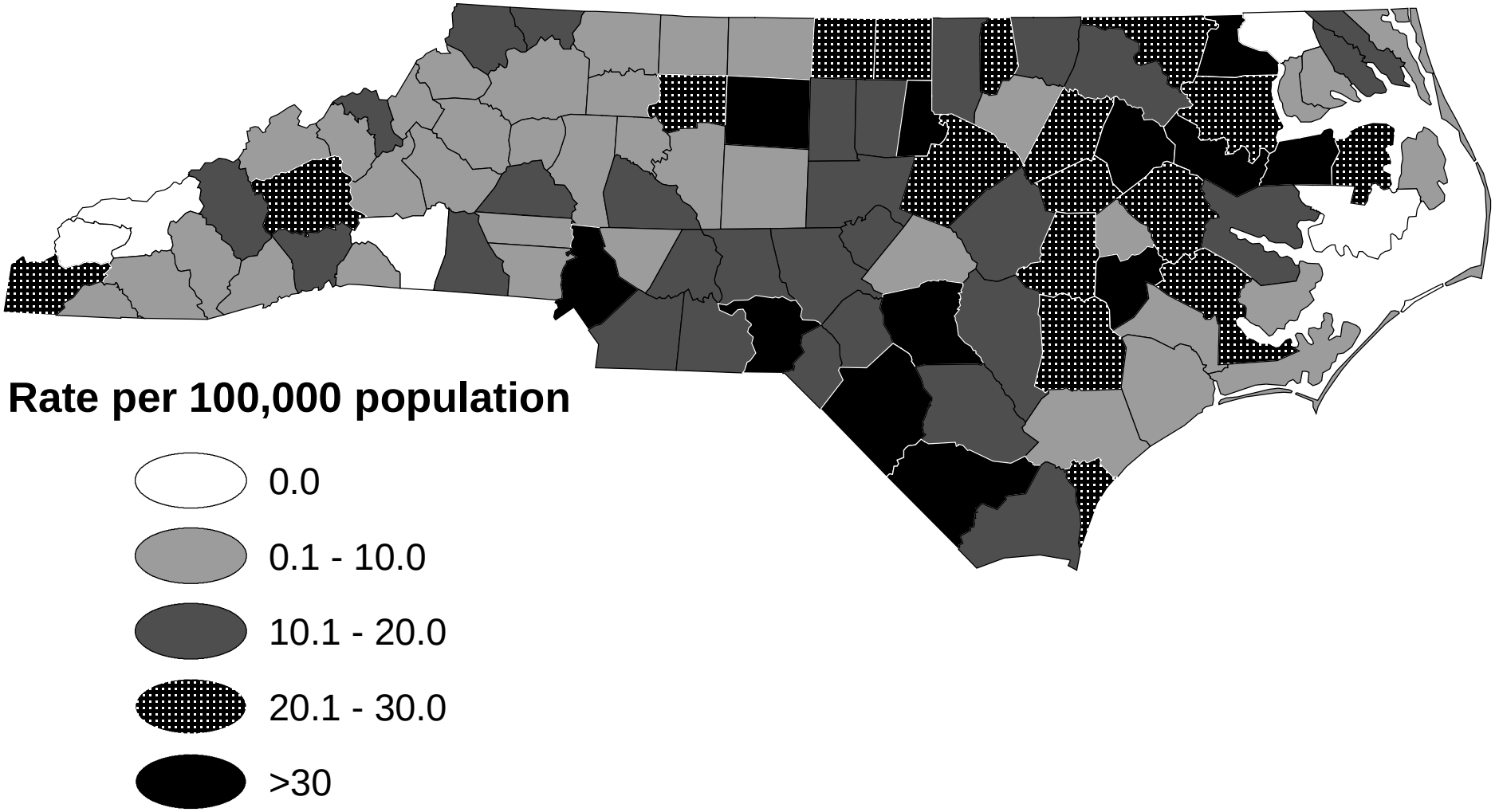
Source: NC DHHS Division of Medical Assistance



Map 9. North Carolina HIV Disease Cases, 2007



Map 10. North Carolina HIV Disease Rates, 2007



APPENDIX B: DATA SOURCES

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- ▪HIV/AIDS Surveillance
- ▪National HIV/AIDS Surveillance Data (CDC)
- ▪N.C. Incidence Data

BEHAVIORAL SURVEYS **B-5**

- ▪BRFSS – Behavioral Risk Factor Surveillance System
- ▪RBA – Rapid behavioral assessment

STD SURVEILLANCE.....**B-6**

- ▪ Chlamydia case reporting
- ▪Gonorrhea case reporting
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SUPPLEMENTAL HIV/STD SURVEILLANCE **B-9**

- ▪GISP – Gonococcal Isolate Surveillance Project
- ▪PCRS - Partner Counseling & Referral Services

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- ▪CTS - Counseling and Testing System

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- ▪NSDUH – National Survey on Drug Use and Health

VITAL STATISTICS DATA **B-11**

- ▪Birth and Death Data
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POPULATION DATA **B-13**

- ▪U.S. Census Bureau
- ▪N.C. State Data Center Demographics Unit
- ▪Kaiser Family Foundation: State Health Facts Online

RYAN WHITE CARE ACT DATA…….**B-13**

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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 Communicable Disease 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 people 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. 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 2006 reabstration of medical records and comparison with HARS indicated that the completeness of N.C. surveillance data was 85%. This study involved randomly sampling 5% of qualifying HARS case reports received for the previous 12 month period (10/05 thru 9/06) to access the accuracy and completeness of the N.C. HARS records. This estimate of completeness is used to adjust estimates of prevalence.

INCIDENCE DATA AND N.C. ESTIMATES OF INCIDENCE

Overview: The HIV Incidence or Serologic Testing Algorithm for Recent HIV Seroconversion (STARHS) program was developed to generate timely and relevant estimates of the number of new HIV infections that occur each year. Data generated from this project is designed to be used by the North Carolina Communicable Disease Branch along with our federal partners at CDC to better understand populations that are impacted by HIV, help focus prevention efforts, and assist with evaluating progress toward reducing the spread of HIV

Populations: All persons testing positive for HIV through North Carolina State Laboratory of Public Health and private laboratories that collaborate with NC STARHS program in providing remnant diagnostic specimens for STARHS testing.

Strengths:
Project is an integrated part of HIV/AIDS surveillance that provides direct estimates of the number of new HIV infections in North Carolina. The HIV Incidence project provides the first estimates of new HIV infections based on a biological marker of recent infections.

Limitations: In 2006, CDC extrapolated estimates of HIV incidence from the 22 Incidence surveillance states to 50 states and Washington DC, assuming that the ratio of HIV incidence to AIDS incidence in the 22 states is similar to the ratio in the other areas after adjusting for sex, race/ethnicity, and transmission categories. The 22 states used to create the 2006 estimate include: Alabama, Arizona, Colorado, Connecticut, Florida, Georgia, Illinois, Louisiana, Michigan, Mississippi, Missouri, New jersey, New York, North Carolina, Oklahoma, Pennsylvania, South Carolina, Tennessee, Texas, Virginia, and Washington. The 22 states represent 73% of the total US AIDS Diagnoses (excluding territories) and may not be nationally representative.

Classification of case with no identified risk factor was based on historical patterns of reassignment to risk factor groups originally reported without a risk factor. Methodology for redistributing risk is provisional. Differences for redistributing risk for cases without a reported risk factor may vary for CDC and NC.

Data used for estimation contained a high percentage of missing STARHS and TTH values. While multiple imputation procedures are designed to maintain the associations within the data, it is not possible to understand the full limitations of using imputed data.

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 is published in aggregate form 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 people 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. HIV reporting is not complete in the U.S. as some states have just recently mandated HIV case

reporting. 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. Today, all 50 states, the District of Columbia, Puerto Rico, Guam, and the Virgin Islands participate 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 2005 survey. The proportion of adults reporting sexual assault within the last 12 months may represent a population at risk for HIV or STD infection as a result of these sexual exposures. 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.

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. For the purpose of estimating populations at risk for HIV or STD infection, there are limitations to using the sexual assault data. The type of sexual assault is not described and information on condom use is not provided. Therefore not all reports may actually represent possible HIV/STD exposures. The information on sexual partners also 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).

NORTH CAROLINA RBA – RAPID BEHAVIORAL ASSESSMENTS

Overview:
Rapid Behavioral Assessment (RBA) is a method for collecting much needed information about sexual, drug-use, and HIV testing behaviors from people at high risk for HIV infection in areas

with low-to-moderate HIV prevalence. North Carolina has conducted a Rapid Behavioral Assessment since 2005.

Population: Men who have sex with men (MSM) attending Gay Pride events in North Carolina

Strengths: This is a well-designed survey with questions specific to race, ethnicity, age, locale of residence, gender, country of birth, level of education, insurance type, sexual orientation, number of male sex partners in past 12 months, type of anal sex (insertive/receptive), unprotected anal sex, type of partners (steady/exchange/casual), venues where they meet partners, knowledge of partner's HIV status, use of recreational drugs/alcohol before or during sex, injection drug use, needle sharing, types of drugs used, HIV testing history, reasons for not getting a HIV test, STD diagnosis in past 12 months, receipt of preventative services, condoms, literature, referrals for HIV/STD testing and participation in prevention services, attitudes about circumcision and being "out."

Limitations: Because this survey is a convenience sample of people attending Gay Pride events, respondents may not be representative of the broader MSM population living in the state. In particular, MSM living in rural areas may have been underrepresented because the Pride events occurred in Durham and Charlotte. The survey is conducted by an interviewer, and some of the questions address sensitive sexual and drug-use behaviors; so, respondents may have been unwilling to admit to risky or illegal behaviors.

STD SURVEILLANCE

CHLAMYDIA CASE REPORTING

Overview: North Carolina law requires that all cases of chlamydial infection 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. When a new case is diagnosed, the provider sends a morbidity report to the Communicable Disease Branch at the State Division of Public Health where information on patient demographics and disease diagnosis is compiled for analysis.

Population: All people 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 should be screened for chlamydia during any pelvic exam. Please note that this screening recommendation once included only women age 22 and under; however, after July 2002 it included women age 24 and under. 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 requires that all cases of gonorrhea 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 Communicable Disease Branch at the state Division of Public Health, where information on patient demographics and disease diagnosis is compiled for analysis.

Population: All people 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 requires that all cases of syphilis 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 Communicable Disease Branch at the state Division of Public Health where information on patient names, demographics, and disease diagnoses are compiled for analysis.

Population: All people 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 Greensboro.

Population: Ongoing sample of up to 25 men per month from the STD clinic in Greensboro, N.C. (n=173 in 2006).

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 Communicable Disease 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 and is maintained in seven local information systems. Information is limited to interviewed patients.

Population: People 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.

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: This annual survey has been conducted by the Federal Government since 1971 to provide information on trends in illicit drug use among the general U.S. population. The survey is administered by SAMHSA (the Substance Abuse and Mental Health Services Administration). Non-institutionalized people over age 12 are interviewed 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.

Population: Non-institutionalized U.S. population age 12 and older. The NSDUH surveys approximately 67,500 people annually in all 50 states. The survey includes persons living in households, dormitories, shelters, civilians on military bases, and other group quarters. The survey excludes people institutionalized in jails, prisons, and hospitals; active military personnel; and the homeless who do not use shelters.

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.

PRAMS – PREGNANCY RISK ASSESSMENT MONITORING SYSTEM

Overview:
PRAMS, the Pregnancy Risk Assessment Monitoring System, is a surveillance project of the Centers for Disease Control and Prevention (CDC) and state health departments. PRAMS collects state-specific, population-based data on maternal attitudes and experiences before, during, and shortly after pregnancy.

PRAMS was initiated in 1987 because infant mortality rates were no longer declining as rapidly as they had in prior years. In addition, the incidence of low birth weight infants had changed little in the previous 20 years. Research has indicated that maternal behaviors during pregnancy may influence infant birth weight and mortality rates. The goal of the PRAMS project is to improve the health of mothers and infants by reducing adverse outcomes such as low birth weight, infant mortality and morbidity, and maternal morbidity. PRAMS provides state-specific data for planning and assessing health programs and for describing maternal experiences that may contribute to maternal and infant health.

NC data comes directly from the most recently published tables available from the State Center at: http://www.schs.state.nc.us/SCHS/prams

Population: Mothers who had given birth to a live infant in North Carolina.

Strengths: This is a well-designed survey with questions specifically designed to estimate the proportion of pregnancies that were mistimed or unwanted. Many of the pregnancies likely 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 people 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. Title program support varies from state to state depending on program requirements and mandates. Data are available about services provided.

Population: All people 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 consortium or provider receiving funding is required to complete. Because people can be served by more than 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. CAREWare collects and stores data for completion of the annual CARE Act Data Report (CADR). 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.

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HIV DISEASE

HIV disease is a term that includes all people infected with HIV regardless of their stage of disease. Infected individuals are counted by the date on which this infection was first diagnosed and reported. Most people are first diagnosed with just an HIV infection and are reported again later with AIDS. However, some people are diagnosed with HIV and AIDS at the same time. All of these people 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.

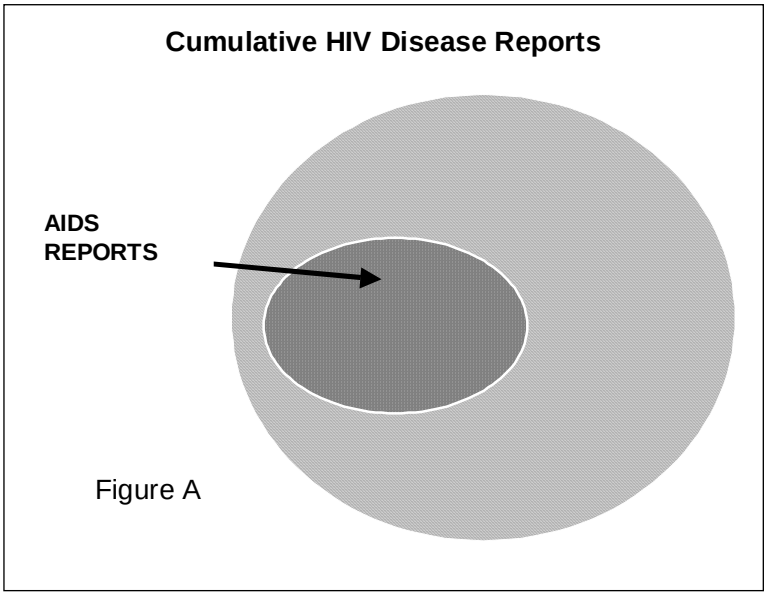

Figure A

Thus, for our discussion in this document, 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. The first report for that person was an AIDS diagnosis and represented a new case of HIV-infection at that time. All reports of HIV disease before 1990 (when AIDS surveillance was the only reporting of infected individuals); 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 (Figures A and B). 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 age will also be different, based on the age when the AIDS diagnosis was made.

