Epidemiologic Profile
for
HIV/STD Prevention & Care Planning

December 2009

Division of Public Health
N.C. Department of Health & Human Services

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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

December 2009

This document is for the 2009-2010 planning year and is based on data available through 2008

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EXECUTIVE SUMMARY

In 2008, 1,964 new individuals were diagnosed with HIV disease (HIV/AIDS) in the state. Over recent years, North Carolina has averaged about 1,900 new diagnoses annually, which is up from the number of cases diagnosed in the late 1990s. This increase in new HIV case diagnoses illustrates the critical need for adequate funding of HIV prevention and care efforts in the state. This increase in HIV diagnoses supports two of the Communicable Disease Branch's key objectives: 1) to increase and improve referrals to care for persons newly diagnosed with HIV and 2) to ensure that persons infected with HIV remain in care. Approximately 26 percent of new individuals diagnosed with HIV disease in 2008 also represented new AIDS cases (i.e., HIV and AIDS were diagnosed at the same time for the individual). Although this proportion of concurrent AIDS diagnoses has dropped from about 29 percent of reports in 2004, it still represents a significant proportion of late diagnoses and indicates the need for increased HIV testing within North Carolina. These late diagnoses support another key objective for the Communicable Disease Branch which is to increase HIV testing for all residents. As new testing recommendations and initiatives like the state's *Get Real, Get Tested* campaign have been implemented, HIV testing has increased substantially. In 2008, the state laboratory of public health performed about 214,521 HIV tests which represents a 79 percent increase in testing since 2004 when about 119,617 tested were performed.

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 350 percent between 1995 and 2007. In 2007, 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 37th in the nation for per capita income in 2007, with 23 percent of its child population (0-18 years), 13 percent of the elderly (65+), and 15 percent of the 19-64 year old population at or below the federal poverty level (2006-2007).

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 2008 adult/adolescent rate of new HIV diagnoses for non-Hispanic blacks (79.5 per 100,000) was more than eight times greater than for whites (9.6 per 100,000) and the rate of new diagnoses for Hispanics (35.8 per 100,000) was almost four times greater than that for whites. The rate for American Indians (11.6 per 100,000) was just slightly higher than for whites. The highest rate of new HIV reports was found among adult/adolescent black males (120.5 per 100,000). The largest disparity was found in comparing adult/adolescent white and black females; the HIV rate for black females (44.7 per 100,000) was about 15 times higher than that for white non-Hispanic females (3.0 per 100,000). The ratio of male-to-female HIV disease cases diagnosed has risen from 2.6 in 2004 to 3.0 in 2008. Much of the increase in HIV disease

cases over the past few years was attributed to more male HIV disease cases being diagnosed; the number of reports for females has remained relatively constant.

Being familiar with gender and racial/ethnic differences is important but 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 2008, 72 percent of new adult and adolescent HIV disease cases for males were attributed to men who have sex with men (MSM), 4 percent to injecting drug use (IDU), 2 percent to MSM who also inject drugs (MSM/IDU); and 22 percent were attributed to heterosexual sex. For adult and adolescent females, heterosexual sex accounted for 90 percent of HIV disease cases in 2008, while injecting drug use accounted for 10 percent.

The proportion of male HIV reports with MSM as a risk factor has increased over the past few years for all racial/ethnic groups. In 2008, MSM (including MSM/IDU) accounted for 86 percent of white non-Hispanic male HIV reports, 70 percent of black non-Hispanic male reports and 63 percent of reports for other minority 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 2008, 66 percent of interviewed males with early syphilis and 51 percent of those interviewed with HIV indicated MSM risk. According to Counseling, Testing and Referral (CTR) system data, those reporting MSM risk have consistently had the highest percent of HIV positive test results.

Injecting drug use (including MSM/IDU) accounted for about 6 percent of male adult/adolescent HIV disease cases in 2008 and accounted for about 10 percent of female cases. 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 40 percent of all (male and female) 2008 adult/adolescent HIV disease reports and was the principal risk for females (90%), especially younger females (97% of likely female adolescent exposures). Heterosexual HIV disease cases for 2008 were higher among minority males (27%-30%) than among white males (9%). 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 cases has remained stable and about 4:5, indicating the likely predominance of heterosexual transmission.

Trends in new HIV disease cases 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** 35,000 people were living with HIV or AIDS in North Carolina (as of 12/31/08), including those who may be unaware of their HIV infection. Of the people who have been reported and were listed as living (as of 12/31/08) with HIV/AIDS, 69 percent were males and 31 percent were females. With respect to race/ethnicity, 67 percent were black non-Hispanic; 26 percent were white non-Hispanic; and 5 percent were Hispanic.

North Carolina ranked 10th among all states and the District of Columbia, in the number of new AIDS cases reported in 2007. In 2008, 961 new AIDS cases were diagnosed and reported in North Carolina, increased slightly from the previous year (953). As of the end of 2008, 17,995 cumulative AIDS cases have been diagnosed and reported to the Communicable Disease Branch, and in 2007 North Carolina ranked 13th among the 50 states and dependent areas in cumulative reported AIDS cases.

From July 1, 2008 through June 30, 2009, the Ryan White Part B program served 7,376 total unduplicated clients (exclusive of those receiving assistance from ADAP) who received services funded through Ryan White Part B awards in North Carolina. At some point during calendar year 2008, 5,508 individuals were served by NC's 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. In calendar year 2008, it was estimated that 75 percent of persons living with HIV/AIDS were estimated to be "in care." The estimated number of persons living with HIV (non AIDS) with unmet need was 28 percent as compared to 20 percent of persons living with AIDS.

In addition to HIV and AIDS, ten other sexually transmitted conditions and diseases are reportable to the N.C. Department of Health and Human Services (NCDHHS). Chlamydia was the most prevalent STD, with 37,555 cases reported in 2008. Consistently, over 80 percent of reported cases are among females because they are more likely than males to be screened for the disease. Severe racial disparities exist in gonorrhea rates, though they have narrowed in recent years. Among males, the rate for blacks in 2008 was almost 27 times that for whites (non Hispanic). Disparities among females were less severe, with black female gonorrhea rate 11 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 8.9 per 100,000 in 2008 and the rate for females was 2.5 per 100,000. Males as a proportion of new syphilis reports have increased and the male-to-female case ratio in 2008 was 3.6. Five counties, including Mecklenburg, Guilford, Forsyth, Durham and Wake, together accounted for more than half of 2008 early syphilis reports in North Carolina. According to the CDC, North Carolina's 2008 primary and secondary syphilis rate of 3.2 cases per 100,000 ranked it 17th among states. Although the N.C. primary and secondary syphilis rate in 2008 was below the nation rate, it should be noted that preliminary data for 2009 show a very different picture. During 2009 North Carolina has seen a dramatic increase in syphilis cases. From January through September of 2009, a total of 684 early syphilis cases were reported which was 90 percent more than the 359 cases reported for the same time period in 2008. This increase in syphilis is cause for concern because infections increase the risk for contracting HIV and high STD rates are markers for high-risk sexual practices.

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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 12/31/2008 (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 throughout 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 comparisons with traditional race/ethnicity groups (i.e. “white” refers to white non Hispanic, “black” refers to black non Hispanics). 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). 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). Readers should note that HIV and AIDS data are summarized by 'date of diagnosis' unless otherwise noted. This represents a change in data presentation from previous publications. Readers should note how data are presented when comparing data from other sources or previous publications.

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 2007, N.C. was the 10th most populous state in the U.S. with an estimated population of 9,061,032.
- N.C. population increased 12.6 percent from 2000 to 2007.
- In 2008, N.C. ranked 3rd in the nation for annual population increase.
- The N.C. foreign-born population increased 31 percent from 2002 to 2007.
- North Carolina has the 18th largest non-white population in the nation.
- North Carolina has the 8th highest percentage of African American population in the nation.
- North Carolina has the 25th largest Hispanic/Latino population with the 10th highest birth rate among Hispanics in the nation.
- The median age for the Hispanics was 25.6 years, while the median age for all North Carolinians was 35.8 years in 2007.
- In 2008, N.C. was 37th in the nation in per capita income of $34,439 or 86.6 percent of the national average of $39,751.
- From 2006 to 2007, 18.9 percent of North Carolinians were below the federal poverty level (FPL); with an overall total of 39.4 percent of the population considered low income (199 percent at or below FPL).
- From 2006 to 2007, 21.5 percent of the 19-64 year old, adult population in N.C. was uninsured.
- About 19 percent of the N.C. population was eligible for Medicaid coverage at some point during 2007.
- The infant mortality rate was 8.2 deaths per 1,000 live births in N.C. during 2008.
- About 70 percent of N.C. population lived in urban areas in 2007.

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, North Carolina was one of the most rapidly expanding states for the previous decade. From 1990 to 2000, North Carolina's population grew by 21.4 percent, from 6,628,637 to 8,049,313. There were only eight other states that grew faster during the last decade (Arizona, Colorado, Florida, Georgia, Idaho, Nevada, Texas, and Utah). Between 2000 and 2008, North Carolina ranked 6th in total amount of population growth, and from 2007 to 2008, N.C. ranked 3rd for single year population growth. According to the N.C. State Demographer, the 2008 North Carolina State *provisional* population estimate was 9,227,016 with county populations ranging from 4,280 (Tyrrell) to 877,007 (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, Union, Onslow, Cabarrus, Johnston, Davidson, Pitt, and Catawba). From July 2007 to July 2008, there were 130,828 births and 76,430 deaths. The average life expectancy for North Carolinians was 75.8 years. Because the most updated, gender and age specific population information available is that of year 2007, we use 2007 population as a substitute for that of 2008 to analyze the HIV disease rates in this profile. In 2007, North Carolina was the 10th most populous state in the United States with an estimated population of 9,061,032 (U.S. Census 2007 population estimate), which represented a 12.6 percent increase from that of year 2000. Map 1 displays the population distribution among the counties in North Carolina for 2007 (Appendix A, pg. A-3).

Age and Gender

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

In 2007, the median age for people living in North Carolina was 35.8 years old, with 26 percent 18 years and younger, and 12 percent 65 years and older. About 49 percent of the population are male, and 51 percent are female. Table 1.1 displays the North Carolina population in 2007 by selected gender and age groups. 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. N.C. has a

younger population than other states, and ranked 10th in the nation in 2007 with more people under 18 years old. North Carolina's young population might indicate extensive health-related needs, such as STDs and unwanted pregnancies, as they related to youth.

Table 1.1. North Carolina Bridged-Race Population Estimates by Age Group, 2007

	Male		Female		Total	
Age	Population	Percent	Population	Percent	Population	Percent
0-12 years	819,368	9.0%	781,872	8.6%	1,601,240	17.7%
13-14 years	123,435	1.4%	118,022	1.3%	241,457	2.7%
15-19 years	317,612	3.5%	302,427	3.3%	620,039	6.8%
20-24 years	319,575	3.5%	290,480	3.2%	610,055	6.7%
25-29 years	301,496	3.3%	307,106	3.4%	608,602	6.7%
30-34 years	304,170	3.4%	306,661	3.4%	610,831	6.7%
35-39 years	335,149	3.7%	335,668	3.7%	670,817	7.4%
40-44 years	330,543	3.6%	339,908	3.8%	670,451	7.4%
45-49 years	330,944	3.7%	345,349	3.8%	676,293	7.5%
50-54 years	357,510	3.3%	383,157	3.6%	740,667	8.2%
55-59 years	213,210	3.0%	233,624	3.2%	446,834	4.9%
60-64 years	218,224	2.4%	242,109	2.7%	460,333	5.1%
65+ years	456,325	5.0%	647,088	7.1%	1,103,413	12.2%
Total	4,427,561	48.9%	4,633,471	51.1%	9,061,032	100%

National Center for Health Statistics (NCHS), Bridged-Race Population Estimates, February 2009

There are also gender differences in terms of vulnerability to illness, access to preventative and curative measures, burdens of diseases, and quality of care in North Carolina. Table 1.2 displays the percentages of males and females for the major race/ethnicity categories by North Carolina 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.

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, and this is especially true in terms of HIV disease surveillance and intervention. Previous HIV disease surveillance showed that HIV disproportionately affected ethnic minorities in N.C. North Carolina has the 18th largest non-white population in the United States (2,893,442 in year 2007) and there are noticeable variations in the demographic composition of N.C. from region to region. Usually non-white minorities have poorer health conditions and have less access to health care. In 2007, 13 counties had populations consisting of more than 50 percent non-white residents (Robeson: 70.4%; Hertford: 64.7%; Bertie: 63.7%; Warren: 61.7%; Edgecombe: 61.2%; Northampton: 60.1%; Halifax: 59.1%; Vance: 56.4 %; Hoke: 56.4%; Durham: 54.3%; Washington: 54.2%; Greene: 52.3% and Anson: 51.2%).

Table 1.2. North Carolina race/ethnicity proportions by gender and HIV/STD Regions, 2007

		R1**	R2**	R3**	R4**	R5**	R6**	R7**	N.C.
	Race/Ethn	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.
Male	White*	42.6	33.9	34.6	30.6	26.2	28.5	36.2	33.2
	Black*	2.6	9.2	8.8	11.5	14.4	16.8	9.1	10.2
	AI/AN*	0.6	0.2	0.2	0.2	3.7	0.3	0.4	0.6
	Asian, PI*	0.5	1.2	0.8	1.7	0.6	0.4	0.5	1.0
	Hispanic	2.3	4.6	4.1	5.3	3.6	2.2	3.7	4.0
	Total	48.6	49.1	48.5	49.3	48.6	48.1	49.8	48.9
Female	White*	46.0	35.4	37.0	31.9	27.4	30.1	36.4	34.9
	Black*	2.6	10.6	10.2	13.1	15.9	19.3	10.0	11.5
	AI/AN*	0.6	0.2	0.2	0.2	4.0	0.3	0.4	0.6
	Asian, PI*	0.5	1.3	0.8	1.7	0.9	0.4	0.6	1.0
	Hispanic	1.7	3.6	3.3	3.8	3.1	1.8	2.7	3.1
	Total	51.4	50.9	51.5	50.7	51.4	51.9	50.2	51.1
Total	White*	88.6	69.2	71.6	62.5	53.6	58.6	72.6	68.1
	Black*	5.2	19.8	19.0	24.6	30.3	36.1	19.0	21.7
	AI/AN*	1.2	0.3	0.4	0.4	7.8	0.5	0.9	1.2
	Asian, PI*	1.0	2.5	1.6	3.5	1.6	0.8	1.1	2.0
	Hispanic	4.0	8.1	7.4	9.0	6.7	4.0	6.4	7.0
	Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

* non Hispanic; AI/AN=American Indian/Alaska Native, PI=Pacific Islander
****** R stands for HIV/STD Region

Maps 3-6 (Appendix A, pp.A-5 to A-8) display the racial and ethnic make-up of North Carolina's counties, as reported in the 2007 bridged-race estimates (please see Appendix C, pg. C-6 for more information about Census data and the bridged-race categories used to calculate rates). Table 1.3 displays the populations for the major race/ethnicity categories in North Carolina according to the bridged-race estimates for 2007.

African Americans

In 2007, N.C. ranked 8th highest in percentage of African Americans (or blacks) nationwide. According to N.C. Health Profile 2009, African Americans have higher death rates from heart disease, cancer, HIV, diabetes, homicide, and stroke, compared to whites. N.C. has seven counties with African Americans consisting of more than 50 percent of population (Bertie 61.7%, Hertford 61.1%, Northampton 58.4%, Edgecombe 56.7%, Warren 54.0%, Halifax 53.8%, and Washington County 50.3%). Map 3 (Appendix A, pg. A-7) displays the proportion of African Americans by county in 2007.

Hispanics

Over the years, there has been a steady increase in the N.C. Hispanic population. From 2002-2007, the estimated Hispanic/Latino population increased from 451,095 to 638,444, representing a 41.5 percent increase. Hispanics represented 7.0 percent of N.C. population, and ranked 25th

nationally. N.C. ranked 10th in Hispanic births in 2006. Compared to other ethnic groups in N.C., Hispanics are a relatively young population. While the median age of non-Hispanic population is 40.1 years, the median age of Hispanics is 25.6 years. Seventy-one percent of Hispanics are under 35 years old, while only 46 percent of non-Hispanic population are in that age range. Map 5 (Appendix A, pg. A-7) displays the proportion of the Hispanic population in 2007 by county. Within North Carolina, Duplin County had the highest proportion of Hispanic residents (21.1%), followed by Lee County (16.0%), Sampson County (15.5%), and Montgomery County (15.4%).

American Indians

American Indians represent 1.2 percent of the N.C. population, and are one of the largest American Indian populations in the nation. About 45 percent of American Indians in N.C. live in Robeson County, followed by Cumberland, Jackson, Hoke, Swain, and Mecklenburg counties. Map 4 (Appendix A, pg. A-7) displays the proportion of Hispanic population in 2007 by county. The N.C. Health Profile 2009 shows that American Indians experience higher death rates due to heart diseases, stroke, homicide, diabetes, kidney disease, and unintentional motor vehicle injuries, compared to the white population.

Table 1.3. North Carolina Bridged-Race Population Estimates by Race/Ethnicity, 2007

	Male		Female		Total	
Race/Ethnicity	Population	Percent	Population	Percent	Population	Percent
White*	3,005,660	67.9%	3,161,930	68.2%	6,167,590	68.1%
Black*	921,636	20.8%	1,046,286	22.6%	1,967,922	21.7%
AI/AN*	51,521	1.2%	54,664	1.2%	106,185	1.2%
Asian, PI*	88,034	2.0%	92,857	2.0%	180,891	2.0%
Hispanic	360,710	8.1%	277,734	6.0%	638,444	7.0%
Total	4,427,561	100.0%	4,633,471	100.0%	9,061,032	100.0%

* non-Hispanic; AI/AN=American Indian/Alaska Native, PI=Pacific Islander
National Center for Health Statistics (NCHS), Bridged-Race Population Estimates, February 2009

Foreign-born Population

According to the Center for Immigration Studies, North Carolina has experienced a dramatic increase in the immigrant population. 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 31 percent from 2002-2007 (480,248 - 629,947). In 2006, N.C. ranked 15th nationally for the number of immigrants from other countries. In 2007, 28.9 percent of foreign-born populations in N.C. were naturalized citizens, 71.1 percent were not citizens. The various regions of birth are displayed in Table 1.4. The majority (59.7%) of the foreign-born population come from Latin America, 19.8 percent from Asia, 11.5 percent from Europe, 6.1 percent from Africa, 2.6 percent from North America, and 0.3 percent from Oceania.