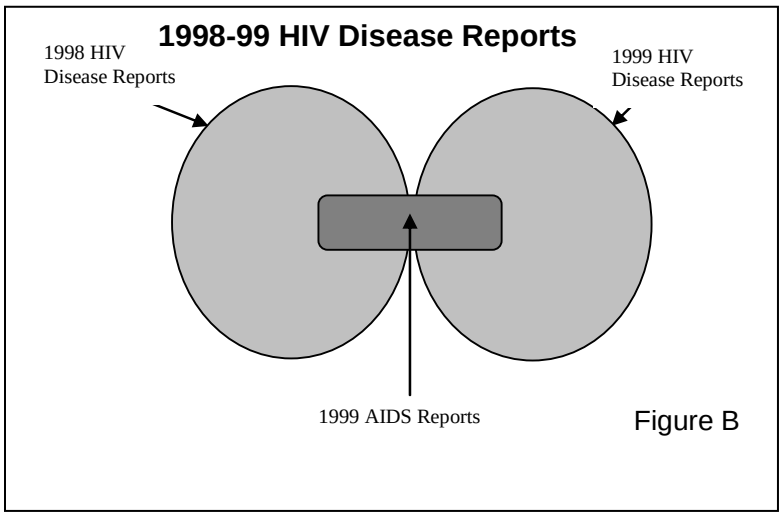

Figure B

HIV/AIDS SURVEILLANCE REPORTING ISSUES

Readers will note that the numbers of HIV disease reports for 2003 and 2005 through 2006 were higher than the number of reports for 2002 and for 2004. These spikes of HIV disease reports were generally 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. This initiative to better report all HIV diagnoses was enhanced again in 2006. When the reports are resorted by date of first diagnosis, the number of new HIV disease cases diagnosed appears to have stabilized to approximately 1,900 per year over recent years.

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 people 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 has been the inter-state duplication or multiple counting for some persons. Through IDEP, states consulted with each other 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.

ADULT/ADOLESCENT HIV DISEASE RATES

The HIV Disease and AIDS case totals and rates (See Appendix D: Tables A-F, N-O) presented in this document are restricted to adult/adolescent cases for comparability across states and with national data (CDC). **Please note that the case totals and rates are different from our Annual Surveillance report because adult/adolescent rates are calculated per 100,000 population, ages 13 years and older.** For example, the 2007 HIV Disease case total is 1,943 (21.9 per 100,000) and the 2007 HIV Disease adult/adolescent case total is 1,934 (26.4 per 100,000 adult/adolescent population). Other STD rates are calculated per 100,000 population so any direct comparison of other STDs to HIV Disease or AIDS should be based on a common denominator (per 100,00 population).

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. Some problems with the risk assignment have also 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. Further, this risk reassignment for each sex is done separately by each race/ethnicity group (if the group represents a sufficient number of cases).

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 male 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 2006 were not available at press time; thus rates for 2006 were calculated using 2005 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.

NORTH CAROLINA UNMET NEED ESTIMATE

Background

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 the persons who are aware of their HIV positive status, but are not accessing HIV primary health care; therefore, designated as not "in care". "In 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.

The Epidemiology and Special Studies Unit (ESSU) of the Communicable Disease Branch maintains the state's public health surveillance system for all reportable STDs, including HIV/AIDS and conducts the state's unmet need estimate. ESSU operates under very strict security and confidentiality guidelines. All the morbidity data and most laboratory test results are stored in a central surveillance database using the HARS (HIV/AIDS reporting system) CDC supported software platform. Physical, as well as electronic access to confidential data files, servers, and ESS computer stations is restricted. The state's HIV/AIDS surveillance system was

evaluated for representativeness or completeness in 2006. The HARS is estimated to represent 85% of all HIV-diagnosed persons in N.C. Cases within the surveillance system are updated as to vital status (living or dead) by matching cases to death certificates annually.

HARS contains all HIV or AIDS cases reported to the state; therefore, it was used to identify persons eligible to be considered for "care" (i.e. initial estimated living cases). Only individuals whose current residency was listed as North Carolina or unknown (by default classified as North Carolina) were included. This data was then compared to national social security death files (to identify individuals who may have died outside of N.C.) and those who died before April 1, 2006 were excluded. The final living HIV/AIDS population includes the HARS living cases (through December 31, 2006) and an adjustment based on estimates from the Department of Veterans Affairs (VA) website.

Care Data Description

North Carolina does not mandate universal reporting of all laboratory tests associated with HIV care or maintain information on drug therapies for all persons with HIV. Therefore, along with HARS data, a variety of statewide data sources were evaluated to better assess "unmet need". Publicly-funded data sources included Medicaid, AIDS Drug Assistance Program (ADAP) data, and CAREWare data. In addition, data obtained from the Department of Veterans Affairs website were used.

Matching Procedure

Initially, individuals meeting the definition of "in care" were identified based on the available laboratory information collected within HARS. Next, cases within HARS were linked to ancillary datasets via deterministic matching. The combination of these two processes resulted in an initial 'total met' dataset. The results of a probabilistic match (performed with the same datasets) were compared to the results of the aforementioned deterministic match as a way to validate the deterministic procedure's effectiveness in capturing individuals in care.

Adjustments

In the 2004 estimation, a private payer adjustment was used to estimate the number of 'in care' individuals that may have been captured if care information was available from all North Carolina providers. The results of this 2004 estimate were applied to 2006 data to calculate a 2006 private payer adjustment. Care information related to individuals in correctional facilities was not captured in the provider (2004) or government (2006) databases used; therefore a correctional adjustment was administered. As a result of HARS analysis, it was determined that only a small number of VA cases were actually being captured in HARS. Therefore, an adjustment was made based on information obtained from the VA website**.** Collectively, these adjustments accounted for approximately a 17 percent increase in the "in care" estimation (HIV disease).

Results

As shown in Table 1, the estimated number of persons living in North Carolina with HIV Disease (status aware) as of 12/31/2006 was 21,544. Of these, 13,448 or 62% were estimated to be "in care" during calendar year 2006. The remaining 8,096or 38% were estimated to be not "in care", thus represent those with unmet need. The estimated number of persons living with HIV (non-AIDS) with unmet need was 5,813 (43%), as compared to 2,283 (29%) persons living with AIDS. Table 2 displays the demographic distribution of (estimated) people living with HIV/AIDS in 2006 and the corresponding distribution of people with unmet need.

Limitations

Medicaid, CAREWare and ADAP (publicly funded databases) were used. Medicare is now a payer of AIDS-related medications for some clients previously captured in Medicaid. Therefore, some persons who were identified previously as "in care" via Medicaid data solely through the receipt of anti-retroviral drugs may have been lost. This change and the lack of Medicare data may explain the slight increase in this year's unmet need estimation.

Sufficient care data was not obtained from individual providers for calendar year 2006 to calculate a new private payer adjustment. Therefore, the private payer estimation from 2004 had to be employed in the 2006 estimations. Data from only eight individual providers were available for the 2004 private payer estimation. However, even with the private payer adjustment, the number added to 'in care' was seemingly low. Linking provider of diagnosis from HARS with the provider of care (for living individuals) is problematic.

Analysis of HARS HIV disease reports diagnosed by Veterans Affair facilities demonstrated that reports are mostly for those with AIDS; therefore, we can deduce (based on the VA HIV estimates) that VA reports of persons living with HIV (non-AIDS) are substantially underreported in HARS. Therefore, VA HIV estimates were added to better describe the living population. Since the estimation was based primarily on unduplicated linked databases, which presented several of the aforementioned limitations, it can be concluded that the number of all HIV-infected persons who are "in care" is most likely underestimated.

Table 1: North Carolina Unmet Need Estimate CY 2006

INPUT	VALUE	DATA SOURCE
Population Sizes		
A. Number of persons living with AIDS (PLWA), CY2006	7988	HARS through December 31, 2006 plus Veterans Administration adjustments.
B. Number of persons living with HIV (PLWH), CY2006	13556	HARS through December 31, 2006 plus Veterans Administration adjustments.
Care Patterns		
C. Number of PLWA with met need in 12-month period	5705 (71%)	Linked and unduplicated databases (CY 2006): HARS, Medicaid, ADAP, and CAREWare. Private payer, Correctional Facility and Veterans Administration adjustments.

D. Number of PLWH (non-AIDS) with met need in 12-month period	7743 (57%)	Linked and unduplicated databases (CY 2006): HARS, Medicaid, ADAP, and CAREWare. Private payer, Correctional Facility and Veterans Administration adjustments.
RESULTS	**VALUE**	**CALCULATION**
E. Number of PLWA not in care	2283 (29%)	A - C (E / A)
F. Number of PLWH not in care	5813 (43%)	B - D (F / B)
G. Total HIV Disease not in care	8096 (38%)	E + F (G / (A + B))

Table 2: Distribution of Selected Demographics, North Carolina CY 2006

	HIV +/ aware Pop.	# With Met Need	# With Unmet Need	%of Unmet Need Pop.	% Unmet Need in Category	%of Total HIV +/aware Pop.
HIV (non-AIDS)						
TOTAL	13556	7743	5813	100	43	100
Gender						
Male	9194	5069	4125	71	45	68
Female	4362	2674	1688	29	39	32
Race/Ethnicity						
White*	3722	2236	1485	26	40	27
Black*	9121	5125	3997	69	44	67
Hispanic	506	254	253	4	50	4
Other**	207	129	78	1	38	2
AIDS						
TOTAL	7988	5705	2283	100	29	100
Male	6004	4182	1822	80	30	75
Female	1984	1523	461	20	23	25
White*	2260	1532	727	32	32	28
Black*	5268	3875	1393	61	26	66
Hispanic	330	199	130	6	40	4
Other**	131	98	33	1	25	2
HIV DISEASE						
TOTAL	21544	13448	8096	100	38	100
Gender						
Male	15198	9251	5947	73	39	71
Female	6346	4197	2149	27	34	29
White*	5981	3769	2213	27	37	28
Black*	14389	9000	5389	67	37	67
Hispanic	836	453	383	5	46	4
Other**	337	226	111	1	33	2

*non-Hispanic **Includes unknown

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Table A: North Carolina Adult/Adolescent HIV Disease† Demographic Rates, Gender and Age, 2003-2007

	Age	2003 Cases	2003 Pct	2003 Rate*	2004 Cases	2004 Pct	2004 Rate*	2005 Cases	2005 Pct	2005 Rate*	2006 Cases	2006 Pct	2006 Rate*	2007 Cases	2007 Pct	2007 Rate*
Male	**13-14 Years**	0	0%	0.0	0	0%	0.0	2	0%	1.6	1	0%	0.8	0	0%	0.0
	15-19 Years	32	2%	11.1	25	2%	8.5	53	3%	17.4	57	3%	18.2	70	4%	22.3
	20-24 Years	136	7%	44.5	139	9%	45.1	127	7%	41.5	179	8%	57.4	155	8%	49.7
	25-29 Years	160	8%	54.4	140	9%	47.4	160	9%	53.8	207	10%	68.3	178	9%	58.7
	30-34 Years	234	11%	72.9	162	10%	50.7	202	11%	64.3	202	9%	65.3	177	9%	57.2
	35-39 Years	260	13%	82.4	185	12%	58.9	210	12%	65.7	243	11%	73.9	208	11%	63.2
	40-44 Years	220	11%	67.6	185	12%	56.0	228	13%	68.7	259	12%	77.8	197	10%	59.2
	45-49 Years	164	8%	54.0	130	8%	42.1	157	9%	49.5	186	9%	57.1	170	9%	52.2
	50-54 Years	99	5%	36.9	85	5%	31.0	82	5%	29.1	110	5%	37.8	103	5%	35.4
	55-59 Years	48	2%	20.9	51	3%	21.2	42	2%	16.6	80	4%	30.0	66	3%	24.8
	60-64 Years	21	1%	12.1	24	2%	13.2	35	2%	18.4	25	1%	12.6	34	2%	17.1
	65+ Years	25	1%	6.1	18	1%	4.3	21	1%	4.9	17	1%	3.8	19	1%	4.3
	Total	**1,401**	**69%**	**41.7**	**1,144**	**72%**	**33.5**	**1,319**	**73%**	**38.0**	**1,566**	**73%**	**44.1**	**1,377**	**71%**	**38.8**
Female	**13-14 Years**	2	0%	1.7	1	0%	0.8	5	0%	4.3	3	0%	2.5	2	0%	1.7
	15-19 Years	32	2%	11.8	17	1%	6.1	23	1%	8.0	25	1%	8.4	30	2%	10.1
	20-24 Years	72	4%	25.4	51	3%	18.1	45	2%	16.0	53	2%	18.7	57	3%	20.2
	25-29 Years	95	5%	33.4	46	3%	16.0	71	4%	24.2	62	3%	20.5	53	3%	17.5
	30-34 Years	92	5%	29.2	61	4%	19.5	72	4%	23.2	76	4%	24.9	65	3%	21.3
	35-39 Years	97	5%	30.6	74	5%	23.6	87	5%	27.4	87	4%	26.6	97	5%	29.6
	40-44 Years	101	5%	30.2	71	4%	21.0	74	4%	21.8	87	4%	25.6	88	5%	25.9
	45-49 Years	69	3%	21.7	62	4%	19.2	62	3%	18.8	83	4%	24.5	54	3%	16.0
	50-54 Years	42	2%	14.7	37	2%	12.6	29	2%	9.6	47	2%	15.1	58	3%	18.7
	55-59 Years	12	1%	4.9	19	1%	7.3	17	1%	6.2	27	1%	9.3	34	2%	11.8
	60-64 Years	9	0%	4.6	9	1%	4.4	7	0%	3.3	16	1%	7.2	10	1%	4.5
	65+ Years	11	1%	1.8	7	0%	1.1	5	0%	0.8	8	0%	1.3	9	0%	1.4
	Total	**634**	**31%**	**17.8**	**455**	**28%**	**12.6**	**497**	**27%**	**13.5**	**574**	**27%**	**15.3**	**557**	**29%**	**14.8**

*per 100,000 adult/adolescent population †HIV Disease includes all newly reported HIV infected individuals by the date of first report (HIV or AIDS)

Table A: North Carolina Adult/Adolescent HIV Disease† Demographic Rates (continued), Gender and Age, 2003-2007

	Age	2003 Cases	2003 Pct	2003 Rate*	2004 Cases	2004 Pct	2004 Rate*	2005 Cases	2005 Pct	2005 Rate*	2006 Cases	2006 Pct	2006 Rate*	2007 Cases	2007 Pct	2007 Rate*
Total	**13-14 Years**	2	0%	0.8	1	0%	0.4	7	0%	2.9	4	0%	1.7	2	0%	0.8
	15-19 Years	64	3%	11.4	42	3%	7.3	76	4%	12.8	82	4%	13.4	100	5%	16.4
	20-24 Years	208	10%	35.4	190	12%	32.2	172	9%	29.3	232	11%	39.0	212	11%	35.6
	25-29 Years	255	13%	44.1	186	12%	31.9	231	13%	39.1	269	13%	44.5	231	12%	38.2
	30-34 Years	326	16%	51.3	223	14%	35.3	274	15%	43.9	278	13%	45.2	242	13%	39.3
	35-39 Years	357	18%	56.4	259	16%	41.3	297	16%	46.7	330	15%	50.3	305	16%	46.5
	40-44 Years	321	16%	48.6	256	16%	38.3	302	17%	44.9	346	16%	51.5	285	15%	42.4
	45-49 Years	233	11%	37.5	192	12%	30.4	219	12%	33.8	269	13%	40.5	224	12%	33.7
	50-54 Years	141	7%	25.4	122	8%	21.5	111	6%	19.0	157	7%	26.1	161	8%	26.8
	55-59 Years	60	3%	12.6	70	4%	14.0	59	3%	11.2	107	5%	19.3	100	5%	18.0
	60-64 Years	30	1%	8.2	33	2%	8.6	42	2%	10.5	41	2%	9.8	44	2%	10.5
	65+ Years	36	2%	3.5	25	2%	2.4	26	1%	2.5	25	1%	2.3	28	1%	2.6
	Total	**2,035**	**100%**	**29.4**	**1,599**	**100%**	**22.7**	**1,816**	**100%**	**25.4**	**2,140**	**100%**	**29.3**	**1,934**	**100%**	**26.4**

*per 100,000 adult/adolescent population †HIV Disease includes all newly reported HIV infected individuals by the date of first report (HIV or AIDS)

Table B: North Carolina Adult/Adolescent HIV Disease† Demographic Rates Gender and Race/Ethnicity, 2003-2007

Race/Ethnicity		2003	2003	2003	2004	2004	2004	2005	2005	2005	2006	2006	2006	2007	2007	2007
		Cases	Pct	Rate*	Cases	Pct	Rate*	Cases	Pct	Rate*	Cases	Pct	Rate*	Cases	Pct	Rate*
Male	**White****	431	21%	18.0	357	22%	14.8	422	23%	17.3	427	20%	17.2	466	24%	18.7
	Black**	870	43%	131.3	704	44%	104.1	779	43%	113.0	981	46%	139.0	766	40%	108.5
	Am.In/AN**	11	1%	28.2	14	1%	35.3	13	1%	32.3	13	1%	31.7	8	0%	19.5
	Asian,PI**	11	1%	19.3	4	0%	6.7	7	0%	11.1	14	1%	20.9	7	0%	10.4
	Hispanic	78	4%	36.9	65	4%	29.2	98	5%	41.7	131	6%	52.4	128	7%	51.2
	Unknown	0	0%	---	0	0%	---	0	0%	---	0	0%	---	2	0%	---
	Total	**1,401**	**69%**	**41.7**	**1,144**	**72%**	**33.5**	**1,319**	**73%**	**38.0**	**1,566**	**73%**	**44.1**	**1,377**	**71%**	**38.8**
Female	**White****	103	5%	4.0	74	5%	2.9	86	5%	3.3	84	4%	3.2	86	4%	3.2
	Black**	486	24%	62.3	345	22%	43.5	370	20%	45.7	445	21%	53.7	434	22%	52.4
	Am.In/AN**	5	0%	11.9	4	0%	9.4	10	1%	23.0	0	0%	0.0	5	0%	11.3
	Asian,PI**	6	0%	9.7	1	0%	1.5	3	0%	4.4	5	0%	7.0	0	0%	0.0
	Hispanic	34	2%	24.9	31	2%	21.2	28	2%	17.8	40	2%	23.5	31	2%	18.2
	Unknown	0	0%	---	0	0%	---	0	0%	---	0	0%	---	1	0%	---
	Total	**634**	**31%**	**17.8**	**455**	**28%**	**12.6**	**497**	**27%**	**13.5**	**574**	**27%**	**15.3**	**557**	**29%**	**14.8**
Total	**White****	534	26%	10.8	431	27%	8.6	508	28%	10.1	511	24%	10.0	552	29%	10.7
	Black**	1,356	67%	94.0	1,049	66%	71.4	1,149	63%	76.7	1,426	67%	93.0	1,200	62%	78.2
	Am.In/AN**	16	1%	19.8	18	1%	21.8	23	1%	27.5	13	1%	15.3	13	1%	15.3
	Asian,PI**	17	1%	14.3	5	0%	4.0	10	1%	7.6	19	1%	13.7	7	0%	5.0
	Hispanic	112	6%	32.2	96	6%	26.0	126	7%	32.1	171	8%	40.7	159	8%	37.9
	Unknown	0	0%	---	0	0%	---	0	0%	---	0	0%	---	3	0%	---
	Total	**2,035**	**100%**	**29.4**	**1,599**	**100%**	**22.7**	**1,816**	**100%**	**25.4**	**2,140**	**100%**	**29.3**	**1,934**	**100%**	**26.4**

*per 100,000 adult/adolescent population **non Hispanic; Am. In/AN= American Indian/Alaskan Native; Asian, PI= Asian/Pacific Islander
†HIV Disease includes all newly reported HIV infected individuals by the date of first report (HIV or AIDS)

Table C: North Carolina Adult/Adolescent HIV Disease† Cases Gender and Mode of Transmission, 2003-2007

Mode of Transmission		2003		2004		2005		2006		2007	
		Cases	Pct	Cases	Pct	Cases	Pct	Cases	Pct	Cases	Pct
Male	**MSM**	620	31%	562	35%	656	36%	732	34%	690	36%
	IDU	94	5%	73	5%	62	3%	47	2%	45	2%
	MSM/IDU	34	2%	25	2%	22	1%	23	1%	25	1%
	Blood Products	24	1%	10	1%	8	0%	8	0%	7	0%
	Heterosexual-CDC	137	7%	122	8%	109	6%	96	5%	49	3%
	NIR	327	16%	236	15%	318	18%	514	24%	436	23%
	Heterosexual-NIR	163	8%	116	7%	144	8%	146	7%	125	7%
	Total	**1,399**	**69%**	**1,144**	**72%**	**1,319**	**73%**	**1,566**	**73%**	**1,377**	**71%**
Female	**IDU**	46	2%	41	3%	38	2%	27	1%	25	1%
	Blood Products	22	1%	11	1%	13	1%	7	0%	14	1%
	Heterosexual-CDC	198	10%	189	12%	147	8%	109	5%	105	5%
	NIR	205	10%	132	8%	190	11%	313	15%	280	15%
	Heterosexual-NIR	163	8%	82	5%	109	6%	117	6%	133	7%
	Total	**634**	**31%**	**455**	**29%**	**497**	**27%**	**573**	**27%**	**557**	**29%**
Total	**MSM**	620	31%	562	35%	656	36%	732	34%	690	36%
	IDU	140	7%	114	7%	100	6%	74	4%	70	4%
	MSM/IDU	34	2%	25	2%	22	1%	23	1%	25	1%
	Blood Products	46	2%	21	1%	21	1%	15	1%	21	1%
	Heterosexual-CDC	335	17%	311	19%	256	14%	205	10%	154	8%
	NIR	532	26%	368	23%	508	28%	827	39%	716	37%
	Heterosexual-NIR	326	16%	198	12%	253	14%	263	12%	258	13%
	Total	**2,033**	**100%**	**1,599**	**100%**	**1,816**	**100%**	**2,139**	**100%**	**1,934**	**100%**

*MSM= men who have sex with men; IDU= intravenous drug use; "Blood products" includes adult hemophilia; "Heterosexual-NIR" includes Cases initially classified as "NIR" with additional risk information consistent with heterosexual transmission; NIR= no identified risk reported

†HIV Disease includes all newly reported HIV infected individuals by the date of first report (HIV or AIDS)

Table D: North Carolina Adult/Adolescent HIV† Disease Cases Gender and Mode of Transmission (NIRs* Redistributed), 2003-2007

Mode of Transmission		2003		2004		2005		2006		2007	
		Cases	Pct	Cases	Pct	Cases	Pct	Cases	Pct	Cases	Pct
Male	**MSM***	809	58%	708	62%	864	66%	1090	70%	1010	73%
	IDU*	123	9%	92	8%	82	6%	70	4%	66	5%
	MSM/IDU	44	3%	31	3%	29	2%	34	2%	37	3%
	Blood products*	31	2%	13	1%	11	1%	12	1%	10	1%
	Heterosexual-All	392	28%	300	26%	333	25%	360	23%	255	18%
	Total††	**1,399**	**100%**	**1,144**	**100%**	**1,319**	**100%**	**1,566**	**100%**	**1,377**	**100%**
Female	**IDU***	68	11%	58	13%	62	12%	60	10%	50	9%
	Blood products*	33	5%	15	3%	21	4%	15	3%	28	5%
	Heterosexual-All	534	84%	382	84%	414	83%	498	87%	479	86%
	Total††	**634**	**100%**	**455**	**100%**	**497**	**100%**	**573**	**100%**	**557**	**100%**
Total	**MSM***	809	40%	708	44%	864	48%	1,090	51%	1,010	52%
	IDU*	191	9%	150	9%	143	8%	129	6%	116	6%
	MSM/IDU*	44	2%	31	2%	29	2%	34	2%	37	2%
	Blood products*	64	3%	28	2%	32	2%	27	1%	38	2%
	Heterosexual-All	925	46%	682	43%	748	41%	858	40%	733	38%
	Total††	**2,033**	**100%**	**1,599**	**100%**	**1,816**	**100%**	**2,139**	**100%**	**1,934**	**100%**

*MSM= men who have sex with men; IDU= intravenous drug use; "Blood products" includes adult hemophilia, NIR = No identified risk reported
†HIV Disease includes all newly reported HIV infected individuals by the date of first report (HIV or AIDS)
††Totals may not correspond to cases listed above due to redistribution of NIR cases (See Appendix C pg. C-5)

Table E: North Carolina Adult/Adolescent Female HIV Disease† Cases Race/Ethnicity and Mode of Transmission (NIRs* Redistributed), 2003-2007

Mode of Transmission		2003		2004		2005		2006		2007	
		Cases	Pct	Cases	Pct	Cases	Pct	Cases	Pct	Cases	Pct
White, NH*	**IDU***	25	24%	18	25%	19	22%	25	30%	18	20%
	Blood products*	4	4%	1	2%	1	2%	2	3%	2	2%
	Heterosexual-All	74	72%	54	74%	66	77%	57	68%	66	77%
	Total††	**103**	**100%**	**74**	**100%**	**86**	**100%**	**84**	**100%**	**86**	**100%**
Black, NH*	**IDU***	38	8%	33	10%	37	10%	30	7%	31	7%
	Blood products*	28	6%	11	3%	14	4%	11	2%	26	6%
	Heterosexual-All	420	86%	301	87%	319	86%	400	90%	377	87%
	Total††	**486**	**100%**	**345**	**100%**	**370**	**100%**	**445**	**100%**	**434**	**100%**
All Other	**IDU***	5	12%	6	17%	4	11%	3	7%	0	0%
	Blood products*	0	0%	2	7%	6	14%	3	7%	0	0%
	Heterosexual-All	40	88%	27	76%	31	75%	39	86%	37	100%
	Total††	**45**	**100%**	**36**	**100%**	**41**	**100%**	**45**	**100%**	**37**	**100%**
Total	**IDU***	68	11%	57	13%	60	12%	59	10%	49	9%
	Blood products*	32	5%	15	3%	21	4%	16	3%	27	5%
	Heterosexual-All	534	84%	382	84%	416	84%	495	86%	481	86%
	Total††	**634**	**100%**	**455**	**100%**	**497**	**100%**	**574**	**100%**	**557**	**100%**

*NH = Non Hispanic; IDU= intravenous drug use; “Blood products” includes adult hemophilia; NIR = No identified risk reported
†HIV Disease includes all newly reported HIV infected individuals by the date of first report (HIV or AIDS)
††Totals may not correspond to cases listed above due to redistribution of NIR cases (See Appendix C pg. C-5)

Table F: North Carolina Adult/Adolescent Male HIV Disease† Cases Race/Ethnicity and Mode of Transmission (NIRs* Redistributed), 2003-2007

Mode of Transmission		2003		2004		2005		2006		2007	
		Cases	Pct	Cases	Pct	Cases	Pct	Cases	Pct	Cases	Pct
White, NH*	MSM*	333	77%	291	81%	355	84%	362	85%	402	86%
	IDU*	21	5%	25	7%	14	3%	12	3%	15	3%
	MSM/IDU	17	4%	11	3%	16	4%	14	3%	19	4%
	Blood Products*	9	2%	3	1%	2	1%	0	0%	4	1%
	Heterosexual-All	52	12%	27	7%	35	8%	39	9%	26	6%
	Total††	**431**	**100%**	**357**	**100%**	**422**	**100%**	**427**	**100%**	**466**	**100%**
Black, NH*	MSM*	430	50%	363	52%	434	56%	614	63%	506	66%
	IDU*	88	10%	61	9%	62	8%	50	5%	49	6%
	MSM/IDU	22	3%	19	3%	11	1%	19	2%	15	2%
	Blood Products*	21	2%	10	1%	8	1%	9	1%	3	0%
	Heterosexual-All	307	35%	251	36%	265	34%	290	30%	194	25%
	Total††	**868**	**100%**	**704**	**100%**	**779**	**100%**	**981**	**100%**	**766**	**100%**
All Other	MSM*	44	44%	55	67%	68	58%	100	63%	95	65%
	IDU*	14	14%	5	6%	7	6%	11	7%	2	1%
	MSM/IDU	6	6%	1	2%	1	1%	0	0%	2	1%
	Blood Products*	1	1%	0	0%	0	0%	4	2%	4	3%
	Heterosexual-All	34	34%	21	26%	41	35%	44	28%	43	29%
	Total††	**100**	**100%**	**83**	**100%**	**118**	**100%**	**158**	**100%**	**145**	**100%**
Total	MSM*	807	58%	709	62%	857	65%	1,076	69%	1,003	73%
	IDU*	123	9%	92	8%	83	6%	72	5%	65	5%
	MSM/IDU	45	3%	32	3%	28	2%	33	2%	36	3%
	Blood Products*	31	2%	13	1%	11	1%	13	1%	11	1%
	Heterosexual-All	393	28%	299	26%	341	26%	373	24%	263	19%
	Total††	**1,399**	**100%**	**1,144**	**100%**	**1,319**	**100%**	**1,566**	**100%**	**1,377**	**100%**

*NH=Non Hispanic; MSM= men who have sex with men; IDU= intravenous drug use; "Blood products" includes adult hemophilia , NIR = No identified risk reported
†HIV Disease includes all newly reported HIV infected individuals by the date of first report (HIV or AIDS)
††Totals may not correspond to cases listed above due to redistribution of NIR cases (See Appendix C pg. C-5)

Table G: Persons Living** in North Carolina with HIV Disease[†] Gender and Mode of Transmission, (NIRs* Redistributed)

Mode of Transmission		2007	
		Cases	Pct
Male	**MSM***	8,448	57%
	IDU*	1,907	13%
	MSM/IDU	779	5%
	Blood Products*	223	1%
	Heterosexual-All	3,401	23%
	Pediatric	96	1%
	Total[††]	**14,860**	**100%**
Female	**IDU***	1,157	17%
	Blood Products*	277	4%
	Heterosexual-All	5,207	77%
	Pediatric	91	1%
	Total[††]	**6,733**	**100%**
Total	**MSM***	8,846	41%
	IDU*	3,033	14%
	MSM/IDU	815	4%
	Blood Products*	481	2%
	Heterosexual-All	8,223	38%
	Pediatric	187	1%
	Total[††]	**21,593**	**100%**

*MSM= men who have sex with men; IDU= intravenous drug use; "Blood products" include adult hemophilia; NIR = No identified risk reported
**Living as of 12/31/2007.
[†]HIV Disease includes all newly reported HIV infected individuals by the date of first report (HIV or AIDS)
[††]Totals may not correspond to cases listed above due to redistribution of NIR cases (See Appendix C pg. C-5)