The majority of the 2007 foreign-born population was male (55.5%) as opposed to female (44.5%). A greater proportion of foreign-born are aged 25 to 44 years (50.4%) as compared to the N.C. general population (28.1%) (Table 1.5). About 83 percent speak a language other than English at home, and 52.7 percent do not speak English 'very well'.

Table 1.4. North Carolina foreign-born population by region of birth, 2007

Region	2007	
	Estimated number	Percentage
Europe	72,444	11.5%
Asia	124,730	19.8%
Africa	38,427	6.1%
Oceania	1,890	0.3%
Latin America	376,078	59.7%
North America	16,379	2.6%
Total	629,947	100.0%

Source: U.S. Census Bureau, 2007 American Community Survey

Table 1.5. Gender and age distribution of foreign-born and total population in N.C., 2007

	N.C. population	Foreign-born
	9,061,032	629,947
Gender		
Male	48.8%	55.5%
Female	51.2%	44.5%
Age		
Under 5	7.0%	1.7%
5 to 17	17.4%	9.5%
18 to 24	9.8%	11.9%
25 to 34	13.1%	27.2%
35 to 44	15.0%	23.2%
45 to 54	14.3%	13.4%
55 to 64	11.2%	7.2%
65 to 74	6.6%	3.5%
75 and over	5.6%	2.5%

Source: U.S. Census Bureau, 2007 American Community Survey

Metropolitan and Micropolitan Statistical Areas

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 (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. In *the HIV/AIDS Surveillance Supplemental Report, Volume 13 Number 2*, CDC divides metropolitan areas into large (population greater than or equal to 500,000) and medium-sized metropolitan areas (population 50,000 to 499,999), which are all defined as urban areas; areas other than metropolitan areas (including micropolitan and non-metropolitan areas) are defined as rural areas. Eleven counties, including Anson, Cabarrus, Franklin, Gaston, Guilford, Johnston, Mecklenburg, Randolph, Rockingham, Union and Wake County, are classified as large metropolitan areas; other metropolitan counties are classified as medium-sized metropolitan areas. About 35 percent of N.C. population reside in large metropolitan areas, and 35 percent in medium-sized metropolitan areas, 22 percent in mircopolitan areas, and 8 percent in non-metropolitan areas in 2007. Asian and Pacific Islanders have the highest proportion (55.2%) living in the large metropolitan areas, followed by Hispanics (42.3%). Similar proportions (around 33%) of all race/ethnicity groups live in medium-sized metropolitan areas, except American Indians (17.7%) (Table 1.6).

Table 1.6. North Carolina Population by Race and Metropolitan Areas, 2007

Race/Ethnicity	Large Metropolitan areas	Medium metropolitan areas	Micro metropolitan areas	Non-metropolitan areas	NC total
White*	33.7%	35.5%	22.9%	8.0%	100%
Black*	37.1%	34.3%	20.2%	8.4%	100%
AI/AN*	12.1%	17.7%	56.5%	13.7%	100%
Asian, PI*	55.2%	32.9%	9.9%	2.0%	100%
Hispanic	42.3%	33.8%	16.8%	7.1%	100%
All	35.2%	34.9%	22.0%	8.0%	100%

* non-Hispanic; AI/AN=American Indian/Alaska Native, PI=Pacific Islander
National Center for Health Statistics (NCHS), Bridged-Race Population Estimates, February 2009

Table 1.6a. North Carolina Population by Race and Urban-Rural Areas, 2007

	Urban Areas		Rural Areas		NC total	
Race/Ethnicity	Population	Percent	Population	Percent	Population	Percent
White*	4,266,142	69.2%	1,901,448	30.8%	6,167,590	100%
Black*	1,405,413	71.4%	562,509	28.6%	1,967,922	100%
AI/AN*	31,730	29.9%	74,455	70.1%	106,185	100%
Asian, PI*	159,446	88.1%	21,445	11.9%	180,891	100%
Hispanic	485,885	76.1%	152,559	23.9%	638,444	100%
All	6,348,616	70.1%	2,712,416	29.9%	9,061,032	100%

* non-Hispanic; AI/AN=American Indian/Alaska Native, PI=Pacific Islander
National Center for Health Statistics (NCHS), Bridged-Race Population Estimates, February 2009

Data from the U.S. Census showed that in 2006, 65 percent of the general population of the United States was living in large metropolitan areas, 19 percent in medium-size metropolitan areas, and 17 percent in areas other than metropolitan, ie. the rural areas. Compare to the national figure, North Carolina has less people in the urban areas, specifically less in the large

metropolitan areas, and more people in the rural areas. Asians in North Carolina have the highest proportion (88%) living in the urban areas, followed by Hispanics (76%) and blacks (71%). Majority of American Indians (70%) live in rural areas (Table 1.6a). North Carolina's metropolitan and non-metropolitan counties are displayed in Map 2 (Appendix A, pg. A-4). In 2007, majority of whites (69%), blacks (71%), Hispanics (76%) and Asian (88%) lived in the urban areas, while only 30 percent of American Indians lived in the urban areas.

Poverty and Income

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 that 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 2008 per capita income for North Carolina is $34,439, or 86.6 percent of the national average of $39,751. This represents a 2.4 percent increase from 2007 ($33,636) and placed North Carolina 37th in the nation for personal per capita income and 4th in the Southeast.

Economic recession has impacted N.C. more than the national average. According to the Bureau of Labor Statistics, the unemployment rate in N.C. rose from 4.5 percent in January 2007 to 5.0 percent in December 2007 to 8.1 percent in December 2008, which is higher than the national unemployment rate (the national unemployment rate was 4.6 percent in January 2007 to 4.9 percent in December 2007, and to 7.2 percent in December 2008) (Bureau of Labor Statistics).

According to Income, Earnings, and Poverty Data From the 2007 American Community Survey, 14.3 percent of N.C. population living below the poverty level (compared to 13% nationally). From 2006 to 2007, 18.9 percent of North Carolinians were below the federal poverty level (FPL); with an overall total of 39.4 percent of the population considered low income (199% or below FPL). The median household income in North Carolina was $44,772, which is much lower than the national median of $50,740. N.C. ranked 13th in percentage of people in poverty in 2007. Table 1.7 displays the individual poverty rate by age group for the state (2006-2007) and the nation (2007). Table 1.8 displays the individual poverty rate by race/ethnicity for N.C. and the U.S. (2006-2007). North Carolina is poorer than the nation in all age/race categories. Map 7 (Appendix A, pg. A-9) displays the North Carolina per capita income for 2007 by county.

Table 1.7. North Carolina and U.S. (2006-2007) poverty rates by age

Age in Years	N.C. (Pct.)	U.S. (Pct.)
Children 0-18	26%	23%
Adults 19-64	17%	15%
Elderly 65+	14%	13%

Source: Urban Institute and Kaiser Family Foundation

Table 1.8. North Carolina and U.S. (2006-2007) 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*	12.1%	11.5%
Black*	33.4%	32.2%
Hispanic	34.5%	28.4%
Other*	29.3%	19.4%

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

Health Insurance

The percentage of the non-elderly without health insurance in North Carolina has been increasing over the years. In North Carolina (2006-2007), 21.5 percent of 19-64 year olds were uninsured (N.C. Institute of Medicine, Data Snapshot 2008). The primary reason people lack health insurance is cost. According to the North Carolina Institute of Medicine, 30 percent of the non-elderly (0-64 year olds) uninsured had incomes less than one hundred percent of the Federal Poverty Guidelines. Thirty six percent of the non-elderly with incomes less than one hundred percent of the Federal Poverty Guidelines were uninsured. Among adults 19-64 years old, 47.7 percent of those without health insurance in N.C. were white, 25.4 percent were black and 19.5 percent were Hispanic (N.C. Institute of Medicine, Data Snapshot 2008). The racial distribution of uninsured people in North Carolina is displayed in Figure 1.1.

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

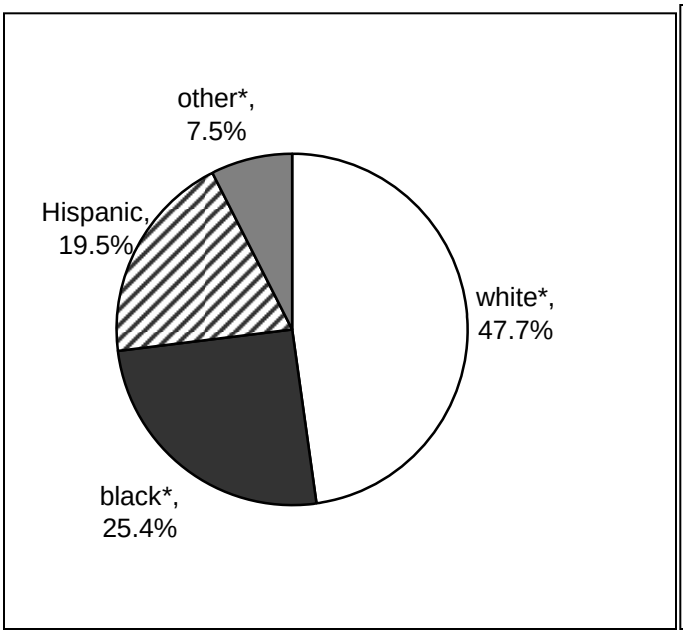


Figure 1.2. Rate of uninsured by race/ethnicity, 2006-2007

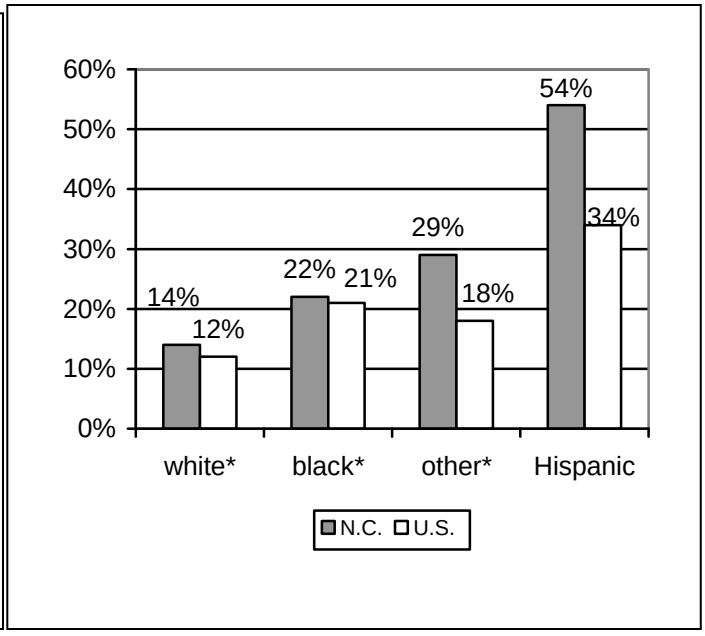


Figure 1.2. displays the uninsured rates by race/ethnicity for North Carolina as compared to the United States. In 2006-2007, 54 percent of Latinos or Hispanics, 22 percent of blacks, 14 percent of whites and 29 percent of other races were uninsured in North Carolina (statehealthfacts.org. Kaiser Family Foundation). Rates of uninsured among all racial/ethnic groups in North Carolina were higher than those in nation. Although whites comprise the greatest proportion of the uninsured population (Figure 1.1), minorities have the highest uninsured rates (Figure 1.2). Latinos in N.C. are more likely to be uninsured because they are often recent immigrants with low-wage jobs in industries that do not offer health insurance.

Education

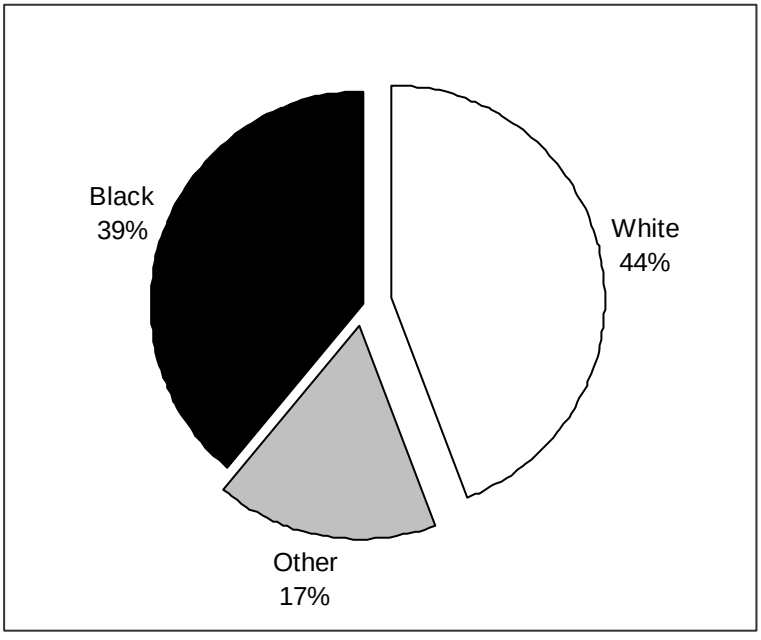
According to the 2007 American Community Survey, 83.0 percent of North Carolinians who were 25 years or older had a high school diploma, and 25.6 percent had a bachelor's degree. Around five percent of high school students (grades 9-12) dropped out during 2006-07 school year (N.C. Public Schools Statistical Profile, 2008).

Internet access

To some extent, health education depends on the facilities at home and in the communities. Internet becomes one of the important venues in health education. In 2007, N.C. ranked 42nd for the percentage of households with computers (57.7%), and 40th for the percentage of households with internet access (56.8%).

Public Aid

Figure 1.3. N.C. Medicaid recipients by race*, SFY 2007



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

Total Medicaid and Medicaid-related expenditures in North Carolina for State Fiscal Year (SFY) 2007 was approximately $9 billion for approximately 1.7 million Medicaid recipients (an average $5,344 per recipient). The number of Medicaid recipients increased by 0.7 percent from 2006 to 2007. During 2007, total 1,644,411 North Carolinians, or 18.6 percent of the total N.C. population, received at least one Medicaid service during the 2007 fiscal year (Medicaid N.C. Report 2007). Among them, 40 percent were male, and 60 percent were female.

Elderly and Disabled recipients comprised about 9.9 and 16.2 percent of total Medicaid recipients,

respectively, and their expenditures amounted to $5.6 billion or 65 percent of the total service expenditures. Families and Children comprised 72 percent of all recipients, while, they accounted for $3 billion or 35 percent of total service expenditures. Aliens and Refugees represented 1.7 percent of all recipients and accounted for about $67.8 million, or about 0.8 percent of total service expenditures. Of all Medicaid services provided, Nursing Facility, Inpatient Hospital, Prescription Drug and Non-Physician Practitioner services were the top four expensive services, and accounted for about 4 billion, or 45 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. In 2006, the birth rate in N.C. was 14.4 per 1000 population. Although teen pregnancy rates continue to decline in North Carolina, the state still had the 15th highest teen birth rate in 2006. According to the N.C. Reported Pregnancy 2007, the teen birth rate (women ages 15-19 years) for North Carolina in 2007 was 63.0 per 1,000. There has been a forty percent decrease in North Carolina's teen birth rate as compared to the 1990 (most recent peak) teen birth rate of 105.4 per 1,000 teen girls.

According to the 2007 North Carolina Youth Risk Behavior Survey, over half (52.1%) of high school students report having had sexual intercourse. Further, 16 percent of students reported that they had sexual intercourse with four or more people in their life. According to the 2007–2008 School Health Services Report, there were 4,904 known pregnancies occurring among North Carolina public school students in 2007–2008.

Another useful health indicator is the infant mortality rate (IMR). According to the N.C Center for Health Statistics, the 2008 infant mortality rate for North Carolina was 8.2 per 1,000 live births, decreased 3.5 percent from the 2007 rate of 8.5. North Carolina still ranked among top 10 states with highest infant mortality, and large racial disparities persisted. African Americans had more than twice the infant mortality (13.5 per 1000 live birth) compared to non-Hispanic whites (6.0 per 1000 living birth). In 2007, American Indian infant mortality was about twice as high as that of the non-Hispanic whites. Interestingly, though the Hispanics have disadvantages of access to the health facilities and health insurance, they have a similar infant mortality as whites. Due to data availability, a national infant mortality rate comparison can only be made for 2003-2005. Table 1.9 displays the North Carolina and United States infant mortality rates.

Table 1.9. N.C. and U.S. Infant Mortality Rate (deaths per 1,000 live births) by race/ethnicity, 2003-2005

Race/Ethnicity	N.C	U.S.
White*	6.3	5.7
Black*	15.8	13.6
Hispanic	6.6	5.6
Total	8.4	6.9

*Whites and blacks may include individuals of Hispanic origin Source: Kaiser Family Foundation

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

HIGHLIGHTS

- The cumulative number of individuals reported with HIV disease through December 31, 2008 was 35,346 people.
- An estimated 35,000 people were living with HIV or AIDS in North Carolina (including individuals who may have been unaware of their infections) as of December 31, 2008.
- The 2008 HIV disease case total was 1,964 (21.7 per 100,000) and the 2008 HIV disease adult/adolescent case total was 1,952 (26.2 per 100,000 adult/adolescent population).
- In 2008, the rate of new HIV diagnosis for adult/adolescent, non-Hispanic blacks (79.5 per 100,000) was more than eight times greater than that for adult/adolescent, non-Hispanic whites (9.6 per 100,000). The rate of new HIV diagnosis for adult/adolescent, Hispanics (35.8 per 100,000) was almost four times greater than that for whites.
- The highest rate of new HIV diagnoses in 2008 was among adult/adolescent, non-Hispanic black males (120.5 per 100,000). This was more than seven times greater than the rate for adult/adolescent, non-Hispanic white males (16.6 per 100,000).
- The largest disparity in 2008 observed was for adult/adolescent, non-Hispanic black females, with a rate of new HIV diagnoses (44.7 per 100,000) that was almost 15 times higher than that of non-Hispanic white females (3.0 per 100,000).
- For 2008 adult/adolescent HIV disease cases, men who have sex with men (MSM) was the principal risk category indicated in 54 percent of total cases; heterosexual transmission risk was indicated in 40 percent, MSM/IDU was indicated in two percent and, injecting drug use (IDU) was indicated in 5 percent of total cases.
- In 2008, MSM (including MSM/IDU) accounted for 74 percent of new HIV disease cases among adult/adolescent males. This represented a notable increase in MSM reports over the last five years (74% in 2008 compared to 60% in 2004).
- In 2008, heterosexual contact accounted for about 90 percent, and injecting drug use accounted for 10 percent of HIV disease cases for adult/adolescent females.
- Sixteen percent of newly diagnosed HIV disease cases were among likely adolescents, aged 13 to 24 years old.