Table H: North Carolina HIV Disease† Cases Age 13-24 Years Gender and Mode of Transmission (NIRs* Redistributed), 2003-2007

Mode of Transmission		2003		2004		2005		2006		2007	
		Cases	Pct	Cases	Pct	Cases	Pct	Cases	Pct	Cases	Pct
Male	**MSM***	130	81%	132	83%	154	89%	207	89%	197	90%
	IDU*	1	1%	1	1%	0	0%	2	1%	3	2%
	MSM/IDU	1	1%	3	2%	0	0%	2	1%	2	1%
	Blood products*	0	0%	0	0%	0	0%	0	0%	1	1%
	Heterosexual-All	29	18%	24	15%	20	11%	21	9%	15	7%
	Total††	**161**	**100%**	**160**	**100%**	**174**	**100%**	**233**	**100%**	**219**	**100%**
Female	**IDU***	6	6%	3	6%	2	4%	1	2%	4	7%
	Blood products*	1	1%	0	0%	2	4%	1	2%	2	4%
	Heterosexual-All	82	92%	55	94%	56	93%	44	95%	48	89%
	Total††	**88**	**100%**	**58**	**100%**	**61**	**100%**	**47**	**100%**	**54**	**100%**
Total	**MSM***	130	47%	132	57%	154	60%	207	65%	197	63%
	IDU*	7	2%	4	2%	2	1%	3	1%	7	2%
	MSM/IDU*	1	0%	3	1%	0	0%	2	1%	2	1%
	Blood products*	1	0%	0	0%	2	1%	1	0%	3	1%
	Heterosexual-All	111	40%	78	34%	76	30%	65	21%	63	20%
	Total††	**274**	**100%**	**233**	**100%**	**255**	**100%**	**317**	**100%**	**314**	**100%**

*MSM= men who have sex with men; IDU= intravenous drug use; "Blood products" includes **adult** hemophilia; NIR = No identified risk reported
†HIV Disease includes all newly reported HIV infected individuals by the date of first report (HIV or AIDS)
††Totals may not correspond to cases listed above due to redistribution of NIR cases (See Appendix C pg. C-5)

Table I: North Carolina HIV Disease† Demographic Rates, Age 13-24 Years Gender and Race/Ethnicity, 2003-2007

Race/Ethnicity		2003 Cases	2003 Pct	2003 Rate*	2004 Cases	2004 Pct	2004 Rate*	2005 Cases	2005 Pct	2005 Rate*	2006 Cases	2006 Pct	2006 Rate*	2007 Cases	2007 Pct	2007 Rate*
Male	**White****	36	13%	8.0	26	11%	5.7	28	11%	6.0	33	10%	7.0	27	9%	5.7
	Black**	117	43%	65.9	124	53%	67.9	139	55%	74.7	182	57%	95.2	173	55%	90.5
	All Other***	15	5%	17.4	14	6%	16.2	15	6%	17.5	22	7%	24.9	25	8%	28.3
	Total	**168**	**61%**	**23.5**	**164**	**70%**	**22.5**	**182**	**71%**	**24.8**	**237**	**75%**	**31.6**	**225**	**72%**	**30.0**
Female	**White****	14	5%	3.3	9	4%	2.1	12	5%	2.8	15	5%	3.4	9	3%	2.1
	Black**	80	29%	44.8	54	23%	29.7	51	20%	27.5	57	18%	30.1	71	23%	37.5
	All Other***	12	4%	18.8	6	3%	9.3	10	4%	15.1	9	3%	13.2	9	3%	13.2
	Total	**106**	**39%**	**15.8**	**69**	**30%**	**10.2**	**73**	**29%**	**10.6**	**81**	**25%**	**11.6**	**89**	**28%**	**12.8**
Total	**White****	50	18%	5.7	35	15%	3.9	40	16%	4.5	48	15%	5.3	36	11%	4.0
	Black**	197	72%	55.3	178	76%	48.8	190	75%	51.2	239	75%	62.8	244	78%	64.1
	All Other***	27	10%	18.0	20	9%	13.2	25	10%	16.4	31	10%	19.8	34	11%	21.7
	Total	**274**	**100%**	**19.8**	**233**	**100%**	**16.6**	**255**	**100%**	**17.9**	**318**	**100%**	**22.0**	**314**	**100%**	**21.7**

*per 100,000 population **non Hispanic; ***All Other includes Hispanic, American Indian/Alaskan Native, Asian/Pacific Islander
†HIV Disease includes all newly reported HIV infected individuals by the date of first report (HIV or AIDS)

Table J: Cumulative HIV Disease Cases by County of Residence, 1983-2007

COUNTY	83-90 Cases	91-96 Cases	97-02 Cases	2003 Cases	2004 Cases	2005 Cases	2006 Cases	2007 Cases	CUMULATIVE CASES
ALAMANCE	23	133	96	26	21	29	17	22	367
ALEXANDER	1	12	10	1	3	6	2	2	37
ALLEGHANY	0	0	0	0	0	0	0	2	2
ANSON	4	60	31	4	3	1	12	5	120
ASHE	0	3	2	0	1	0	2	3	11
AVERY	2	3	4	0	0	0	0	1	10
BEAUFORT	19	65	48	6	5	9	8	8	168
BERTIE	8	27	47	2	9	7	5	5	110
BLADEN	7	34	30	12	5	4	7	4	103
BRUNSWICK	8	50	52	19	16	9	9	10	173
BUNCOMBE	38	297	202	25	21	23	31	50	687
BURKE	8	38	24	5	1	9	3	7	95
CABARRUS	22	99	69	19	6	19	18	12	264
CALDWELL	5	41	14	4	2	7	3	1	77
CAMDEN	0	6	9	1	0	3	1	1	21
CARTERET	12	39	11	7	6	0	3	3	81
CASWELL	0	14	8	5	1	0	2	5	35
CATAWBA	20	81	75	21	9	10	17	20	253
CHATHAM	5	36	22	6	6	3	1	8	87
CHEROKEE	1	9	4	1	0	2	2	6	25
CHOWAN	4	18	10	2	1	3	0	1	39
CLAY	0	1	2	0	1	1	1	1	7
CLEVELAND	21	110	74	15	20	26	14	14	294
COLUMBUS	18	84	73	23	8	18	13	17	254
CRAVEN	29	125	98	26	12	18	30	25	363
CUMBERLAND	125	575	374	95	71	79	135	109	1,563
CURRITUCK	2	7	8	2	1	1	3	2	26
DARE	5	14	15	3	7	1	2	1	48
DAVIDSON	24	101	77	14	16	19	13	12	276
DAVIE	4	18	15	0	1	3	2	1	44
DUPLIN	14	70	65	21	16	13	15	12	226
DURHAM	172	785	562	93	76	111	102	94	1,995
EDGECOMBE	17	135	107	41	23	18	28	28	397
FORSYTH	137	508	537	138	93	96	95	75	1,679
FRANKLIN	12	40	41	7	5	7	16	3	131
GASTON	59	328	199	40	20	32	35	17	730
GATES	0	3	5	2	0	0	1	0	11
GRAHAM	0	2	1	0	1	0	0	0	4
GRANVILLE	18	78	66	23	14	21	11	10	241
GREENE	3	40	35	2	3	4	6	2	95
GUILFORD	157	871	754	112	119	123	161	166	2,463
HALIFAX	21	115	84	10	7	10	9	10	266
HARNETT	13	87	61	13	13	9	24	8	228
HAYWOOD	6	28	17	0	2	9	3	8	73
HENDERSON	12	48	44	3	3	4	3	10	127
HERTFORD	11	35	43	13	15	13	86	24	240
HOKE	8	49	45	8	1	7	15	7	140
HYDE	0	3	2	3	2	1	0	0	11
IREDELL	14	69	48	13	9	13	15	4	185
JACKSON	2	9	5	0	1	2	5	1	25
JOHNSTON	27	144	122	23	12	23	31	16	398

Table J (continued): Cumulative HIV Disease Cases by County of Residence, 1983-2007

COUNTY	83-90 Cases	91-96 Cases	97-02 Cases	2003 Cases	2004 Cases	2005 Cases	2006 Cases	2007 Cases	CUMULATIVE CASES
JONES	0	11	9	1	2	1	0	1	25
LEE	10	51	68	9	12	6	12	8	176
LENOIR	26	163	130	22	12	24	23	23	423
LINCOLN	4	25	25	8	5	3	3	3	76
MACON	1	11	9	1	3	4	2	3	34
MADISON	1	8	6	1	1	0	2	1	20
MARTIN	4	38	37	11	5	8	8	10	121
MCDOWELL	5	14	12	1	1	2	5	1	41
MECKLENBURG	462	1,968	1,484	434	350	325	414	387	5,824
MITCHELL	1	6	4	1	0	1	0	3	16
MONTGOMERY	4	22	16	1	6	4	1	3	57
MOORE	17	52	69	11	7	15	13	12	196
NASH	22	149	117	19	12	26	29	21	395
NEW HANOVER	51	269	270	57	46	63	56	46	858
NORTHAMPTON	8	38	28	6	3	3	4	5	95
ONSLOW	30	87	90	18	13	15	15	13	281
ORANGE	42	120	80	17	16	16	23	18	332
PAMLICO	3	11	8	4	0	3	2	1	32
PASQUOTANK	5	39	33	10	6	3	12	6	114
PENDER	9	44	18	7	5	6	5	4	98
PERQUIMANS	1	10	19	2	0	3	1	1	37
PERSON	5	36	27	6	7	0	2	10	93
PITT	46	304	214	37	23	38	23	37	722
POLK	1	13	10	3	1	0	1	1	30
RANDOLPH	12	55	53	19	9	8	12	12	180
RICHMOND	4	78	42	10	4	11	11	15	175
ROBESON	21	182	149	32	32	41	26	45	528
ROCKINGHAM	9	80	55	4	13	8	5	7	181
ROWAN	23	142	84	20	23	24	17	23	356
RUTHERFORD	12	33	31	1	5	4	8	0	94
SAMPSON	16	95	60	9	5	13	18	9	225
SCOTLAND	6	78	42	6	13	10	7	7	169
STANLY	8	34	38	1	8	1	4	7	101
STOKES	2	9	9	2	3	5	2	4	36
SURRY	5	24	22	4	6	10	3	2	76
SWAIN	5	7	8	4	0	2	1	0	27
TRANSYLVANIA	5	14	12	5	0	2	3	2	43
TYRRELL	2	2	3	0	0	0	0	1	8
UNION	14	76	62	13	8	6	9	18	206
VANCE	18	93	70	22	15	7	9	12	246
WAKE	304	957	867	225	179	205	260	229	3,226
WARREN	5	10	21	6	3	2	5	2	54
WASHINGTON	3	38	24	3	2	8	2	8	88
WATAUGA	4	5	2	5	0	5	3	1	25
WAYNE	45	158	156	25	22	24	32	34	496
WILKES	3	12	12	2	5	3	2	4	43
WILSON	41	197	153	21	17	30	24	22	505
YADKIN	3	9	8	4	3	3	3	2	35
YANCEY	1	7	4	1	1	0	0	1	15
UNKNOWN	4	11	9	4	3	0	8	5	44
NC TOTAL	**2,451**	**11,442**	**9,126**	**2,044**	**1,603**	**1,827**	**2,147**	**1,943**	**32,583**

Table K: HIV Disease Rates by County Rank, 2005-2007

COUNTY	2005 CASES	2006 CASES	2007 CASES	2005 RATE*	2006 RATE*	2007 RATE*	AVG RATE*	RANK
HERTFORD	13	86	24	55.2	364.7	101.8	173.9	1
MECKLENBURG	325	414	387	40.8	50.0	46.8	45.9	2
EDGECOMBE	18	28	28	33.3	51.9	51.9	45.7	3
WASHINGTON	8	2	8	60.2	15.1	60.5	45.3	4
DURHAM	111	102	94	45.8	41.3	38.1	41.7	5
LENOIR	24	23	23	41.5	39.9	39.9	40.4	6
CUMBERLAND	79	135	109	26.4	45.1	36.4	36.0	7
MARTIN	8	8	10	32.7	32.9	41.1	35.5	8
GUILFORD	123	161	166	27.7	35.6	36.7	33.4	9
WILSON	30	24	22	39.4	31.3	28.7	33.1	10
NEW HANOVER	63	56	46	35.2	30.7	25.2	30.3	11
WAKE	205	260	229	27.3	33.1	29.1	29.8	12
BERTIE	7	5	5	36.2	26.2	26.2	29.5	13
COLUMBUS	18	13	17	33.1	23.8	31.1	29.3	14
ROBESON	41	26	45	32.1	20.2	34.9	29.0	15
NASH	26	29	21	28.5	31.4	22.7	27.6	16
FORSYTH	96	95	75	29.5	28.6	22.6	26.9	17
RICHMOND	11	11	15	23.6	23.6	32.2	26.5	18
WAYNE	24	32	34	21.1	28.1	29.9	26.4	19
GRANVILLE	21	11	10	39.3	20.2	18.4	26.0	20
CRAVEN	18	30	25	19.2	31.6	26.4	25.7	21
DUPLIN	13	15	12	25.1	28.4	22.7	25.4	22
ANSON	1	12	5	3.9	47.1	19.6	23.5	23
HOKE	7	15	7	17.2	35.5	16.5	23.1	24
PITT	38	23	37	26.7	15.8	25.4	22.6	25
NORTH CAROLINA	**1,827**	**2,147**	**1,943**	**21.1**	**24.2**	**21.9**	**22.4**	
SCOTLAND	10	7	7	27.0	18.9	18.9	21.6	26
VANCE	7	9	12	16.1	20.5	27.4	21.3	27
SAMPSON	13	18	9	20.7	28.3	14.2	21.1	28
GREENE	4	6	2	19.9	29.8	9.9	19.9	29
NORTHAMPTON	3	4	5	14.0	18.8	23.5	18.8	30
CAMDEN	3	1	1	33.4	10.8	10.8	18.3	31
CLEVELAND	26	14	14	26.5	14.2	14.2	18.3	31
BEAUFORT	9	8	8	19.6	17.3	17.3	18.0	33
PASQUOTANK	3	12	6	7.8	30.3	15.2	17.8	34
HALIFAX	10	9	10	18.0	16.2	18.0	17.4	35
MOORE	15	13	12	18.4	15.6	14.4	16.2	36
ALAMANCE	29	17	22	20.7	11.9	15.4	16.0	37
ORANGE	16	23	18	13.5	19.2	15.0	15.9	38
ROWAN	24	17	23	17.8	12.5	16.9	15.7	39
BUNCOMBE	23	31	50	10.5	14.0	22.5	15.7	39
PAMLICO	3	2	1	23.5	15.6	7.8	15.6	41
FRANKLIN	7	16	3	12.8	28.6	5.4	15.6	41
JOHNSTON	23	31	16	15.7	20.4	10.5	15.5	43
LEE	6	12	8	10.8	21.1	14.1	15.3	44
WARREN	2	5	2	10.1	25.5	10.2	15.3	44
BLADEN	4	7	4	12.2	21.3	12.2	15.2	46
GASTON	32	35	17	16.3	17.6	8.5	14.1	47
PERQUIMANS	3	1	1	24.9	8.1	8.1	13.7	48
HARNETT	9	24	8	8.7	22.6	7.5	12.9	49
CHEROKEE	2	2	6	7.8	7.6	22.8	12.7	50