- In 2008, 25.7 percent of newly diagnosed HIV disease cases also represented new AIDS cases (i.e., HIV and AIDS were reported at the same time for the individual).

- Since the early 1990s, about 25 percent of North Carolina's HIV disease cases have consistently come from rural areas.

- In 2008, Mecklenburg County had the highest 3-yr average HIV disease rate (46.2 per 100,000 population), followed by Edgecombe County (37.3 per 100,000), Durham County (35.8 per 100,000), Cumberland County and Guilford County (both 34.1 per 100,000).

- In 2007, HIV/AIDS was listed as the 7th leading cause of death for N.C. adults aged 25-44 years old. The crude HIV disease death rate for blacks is more than 12 times higher than for whites (15.2 vs. 1.2 per 100,000).

Special notes:

- *HIV disease includes all initial diagnoses of HIV as well as those diagnosed with AIDS as their initial diagnosis. 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-H, O-P) and discussed in this document are restricted to adults/adolescents 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.*

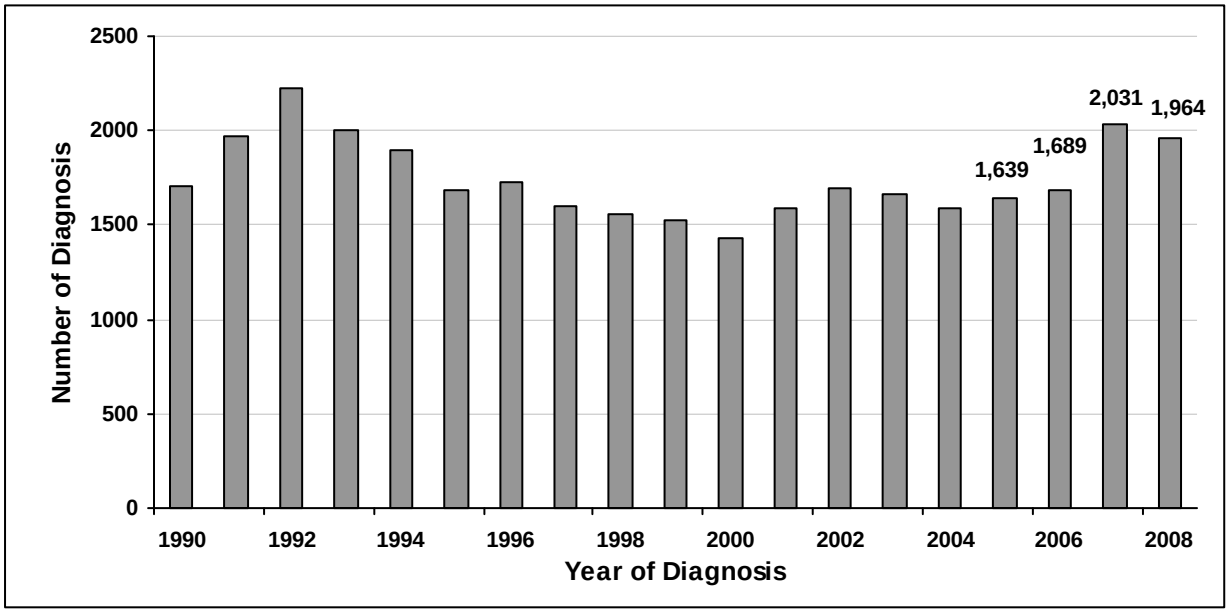
- *Unless otherwise noted, year refers to year of diagnoses not year of report, as in previous publications.*

- *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, "black" refers to black non-Hispanics, etc.*

OVERALL HIV/AIDS TRENDS

Figure 2.1 displays the number of HIV disease cases diagnosed from 1990 to 2008 by the year of first diagnosis for the individual. The highest point in the HIV epidemic occurred in 1992 in N.C. with 2,220 cases, and then moderated from 1995 to 2006 with 1,420-1,730 cases each year. In 2007 and 2008, numbers of HIV disease cases increased to above 1,900 diagnoses per year. The number of HIV cases diagnosed in 1992 represented a time when HIV incidence was likely at its peak. From 1995 to 2006, the epidemic was relatively stable; however, changes in reporting practices contributed to the fluctuations during this period, especially for 2002. The increase in 2007 and 2008 was at least partially the result of efforts to increase HIV testing, like the 'Get Real, Get Tested' campaign, and might not necessarily represent the introduction of new incidence. 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.

Figure 2.1. Number of HIV disease cases diagnosed over time, 1990-2008



Please note the numbers in figure 2.1 above are periodically updated due to completion of information and deletion of interstate duplications. Readers are encouraged to use the numbers in the latest report.

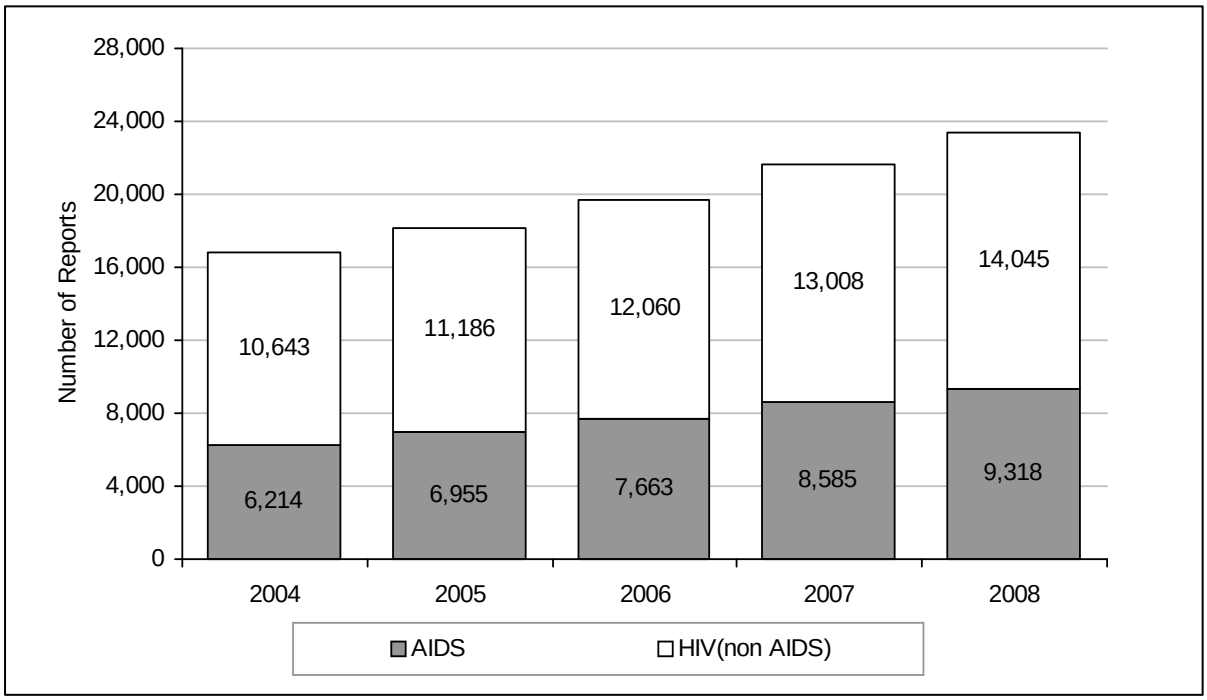
HIV DISEASE PREVALENCE

Prevalent cases represent all individuals living with HIV disease in the communities. Information about persons living with HIV/AIDS is very critical for case follow-up, AIDS care provision, and strategic intervention activities. From 1983, the year first HIV disease case was diagnosed and reported to the health department, through December 31, 2008, the cumulative

number of HIV disease cases reported in North Carolina was 35,346, of whom 23,363 are living, and 11,983 have died, including some HIV positive individuals who died of non AIDS-related causes (see p. 37 for HIV/AIDS-related deaths). Figure 2.2 displays the numbers of people living with HIV/AIDS, which represent the prevalent cases at the end of each year from 2004 to 2008. The numbers of people living with HIV/AIDS have been increasing every year, which indicates the number of newly reported HIV disease cases exceeds the number of people who died. Due to the advancement of highly effective anti-retroviral treatment and opportunistic infection control, people with HIV infection may live longer and healthier.

Persons living with HIV/AIDS represent individuals who have been diagnosed and subsequently reported to the North Carolina public health surveillance system. There is some level of under reporting by clinicians and there are some people infected with HIV but are not tested and reported. Thus, the number of total living cases in the figure 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 75 to 80 percent of the people living with HIV and AIDS have been tested and know their status. 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 23,363 people living in North Carolina with HIV/AIDS would increase the estimate to about 35,000 people.

Figure 2.2. Persons living with HIV/AIDS in North Carolina 2004-2008*



*Year represents December 31 of each year.

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, especially for the last two years, have been revised.

Demographics of Persons Living with HIV/AIDS

Gender, race/ethnicity, and age distribution

Table 2.1 and Table J (pg D-13) display the demographics of people living with HIV/AIDS as of December 31, 2008. There were many more male prevalent cases, which were 69 percent of the total and more than double the female prevalence. Blacks (or African Americans) comprised the majority (67%) of cases, followed by whites (26%) and Hispanics (5%). There was a larger representation of older individuals among the people living with HIV/AIDS, as many people live many years with a diagnosis. The greater percentages of males (69%) and blacks (67%) living with HIV/AIDS indicated that they were more affected by HIV epidemic.

Table 2.1. North Carolina HIV/AIDS cases living as of 12/31/2008 by selected demographics

	Males			Females			Total		
	No.	Pct.	Rate**	No.	Pct.	Rate**	No.	Pct.	Rate**
	16,167	69.2%	365.1	7,196	30.8%	155.3	23,363	100%	257.8
Race/Ethnicity									
White*	4,880	20.9%	162.4	1,205	5.2%	38.1	6,085	26.0%	98.7
Black*	10,038	43.0%	1089.2	5,582	23.9%	533.5	15,620	66.9%	793.7
AI/AN*	140	0.6%	271.7	62	0.3%	113.4	202	0.9%	190.2
Asian PI*	73	0.3%	82.9	32	0.1%	34.5	105	0.4%	58.0
Hispanic	943	4.0%	261.4	277	1.2%	99.7	1,220	5.2%	191.1
Current Age									
0-12	35	0.1%	4.3	35	0.1%	4.5	70	0.3%	4.4
13-14	9	0.0%	7.3	21	0.1%	17.8	30	0.1%	12.4
15-19	122	0.5%	38.4	73	0.3%	24.1	195	0.8%	31.4
20-24	601	2.6%	188.1	241	1.0%	83.0	842	3.6%	138.0
25-29	1,097	4.7%	363.9	476	2.0%	155.0	1,573	6.7%	258.5
30-34	1,350	5.8%	443.8	808	3.5%	263.5	2,158	9.2%	353.3
35-39	2,143	9.2%	639.4	1,155	4.9%	344.1	3,298	14.1%	491.6
40-44	2,925	12.5%	884.9	1,331	5.7%	391.6	4,256	18.2%	634.8
45-49	3,156	13.5%	953.6	1,223	5.2%	354.1	4,379	18.7%	647.5
50-54	2,270	9.7%	752.3	909	3.9%	281.7	3,179	13.6%	509.2
55-59	1,361	5.8%	506.0	510	2.2%	173.4	1,871	8.0%	332.2
60-64	634	2.7%	290.5	215	0.9%	88.8	849	3.6%	184.4
65+	458	2.0%	100.4	197	0.8%	30.4	655	2.8%	59.4

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

Mode of Transmission

Information about modes of transmission of HIV is very useful for disease prevention because without effective behavioral interventions for people living with HIV/AIDS, people may continue to transmit HIV to others. Table I (Appendix D, page D-12) shows that 46 percent of living cases were likely infected through MSM activities, 31 percent through heterosexual transmission, 16 percent through IDU, and 4 percent through MSM/IDU activities.

NEWLY DIAGNOSED HIV DISEASE CASES IN 2008

There were 1,964 individuals newly diagnosed with HIV disease in 2008, which equivalent to the rate of 21.7 per 100,000 population in North Carolina. Among the adults/adolescents aged 13 years and older, there were 1,952 HIV disease cases, and the rate of newly diagnosed persons was 26.2 per 100,000 population (Table 2.2.).

Demographics of newly diagnosed HIV/AIDS in 2008

Gender and race/ethnicity

Among the individuals diagnosed with HIV disease in 2008, there were about three times as many males as females. Table 2.2 displays the gender and race/ethnicity distribution of newly diagnosed HIV disease among adults/adolescents for 2008.

Table 2.2. North Carolina adult/adolescent HIV disease by gender and race/ethnicity, 2008

Race/ Ethnicity	Males			Females			Total		
	No.	Pct.	Rate**	No.	Pct.	Rate**	No.	Pct.	Rate**
	1,460	74.8%	40.5	492	25.2%	12.8	1,952	100%	26.2
White*	418	21.4%	16.6	82	4.2%	3.0	500	25.6%	9.6
Black*	869	44.5%	120.5	380	19.5%	44.7	1,249	64.0%	79.5
AI/AN*	10	0.5%	24.2	0	0.0%	0.0	10	0.5%	11.6
Asian PI*	8	0.4%	11.6	2	0.1%	2.7	10	0.5%	7.0
Hispanic	136	7.0%	52.5	22	1.1%	12.1	158	8.1%	35.8
Multiple	19	1.0%	---	6	0.3%	---	25	1.3%	---

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

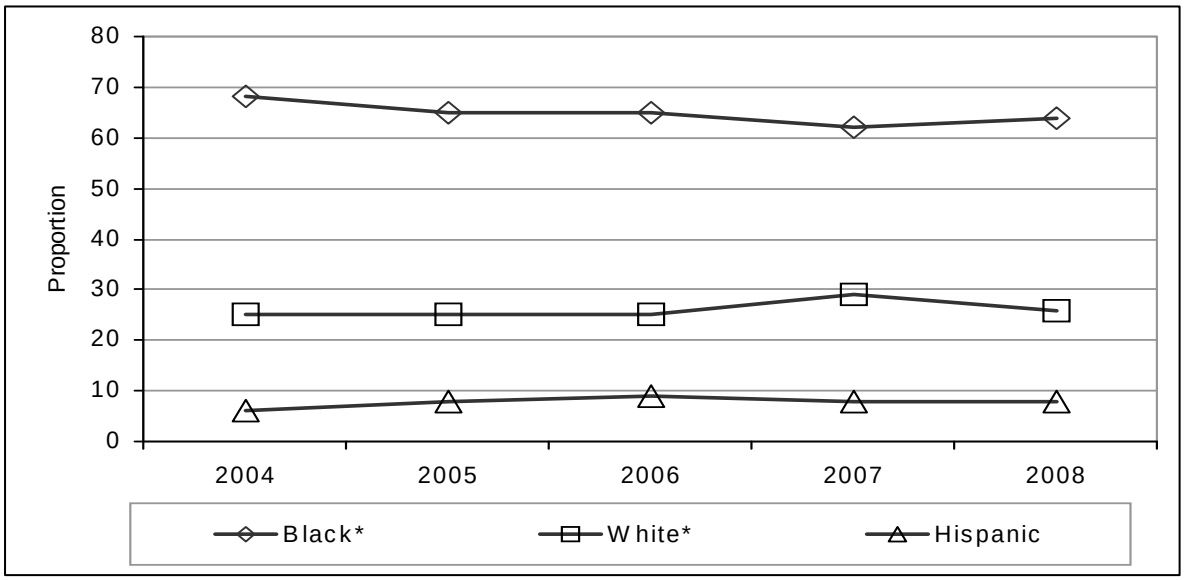
Among the adults/adolescents newly diagnosed with HIV disease in 2008, blacks or African Americans made up majority of cases (64.0%), followed by whites (25.6%) and Hispanics (8.1%). Over the previous five years (2004-2008), blacks have slightly decreased in proportion from 68 percent to 64 percent of total cases. Whites have been stable around 26 percent of cases; Hispanics have increased from six percent to eight percent of total cases, as shown in Figure 2.3 and Table B (page D-5).

HIV disease rates are different from the proportion of total cases by taking into account the make up of the population in the state. The highest rate of newly diagnosed HIV disease was among black males (120.5 per 100,000 adult/adolescent population), which was seven times that for white males (16.6 per 100,000 adult/adolescent population). The HIV disease rate among adult/adolescent black females (44.7 per 100,000 adult/adolescent population) was more than 15 times higher than the rate for adult/adolescent white females (3.0 per 100,000), which represented the largest disparity noted within gender and race/ethnicity categories.

Disparities also existed for Hispanics as compared to whites. The rate for Hispanic men (52.5 per 100,000) was more than three times that for white men, and ranked the second among the gender and race/ethnicity rates.

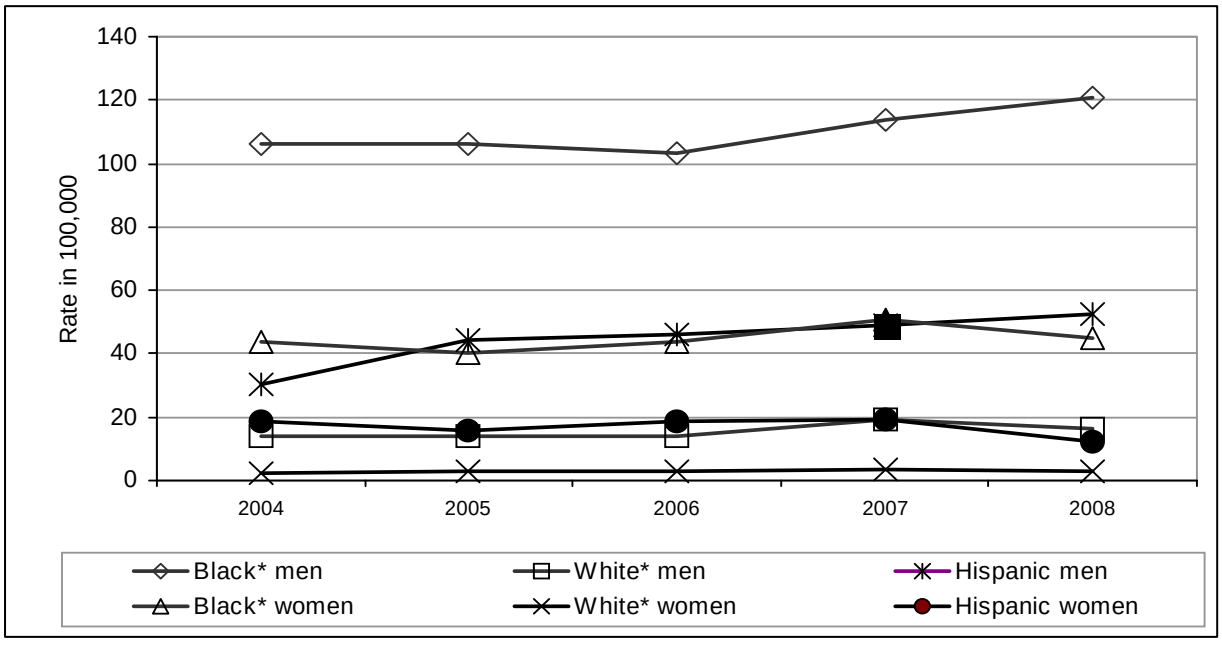
The rate for Hispanic women (12.1 per 100,000) was four times that for white women. Rates for other racial/ethnic groups are based on numbers too small for meaningful comparisons but are displayed in Table 2.2. Figure 2.4. shows the gender and race/ethnicity (for whites, African Americans and Hispanics) specific HIV disease rates. HIV rates increased 13.6 percent for black males and 72.7 percent for Hispanic males from 2004 to 2008.

Figure 2.3. Adult/Adolescent HIV diseases by race/ethnicity, 2004-2008



* non-Hispanic

Figure 2.4. Population Rate of Adult/Adolescent HIV diseases by race/ethnicity and gender, 2004-2008



* non-Hispanic

Age distribution

Most HIV disease diagnoses were for adults and adolescents, and less than one percent of newly diagnosed represented infants or children younger than 13 years. For males, there were more HIV disease cases in 20-29 years old age group (27%) and 40-49 years old age group (28%); for females, there were more HIV disease cases in 30-39 years old age group (25%) and 40-49 years old age group (33%). Overall, adults aged 20 to 29 years and 40 to 49 years accounted for the greatest proportion (about 54 percent together) of individuals diagnosed in 2008 (Table 2.3).

Table 2.3. North Carolina HIV disease by age group and gender, 2008

Age	Males			Females			Total		
	No.	Pct.	Rate*	No.	Pct.	Rate*	No.	Pct.	Rate*
0-12	8	0.4%	1.0	4	0.2%	0.5	12	0.6%	0.7
13-14	0	0.0%	0.0	1	0.1%	0.8	1	0.1%	0.4
15-19	64	3.3%	20.2	20	1.0%	6.6	84	4.3%	13.5
20-24	192	9.8%	60.1	33	1.7%	11.4	225	11.5%	36.9
25-29	202	10.3%	67.0	55	2.8%	17.9	257	13.1%	42.2
30-34	156	7.9%	51.3	62	3.2%	20.2	218	11.1%	35.7
35-39	171	8.7%	51.0	63	3.2%	18.8	234	11.9%	34.9
40-44	215	10.9%	65.0	96	4.9%	28.2	311	15.8%	46.4
45-49	194	9.9%	58.6	67	3.4%	19.4	261	13.3%	38.6
50-54	130	6.6%	43.1	48	2.4%	14.9	178	9.1%	28.5
55-59	72	3.7%	26.8	25	1.3%	8.5	97	4.9%	17.2
60-64	39	2.0%	17.9	13	0.7%	5.4	52	2.6%	11.3
65+	25	1.3%	5.5	9	0.5%	1.4	34	1.7%	3.1
Total	1,468	74.7%	33.2	496	25.3%	10.7	1,964	100%	21.7

* per 100,000 population

Figure 2.5 displays trends over the past five years (2004-2008) by proportion of age-groups at HIV disease diagnosis. Note that the proportions have slightly increased for individuals aged 15-19 years, 25-29 years, and 50-54 years old, and decreased for those aged 35 to 44 years. HIV has increased among an older population in comparison to other sexually transmitted diseases like Gonorrhea and Chlamydia; age distribution of HIV cases is similar to that of syphilis reports (Chapter 8). However, there is often a lag between HIV infection and subsequent HIV diagnosis.

Mode of HIV Disease Transmission for Adult/Adolescents

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.

Figure 2.5. HIV disease cases proportion change by age group, 2004-2008

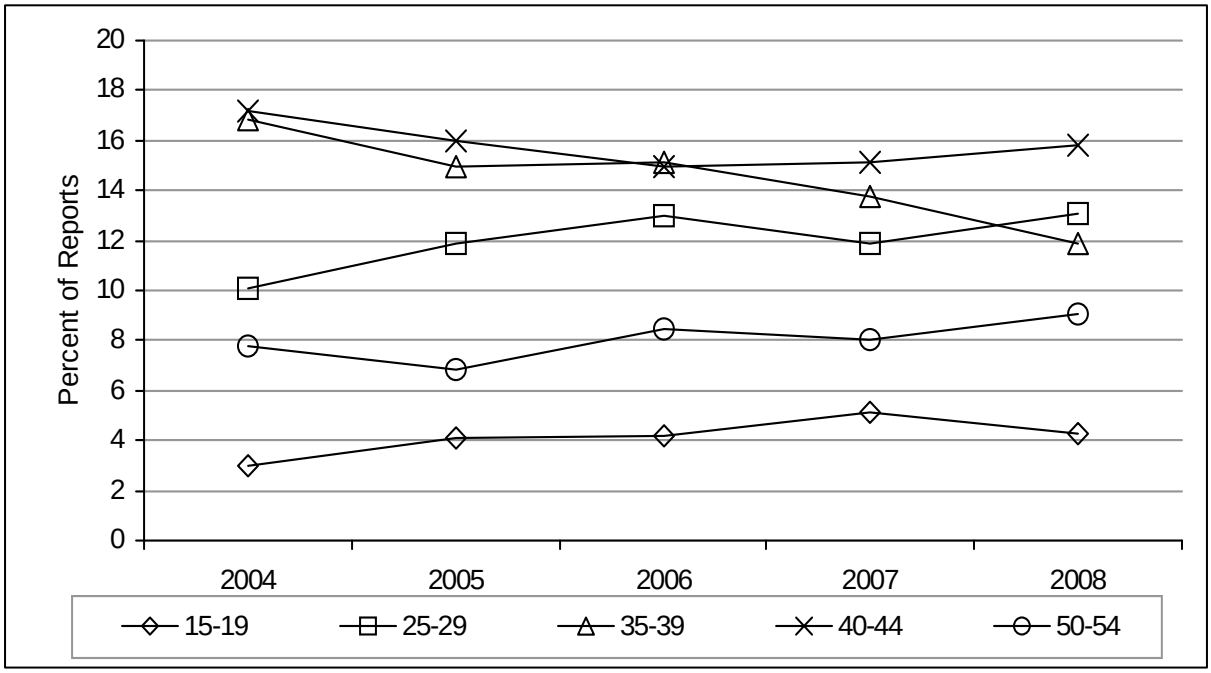


Table 2.4. displays the mode of transmission for adult/adolescent HIV disease cases diagnosed in 2008. Three principal risk categories were: men who have sex with men (MSM), injection drug use (IDU), and heterosexual sex. Note that the proportion of cases for which there was no identified risk (NIR) reported was substantial, and was higher among males than among females when proportions were compared for each gender separately. A portion of these heterosexual NIR cases were classified as NIR not because of missing or incomplete information, but because the reported risk(s) did 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 cases, a substantial proportion of NIR cases remained 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 I (pg. D-12). ***Please note all further discussions of risk or transmission categories in this profile will be based on the fully redistributed risk of all HIV/AIDS cases.***

Table 2.4. Adult/adolescent HIV disease cases by transmission category, NIR* included, 2008

Exposure	Males		Females		Total	
category	No.	Pct.	No.	Pct.	No.	Pct.
MSM	760	39%	---	---	760	39%
IDU	37	2%	26	1%	63	3%
MSM/IDU	25	1%	---	---	25	1%
Blood Products	1	0%	0	0%	1	0%
Heterosexual	103	5%	135	7%	238	12%
NIR* (presumed heterosexual)	131	7%	111	6%	242	12%
NIR*	403	21%	220	11%	623	32%
Total	1,460	75%	492	25%	1,952	100%

*no indicated risk

Table 2.5. Adult/adolescent HIV disease cases by transmission category, NIR* redistributed, 2008

Exposure	Males		Females		Total	
Category	No.	Pct.	No.	Pct.	No.	Pct.
MSM	1,045	72%	---	---	1,045	54%
IDU	52	4%	47	10%	99	5%
MSM/IDU	34	2%	---	---	34	2%
Blood Products	2	0%	0	0%	2	0%
Heterosexual	327	22%	445	90%	772	40%
Total	1,460	100%	492	100%	1,952	100%

*no indicated risk

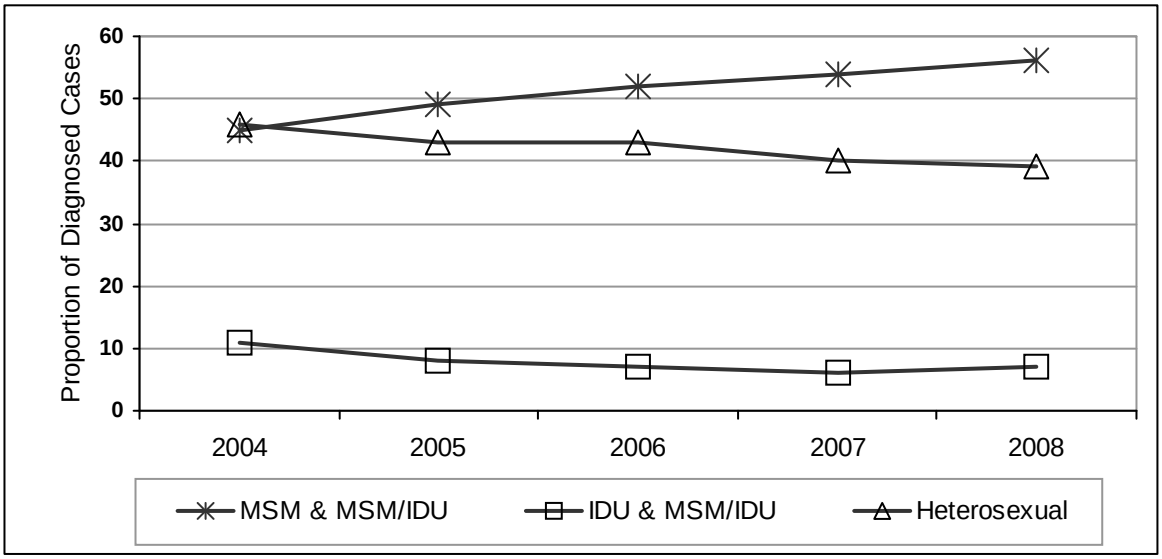
Table 2.5. shows that in 2008 it was estimated that MSM and MSM/IDU (men who have sex with men and inject drugs) represented about 56 percent of all HIV disease cases. Heterosexual transmission risk represented about 40 percent of all HIV disease cases, and IDU represented about 7 percent (including MSM/IDU).

Figure 2.6 shows over 90 percent of the HIV disease cases were transmitted via sex, either homosexual or heterosexual sex. Over the period of 2004-2008, MSM has been the leading mode of transmission, increasing from 45 percent in 2004 to 56 percent in 2008. During the same time period, heterosexual and IDU transmission decreased slightly. More detailed information on MSM and IDU transmission is available in Chapter 3, "Major Groups Affected by HIV in North Carolina."

Gender and mode of transmission

Risk is very different for males and females, thus, it is necessary to discuss risk for each gender separately. Figures 2.7 and 2.8 display adult/adolescent risk for each gender. For males, MSM and MSM/IDU together accounted for about 74 percent of HIV disease cases diagnosed in 2008; heterosexual contact cases accounted for about 22 percent of cases; and IDU cases accounted for

Figure 2.6. Proportion of HIV diseases* by mode of transmission, 2004-2008



* Adult/Adolescent

about 4 percent. For females, heterosexual contact accounted for about 90 percent of cases and IDU about 10 percent. Tables F and G (pp. D-9 to D-10) display the risk categories by gender from 2004 to 2008. For males, the proportion of MSM cases has risen in recent years, from 60 percent in 2004 to 72 percent in 2008. More male HIV cases associated with MSM risks observed during the same time period account for most of the overall increase in cases. The proportion of IDU cases (2004 to 2008) for males has declined from seven percent to four percent from 2004 to 2008. IDU-associated cases for females did not show a discernable trend. For females, the proportion of heterosexual contact reports has remained fairly constant, ranging from 86 to 90 percent.

Figure 2.7. Adult/adolescent females HIV disease diagnosed in 2008

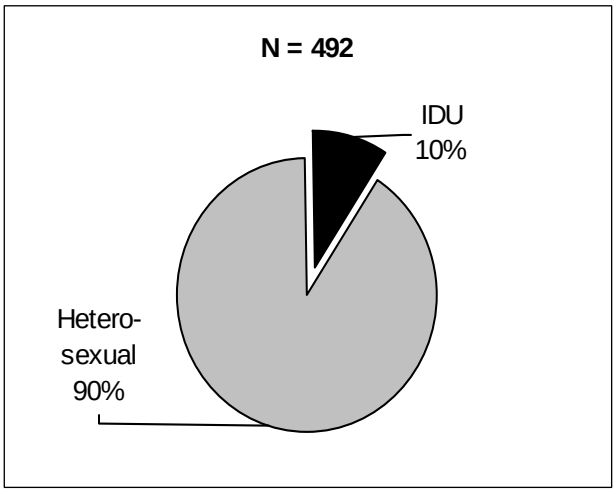
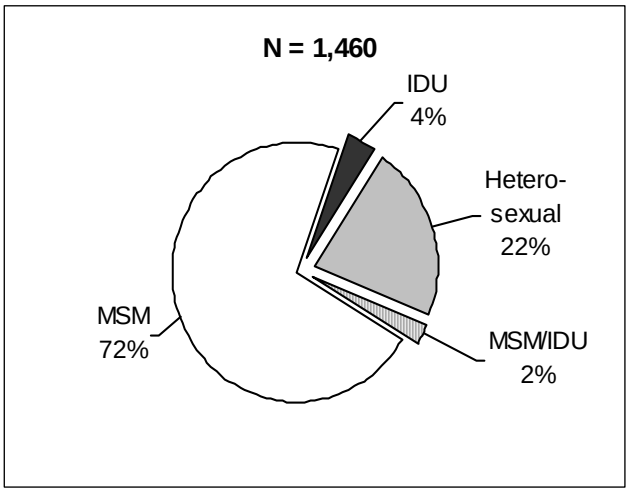


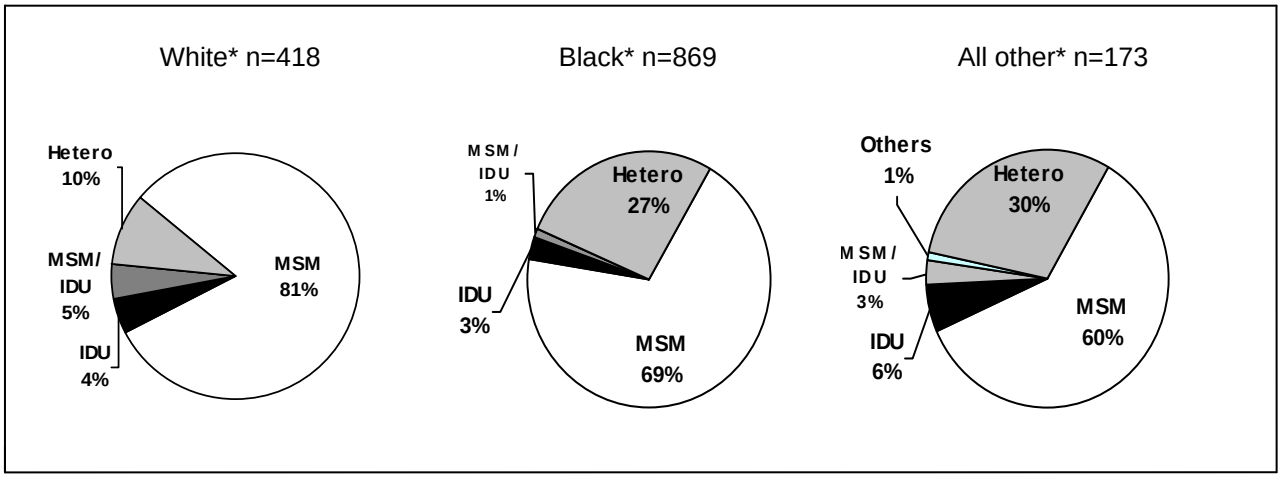
Figure 2.8. Adult/adolescent males HIV disease diagnosed in 2008



Gender, Race/Ethnicity and mode of transmission

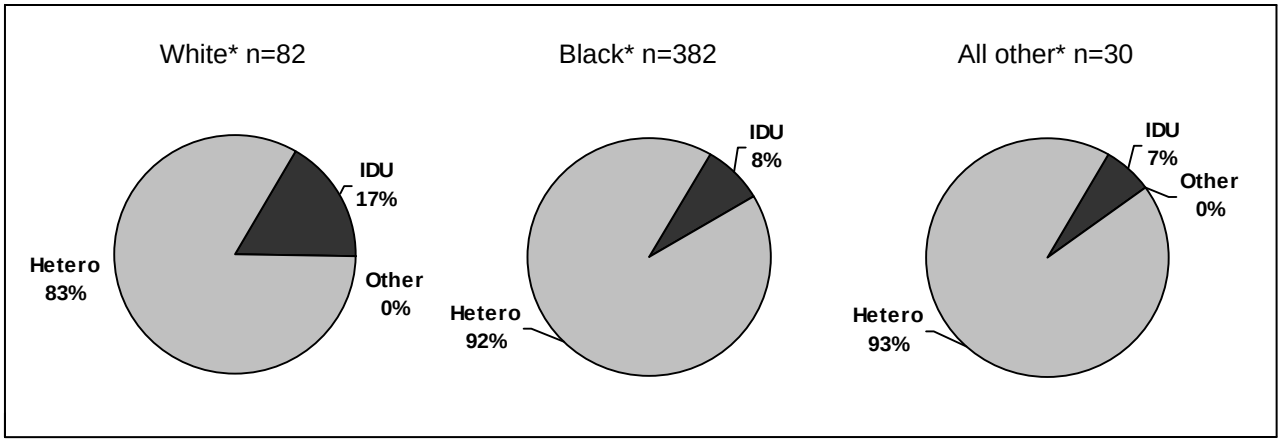
Taking gender, race/ethnicity and transmission mode together, HIV risk information becomes much clearer, as shown in Figures 2.9 and 2. 10. Note that for white males, MSM represented 81 percent of cases, heterosexual risk represented 9 percent of cases, and IDU risk represented 4 percent of cases. For black males, MSM represented about 69 percent of cases, heterosexual risk represented about 27 percent of cases, and IDU risk about 3 percent of cases. 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 represented 60 percent of male cases, heterosexual risk 30 percent of cases, and IDU risk 6 percent of cases. The proportions of HIV cases attributed to heterosexual risk among black males (27%) and other races (30%) are higher than the proportion among white males (9%). 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 (17%) cases than to minority females (7%).