Table K (continued): HIV Disease† Rates by County Rank, 2005-2007

COUNTY	2005 CASES	2006 CASES	2007 CASES	2005 RATE*	2006 RATE*	2007 RATE*	AVG RATE*	RANK
HAYWOOD	9	3	8	16.0	5.3	14.2	11.8	51
PERSON	0	2	10	0.0	5.4	26.8	10.7	52
CABARRUS	19	18	12	12.7	11.5	7.7	10.6	53
PENDER	6	5	4	12.9	10.3	8.2	10.5	54
CATAWBA	10	17	20	6.6	11.1	13.0	10.2	55
CLAY	1	1	1	10.3	10.0	10.0	10.1	56
BRUNSWICK	9	9	10	10.1	9.5	10.5	10.0	57
CASWELL	0	2	5	0.0	8.5	21.2	9.9	58
MONTGOMERY	4	1	3	14.6	3.6	10.9	9.7	59
ONSLOW	15	15	13	10.0	10.0	8.6	9.5	60
DAVIDSON	19	13	12	12.3	8.3	7.7	9.4	61
MACON	4	2	3	12.5	6.2	9.3	9.3	62
ALEXANDER	6	2	2	16.8	5.5	5.5	9.3	62
CHOWAN	3	0	1	20.7	0.0	6.8	9.2	64
MITCHELL	1	0	3	6.3	0.0	19.1	8.5	65
CURRITUCK	1	3	2	4.3	12.6	8.4	8.5	65
STOKES	5	2	4	10.9	4.3	8.7	8.0	67
TYRRELL	0	0	1	0.0	0.0	23.9	8.0	67
TRANSYLVANIA	2	3	2	6.7	10.1	6.7	7.8	69
RANDOLPH	8	12	12	5.8	8.5	8.5	7.6	70
JACKSON	2	5	1	5.7	14.1	2.8	7.5	71
SWAIN	2	1	0	15.1	7.4	0.0	7.5	71
IREDELL	13	15	4	9.3	10.3	2.7	7.4	73
ROCKINGHAM	8	5	7	8.6	5.4	7.5	7.2	74
BURKE	9	3	7	10.1	3.3	7.8	7.1	75
WATAUGA	5	3	1	11.8	7.0	2.3	7.1	75
YADKIN	3	3	2	8.0	7.9	5.3	7.0	77
SURRY	10	3	2	13.8	4.1	2.8	6.9	78
STANLY	1	4	7	1.7	6.7	11.8	6.7	79
CHATHAM	3	1	8	5.2	1.7	13.3	6.7	79
ASHE	0	2	3	0.0	7.8	11.8	6.5	81
JONES	1	0	1	9.7	0.0	9.8	6.5	81
UNION	6	9	18	3.7	5.1	10.3	6.4	83
RUTHERFORD	4	8	0	6.3	12.5	0.0	6.3	84
MCDOWELL	2	5	1	4.6	11.5	2.3	6.2	85
HYDE	1	0	0	18.4	0.0	0.0	6.1	86
ALLEGHANY	0	0	2	0.0	0.0	18.3	6.1	86
HENDERSON	4	3	10	4.1	3.0	10.1	5.7	88
DAVIE	3	2	1	7.7	5.0	2.5	5.1	89
MADISON	0	2	1	0.0	9.8	4.9	4.9	90
CALDWELL	7	3	1	8.8	3.8	1.3	4.6	91
WILKES	3	2	4	4.5	3.0	5.9	4.5	92
LINCOLN	3	3	3	4.3	4.2	4.2	4.2	93
DARE	1	2	1	3.0	5.9	2.9	3.9	94
POLK	0	1	1	0.0	5.2	5.2	3.5	95
CARTERET	0	3	3	0.0	4.7	4.7	3.1	96
GATES	0	1	0	0.0	8.7	0.0	2.9	97
AVERY	0	0	1	0.0	0.0	5.7	1.9	98
YANCEY	0	0	1	0.0	0.0	5.4	1.8	99
GRAHAM	0	0	0	0.0	0.0	0.0	0.0	100

*three-year average of rates per 100,000 population

Table L: Persons Living* with HIV Disease† by N.C. County of Residence and Consortia

NC Consortia	County of Residence	Report Category		TOTAL
		HIV (NON AIDS)	AIDS	
CENTRAL CAROLINA HEALTH NETWORK	ALAMANCE	165	86	251
	CASWELL	18	9	27
	GUILFORD	1,096	519	1,615
	MONTGOMERY	22	21	43
	RANDOLPH	84	45	129
	ROCKINGHAM	80	34	114
	STANLY	47	18	65
	TOTAL	**1,512**	**732**	**2,244**
CHARLOTTE TRANSITION	ANSON	39	43	82
	CABARRUS	111	65	176
	GASTON	285	143	428
	MECKLENBURG	2,569	1,299	3,868
	UNION	78	53	131
	TOTAL	**3,082**	**1,603**	**4,685**
COASTAL	BRUNSWICK	64	50	114
	COLUMBUS	91	71	162
	DUPLIN	71	80	151
	NEW HANOVER	347	253	600
	ONSLOW	113	78	191
	PENDER	26	33	59
	TOTAL	**712**	**565**	**1,277**
DOGWOOD	BLADEN	31	32	63
	CUMBERLAND	683	352	1,035
	HARNETT	85	73	158
	HOKE	48	50	98
	MOORE	88	42	130
	RICHMOND	74	30	104
	ROBESON	201	173	374
	SAMPSON	74	60	134
	SCOTLAND	71	42	113
	TOTAL	**1,355**	**854**	**2,209**
EASTERN CAROLINA HIV/AIDS PARTNERSHIP	BEAUFORT	50	47	97
	BERTIE	27	44	71
	CAMDEN	3	9	12
	CARTERET	23	20	43
	CHOWAN	17	13	30
	CRAVEN	139	128	267
	CURRITUCK	10	7	17
	DARE	17	14	31
	EDGECOMBE	152	124	276
	GATES	4	4	8
	GREENE	31	39	70
	HALIFAX	69	75	144
	HERTFORD	117	72	189
	HYDE	2	6	8
	JONES	11	6	17
	LENOIR	147	114	261
	MARTIN	44	38	82
	NASH	141	117	258
	NORTHAMPTON	24	30	54
	PAMLICO	12	8	20

Table L: Persons Living with HIV Disease† by N.C. County of Residence and Consortia

NC Consortia	County of Residence	Report Category		TOTAL
		HIV (NON AIDS)	AIDS	
EASTERN CAROLINA HIV/AIDS PARTNERSHIP (CONTINUED)	PASQUOTANK	44	34	78
	PERQUIMANS	16	11	27
	PITT	235	228	463
	TYRRELL	3	2	5
	WASHINGTON	24	29	53
	WAYNE	152	151	303
	WILSON	157	156	313
	TOTAL	**1,671**	**1,526**	**3,197**
NORTHWEST	ALEXANDER	17	13	30
	ALLEGHANY	2	0	2
	ASHE	5	4	9
	BURKE	37	35	72
	CALDWELL	26	19	45
	CATAWBA	80	85	165
	DAVIDSON	119	63	182
	DAVIE	16	13	29
	FORSYTH	758	374	1132
	IREDELL	59	45	104
	LINCOLN	31	23	54
	ROWAN	140	102	242
	STOKES	17	13	30
	SURRY	37	15	52
	WATAUGA	8	9	17
	WILKES	15	14	29
	YADKIN	13	15	28
	TOTAL	**1,380**	**842**	**2,222**
PIEDMONT	CHATHAM	40	18	58
	DURHAM	807	433	1,240
	FRANKLIN	43	40	83
	GRANVILLE	109	59	168
	JOHNSTON	146	122	268
	LEE	94	45	139
	ORANGE	157	64	221
	PERSON	42	21	63
	VANCE	84	69	153
	WAKE	1,216	1090	2,306
	WARREN	21	14	35
	TOTAL	**2,759**	**1,975**	**4,734**
WNCHAC	AVERY	4	3	7
	BUNCOMBE	248	203	451
	CHEROKEE	10	7	17
	CLAY	4	0	4
	CLEVELAND	104	70	174
	GRAHAM	1	2	3
	HAYWOOD	20	29	49
	HENDERSON	26	46	72
	JACKSON	9	12	21
	MACON	12	13	25
	MADISON	10	4	14
	MCDOWELL	9	22	31
	MITCHELL	7	5	12

Table L (continued): Persons Living* with HIV Disease† by N.C. County of Residence and Consortia

NC Consortia	County of Residence	Report Category		TOTAL
		HIV (NON AIDS)	AIDS	
WNCHAC	**POLK**	8	11	19
	RUTHERFORD	27	28	55
	SWAIN	4	11	15
	TRANSYLVANIA	14	10	24
	YANCEY	1	7	8
	TOTAL	**518**	**483**	**1,001**
MISSING		19	5	24
TOTAL		**13,008**	**8,585**	**21,593**

†HIV Disease includes all newly reported HIV infected individuals by the date of first report (HIV or AIDS)
*Living as of 12/31/2007

Table M: HIV Testing at North Carolina Counseling and Testing Sites, 2005-2007

**** IMPORTANT NOTE: Due to changes in data collection methods, CTS screening data for 2005-2007 are currently unavailable for publication. An updated chapter will be posted on our web page when the data become available.**

Table M (continued): HIV Testing at North Carolina Counseling and Testing Sites, 2005-2007

**** IMPORTANT NOTE: Due to changes in data collection methods, CTS screening data for 2005-2007 are currently unavailable for publication. An updated chapter will be posted on our web page when the data become available.**

Table N: North Carolina Adult/Adolescent AIDS Demographic Rates, Gender and Age, 2003-2007

	Age	2003	2003	2003	2004	2004	2004	2005	2005	2005	2006	2006	2006	2007	2007	2007
		Cases	Pct	Rate*	Cases	Pct	Rate*	Cases	Pct	Rate*	Cases	Pct	Rate*	Cases	Pct	Rate*
Male	**13-14 Years**	0	0%	0.0	0	0%	0.0	2	0%	1.6	1	0%	0.8	0	0%	0.0
	15-19 Years	1	0%	0.3	4	0%	1.4	6	1%	2.0	7	1%	2.2	6	1%	1.9
	20-24 Years	24	2%	7.9	28	3%	9.1	23	2%	7.5	40	4%	12.8	28	3%	9.0
	25-29 Years	39	4%	13.3	52	5%	17.6	66	6%	22.2	78	8%	25.7	72	8%	23.8
	30-34 Years	104	10%	32.4	118	11%	36.9	99	9%	31.5	103	10%	33.3	76	8%	24.6
	35-39 Years	174	17%	55.1	150	14%	47.7	141	13%	44.1	133	13%	40.4	96	10%	29.2
	40-44 Years	147	14%	45.2	138	13%	41.8	148	14%	44.6	155	15%	46.5	133	14%	39.9
	45-49 Years	118	12%	38.8	126	12%	40.8	112	11%	35.3	101	10%	31.0	120	13%	36.8
	50-54 Years	70	7%	26.1	76	7%	27.7	68	6%	24.1	57	6%	19.6	73	8%	25.1
	55-59 Years	31	3%	13.5	31	3%	12.9	45	4%	17.8	42	4%	15.8	36	4%	13.5
	60-64 Years	15	1%	8.6	15	1%	8.2	25	2%	13.1	17	2%	8.6	19	2%	9.6
	65+ Years	15	1%	3.6	12	1%	2.8	14	1%	3.2	16	2%	3.6	7	1%	1.6
	Total	**738**	**72%**	**22.0**	**750**	**70%**	**22.0**	**749**	**71%**	**21.6**	**750**	**73%**	**21.1**	**666**	**70%**	**18.8**
Female	**13-14 Years**	0	0%	0.0	1	0%	0.8	0	0%	0.0	1	0%	0.8	1	0%	0.8
	15-19 Years	1	0%	0.4	1	0%	0.4	2	0%	0.7	4	0%	1.4	2	0%	0.7
	20-24 Years	15	1%	5.3	21	2%	7.5	11	1%	3.9	12	1%	4.2	11	1%	3.9
	25-29 Years	37	4%	13.0	24	2%	8.3	36	3%	12.3	21	2%	7.0	16	2%	5.3
	30-34 Years	43	4%	13.6	44	4%	14.1	37	3%	11.9	34	3%	11.1	34	4%	11.1
	35-39 Years	58	6%	18.3	67	6%	21.4	61	6%	19.2	58	6%	17.7	57	6%	17.4
	40-44 Years	52	5%	15.5	62	6%	18.3	55	5%	16.2	51	5%	15.0	54	6%	15.9
	45-49 Years	40	4%	12.6	41	4%	12.7	56	5%	17.0	51	5%	15.1	53	6%	15.7
	50-54 Years	17	2%	5.9	26	2%	8.9	24	2%	8.0	18	2%	5.8	34	4%	10.9
	55-59 Years	12	1%	4.9	18	2%	6.9	14	1%	5.1	20	2%	6.9	15	2%	5.2
	60-64 Years	4	0%	2.1	4	0%	2.0	9	1%	4.3	9	1%	4.1	4	0%	1.8
	65+ Years	7	1%	1.2	9	1%	1.5	5	0%	0.8	4	0%	0.6	5	1%	0.8
	Total	**286**	**28%**	**8.0**	**318**	**30%**	**8.8**	**310**	**29%**	**8.4**	**283**	**27%**	**7.5**	**286**	**30%**	**7.6**

Table N: North Carolina Adult/Adolescent AIDS Demographic Rates (continued), Gender and Age, 2003-2007

Age		2003	2003	2003	2004	2004	2004	2005	2005	2005	2006	2006	2006	2007	2007	2007
		Cases	Pct	Rate*	Cases	Pct	Rate*	Cases	Pct	Rate*	Cases	Pct	Rate*	Cases	Pct	Rate*
Total	**13-14 Years**	0	0%	0.0	1	0%	0.4	2	0%	0.8	2	0%	0.8	1	0%	0.4
	15-19 Years	2	0%	0.4	5	0%	0.9	8	1%	1.4	11	1%	1.8	8	1%	1.3
	20-24 Years	39	4%	6.6	49	5%	8.3	34	3%	5.8	52	5%	8.7	39	4%	6.6
	25-29 Years	76	7%	13.1	76	7%	13.0	102	10%	17.3	99	10%	16.4	88	9%	14.5
	30-34 Years	147	14%	23.1	162	15%	25.6	136	13%	21.8	137	13%	22.3	110	12%	17.9
	35-39 Years	232	23%	36.7	217	20%	34.6	202	19%	31.7	191	18%	29.1	153	16%	23.3
	40-44 Years	199	19%	30.2	200	19%	29.9	203	19%	30.2	206	20%	30.6	187	20%	27.8
	45-49 Years	158	15%	25.4	167	16%	26.5	168	16%	26.0	152	15%	22.9	173	18%	26.0
	50-54 Years	87	8%	15.7	102	10%	18.0	92	9%	15.8	75	7%	12.5	107	11%	17.8
	55-59 Years	43	4%	9.0	49	5%	9.8	59	6%	11.2	62	6%	11.2	51	5%	9.2
	60-64 Years	19	2%	5.2	19	2%	4.9	34	3%	8.5	26	3%	6.2	23	2%	5.5
	65+ Years	22	2%	2.2	21	2%	2.0	19	2%	1.8	20	2%	1.9	12	1%	1.1
	Total	**1,024**	**100%**	**14.8**	**1,068**	**100%**	**15.2**	**1,059**	**100%**	**14.8**	**1,033**	**100%**	**14.1**	**952**	**100%**	**13.0**