Figure 2.9. Male HIV disease diagnosed in 2008



*Pediatric reports excluded

Figure 2.10. Female HIV disease diagnosed in 2008



*Pediatric reports excluded

ADOLESCENT ACQUIRED HIV/AIDS

Figures 2.11 and 2.12 display the percentage of newly diagnosed HIV disease cases by risk and demographic categories for each gender for individuals aged 13 to 24 years at time of diagnosis. 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 2008, while just 4 percent of total cased diagnosed were found among teenagers aged 13 to 19 years, the percentage increased to almost 16 percent when 20 to 24 year olds were included.

Figure 2.11. Adolescent (13-24 yrs) Male HIV disease, 2008

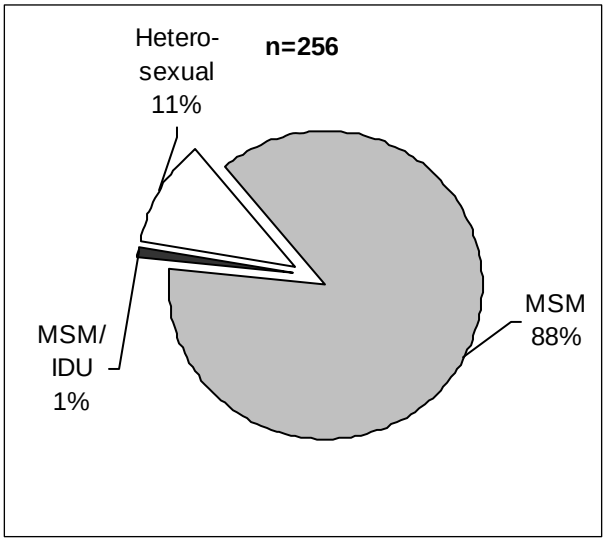
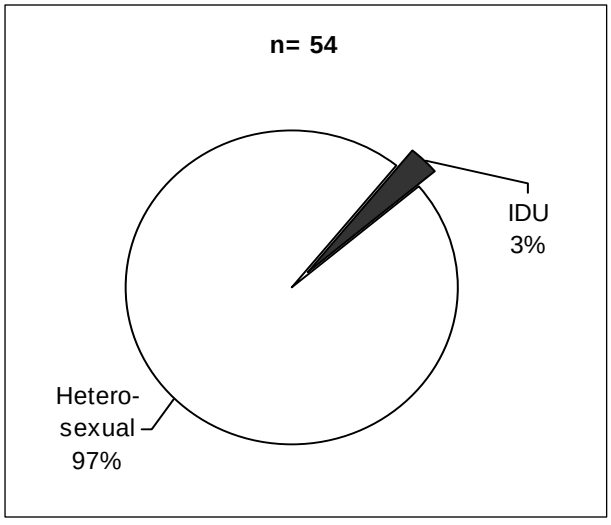


Figure 2.12. Adolescent (13-24 yrs) Female HIV disease, 2008



The exposure or risk categories for male adolescents and for female adolescents were very different. For adolescent females, the proportion of HIV disease cases attributed to heterosexual contact in 2008 accounted for almost 97 percent of total cases. For adolescent males, the proportion of HIV disease cases attributed to MSM risk (including MSM/IDU) accounted for 89 percent, up from the 85 percent of the diagnosed in 2004. Tables H (pp. D-11) show the detailed statistics about the percentage by gender over years.

From 2004 to 2008, the proportions of adolescent among adult/adolescent HIV disease cases have increased from 13.7 percent to 15.9 percent of all reports. Although adolescent cases do not represent the majority of HIV cases diagnosed in each year, adolescence is the critical age for health education and HIV prevention.

FEMALES OF CHILD-BEARING AGE AND PERINATAL HIV/AIDS

Perinatal transmission of HIV is generally preventable if appropriate drugs are administered to the mothers during pregnancy and delivery. For this reason, special emphasis is placed on follow-up for known HIV-infected mothers in N.C. Table 2.6 displays the proportion of HIV-infected women who were of child-bearing age (15-44 years old). Over 300 (65% of female total) women of child-bearing age were diagnosed each year. This group of women represents the bulk of females diagnosed with HIV disease. Note that the proportion of all female reports 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 2.6. Female HIV disease cases by special age groups, 2004-2008

Age	2004		2005		2006		2007		2008	
	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.
0-14 yrs	5	1%	5	1%	5	1%	5	1%	5	1%
15-44 yrs	318	71%	323	73%	304	64%	390	68%	329	66%
45 + yrs	124	28%	112	25%	164	35%	177	31%	162	33%
Total	447	100%	440	100%	473	100%	572	100%	496	100%

Table 2.7 displays the numbers of likely perinatal HIV transmissions that have occurred from 1999 to 2008 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-positive children whose mothers had HIV or an HIV risk, and thus represent likely perinatal transmission. Because it takes time to confirm perinatal HIV cases, readers should consider the numbers here preliminary for recent years.

Table 2.7. HIV disease cases that were likely perinatal transmissions, 1999-2008

Year of birth	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Number of Cases	6	4	6	3	5	3	1	5	5	2

HIV DISEASE AMONG FOREIGN-BORN RESIDENTS

Figure 2.13 display the number of HIV disease cases that were identified among foreign-born people in North Carolina. Substantial increases in the number of cases for this group have been noted over the last seven years. The number of foreign-born HIV disease cases in 2008 (n=123) represented approximately 15 percent of all foreign-born HIV cases (839) for the last ten years (1999-2008).

Figure 2.13. Foreign-born HIV disease diagnosed, 1990-2008

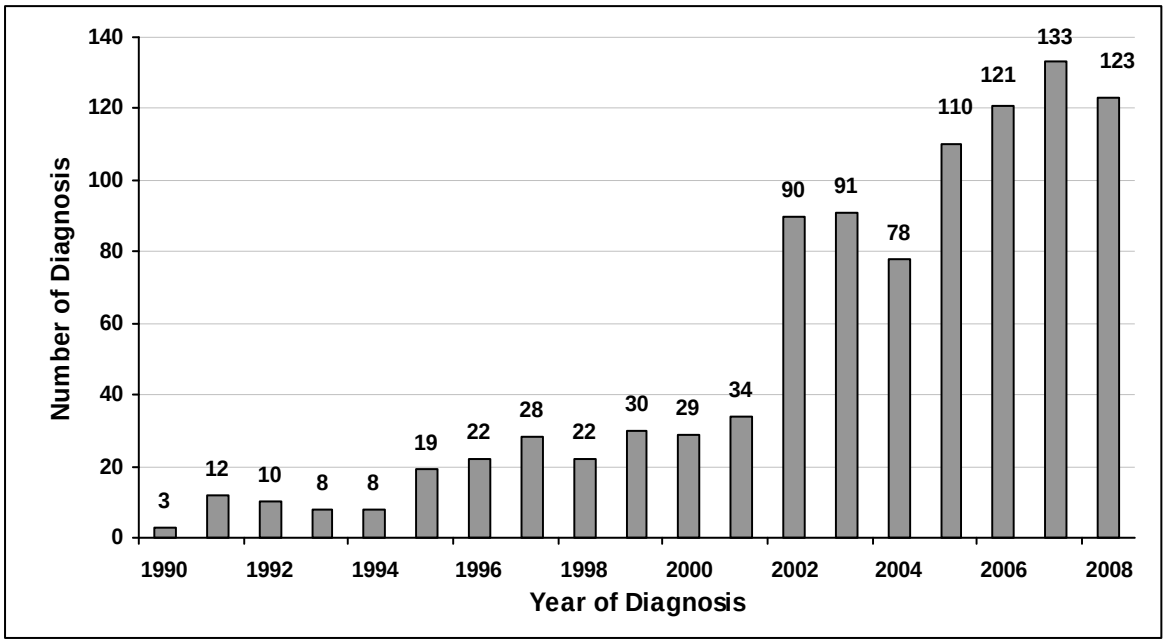


Table 2.8 shows the race/ethnicity of the foreign-born HIV cases. Hispanics comprised the highest proportion (60%). Non-Hispanic blacks comprised 29 percent of reports; whites and Asian made up 7 and 4 percent respectively.

Table 2.8. Race/Ethnicity of foreign-born HIV disease cases diagnosed 1999-2008

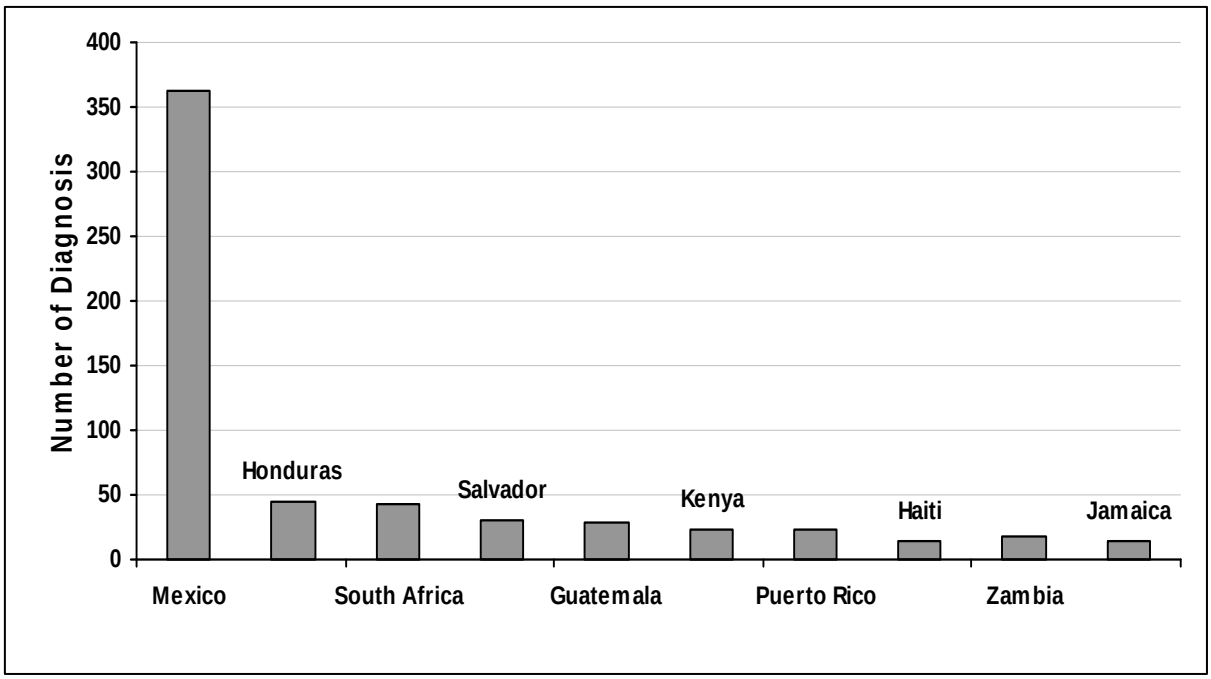
Race/ethnicity	No.	Pct
White, non-Hispanic	55	7%
Black, non-Hispanic	242	29%
Asian/Pacific Islander	32	4%
Hispanic	507	60%
Others	3	1%
Total	839	100%

For the previous ten years, Mexico was the origin country with the highest number (360 cases) of foreign-born HIV cases. For HIV-infected Hispanics, the principal country of origin was Mexico, followed by Honduras, El Salvador, Guatemala and Puerto Rico. For foreign-born

blacks, the principal countries of origin were South Africa, Kenya, Zambia, Haiti, Jamaica and Liberia. Figure 2.14 shows the number of HIV disease cases by country origin for the top 10 countries among all foreign born HIV cases diagnosed from 1999 to 2008.

The majority (84.7%) of these foreign-born HIV disease cases were diagnosed in urban counties including Wake (19.9%), Mecklenburg (19.9%), Guilford (8.9%), Durham (8.1%), and Forsyth (5.5%). About 15 percent of foreign-born cases were diagnosed in rural counties, including Craven, Davidson, Lee, Roberson, Rowan, Duplin, Hertford and Wilson counties.

Figure 2.14. Country of Birth for Foreign born HIV disease case, 1998-2008



Information about foreign-born HIV cases is important to keep in mind as outreach and prevention initiatives are planned, because messages and information must be tailored or designed with reflecting their culture and language. Information on foreign-born population in North Carolina is presented in Chapter 1.

HIV DISEASE CASES DIAGNOSED LATE

Table 2.9 shows the proportion of individuals diagnosed as AIDS when they were first diagnosed as HIV infected (concurrent AIDS cases) in 2008. These persons with concurrent diagnosis are generally referred to as 'late testers' and include any person who receives an AIDS diagnosis within six months of the initial HIV positive screening. Hispanics had the highest proportion (35.2%) of concurrent AIDS cases. Overall, 25.7 percent of newly diagnosed individuals had a concurrent AIDS diagnosis in 2008.

Table 2.9. The proportion of race/ethnicity among late testers for HIV disease in 2008

Race/ ethnicity	Males	Females	Total
White*	28.4%	22.0%	27.3%
Black*	24.3%	24.5%	24.4%
Hispanic	37.5%	21.7%	35.2%
Other*	8.1%	25.0%	11.1%
Overall	26.3%	24.0%	25.7%

*non-Hispanic

As shown in Table 2.10, roughly 25 to 30 percent of new individuals diagnosed with HIV disease each year also represent AIDS cases (i.e. late testers). Table 2.12 also displays the proportion of concurrent AIDS diagnoses dropped from 29.1 percent to 25.7 percent during 2004-2008 period.

Table 2.10. Proportion of HIV and Concurrent AIDS, 2004-2008

	Status at Diagnosis	
Year of Diagnosis	HIV (non-AIDS)	AIDS (concurrent*)
2004	70.9%	29.1%
2005	70.9%	29.1%
2006	71.1%	28.9%
2007	75.5%	24.5%
2008	74.3%	25.7%

*HIV and AIDS diagnosed concurrently in less than six months

The significant proportions of late diagnoses indicate 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 years (Kaiser, 2006).

Table 2.11 displays the gender and race specific proportions of all concurrent AIDS cases (late testers) diagnosed from 2004 to 2008. It is noticed that African Americans dropped from 70.0 percent to 60.8 percent of late testers, and Hispanics increased from 4.1 percent to 11.1 percent from 2004 to 2008.

Late diagnosis of HIV not only increases the likelihood for late testers to miss opportunities for effective antiretroviral therapy, but also increases the risk of transmission without awareness of infection. Research shows that by knowing their infection status, people are less likely to transmit the infection to others. 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 2.11. Proportions of sex and race/ethnicity among late HIV diagnoses, 2004-2008

Sex	Race/Ethnicity	Year of Diagnosis 2004	2005	2006	2007	2008
		Pct.	Pct.	Pct.	Pct.	Pct.
Male	White*	22.2	22.9	20.9	23.0	23.6
	Black*	48.7	43.5	42.6	41.9	42.2
	Hispanic	3.5	6.1	11.8	9.6	10.1
	Other/Unknown	0.7	1.7	1.9	0.6	0.6
	Total	75.0	74.2	77.1	75.1	76.4
Female	White*	2.8	4.8	3.1	4.7	3.6
	Black*	21.3	19.7	16.5	18.5	18.6
	Hispanic	0.7	0.8	2.9	1.5	1.0
	Other/Unknown	0.2	0.4	0.4	0.2	0.4
	Total	25.0	25.8	22.9	24.9	23.6
Total	White*	25.0	27.7	24.0	27.7	27.1
	Black*	70.0	63.2	59.1	60.4	60.8
	Hispanic	4.1	6.9	14.7	11.1	11.1
	Other/Unknown	0.9	2.1	2.3	0.9	1.0
	Total	100	100	100	100	100

*non-Hispanic

GEOGRAPHIC DISTRIBUTION OF HIV/AIDS

Based on criteria from Office of Management and Budget (OMB) and the Centers for Disease Control and Prevention (CDC), North Carolina could be categorized into large metropolitan (metropolitan area with 500,000 population or more), medium-sized metropolitan (metropolitan area with population between 50,000 to 499,999), micropolitan and non-metropolitan areas; large and medium-sized metropolitan areas are usually referred to as urban areas, and micropolitan and non-metropolitan areas as rural areas. According to CDC, nationally 82 percent of AIDS reports are from large metropolitan areas and 11 percent from medium-sized metropolitan areas, ending up with 93 percent from urban areas and 7 percent from rural areas in 2006.

The South has a more severe HIV epidemic in the rural areas than other regions. In 2006, the South had 10.3 percent of its AIDS reports from rural areas, compared with 8 percent in the Midwest, and 3 percent in both the Northeast and the West regions. There is growing concern about the disproportionate increase of HIV and AIDS in the South as compared to other regions. 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 Manifesto, 2008). North Carolina's HIV epidemic, like that of other states in the South, is more rural in nature than the national epidemic.

County residence of HIV disease cases

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 79 percent of newly diagnosed persons in 2008 were from urban counties, (See Map 9, Appendix A, pg. A-11), some of the highest HIV disease rates (per 100,000 population) are found in more rural counties (See Map 10, pg. A-12).

Tables K-L (pg. D- 14-17) give individual county totals of HIV disease and AIDS cases reported, cases listed as living at the end of 2008, and a ranking of case rates (per 100,000 population) based on a three-year average (2006-2008). Mecklenburg County ranked number one with the highest HIV disease three-year average rate of 46.2 per 100,000 population in 2008, followed by Edgecombe County (37.3), Durham County (35.8), Cumberland County (34.1) and Guilford County (34.1). 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, such as prison, are removed from county totals for a better comparison of HIV impact among communities.

Please notice that county of residence is based on where the individuals were living when diagnosed with HIV disease. People may move to other areas in the years after the diagnoses. Assuming no significant difference between the numbers of HIV disease cases moving in and out of the original residence county, the statistics above still indicate roughly the number and rate of living HIV disease cases in the corresponding counties.

Geographic areas for the prevalent HIV cases

Over 50 percent of living cases reported in North Carolina were from seven counties, which included Mecklenburg (17.4%), Wake (10.4%), Guilford (7.3%), Durham (5.8%), Forsyth (4.9%), Cumberland (4.8%) and New Hanover (2.6%) counties. About 74 percent of living HIV cases were in urban areas, and 26 percent in rural areas. Roughly, the prevalence rates for blacks and whites were higher in urban than in rural areas (Table 2.12). Prevalence rates in the large metropolitan areas for whites and blacks were higher than the rates in medium-sized

Table 2.12. HIV Disease prevalence as of 12/31/2008 in urban and rural areas

	Urban areas			Rural areas			Total		
	No.	Pct.	Rate**	No.	Pct.	Rate**	No.	Pct.	Rate**
White*	4,770	20.4%	111.8	1,315	5.6%	69.2	6,085	26.%	98.7
Black*	11,420	48.9%	812.6	4,200	18.0%	746.7	15,620	66.%	793.7
AI/AN*	65	0.3%	204.9	137	0.6%	184.0	202	0.9%	190.2
Asian PI*	79	0.3%	49.5	26	0.1%	121.2	105	0.4%	58.0
Hispanic	921	3.9%	189.6	299	1.3%	196.0	1,220	5.2%	191.1
Total	17,356	74.3%	273.4	6,007	25.7%	221.5	23,363	100%	257.8

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

metropolitan and micropolitan areas; prevalence rates in non-metropolitan areas for blacks and Hispanics were similar to, or even higher than the rates in large metropolitan areas because of small population size in non-metropolitan areas (Table 2.12a).

Geographic areas for the new HIV cases diagnosed in 2008

As seen in Table 2.13, in 2008, about 77 percent of HIV disease cases newly diagnosed in urban areas, and 23 percent in rural areas. Since 1990s, about 25 percent of North Carolina's HIV disease cases have consistently come from rural areas

Table 2.12a. HIV/AIDS prevalence rates* by metropolitan statistical areas, 2008

		Urban areas		Rural areas		N.C. Total
		Large metro	Medium metro	Micro-Politan	Non-metro	
Male	Whites	211.3	166.6	90.5	141.4	162.4
	Blacks	1,225.1	985.2	768.8	1,664.8	1,089.2
	Hispanics	259.3	269.3	199.8	377.1	261.4
Female	Whites	40.7	37.0	33.7	44.7	38.1
	Blacks	582.7	520.9	442.9	585.6	533.5
	Hispanics	87.4	99.7	85.8	211.3	99.7
Total	Whites	124.2	100.1	61.3	91.7	98.7
	Blacks	881.8	737.6	595.8	1,108.3	793.7
	Hispanics	184.9	195.3	149.0	307.6	191.1

* Rates in per 100,000 population

Table 2.13. Newly Diagnosed Adult/Adolescent HIV disease cases in urban and rural areas, 2008

Race/ Ethnicity	Urban		Rural		Total	
	Pct.	Rate**	Pct.	Rate**	Pct.	Rate**
	77%	28.8	23%	20.1	100%	26.2
White*	20%	11.0	5%	6.4	26%	9.6
Black*	48%	84.4	16%	67.5	64%	79.5
AI/AN*	0%	18.9	0%	8.4	1%	11.6
Asian PI*	0%	5.6	0%	17.7	1%	7.0
Hispanic	7%	37.7	2%	29.7	8%	35.8
Multiple	1%	---	0%	---	1%	---

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

HIV/AIDS-RELATED DEATHS

According to the National Center for Health Statistics, the cumulative number of people with HIV disease as cause of death through 2006 in North Carolina is 10,401. In 2007, the North Carolina State Center for Health Statistics reported 382 (rate of 4.2 per 100,000 population) HIV/AIDS deaths (Table 2.14), making the total number of deaths caused by HIV disease in North Carolina 10,783 (different from the total number of deaths for persons infected with HIV/AIDS mentioned in pg. 20). 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 people. According to the State Center for Health Statistics the crude death rate is about 13 times higher for blacks (15.2 per 100,000) than for whites (1.2 per 100,000).

Table 2.14. N.C HIV/AIDS-related deaths by race/ethnicity and gender, 2007

Race/	Males			Females			Total		
ethnicity	No.	Pct.	Rate*	No.	Pct.	Rate*	No.	Pct.	Rate*
White**	59	22%	2.0	14	12%	0.4	73	19%	1.2
Black**	202	76%	21.9	97	84%	9.3	299	78%	15.2
Hispanic	4	2%	1.1	3	3%	1.1	7	2%	1.1
Other	1	0%	0.7	2	2%	1.4	3	1%	1.0
Total	266	100%	6.0	116	100%	2.5	382	100%	4.2

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

HIV/AIDS as a cause of death is usually among people aged 25-60 years old, and varied by race/ethnicity in North Carolina. HIV/AIDS ranked as the 5th leading cause of death among blacks aged 25-44 years, and 7th among American Indians and Hispanics, as well as overall population aged 25-44 years in North Carolina; HIV/AIDS also ranked 5th leading cause of death among blacks, and 10th among Hispanics aged 45-60 years old (Table 2.15).

Table 2.15. HIV Disease as the Leading Cause of Death among North Carolina Residents, 2007

Age Group	Race/Ethnicity	Number of Deaths	Rank as the leading Cause of death
25-44 years	American Indian*	3	7th
	White*	33	9th
	Black*	126	5th
	Hispanic	4	7th
	All Races	166	7th
45-64 years	Black*	158	5th
	Hispanic	3	10th

*non Hispanic Source: N.C. State Center for Health Statistics

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CHAPTER 3: MAJOR GROUPS AFFECTED BY HIV IN NORTH CAROLINA

HIGHLIGHTS

Men who have sex with men (MSM)

- MSM (including MSM/IDU) represented 44 percent of living HIV disease cases as the end of 2008.
- The proportion of HIV disease cases associated with MSM has increased 23 percent over the past five years (from 45% in 2004 to 56% in 2008).
- Among adult/adolescent males, 74 percent of HIV Disease cases diagnosed in 2008 were associated with MSM activity. Eighty-nine percent (89%) of adolescent male (age 13-24 years) HIV disease reports were associated with MSM activity.
- In 2008, MSM activity accounted for 86 percent of newly diagnosed HIV disease cases among white, non-Hispanic males, 71 percent of black males, and 58 percent of Hispanic males.

Injecting Drug Use (IDU)

- In 2008, IDU (including MSM/IDU) accounted for 6.8 percent of newly diagnosed HIV disease cases.
- IDU risk as a proportion of newly diagnosed HIV cases has decreased 34.6 percent in the past five years (from 10.4% in 2004 to 6.8% in 2008).
- The male-to-female ratio of HIV disease cases associated with IDU was consistently around 2.5:1 over the past five years.

Heterosexual Sex

- In 2008, heterosexual sex accounted for 40 percent of newly diagnosed adult/ adolescent HIV disease cases.
- 90 percent of adult/adolescent females and 22 percent of adult/adolescent male HIV disease cases were attributed to heterosexual sex in 2008.
- Heterosexual sex accounted for 97 percent of adolescent female (age 13-24 years) and 11 percent of adolescent male (age 13-24 years) HIV disease cases diagnosed in 2008.

- In 2008, heterosexual sex accounted for 92 percent of black female and 27 percent of black male HIV disease cases. Heterosexual sex accounted for 83 percent of white female and 9 percent of white male HIV disease cases. For other minority groups, heterosexual sex accounted for 93 percent of HIV cases for females and 30 percent for males.

African Americans (blacks)

- African Americans or blacks are disproportionately affected by HIV/AIDS in North Carolina and represented the majority of adult/adolescent HIV and AIDS cases, perinatal HIV cases, and HIV related deaths in North Carolina.

- In 2008, blacks contributed 64 percent of all adult/adolescent HIV disease cases, while representing only 22 percent of N.C. population. Blacks consistently represent over 60 percent of newly diagnosed HIV cases.

- The HIV disease rate among black males was the highest of all gender and race groups in 2008.

- The rate of HIV disease was 8.3 times higher for blacks than for whites, and 2.2 times higher than for Hispanics in 2008

- A greater proportion of black (male and female) HIV cases are attributed to heterosexual transmission than white, non-Hispanic cases.

- In the past five years, black MSM diagnosed with HIV disease were more likely to report also having female sex partners (43.5%) than were white, non Hispanic MSM (26.3%), Hispanic MSM (35.6%) or MSM of other race/ethnicities (38.7%).

Hispanics (Latinos)

- The number of Hispanic HIV cases increased in recent years and in 2008, Hispanics accounted for eight percent of newly diagnosed adult/adolescent HIV disease cases.

- The HIV disease rate for Hispanics was 3.7 times higher than the HIV rate for whites in 2008.

- The HIV disease rate among Hispanic males was the second highest among all gender and race specific groups in 2008.

- The age at HIV disease diagnosis for Hispanics was younger than that for whites and blacks.

- More than 50 percent of Hispanic HIV cases diagnosed in the previous five years were born in countries other than United States.

MEN WHO HAVE SEX WITH MEN (MSM)

HIV/AIDS has taken a tremendous toll on men who have sex with men (MSM). In terms of transmission routes, MSM contributed the most cases and greatest proportion of HIV disease, both nationally and in North Carolina. MSM accounted for 77 percent of male and 57 percent total HIV disease cases nationally in 2006 (CDC, 2009). In North Carolina, MSM (including MSM/IDU) accounted for 74 percent of male HIV disease cases and 56 percent of total cases in 2008. 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 (Mansergh et al. 2002). Sexually transmitted diseases, such as gonorrhea and syphilis, increase the risk of HIV infection (Flemming and Wasserheit, 1999). High STD rates in North Carolina are markers for high-risk sexual practices and are cause for concern. Psychosocial problems such as depression, childhood sexual abuse, using more than one drug, and partner violence have been shown to increase high risk sexual behavior, and MSM with more than one of these problems may be at greater risk for HIV infection (CDC July 2005).

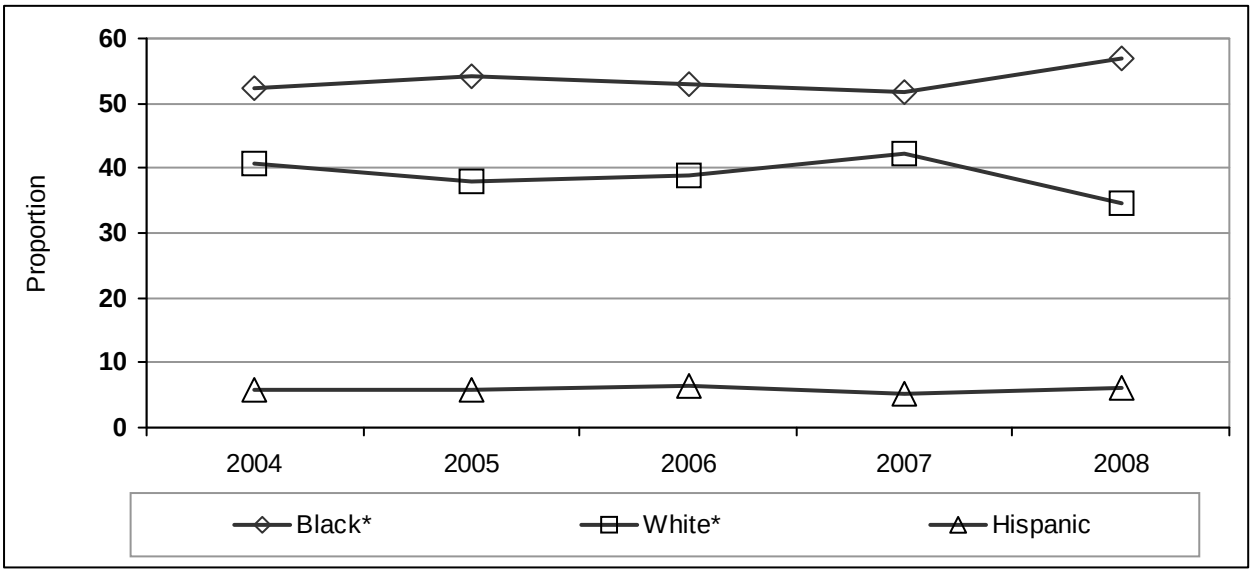
Among all adults and adolescents diagnosed and living with HIV disease, 44 percent are MSM (Table I, pg. D-12). The number and proportion of all HIV disease cases reporting MSM activity has increased 24 percent during the past five years, from 45 percent in 2004 to 56 percent in 2008. The proportion of heterosexual and IDU transmission has decreased in that same time period, 14.5 percent and 34.6 percent respectively (see Table E, pg D-8).

Race/Ethnicity

Majority of HIV cases reporting MSM risks were blacks, followed by whites. In 2008, among HIV cases reporting MSM risks (n=1079, including MSM/IDU), 57 percent of them were black, 34.5 percent were white, and 6 percent were Hispanic. Over the past five years (2004-2008), white MSM deceased 15 percent (from 41% to 34.5%) as a proportion of HIV cases reporting MSM, black MSM increased 9 percent (from 52% to 57%), and Hispanic MSM remained at 6 percent (Figure 3.1.).

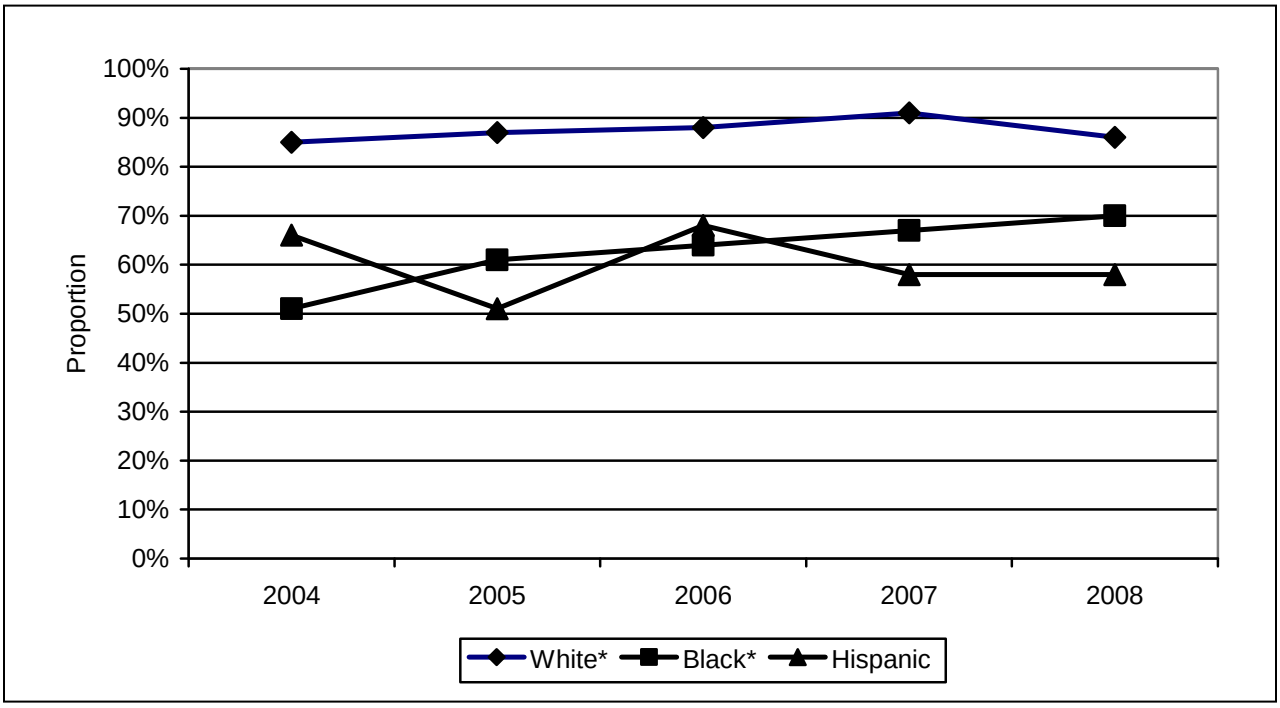
The proportions of male HIV cases associated with MSM risks varied among racial/ethnic groups. In 2008, the proportion of MSM associated HIV cases among white males was 86 percent, which is higher than the proportions of MSM associated HIV among black males (71%) or Hispanic males (58%). The proportion of HIV cases associated with MSM among black males has increased 39 percent from 2004 to 2008 (51% to 71%), and the proportion among white males increased from 85 percent in 2004 to 91 percent in 2007, and then dropped to 86 percent in 2008; the proportion among Hispanic males fluctuated from 50 percent in 2005 to 58 percent in 2008. (Figure 3.2; Table G, pg. D-10).