*per 100,000 adult/adolescent population

Table O: North Carolina Adult/Adolescent AIDS Demographic Rates Gender and Race/Ethnicity, 2003-2007

Race/Ethnicity		2003 Cases	2003 Pct	2003 Rate*	2004 Cases	2004 Pct	2004 Rate*	2005 Cases	2005 Pct	2005 Rate*	2006 Cases	2006 Pct	2006 Rate*	2007 Cases	2007 Pct	2007 Rate*
Male	**White****	219	21%	9.2	216	20%	8.9	203	19%	8.3	190	18%	7.6	160	17%	6.4
	Black**	467	46%	70.5	499	47%	73.8	496	47%	72.0	480	46%	68.0	433	45%	61.4
	Am.In/AN**	8	1%	20.5	13	1%	32.8	9	1%	22.4	7	1%	17.1	4	0%	9.8
	Asian,PI**	2	0%	3.5	3	0%	5.0	2	0%	3.2	5	0%	7.5	3	0%	4.5
	Hispanic	41	4%	19.4	19	2%	8.5	39	4%	16.6	68	7%	27.2	65	7%	26.0
	Unknown	1	0%	---	0	0%	---	0	0%	---	0	0%	---	1	0%	---
	Total	**738**	**72%**	**22.0**	**750**	**70%**	**22.0**	**749**	**71%**	**21.6**	**750**	**73%**	**21.1**	**666**	**70%**	**18.8**
Female	**White****	40	4%	1.6	54	5%	2.1	40	4%	1.5	44	4%	1.7	45	5%	1.7
	Black**	230	22%	29.5	247	23%	31.1	256	24%	31.6	215	21%	26.0	225	24%	27.2
	Am.In/AN**	2	0%	4.8	3	0%	7.0	4	0%	9.2	1	0%	2.3	6	1%	13.6
	Asian,PI**	2	0%	3.2	1	0%	1.5	1	0%	1.5	2	0%	2.8	2	0%	2.8
	Hispanic	12	1%	8.8	12	1%	8.2	9	1%	5.7	21	2%	12.4	8	1%	4.7
	Unknown	0	0%	---	1	0%	---	0	0%	---	0	0%	---	0	0%	---
	Total	**286**	**28%**	**8.0**	**318**	**30%**	**8.8**	**310**	**29%**	**8.4**	**283**	**27%**	**7.5**	**286**	**30%**	**7.6**
Total	**White****	259	25%	5.2	270	25%	5.4	243	23%	4.8	234	23%	4.6	205	22%	4.0
	Black**	697	68%	48.3	746	70%	50.8	752	71%	50.2	695	67%	45.3	658	69%	42.9
	Am.In/AN**	10	1%	12.3	16	1%	19.4	13	1%	15.6	8	1%	9.4	10	1%	11.7
	Asian,PI**	4	0%	3.4	4	0%	3.2	3	0%	2.3	7	1%	5.0	5	1%	3.6
	Hispanic	53	5%	15.2	31	3%	8.4	48	5%	12.2	89	9%	21.2	73	8%	17.4
	Unknown	1	0%	---	1	0%	---	0	0%	---	0	0%	---	1	0%	---
	Total	**1,024**	**100%**	**14.8**	**1,068**	**100%**	**15.2**	**1,059**	**100%**	**14.8**	**1,033**	**100%**	**14.1**	**952**	**100%**	**13.0**

*per 100,000 adult/adolescent population **non Hispanic; Am. In/AN= American Indian/Alaskan Native; Asian, PI= Asian/Pacific Islander

Table P: Cumulative AIDS Cases* by County of Residence, 1983-2007

AIDS **COUNTY**	**83-90 Cases**	**91-96 Cases**	**97-02 Cases**	**2003 Cases**	**2004 Cases**	**2005 Cases**	**2006 Cases**	**2007 Cases**	**CUMULATIVE CASES**
ALAMANCE	16	60	33	13	21	16	2	8	169
ALEXANDER	1	5	4	0	2	2	4	1	19
ALLEGHANY	0	0	0	0	0	0	0	0	0
ANSON	2	20	28	1	6	6	1	3	67
ASHE	0	3	1	0	0	0	1	0	5
AVERY	2	1	2	0	0	0	0	1	6
BEAUFORT	14	41	24	5	6	7	5	3	105
BERTIE	7	17	33	3	5	6	3	3	77
BLADEN	6	16	16	7	8	2	6	2	63
BRUNSWICK	6	30	26	8	6	4	8	5	93
BUNCOMBE	26	165	143	16	19	11	13	12	405
BURKE	6	26	9	3	4	8	4	1	61
CABARRUS	13	46	36	10	3	6	8	8	130
CALDWELL	3	16	8	3	2	4	0	2	38
CAMDEN	0	3	7	1	0	2	1	0	14
CARTERET	9	24	6	5	4	0	2	1	51
CASWELL	0	10	2	0	0	0	1	2	15
CATAWBA	14	45	42	11	13	6	12	12	155
CHATHAM	5	11	10	2	3	2	0	3	36
CHEROKEE	1	5	2	1	0	0	2	3	14
CHOWAN	4	6	8	0	0	2	2	0	22
CLAY	0	0	1	0	1	0	0	0	2
CLEVELAND	13	32	32	6	15	19	12	13	142
COLUMBUS	15	29	43	15	12	7	11	10	142
CRAVEN	21	54	56	13	7	17	25	21	214
CUMBERLAND	75	227	168	48	57	33	60	53	721
CURRITUCK	1	6	3	1	0	1	2	0	14
DARE	5	8	9	1	4	1	0	0	28
DAVIDSON	20	55	35	9	4	8	2	5	138
DAVIE	2	9	8	0	1	0	2	0	22
DUPLIN	10	45	44	14	12	11	7	4	147
DURHAM	113	424	230	39	57	51	43	33	990
EDGECOMBE	13	66	76	18	20	21	11	11	236
FORSYTH	109	235	252	53	39	41	28	30	787
FRANKLIN	8	17	17	6	3	7	8	3	69
GASTON	25	131	113	24	18	32	11	11	365
GATES	0	2	3	0	0	0	1	0	6
GRAHAM	0	1	0	0	1	0	1	0	3
GRANVILLE	10	29	32	7	8	11	5	4	106
GREENE	2	16	33	1	4	3	3	2	64
GUILFORD	112	483	311	60	39	48	46	53	1,152
HALIFAX	14	55	50	11	8	8	11	8	165
HARNETT	12	40	37	10	11	12	9	6	137
HAYWOOD	5	21	10	0	3	5	3	1	48
HENDERSON	8	25	38	4	2	3	1	9	90
HERTFORD	10	15	26	3	10	1	29	9	103
HOKE	3	18	36	6	5	6	9	4	87
HYDE	0	3	2	1	3	0	0	0	9
IREDELL	11	31	27	8	6	10	5	3	101
JACKSON	2	7	3	0	2	1	1	0	16
JOHNSTON	19	58	55	17	14	16	22	9	210

*by county and year of AIDS report

Table P (continued): Cumulative AIDS Cases* by County of Residence, 1983-2007

AIDS **COUNTY**	**83-90 Cases**	**91-96 Cases**	**97-02 Cases**	**2003 Cases**	**2004 Cases**	**2005 Cases**	**2006 Cases**	**2007 Cases**	**CUMULATIVE CASES**
JONES	0	4	3	1	2	0	1	0	11
LEE	4	19	20	5	5	2	5	6	66
LENOIR	12	77	92	4	14	15	12	9	235
LINCOLN	3	12	11	2	4	3	4	0	39
MACON	0	9	5	1	3	2	1	0	21
MADISON	0	4	4	0	1	0	0	0	9
MARTIN	3	15	23	5	4	9	5	4	68
MCDOWELL	4	6	15	1	0	3	2	2	33
MECKLENBURG	229	687	589	186	200	181	183	179	2,434
MITCHELL	1	2	4	0	0	1	0	1	9
MONTGOMERY	1	13	9	1	3	6	2	1	36
MOORE	10	21	25	7	4	6	5	7	85
NASH	20	77	62	10	11	18	13	17	228
NEW HANOVER	35	121	152	37	24	26	31	25	451
NORTHAMPTON	5	29	19	5	4	4	2	2	70
ONSLOW	27	45	47	10	10	8	6	3	156
ORANGE	36	50	27	1	8	5	6	4	137
PAMLICO	3	7	3	3	1	2	0	0	19
PASQUOTANK	4	18	17	6	8	2	4	2	61
PENDER	5	29	16	6	1	5	2	1	65
PERQUIMANS	1	4	6	1	1	3	1	1	18
PERSON	2	14	11	4	2	0	0	6	39
PITT	38	167	130	24	16	26	18	23	442
POLK	1	10	6	3	0	0	0	1	21
RANDOLPH	11	29	14	5	13	7	6	4	89
RICHMOND	4	26	16	4	3	8	5	7	73
ROBESON	16	73	99	22	26	28	17	24	305
ROCKINGHAM	6	37	31	2	3	1	1	4	85
ROWAN	20	75	53	6	13	15	12	11	205
RUTHERFORD	9	25	17	1	2	6	0	1	61
SAMPSON	10	27	42	3	5	5	10	11	113
SCOTLAND	5	34	22	4	5	5	3	7	85
STANLY	5	6	15	1	2	2	1	4	36
STOKES	1	7	6	1	0	0	1	2	18
SURRY	4	14	11	1	1	2	0	0	33
SWAIN	4	7	7	2	1	1	1	0	23
TRANSYLVANIA	5	7	6	2	0	1	1	2	24
TYRRELL	1	1	1	0	0	0	0	1	4
UNION	12	27	34	7	7	4	9	9	109
VANCE	12	41	47	12	9	6	5	8	140
WAKE	197	461	522	127	135	136	148	134	1,860
WARREN	2	6	9	4	4	1	1	0	27
WASHINGTON	3	24	15	3	0	3	3	5	56
WATAUGA	4	4	1	3	0	3	1	0	16
WAYNE	38	83	100	11	12	17	32	20	313
WILKES	3	5	10	2	2	1	1	2	26
WILSON	24	76	91	12	28	24	26	16	297
YADKIN	3	6	5	3	2	0	2	2	23
YANCEY	1	5	1	0	2	0	1	1	11
NC TOTAL	**1,621**	**5,248**	**4,671**	**1,025**	**1,069**	**1,060**	**1,033**	**953**	**16,680**

*by county and year of AIDS report

Table Q: North Carolina Chlamydia Demographic Rates, Gender and Age, 2003-2007

Age		2003 Cases	2003 Pct	2003 Rate*	2004 Cases	2004 Pct	2004 Rate*	2005 Cases	2005 Pct	2005 Rate*	2006 Cases	2006 Pct	2006 Rate*	2007 Cases	2007 Pct	2007 Rate*
Male	**10-14 Years**	23	0%	7.6	28	0%	9.2	25	0%	8.2	25	0%	8.2	24	0%	7.9
	15-19 Years	885	3%	306.6	1,031	4%	348.8	1,150	4%	378.2	1,338	4%	426.3	1,236	4%	393.8
	20-24 Years	1,817	7%	594.9	2,125	7%	690.1	2,239	7%	730.9	2,571	8%	823.9	2,167	7%	694.4
	25-29 Years	765	3%	260.1	925	3%	313.1	1,013	3%	340.3	1,230	4%	405.9	1,037	3%	342.2
	30-34 Years	384	1%	119.7	437	2%	136.8	492	2%	156.5	537	2%	173.5	459	1%	148.3
	35-39 Years	206	1%	65.3	233	1%	74.1	247	1%	77.3	310	1%	94.2	254	1%	77.2
	40-44 Years	119	0%	36.6	139	0%	42.1	143	0%	43.1	132	0%	39.6	138	0%	41.4
	45-54 Years	88	0%	15.4	97	0%	16.6	124	0%	20.7	141	0%	22.9	138	0%	22.4
	55-64 Years	23	0%	5.7	23	0%	5.4	21	0%	4.7	14	0%	3.0	27	0%	5.8
	65+ Years	12	0%	2.9	6	0%	1.4	13	0%	3.0	10	0%	2.3	6	0%	1.4
	Total	**4,343**	**17%**	**105.4**	**5,064**	**17%**	**121.1**	**5,481**	**18%**	**129.0**	**6,314**	**19%**	**145.4**	**5,493**	**18%**	**126.5**
Female	**10-14 Years**	524	2%	182.4	505	2%	175.6	487	2%	170.2	444	1%	155.1	319	1%	111.4
	15-19 Years	8,892	34%	3275.0	9,704	33%	3487.5	10,367	33%	3602.7	10,812	32%	3653.8	9,689	32%	3274.3
	20-24 Years	8,023	31%	2835.9	8,760	30%	3109.2	9,541	31%	3394.8	10,135	30%	3585.5	9,381	31%	3318.7
	25-29 Years	2,585	10%	909.4	3,017	10%	1046.5	3,328	11%	1135.1	3,638	11%	1204.1	3,414	11%	1130.0
	30-34 Years	1,019	4%	323.3	1,212	4%	387.0	1,138	4%	367.2	1,305	4%	427.0	1,354	4%	443.0
	35-39 Years	372	1%	117.4	401	1%	127.9	498	2%	157.0	554	2%	169.2	529	2%	161.6
	40-44 Years	144	1%	43.0	180	1%	53.2	171	1%	50.3	210	1%	61.9	233	1%	68.7
	45-54 Years	83	0%	13.7	98	0%	15.9	118	0%	18.7	158	0%	24.3	144	0%	22.2
	55-64 Years	13	0%	2.9	18	0%	3.9	18	0%	3.7	24	0%	4.7	27	0%	5.3
	65+ Years	6	0%	1.0	10	0%	1.6	6	0%	1.0	3	0%	0.5	3	0%	0.5
	Total	**21,721**	**83%**	**505.9**	**23,935**	**83%**	**550.3**	**25,704**	**82%**	**581.1**	**27,301**	**81%**	**604.6**	**25,111**	**82%**	**556.1**

*per 100,000 population

The 0-9 age group is not shown because some of these cases may not be due to sexual transmission; however they are included in the totals.