Figure 3.1. Race/Ethnicity of HIV Disease Cases with MSM risk, 2004-2008**



*non Hispanic **including MSM/IDU

Figure 3.2. Proportion of male HIV cases reporting MSM risk among each race/ethnicity, 2004-2008**

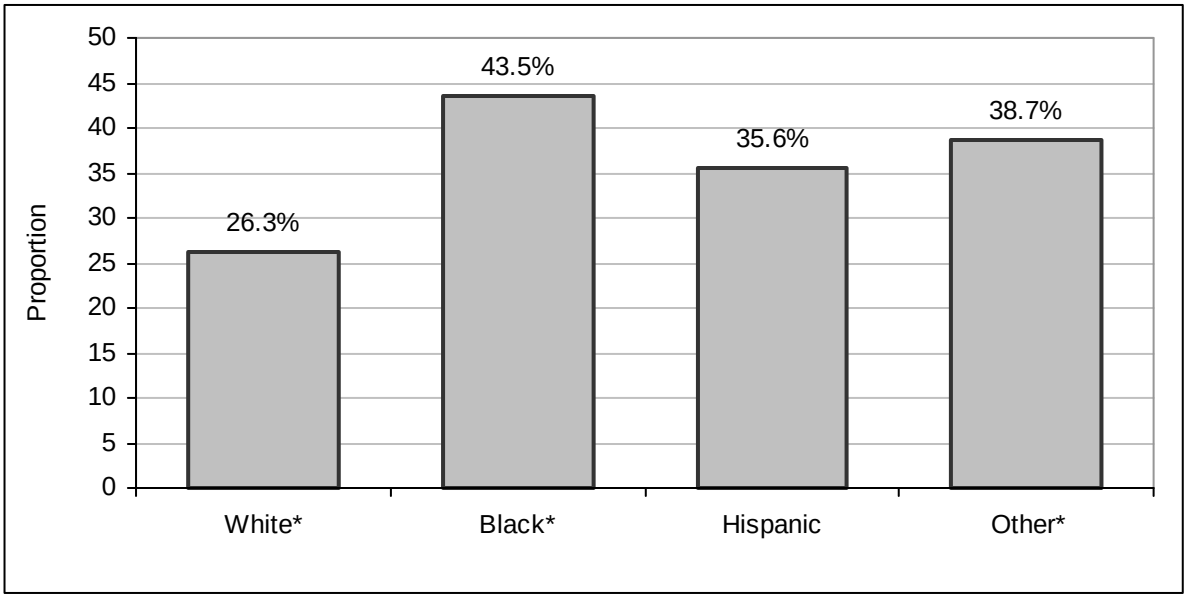


* non-Hispanic **including MSM/IDU

Men who have sex with men and women

Of all self-disclosed MSM ever diagnosed with HIV and reported in N.C., 35.7 percent acknowledged having sex with women. For the past five years (2004-2008), 31 percent of HIV positive, self-reported MSM acknowledged having sex with women. Black MSM had the highest proportion of individuals having sex with women (43.5%), and white MSM had the lowest proportion (26.3%) (Figure 3.3).

Figure 3.3. Proportion of HIV positive MSM having sex with women by race/ethnicity, 2004-2008**

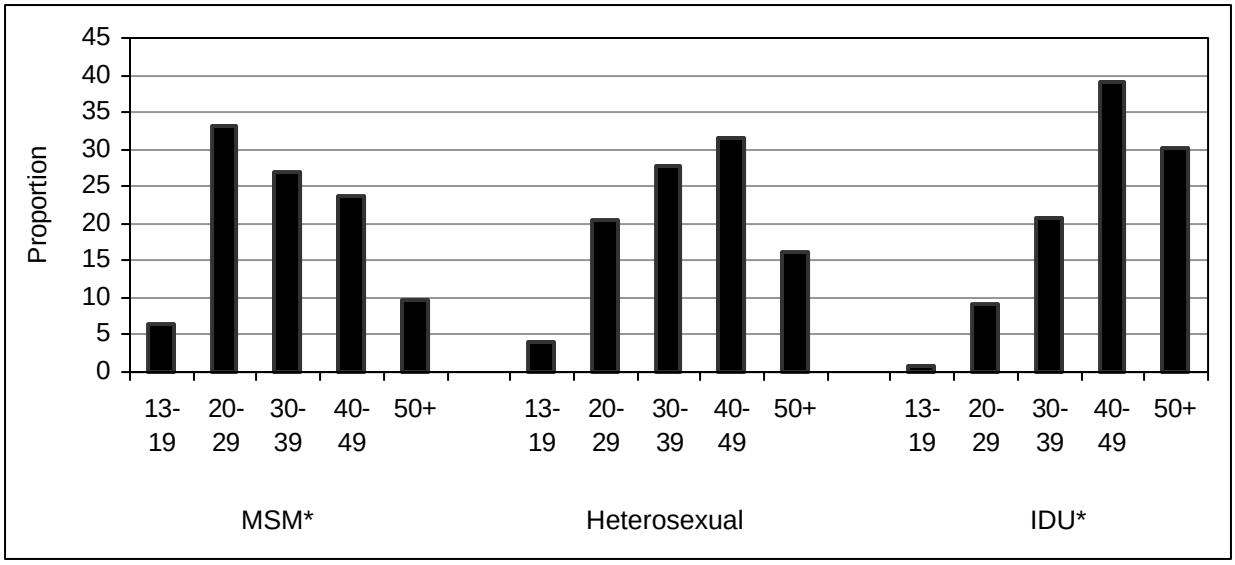


* non-Hispanic **including MSM/IDU

Age

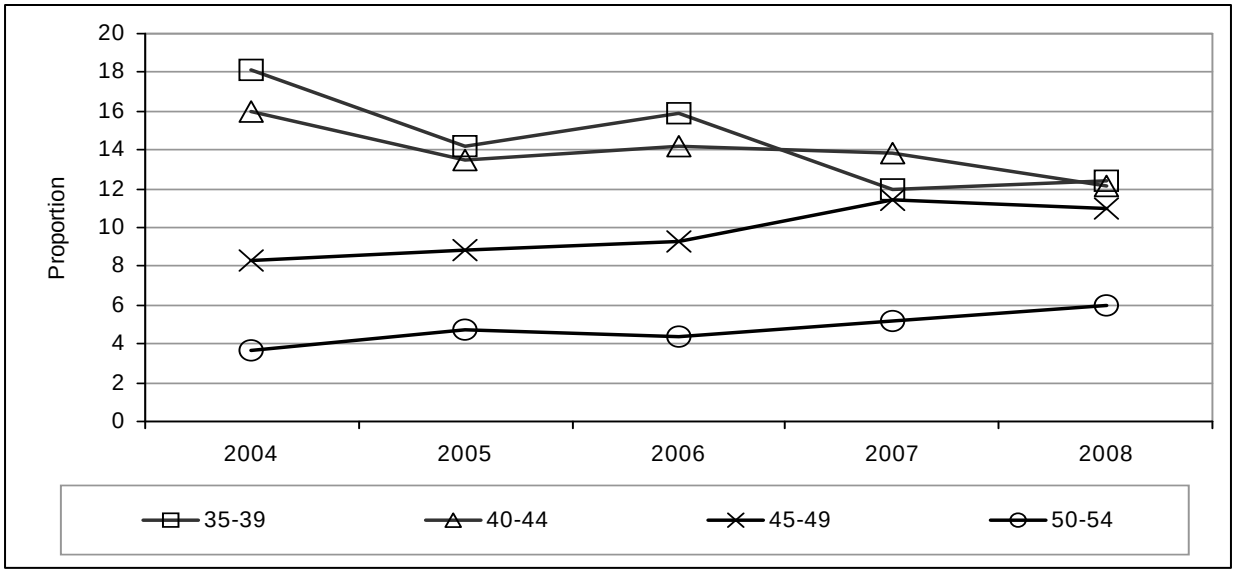
Compared to individuals diagnosed with HIV disease who have other HIV transmission risk, MSM (including MSM/IDU) were likely to be diagnosed at younger ages. Over the past five years, about 40 percent of HIV cases reporting MSM were diagnosed between 13 to 29 years old, 24.5 percent of HIV cases reporting heterosexual risk and 10 percent of HIV cases reporting IDU were diagnosed between 13 and 29 years old (Figure 3.4). Figure 3.5 shows the changes of proportions of different age groups for HIV cases reporting MSM risk during previous five years. The proportion of HIV positive MSM aged 35 to 44 years decreased, and proportion aged from 45 to 54 years increased during previous five years.

Figure 3.4. Age at HIV Diagnosis by Mode of Transmission, 2004-2008



*both including MSM/IDU

Figure 3.5. Proportion of Selected Age Groups among HIV Cases Reporting MSM* Risks, 2004-2008



*Including MSM/IDU

Young MSM

In 2008, 73 percent of newly diagnosed HIV disease cases among young people aged 13 to 24 years reported MSM activity (Table H, pg. D-11). This represents a 20 percent increase over the past five years (61% in 2004 to 73% in 2008). MSM and MSM/IDU risk account for 89 percent of HIV cases among males aged 13 to 24 years in 2008. Adolescence and young adulthood are

often characterized by experimentation and exploration of sexuality and drug using, especially among young MSM who struggle with societal such as homophobia, racism and poverty. Societal and individual problems that influence risk-taking also discourage young MSM from accessing prevention services. Comprehensive health programs that educate young MSM about HIV risk should address sexuality in the context of young men's lives, taking into account sexual identity (gay, bisexual or MSM who identify as neither).

Partner Counseling and Referral Services (PCRS) Data

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, assist with partner notification, and educate them about the control measures they must take in order to avoid infecting others. More information about the Field Services and the PCRS data source can be found in Appendix B (pg. B9). ***Readers should be advised that MSM in this discussion are men infected with HIV or syphilis. Chapter 5 discusses MSM who were interviewed at the N.C. Pride events.***

MSM with HIV and/or syphilis

Among all males interviewed with an HIV Disease diagnosis in 2008, 51 percent indicated an MSM risk. MSM associated HIV infection has increased 8.5 percent (47% to 51%) as a proportion of male HIV disease cases interviewed through PCRS from 2004-2008. Among all males interviewed with early syphilis in 2008 (n=456), MSM activity was identified in 66 percent of cases. This represented a 65 percent increase from 2004-2008 (40%-66%).

Table 3.1. Males interviewed with HIV or syphilis who reported MSM activity, 2004-2008

	2004		2005		2006		2007		2008	
Disease	n	Pct.	n	Pct.	n	Pct.	n	Pct.	n	Pct.
HIV	546	47%	600	48%	645	49%	748	51%	703	51%
Syphilis	130	40%	182	48%	238	54%	275	63%	301	66%

Sex partners

Among men with HIV interviewed from 2004 to 2008 who indicated MSM activity, 13 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 they had a new sex partner within the past 90 days. Twenty-three percent (23%) of MSM interviewed with HIV from 2004-2008 indicated they had female as well as male sexual partners. Twenty one percent (21%) of MSM with HIV infection indicated that they had a previous STD. Among MSM interviewed with syphilis from 2004 to 2008, 25 percent indicated having multiple sexual partners in the past 90 days; 54 percent indicated they had multiple sexual partners in the past year, and 25 percent indicated they had a new sex partner within the past 90 days. Seventeen percent (17%) of MSM with syphilis indicated that they had female as well as male sexual partners. Thirty seven percent (37%) of MSM with syphilis indicated they had been previously infected with a STD.

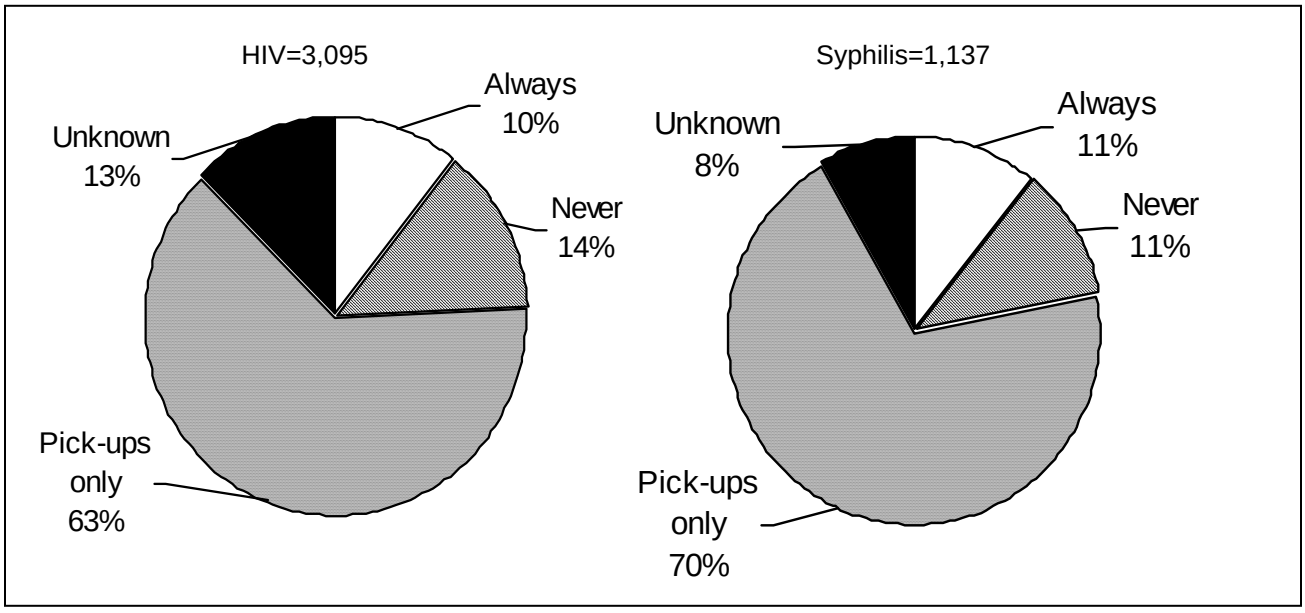
Table 3.2. Sex partners among MSM interviewed with HIV or syphilis, 2004-2008

	MSM with HIV (n= 3,095)		MSM with Syphilis (n=1,137)	
Partners	n	Pct.	n	Pct.
>1 partner, 90 days	389	13%	289	25%
>1 partner, one year	1,210	39%	616	54%
New partner, 90 days	386	13%	287	25%
Sex with men and women	713	23%	197	17%
Sex for drugs or money	124	4%	34	3%

Condom use

Patients with HIV and/or syphilis infection were asked about condom usage in five categories: always, never, sometimes, pick-ups only, and unknown. "Pick-ups" were described as sex with a casual partner, sometimes involving exchange sex (sex for drugs, money, shelter, etc.). Of MSM with HIV interviewed from 2004 to 2008, 10 percent indicated that they always used a condom, 14 percent indicated they never used a condom, and 63 percent indicated they used condoms sometimes, or with pick-ups only. Similarly, 11 percent of MSM interviewed with early syphilis indicated they used condoms always, 11 percent indicated never, and 70 percent indicated they used condoms sometimes, or with pick-ups only (See Figure 3.6).

Figure 3.6 Condom use by MSM interviewed with HIV or syphilis, 2004-2008

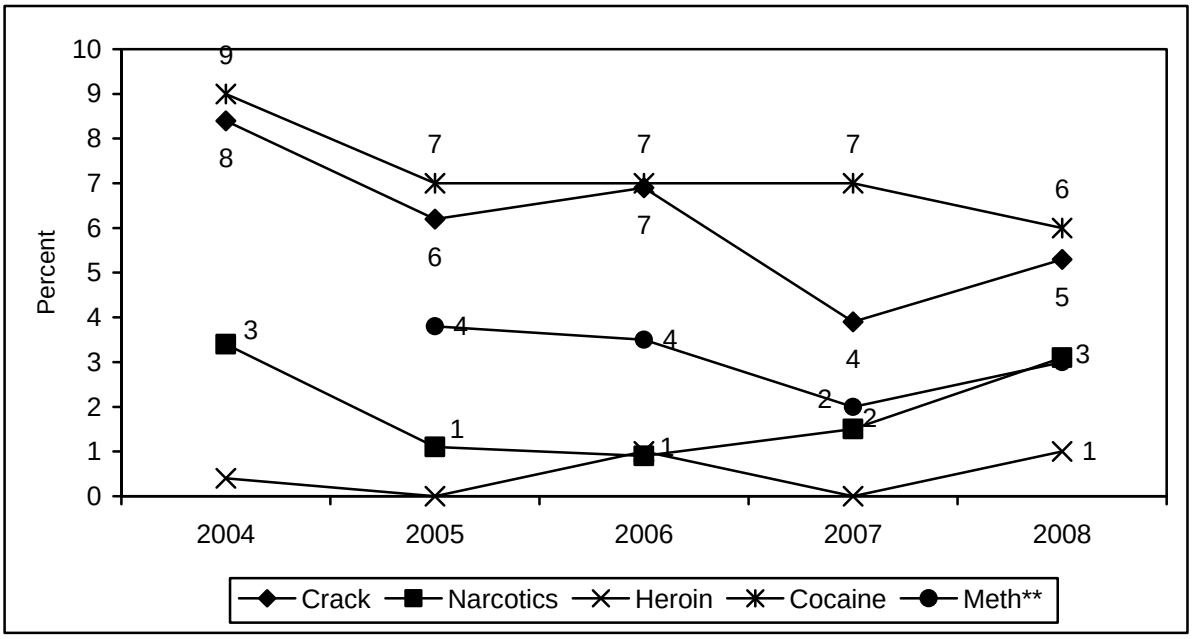


*Men who have sex with men includes MSM/IDU interviewed through PCRS

Non Injection Drug Use among MSM

Syphilis epidemics in parts of the rural South and the epidemic use of crack cocaine are leading cofactors in both the rural and urban HIV epidemics in the United States (Forney & Halloway 1990). People with a history of substance abuse are more likely to engage in high-risk sexual activities (Leigh 1993). Crack cocaine use has been shown to be strongly associated with the transmission of HIV, especially among men who have unprotected anal sex with men (Edlin et al. 1994). For non-injecting substance abusers, HIV infection is not caused by drug use, but by unsafe sexual behavior within certain sexual networks. Sexual networks of substance abusers might include people who have shared 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.