Table Q: North Carolina Chlamydia Demographic Rates (continued), Gender and Age, 2003-2007

Age		2003 Cases	2003 Pct	2003 Rate*	2004 Cases	2004 Pct	2004 Rate*	2005 Cases	2005 Pct	2005 Rate*	2006 Cases	2006 Pct	2006 Rate*	2007 Cases	2007 Pct	2007 Rate*
Total	**10-14 Years**	547	2%	92.8	533	2%	90.2	512	2%	86.9	469	1%	79.5	343	1%	58.2
	15-19 Years	9,777	38%	1745.3	10,735	37%	1870.7	11,517	37%	1945.9	12,150	36%	1992.6	10,928	36%	1792.2
	20-24 Years	9,840	38%	1672.5	10,885	38%	1846.0	11,780	38%	2005.5	12,706	38%	2136.5	11,551	38%	1942.3
	25-29 Years	3,351	13%	579.3	3,942	14%	675.3	4,341	14%	734.7	4,868	14%	804.5	4,453	15%	735.9
	30-34 Years	1,403	5%	220.6	1,649	6%	260.7	1,630	5%	261.1	1,842	5%	299.5	1,813	6%	294.7
	35-39 Years	578	2%	91.4	634	2%	101.0	745	2%	117.0	864	3%	131.6	783	3%	119.3
	40-44 Years	263	1%	39.8	319	1%	47.7	314	1%	46.7	342	1%	50.9	371	1%	55.2
	45-54 Years	171	1%	14.5	195	1%	16.3	242	1%	19.7	299	1%	23.6	282	1%	22.3
	55-64 Years	36	0%	4.3	41	0%	4.6	39	0%	4.2	38	0%	3.9	54	0%	5.5
	65+ Years	18	0%	1.8	16	0%	1.5	19	0%	1.8	13	0%	1.2	9	0%	0.8
	Total	**26,065**	**100%**	**309.7**	**28,999**	**100%**	**339.9**	**31,185**	**100%**	**359.6**	**33,615**	**100%**	**379.6**	**30,612**	**100%**	**345.6**

*per 100,000 population

The 0-9 age group is not shown because some of these cases may not be due to sexual transmission; however they are included in the totals.

Table R: North Carolina Chlamydia Demographic Rates
Gender and Race/Ethnicity, 2003-2007

Race/Ethnicity		2003 Cases	2003 Pct	2003 Rate*	2004 Cases	2004 Pct	2004 Rate*	2005 Cases	2005 Pct	2005 Rate*	2006 Cases	2006 Pct	2006 Rate*	2007 Cases	2007 Pct	2007 Rate*
Male	**White****	1,062	4%	37.1	1,184	4%	41.0	1,186	4%	40.7	1,359	4%	45.9	1,030	3%	34.8
	Black**	2,869	11%	333.7	3,343	12%	383.4	3,642	12%	411.4	4,057	12%	449.2	3,480	11%	385.3
	Am.In/AN**	23	0%	46.2	37	0%	73.4	41	0%	80.7	36	0%	69.9	33	0%	64.1
	Asian,PI**	20	0%	27.6	30	0%	39.4	42	0%	52.5	37	0%	43.7	49	0%	57.8
	Hispanic	354	1%	126.1	403	1%	135.0	413	1%	129.9	535	2%	157.4	492	2%	144.8
	Unknown	15	0%	---	67	0%	---	157	1%	---	290	1%	---	409	1%	---
	Total	**4,343**	**17%**	**105.4**	**5,064**	**17%**	**121.1**	**5,481**	**18%**	**129.0**	**6,314**	**19%**	**145.4**	**5,493**	**18%**	**126.5**
Female	**White****	5,695	22%	190.3	6,357	22%	210.8	6,754	22%	221.4	7,148	21%	230.7	6,276	21%	202.6
	Black**	14,020	54%	1443.8	15,114	52%	1537.4	15,697	50%	1570.5	16,094	48%	1578.2	14,019	46%	1374.7
	Am.In/AN**	332	1%	632.7	356	1%	671.2	424	1%	791.4	331	1%	609.2	337	1%	620.2
	Asian,PI**	153	1%	199.5	177	1%	220.2	203	1%	240.1	193	1%	216.8	156	1%	175.3
	Hispanic	1,473	6%	733.0	1,735	6%	801.9	1,900	6%	810.6	2,048	6%	806.1	1,807	6%	711.2
	Unknown	48	0%	---	196	1%	---	726	2%	---	1,487	4%	---	2,516	8%	---
	Total	**21,721**	**83%**	**505.9**	**23,935**	**83%**	**550.3**	**25,704**	**82%**	**581.1**	**27,301**	**81%**	**604.6**	**25,111**	**82%**	**556.1**
Total	**White****	6,757	26%	115.5	7,541	26%	127.8	7,940	25%	133.1	8,507	25%	140.4	7,306	24%	120.6
	Black**	16,890	65%	922.5	18,457	64%	995.0	19,339	62%	1026.1	20,151	60%	1047.9	17,505	57%	910.3
	Am.In/AN**	355	1%	347.2	393	1%	380.0	465	1%	445.6	367	1%	346.8	370	1%	349.6
	Asian,PI**	173	1%	116.1	207	1%	132.3	245	1%	148.9	230	1%	132.4	205	1%	118.0
	Hispanic	1,827	7%	379.4	2,138	7%	415.3	2,313	7%	418.8	2,583	8%	434.9	2,299	8%	387.1
	Unknown	63	0%	---	263	1%	---	883	3%	---	1,777	5%	---	2,927	10%	---
	Total	**26,065**	**100%**	**309.7**	**28,999**	**100%**	**339.9**	**31,185**	**100%**	**359.6**	**33,615**	**100%**	**379.6**	**30,612**	**100%**	**345.6**

*per 100,000 population **non Hispanic; Am. In/AN= American Indian/Alaskan Native; Asian, PI= Asian/Pacific Islander

Table S: North Carolina Gonorrhea Demographic Rates
Gender and Age, 2003-2007

Age		2003 Cases	2003 Pct	2003 Rate*	2004 Cases	2004 Pct	2004 Rate*	2005 Cases	2005 Pct	2005 Rate*	2006 Case	2006 Pct	2006 Rate*	2007 Cases	2007 Pct	2007 Rate*
Male	**10-14 Years**	24	0%	7.9	19	0%	6.3	23	0%	7.6	27	0%	8.9	19	0%	6.3
	15-19 Years	1,215	8%	420.9	1,214	8%	410.7	1,116	7%	367.0	1,369	8%	436.2	1,257	8%	400.5
	20-24 Years	2,514	17%	823.1	2,537	17%	823.9	2,196	15%	716.8	2,578	15%	826.1	2,347	14%	752.1
	25-29 Years	1,477	10%	502.1	1,539	10%	520.9	1,479	10%	496.9	1,724	10%	569.0	1,447	9%	477.5
	30-34 Years	902	6%	281.1	915	6%	286.5	882	6%	280.6	981	6%	317.0	906	5%	292.8
	35-39 Years	583	4%	184.7	548	4%	174.4	599	4%	187.5	658	4%	200.0	578	3%	175.7
	40-44 Years	428	3%	131.6	418	3%	126.6	513	3%	154.5	461	3%	138.4	452	3%	135.7
	45-54 Years	418	3%	73.0	459	3%	78.7	521	3%	87.0	576	3%	93.4	503	3%	81.5
	55-64 Years	102	1%	25.3	132	1%	31.2	159	1%	35.9	168	1%	36.1	172	1%	37.0
	65+ Years	37	0%	9.0	25	0%	5.9	33	0%	7.6	45	0%	10.2	39	0%	8.8
	Total	**7,719**	**51%**	**187.3**	**7,811**	**51%**	**186.8**	**7,524**	**50%**	**177.1**	**8,591**	**50%**	**197.9**	**7,724**	**46%**	**177.9**
Female	**10-14 Years**	149	1%	51.9	144	1%	50.1	135	1%	47.2	150	1%	52.4	117	1%	40.9
	15-19 Years	2,612	17%	962.0	2,617	17%	940.5	2,573	17%	894.2	2,882	17%	973.9	2,911	17%	983.7
	20-24 Years	2,532	17%	895.0	2,484	16%	881.6	2,577	17%	916.9	3,046	18%	1077.6	3,184	19%	1126.4
	25-29 Years	1,064	7%	374.3	1,138	7%	394.7	1,194	8%	407.2	1,375	8%	455.1	1,440	9%	476.6
	30-34 Years	488	3%	154.8	509	3%	162.5	499	3%	161.0	571	3%	186.8	623	4%	203.8
	35-39 Years	277	2%	87.4	238	2%	75.9	275	2%	86.7	348	2%	106.3	339	2%	103.6
	40-44 Years	150	1%	44.8	138	1%	40.8	173	1%	50.9	197	1%	58.1	171	1%	50.4
	45-54 Years	64	0%	10.6	94	1%	15.3	94	1%	14.9	128	1%	19.7	127	1%	19.6
	55-64 Years	5	0%	1.1	13	0%	2.8	12	0%	2.5	14	0%	2.7	13	0%	2.5
	65+ Years	1	0%	0.2	1	0%	0.2	4	0%	0.6	1	0%	0.2	2	0%	0.3
	Total	**7,366**	**49%**	**171.6**	**7,387**	**49%**	**169.9**	**7,545**	**50%**	**170.6**	**8,720**	**50%**	**193.1**	**8,941**	**54%**	**198.0**

*per 100,000 population
The 0-9 age group is not shown because some of these cases may not be due to sexual transmission; however they are included in the totals.

Table S: North Carolina Gonorrhea Demographic Rates (continued), Gender and Age, 2003-2007

Age		2003 Cases	2003 Pct	2003 Rate*	2004 Cases	2004 Pct	2004 Rate*	2005 Cases	2005 Pct	2005 Rate*	2006 Case	2006 Pct	2006 Rate*	2007 Cases	2007 Pct	2007 Rate*
Total	**10-14 Years**	173	1%	29.4	163	1%	27.6	158	1%	26.8	177	1%	30.0	136	1%	23.1
	15-19 Years	3,827	25%	683.2	3,831	25%	667.6	3,689	24%	623.3	4,251	25%	697.2	4,168	25%	683.5
	20-24 Years	5,046	33%	857.7	5,021	33%	851.5	4,773	32%	812.6	5,624	32%	945.7	5,531	33%	930.0
	25-29 Years	2,541	17%	439.3	2,677	18%	458.6	2,673	18%	452.4	3,099	18%	512.1	2,887	17%	477.1
	30-34 Years	1,390	9%	218.5	1,424	9%	225.1	1,381	9%	221.2	1,552	9%	252.3	1,529	9%	248.6
	35-39 Years	860	6%	136.0	786	5%	125.2	874	6%	137.3	1,006	6%	153.3	917	6%	139.7
	40-44 Years	578	4%	87.6	556	4%	83.1	686	5%	102.1	658	4%	97.9	623	4%	92.7
	45-54 Years	482	3%	41.0	553	4%	46.1	615	4%	50.0	704	4%	55.6	630	4%	49.8
	55-64 Years	107	1%	12.7	145	1%	16.4	171	1%	18.4	182	1%	18.7	185	1%	19.0
	65+ Years	38	0%	3.7	26	0%	2.5	37	0%	3.5	46	0%	4.3	41	0%	3.8
	Total	**15,085**	**100%**	**179.2**	**15,198**	**100%**	**178.1**	**15,069**	**100%**	**173.8**	**17,31**	**100%**	**195.5**	**16,665**	**100%**	**188.2**

*per 100,000 population

The 0-9 age group is not shown because some of these cases may not be due to sexual transmission; however they are included in the totals.

Table T: North Carolina Gonorrhea Demographic Rates
Gender and Race/Ethnicity, 2003-2007

Race/Ethnicity		2003	2003	2003	2004	2004	2004	2005	2005	2005	2006	2006	2006	2007	2007	2007
		Cases	Pct	Rate*	Cases	Pct	Rate*	Cases	Pct	Rate*	Cases	Pct	Rate*	Cases	Pct	Rate*
Male	**White****	844	6%	29.5	866	6%	30.0	914	6%	31.3	981	6%	33.1	824	5%	27.8
	Black**	6,569	44%	764.0	6,554	43%	751.7	6,073	40%	686.1	6,887	40%	762.5	5,968	36%	660.7
	Am.In/AN**	61	0%	122.5	76	1%	150.9	77	1%	151.6	60	0%	116.5	63	0%	122.4
	Asian,PI**	14	0%	19.4	24	0%	31.5	25	0%	31.3	21	0%	24.8	27	0%	31.9
	Hispanic	223	1%	79.5	219	1%	73.4	245	2%	77.1	276	2%	81.2	233	1%	68.6
	Unknown	8	0%	---	72	0%	---	190	1%	---	366	2%	---	609	4%	---
	Total	**7,719**	**51%**	**187.3**	**7,811**	**51%**	**186.8**	**7,524**	**50%**	**177.1**	**8,591**	**50%**	**197.9**	**7,724**	**46%**	**177.9**
Female	**White****	1,390	9%	46.5	1,542	10%	51.1	1,556	10%	51.0	1,829	11%	59.0	1,769	11%	57.1
	Black**	5,673	38%	584.2	5,481	36%	557.5	5,469	36%	547.2	6,059	35%	594.2	5,894	35%	578.0
	Am.In/AN**	121	1%	230.6	115	1%	216.8	121	1%	225.8	97	1%	178.5	131	1%	241.1
	Asian,PI**	35	0%	45.6	27	0%	33.6	34	0%	40.2	34	0%	38.2	39	0%	43.8
	Hispanic	137	1%	68.2	167	1%	77.2	154	1%	65.7	184	1%	72.4	167	1%	65.7
	Unknown	10	0%	---	55	0%	---	211	1%	---	517	3%	---	941	6%	---
	Total	**7,366**	**49%**	**171.6**	**7,387**	**49%**	**169.9**	**7,545**	**50%**	**170.6**	**8,720**	**50%**	**193.1**	**8,941**	**54%**	**198.0**
Total	**White****	2,234	15%	38.2	2,408	16%	40.8	2,470	16%	41.4	2,810	16%	46.4	2,593	16%	42.8
	Black**	12,242	81%	668.6	12,035	79%	648.8	11,542	77%	612.4	12,946	75%	673.2	11,862	71%	616.8
	Am.In/AN**	182	1%	178.0	191	1%	184.7	198	1%	189.7	157	1%	148.4	194	1%	183.3
	Asian,PI**	49	0%	32.9	51	0%	32.6	59	0%	35.9	55	0%	31.7	66	0%	38.0
	Hispanic	360	2%	74.7	386	3%	75.0	399	3%	72.2	460	3%	77.5	400	2%	67.4
	Unknown	18	0%	---	127	1%	---	401	3%	---	883	5%	---	1,550	9%	---
	Total	**15,085**	**100%**	**179.2**	**15,198**	**100%**	**178.1**	**15,069**	**100%**	**173.8**	**17,311**	**100%**	**195.5**	**16,665**	**100%**	**188.2**

*per 100,000 population **non Hispanic; Am. In/AN= American Indian/Alaskan Native; Asian, PI= Asian/Pacific Islander

Table U: North Carolina Early Syphilis Demographic Rates (Primary, Secondary, Early Latent) Gender and Age, 2003-2007

Age		2003 Cases	2003 Pct	2003 Rate*	2004 Cases	2004 Pct	2004 Rate*	2005 Cases	2005 Pct	2005 Rate*	2006 Cases	2006 Pct	2006 Rate*	2007 Cases	2007 Pct	2007 Rate*
Male	**10-14 Years**	0	0%	0.0	0	0%	0.0	0	0%	0.0	0	0%	0.0	0	0%	0.0
	15-19 Years	9	2%	3.1	9	2%	3.0	13	3%	4.3	20	3%	6.4	25	4%	8.0
	20-24 Years	31	8%	10.1	39	9%	12.7	48	10%	15.7	67	11%	21.5	67	12%	21.5
	25-29 Years	42	11%	14.3	49	11%	16.6	51	10%	17.1	70	12%	23.1	76	13%	25.1
	30-34 Years	28	7%	8.7	38	8%	11.9	51	10%	16.2	58	10%	18.7	49	9%	15.8
	35-39 Years	39	10%	12.4	57	13%	18.1	47	10%	14.7	72	12%	21.9	58	10%	17.6
	40-44 Years	36	9%	11.1	43	9%	13.0	59	12%	17.8	63	10%	18.9	62	11%	18.6
	45-54 Years	38	10%	6.6	45	10%	7.7	53	11%	8.8	57	9%	9.2	61	11%	9.9
	55-64 Years	7	2%	1.7	23	5%	5.4	18	4%	4.1	17	3%	3.7	18	3%	3.9
	65+ Years	6	2%	1.5	3	1%	0.7	2	0%	0.5	5	1%	1.1	7	1%	1.6
	Total	**236**	**60%**	**5.7**	**306**	**68%**	**7.3**	**343**	**70%**	**8.1**	**429**	**71%**	**9.9**	**423**	**74%**	**9.7**
Female	**10-14 Years**	0	0%	0.0	1	0%	0.3	0	0%	0.0	0	0%	0.0	0	0%	0.0
	15-19 Years	14	4%	5.2	11	2%	4.0	16	3%	5.6	20	3%	6.8	9	2%	3.0
	20-24 Years	26	7%	9.2	22	5%	7.8	23	5%	8.2	32	5%	11.3	30	5%	10.6
	25-29 Years	26	7%	9.1	22	5%	7.6	18	4%	6.1	15	2%	5.0	22	4%	7.3
	30-34 Years	34	9%	10.8	21	5%	6.7	16	3%	5.2	24	4%	7.9	19	3%	6.2
	35-39 Years	22	6%	6.9	29	6%	9.3	25	5%	7.9	25	4%	7.6	24	4%	7.3
	40-44 Years	23	6%	6.9	24	5%	7.1	22	4%	6.5	25	4%	7.4	20	4%	5.9
	45-54 Years	12	3%	2.0	14	3%	2.3	22	4%	3.5	28	5%	4.3	24	4%	3.7
	55-64 Years	3	1%	0.7	3	1%	0.6	3	1%	0.6	4	1%	0.8	0	0%	0.0
	65+ Years	0	0%	0.0	0	0%	0.0	1	0%	0.2	0	0%	0.0	0	0%	0.0
	Total	**160**	**40%**	**3.7**	**147**	**32%**	**3.4**	**146**	**30%**	**3.3**	**173**	**29%**	**3.8**	**148**	**26%**	**3.3**

*per 100,000 population
The 0-9 age group is not shown because some of these cases may not be due to sexual transmission; however they are included in the totals.

Table U: North Carolina Early Syphilis Demographic Rates (Primary, Secondary, Early Latent) continued, Gender and Age, 2003-2007

Age		2003 Cases	2003 Pct	2003 Rate*	2004 Cases	2004 Pct	2004 Rate*	2005 Cases	2005 Pct	2005 Rate*	2006 Cases	2006 Pct	2006 Rate*	2007 Cases	2007 Pct	2007 Rate*
Total	**10-14 Years**	0	0%	0.0	1	0%	0.2	0	0%	0.0	0	0%	0.0	0	0%	0.0
	15-19 Years	23	6%	4.1	20	4%	3.5	29	6%	4.9	40	7%	6.6	34	6%	5.6
	20-24 Years	57	14%	9.7	61	13%	10.3	71	15%	12.1	99	16%	16.6	97	17%	16.3
	25-29 Years	68	17%	11.8	71	16%	12.2	69	14%	11.7	85	14%	14.0	98	17%	16.2
	30-34 Years	62	16%	9.7	59	13%	9.3	67	14%	10.7	82	14%	13.3	68	12%	11.1
	35-39 Years	61	15%	9.6	86	19%	13.7	72	15%	11.3	97	16%	14.8	82	14%	12.5
	40-44 Years	59	15%	8.9	67	15%	10.0	81	17%	12.1	88	15%	13.1	82	14%	12.2
	45-54 Years	50	13%	4.2	59	13%	4.9	75	15%	6.1	85	14%	6.7	85	15%	6.7
	55-64 Years	10	3%	1.2	26	6%	2.9	21	4%	2.3	21	3%	2.2	18	3%	1.8
	65+ Years	6	2%	0.6	3	1%	0.3	3	1%	0.3	5	1%	0.5	7	1%	0.6
	Total	**396**	**100%**	**4.7**	**453**	**100%**	**5.3**	**489**	**100%**	**5.6**	**602**	**100%**	**6.8**	**571**	**100%**	**6.4**

*per 100,000 population
The 0-9 age group is not shown because some of these cases may not be due to sexual transmission; however they are included in the totals.

Table V: North Carolina Early Syphilis Rates (Primary, Secondary, Early Latent) Gender and Race/Ethnicity, 2003-2007

Race/Ethnicity		2003	2003	2003	2004	2004	2004	2005	2005	2005	2006	2006	2006	2007	2007	2007
		Cases	Pct	Rate*	Cases	Pct	Rate*	Cases	Pct	Rate*	Cases	Pct	Rate*	Cases	Pct	Rate*
Male	**White****	41	10%	1.4	77	17%	2.7	136	28%	4.7	125	21%	4.2	96	17%	3.2
	Black**	162	41%	18.8	211	47%	24.2	175	36%	19.8	279	46%	30.9	299	52%	33.1
	Am.In/AN**	13	3%	26.1	6	1%	11.9	0	0%	0.0	0	0%	0.0	2	0%	3.9
	Asian,PI**	0	0%	0.0	1	0%	1.3	2	0%	2.5	1	0%	1.2	1	0%	1.2
	Hispanic	20	5%	7.1	11	2%	3.7	28	6%	8.8	23	4%	6.8	24	4%	7.1
	Unknown	0	0%	---	0	0%	---	2	0%	---	1	0%	---	1	0%	---
	Total	**236**	**60%**	**5.7**	**306**	**68%**	**7.3**	**343**	**70%**	**8.1**	**429**	**71%**	**9.9**	**423**	**74%**	**9.7**
Female	**White****	22	6%	0.7	20	4%	0.7	36	7%	1.2	25	4%	0.8	28	5%	0.9
	Black**	116	29%	11.9	106	23%	10.8	98	20%	9.8	130	22%	12.7	104	18%	10.2
	Am.In/AN**	8	2%	15.2	9	2%	17.0	4	1%	7.5	1	0%	1.8	2	0%	3.7
	Asian,PI**	2	1%	2.6	0	0%	0.0	2	0%	2.4	0	0%	0.0	1	0%	1.1
	Hispanic	12	3%	6.0	11	2%	5.1	5	1%	2.1	17	3%	6.7	13	2%	5.1
	Unknown	0	0%	---	1	0%	---	1	0%	---	0	0%	---	0	0%	---
	Total	**160**	**40%**	**3.7**	**147**	**32%**	**3.4**	**146**	**30%**	**3.3**	**173**	**29%**	**3.8**	**148**	**26%**	**3.3**
Total	**White****	63	16%	1.1	97	21%	1.6	172	35%	2.9	150	25%	2.5	124	22%	2.0
	Black**	278	70%	15.2	317	70%	17.1	273	56%	14.5	409	68%	21.3	403	71%	21.0
	Am.In/AN**	21	5%	20.5	15	3%	14.5	4	1%	3.8	1	0%	0.9	4	1%	3.8
	Asian,PI**	2	1%	1.3	1	0%	0.6	4	1%	2.4	1	0%	0.6	2	0%	1.2
	Hispanic	32	8%	6.6	22	5%	4.3	33	7%	6.0	40	7%	6.7	37	6%	6.2
	Unknown	0	0%	---	1	0%	---	3	1%	---	1	0%	---	1	0%	---
	Total	**396**	**100**	**4.7**	**453**	**100%**	**5.3**	**489**	**100%**	**5.6**	**602**	**100%**	**6.8**	**571**	**100%**	**6.4**

*per 100,000 population **non Hispanic; Am. In/AN= American Indian/Alaskan Native; Asian, PI= Asian/Pacific Islander

Table W: North Carolina Early Syphilis Cases (Primary, Secondary, Early Latent) County Rank, 2003-2007

		Cases				
Rank*	**County**	**2003**	**2004**	**2005**	**2006**	**2007**
1	MECKLENBURG	42	82	142	189	141
2	DURHAM	40	32	15	33	47
3	GUILFORD	80	91	68	74	45
4	WAKE	37	44	65	60	39
5	NEW HANOVER	4	6	8	12	35
6	FORSYTH	10	6	16	34	33
7	CUMBERLAND	14	23	18	26	18
8	WAYNE	3	3	5	15	17
9	NASH	7	2	3	16	15
10	ROBESON	32	51	20	4	15
11	CRAVEN	1	0	0	2	12
12	EDGECOMBE	2	7	0	7	11
13	JOHNSTON	4	4	9	12	10
14	GASTON	3	1	6	12	10
15	ORANGE	2	1	0	5	8
16	ALAMANCE	14	3	4	6	7
17	PITT	1	2	2	5	7
18	BRUNSWICK	0	1	2	4	6
19	CLEVELAND	1	0	5	2	6
20	BUNCOMBE	2	4	6	7	5
21	CABARRUS	5	3	5	5	5
22	ROCKINGHAM	4	3	2	3	5
23	LENOIR	1	5	5	1	5
24	ROWAN	0	3	4	0	5
25	FRANKLIN	1	1	1	0	4
26	CARTERET	0	1	0	0	4
27	HALIFAX	4	0	3	2	4
28	WILSON	10	21	5	5	3
29	STANLY	0	0	1	3	3
30	ONSLOW	2	0	0	3	3
31	DAVIDSON	1	2	2	2	3
32	SAMPSON	4	1	2	1	3
33	MOORE	4	5	1	1	3
34	GREENE	1	0	1	0	3
35	RANDOLPH	7	2	11	4	2
36	CATAWBA	3	2	2	2	2
37	COLUMBUS	5	0	3	1	2
38	HARNETT	0	1	1	1	2
39	DUPLIN	0	2	0	1	2
40	BURKE	0	0	3	0	2
41	YADKIN	0	1	2	0	2
42	WASHINGTON	0	0	1	0	2
43	BLADEN	1	5	3	3	1
44	IREDELL	1	1	1	3	1
45	MARTIN	0	2	0	2	1
46	CHATHAM	1	1	4	1	1
47	DAVIE	0	0	1	1	1
48	GRANVILLE	1	0	2	0	1
49	HAYWOOD	0	0	1	0	1
49	JONES	0	0	1	0	1

Table W: North Carolina Early Syphilis Cases (Primary, Secondary, Early Latent) County Rank, 2003-2007

		Cases				
Rank*	**County**	**2003**	**2004**	**2005**	**2006**	**2007**
50	LINCOLN	1	1	0	0	1
51	CHOWAN	0	0	0	0	1
52	SCOTLAND	0	1	2	0	1
53	MCDOWELL	0	0	2	0	1
54	RUTHERFORD	0	2	1	0	1
55	TRANSYLVANIA	0	2	0	0	1
56	PENDER	0	0	0	0	1
57	LEE	1	0	3	4	0
58	PERSON	1	1	0	4	0
59	UNION	1	3	4	3	0
60	VANCE	11	1	4	3	0
61	SURRY	1	2	1	3	0
62	NORTHAMPTON	1	0	0	3	0
63	WATAUGA	0	1	0	2	0
64	PERQUIMANS	0	0	0	2	0
65	MONTGOMERY	2	0	1	1	0
66	ANSON	0	0	0	1	0
67	BEAUFORT	1	1	0	1	0
68	BERTIE	0	0	0	1	0
68	HERTFORD	0	0	0	1	0
69	HOKE	5	0	0	1	0
70	HYDE	0	0	0	1	0
71	PASQUOTANK	3	1	0	1	0
72	STOKES	2	0	3	0	0
73	ALEXANDER	0	1	2	0	0
74	WARREN	2	4	1	0	0
75	WILKES	0	1	1	0	0
76	CHEROKEE	0	0	1	0	0
76	MACON	0	0	1	0	0
77	RICHMOND	0	3	0	0	0
78	CALDWELL	5	1	0	0	0
79	CASWELL	2	1	0	0	0
80	GATES	0	1	0	0	0
81	JACKSON	1	0	0	0	0
82	CAMDEN	1	0	0	0	0
83	ALLEGHANY	0	0	0	0	0
83	ASHE	0	0	0	0	0
83	AVERY	0	0	0	0	0
83	CLAY	0	0	0	0	0
83	CURRITUCK	0	0	0	0	0
83	DARE	0	0	0	0	0
83	GRAHAM	0	0	0	0	0
83	HENDERSON	0	0	0	0	0
83	MADISON	0	0	0	0	0
83	MITCHELL	0	0	0	0	0
83	PAMLICO	0	0	0	0	0
83	POLK	0	0	0	0	0
83	SWAIN	0	0	0	0	0
83	TYRRELL	0	0	0	0	0
83	YANCEY	0	0	0	0	0
	NC TOTAL	**396**	**453**	**489**	**602**	**571**

* Rank based on number of cases reported in 2007. If cases are equal, then rank based on previous year.

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GLOSSARY

Acute HIV Testing	See *STAT*
ADAP	AIDS Drug Assistance Program - funding program through Title II of the Ryan White Care Act to provide 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 - 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 149 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 (or change verb tense in next sentence to match) - 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.
EMA/EMSA	Eligible Metropolitan (Statistical) Area—The geographic area, based on population and cumulative AIDS cases, eligible to receive Title I Ryan White CARE Act and HOPWA program funds.
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	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.
Genotyping	The determination of the genetic sequence of an organism or a portion of the genome.

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, currently located at Greensboro (formerly Fort Bragg).
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 Test	See *ELISA, Western Blot*
HOPWA	Housing Opportunities for Person with AIDS- A program from the U.S. department of Housing and Urban Development (HUD) that provides long-term comprehensive strategies for meeting the housing needs of persons and their families living with AIDS or a related disease.
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 this 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)
MMP	Medical Monitoring Project. The MMP is a nationally representative, population-based surveillance system designed to assess clinical outcomes, behaviors and the quality of HIV care. Information is collected through a lengthy interview process from patients who have been randomly selected to participate in the project. Twenty six states and cities are involved in data collection for the MMP.
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.
NAAT	Nucleic Acid Amplification Testing. See STAT.
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 - National survey of drug use behavior collected by in-person interviews. Conducted by SAMHSA. The 2001 survey interviewed 68,929 people.
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.
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 2002, there are 13 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 delivered 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. (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.

STARHS	Serologic Testing Algorithm for Recent HIV Seroconversion (STARHS) method for determining the proportion of individuals who test positive for HIV for the first time that 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 because HIV antibody levels have not reached their peak. STARHS can determine with reasonable probability the number of HIV infections recently acquired within the testing population.
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.
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*).
Trichomoniasis	A common sexually transmitted disease resulting from infection with the parasite *Trichomonas vaginalis*. Trichomoniasis is not a reportable disease in North Carolina.

TTS	Traditional Test Sites - part of the N.C. CTS HIV testing program. The 135 TTS sites include local health departments and some CBOs. See CTS.
VARHS	Variant, atypical, and resistant HIV surveillance (VARHS) evaluates the prevalence of HIV drug resistance and HIV-1 subtypes among individuals newly diagnosed with HIV through a process of gene amplification and genotyping (genetic sequencing).
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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North Carolina Communicable Disease Branch Regions for HIV/STD Planning