Figure 3.7. Drug use among MSM* interviewed with HIV or syphilis, 2004-2008



*Men who have sex with men includes MSM/IDU interviewed through PCRS
**Meth use added as specific question in 2005

Information regarding drug use was collected during the interview of newly infected people. The most common drugs used among MSM interviewed by DIS in 2008 were marijuana (23%), cocaine (6%), crack-cocaine (5%), meth (3%), heroin (1%) and narcotics (3%). Over the previous five year, the proportions have fluctuated but are roughly stable (Figure 3.7). Evidence of the use of "club drugs" such as MDMA (ecstasy), Rohypnol, GHB, and ketamine were not specified among MSM interviewed in North Carolina from 2004-2008. PCRS data has limitations and DIS may differ in the way they record drug information (more information about the Field Services and the PCRS data source can be found in Appendix B pg. B9).

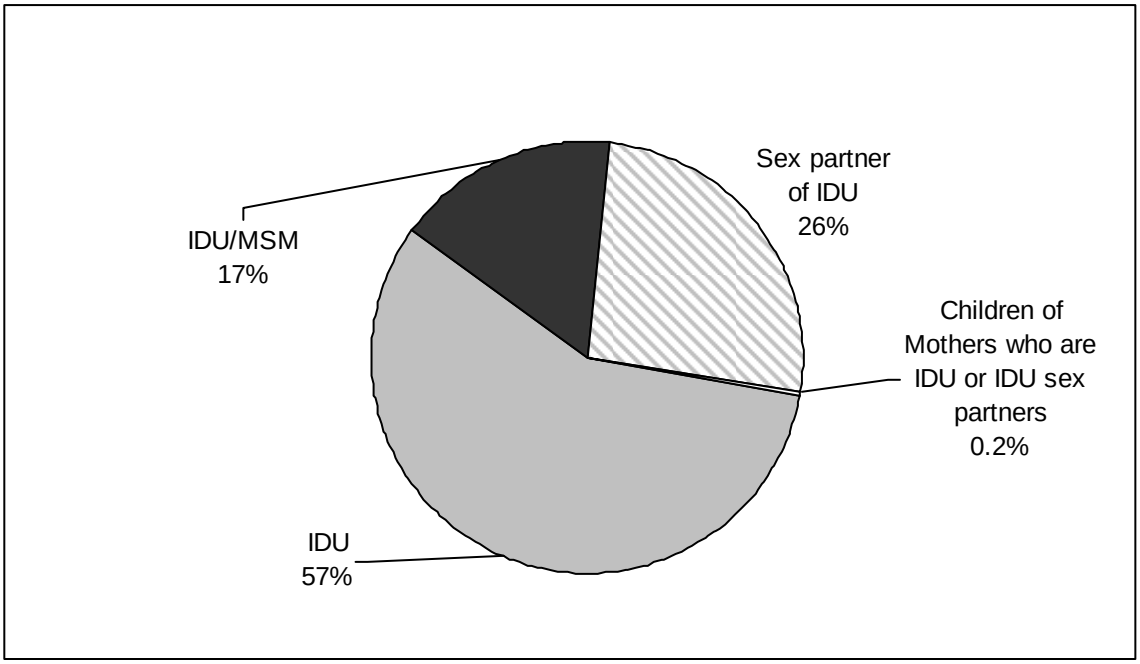
INJECTING DRUG USE (IDU)

Drug use and drug dependence are widespread in the United States, and numerous studies have documented that drug users are at increased risk for HIV, not only by sharing dirty needles and works, but also through sexual behaviors which place their partners at risk. "To minimize the risk of HIV transmission, IDUs must have access to interventions that can help them protect their health. They must be advised to always use sterile injection equipment; warned never to reuse needles, syringes, and other injection equipment; and told that using syringes that have been cleaned with bleach or other disinfectants is not as safe as using new, sterile syringes" (CDC, IDU Fact Sheet, 2002).

HIV disease surveillance

At the early beginning of the HIV/AIDS epidemic, IDU was one of the major transmission routes identified in up to 40 percent of HIV positive individuals in the early 1990s. Of the 35,356 individuals diagnosed and reported with HIV disease in North Carolina, about 8,026 (22%) reported IDU activity (including MSM/IDU). Of the 23,363 individuals living with HIV disease, about 17 percent reported injecting drug use. In recent years the proportion of IDU (including MSM/IDU) decreased 35 percent from 10.4 percent in year 2004 to 6.8 percent in 2008 (see Figure 2.6, pg 27). From 2004-2008, there were 607 HIV cases reporting injecting drug use, including 57 percent who were themselves injecting drug users, 16.6 percent who were MSM who also injected drugs, 26 percent who were sex partners of injecting drug users, and 0.2 percent of children whose mother injected drugs or whose mother had a sex partner who injected drugs (Figure 3.8).

Figure 3.8. Proportion of IDU-associated HIV disease cases, 2004-2008



Gender, Age and Race/Ethnicity

The male-to-female ratio of HIV cases associated with IDU was about 2.5:1. In the previous five years, females consisted of 30 percent of all HIV cases associated with IDU; MSM/IDU increased from 18.5 percent to 28.4 percent, and male IDU (non-MSM) decreased from 52 percent to 42 percent (Figure 3.9). Among 158 HIV positive individuals who claimed to be the sexual partners of IDUs, 35 percent of them were male, and 65 percent female.

Figure 3.9. Proportion of IDUs by Gender, 2004-2008

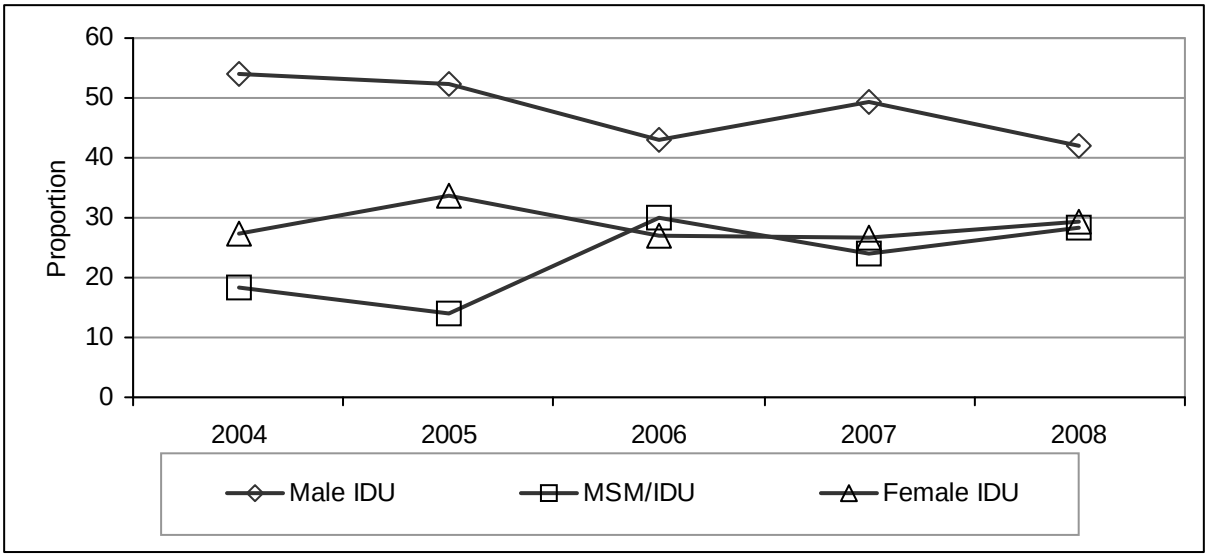
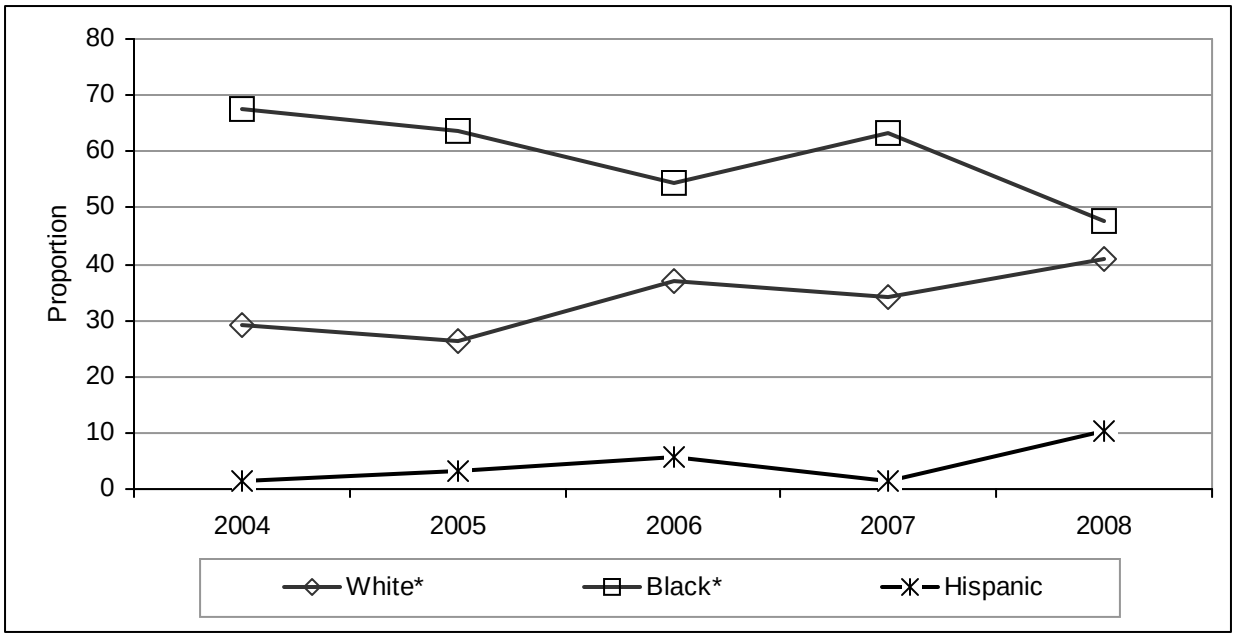


Figure 3.10. Proportion of IDUs by Race/Ethnicity, 2004-2008



*non-Hispanic

Over the past five years (2004-2008), whites comprised 33 percent, blacks comprised 60 percent, and Hispanics comprised 4 percent of the HIV disease cases with self reported IDU. Blacks decreased as a proportion of IDU reports from 67.5 to 47.7 percent, while whites increased from 29.3 to 41 percent, and Hispanics increased from 1.6 percent to 10.2 percent (Figure 3.10).

IDUs were diagnosed with HIV disease at greater ages than were MSM and heterosexuals. As shown in Figure 3.4 (pg 44), over 90 percent of IDUs are diagnosed with HIV disease after the age of 30, or about 70 percent diagnosed after age of 40.

Partner Counseling and Referring Services Data (PCRS)

Among HIV cases interviewed through PCRS, IDU risk has slightly decreased from 2004 to 2008 (6%-3%). Of HIV cases interviewed through PCRS from 2004-2008, the majority reporting IDU risk were male (70%), black non-Hispanic (58%), and ages 40 and older (75%). In 2008, IDU risk was reported by four percent of males (n=54) and six percent of females (n=27) interviewed with HIV Disease. Thirty percent (30%) of persons interviewed through PCRS who indicated they have IDU risk also indicated having a sex partner who has injected drugs. Thirty five percent of persons with IDU risk interviewed in 2008 also reported having exchanged sex for drugs or money.

Injecting drug users may also engage in other substance use and high-risk sexual activities, which make transmission within the networks more likely. Half of all people interviewed in 2008 with HIV and reporting IDU risk, used crack cocaine. Also, 46 percent of males and 44 percent of females with IDU risk indicated having a sex partner who uses crack cocaine. Other non injecting drugs reported include: 47 percent used marijuana, 25 percent used cocaine, 7 percent used methamphetamine, 3 percent used heroin, and 8 percent used narcotics.

HETEROSEXUAL RISK

North Carolina continues to experience an HIV epidemic in which a substantial proportion of the cases are among people reporting heterosexual sex as their only risk. At of the end of 2008, thirty six percent of all adult/adolescent cases diagnosed with HIV disease in N.C. (n=35,356) were attributed to heterosexual transmission. Heterosexual transmission of HIV represented 40 percent of all new adult/adolescent HIV disease cases in 2008, a decline of 13 percent from 2004 (46.2% in 2004, Figure 2.6, Pg 27. Table E, pg. D-8).

Race/Ethnicity and Gender

Blacks represented the majority of HIV cases associated with heterosexual transmission (77.4%), followed by whites (12.3%), Hispanics (8.7%) and other race/ethnicity groups (1.6%) in the past five years. In 2008, black females and other racial/ethnic minority females were more likely to be classified with heterosexual risk (92% and 93% correspondingly) as compared to white females (83%) (Table F, pg. D-9). Likewise, black males (27%) and other racial/ethnic minority males (30%) were more likely to be classified with heterosexual risk as compared to white males (9%) (Table G, pg. D-10).

In 2008, there were 768 HIV cases associated with heterosexual transmission; 58 percent were female and 42 percent were male. Heterosexual risk represented 90 percent of the adult/ adolescent female cases in 2008, whereas it represented only 22 percent of male HIV cases. The proportion of HIV cases associated with heterosexual risk among males and females in the previous four years were similar with those in 2008 (Table E, D-8).

Age

HIV cases reporting heterosexual risk are less likely to be diagnosed at earlier ages (13-29) than those reporting MSM risk (including MSM/IDU); fewer than 25 percent of HIV cases associated with heterosexual risk, comparing about 40 percent of HIV cases associated with MSM risk, were diagnosed between age of 13 to 29 years. The majority (59%) of heterosexual associated HIV cases were diagnosed between ages 30 to 49 years (Figure 3.4, pg 44).

Partner Counseling and Referral Services Data (PCRS)

In 2008, 85 percent of interviewed females infected with HIV reported heterosexual activity as their only risk factor. Of males interviewed with HIV in 2008, 32 percent reported heterosexual sex as their only risk factor for HIV transmission. Of males interviewed with syphilis in 2008, 29 percent reported heterosexual sex (versus 66% who reported MSM activity) (Table 3.3).

Table 3.3. Persons interviewed with HIV or syphilis with heterosexual risk, 2004-2008

	2004		2005		2006		2007		2008	
	n	Pct.	n	Pct.	n	Pct.	n	Pct.	N	Pct.
HIV Disease										
Males	390	34%	433	35%	414	32%	441	30%	443	32%
Females	389	85%	434	84%	406	80%	501	85%	403	85%
Early Syphilis										
Males	177	55%	169	45%	172	39%	150	34%	133	29%
Females	144	97%	152	93%	144	94%	148	97%	121	98%

Sex Partners, Condom Use and Previous History of STDs

Interviewed heterosexuals diagnosed with HIV or syphilis were less likely to use condoms, in comparison with MSM and IDU. Thirty-two percent of those with a HIV diagnosis indicated that they "never" use condoms and 48 percent reported using condoms with "pick-ups only." Thirty-one percent of those interviewed with syphilis indicated that they "never" use condoms, and 59 percent reported using condoms with "pick-ups only" (Figure 3.11).

About one-fourth of heterosexuals with HIV interviewed from 2004 to 2008 reported multiple sexual partners in the past year. Over half of the interviewed heterosexual syphilis cases reported multiple partners in the past year (Table 3.4). Twenty-six percent of people with

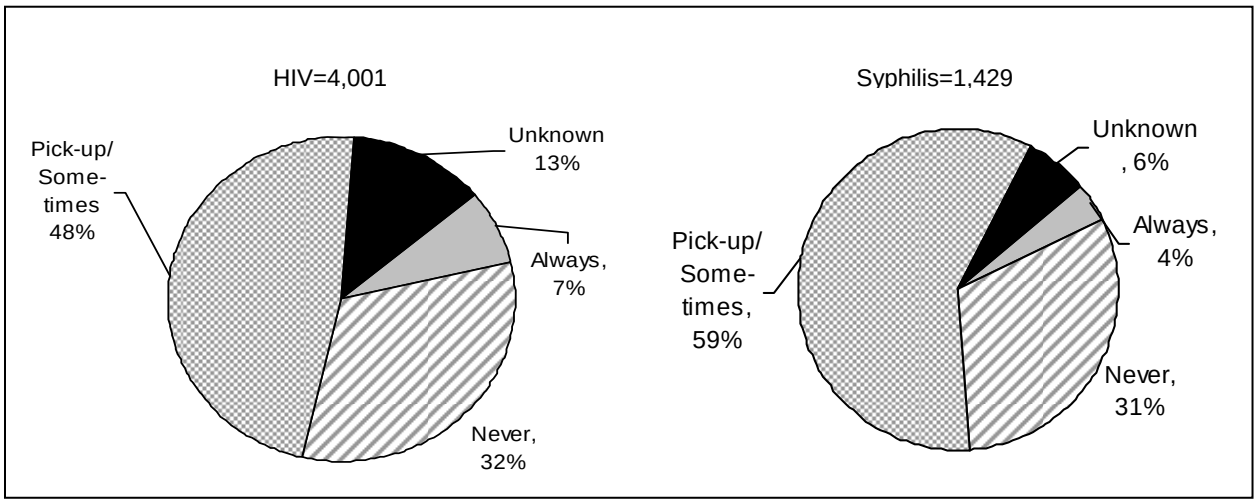
syphilis interviewed from 2004 to 2008 had more than one sex partner in the past 90 days, and 24 percent had a new partner in the past 90 days.

Table 3.4. Sex partners among heterosexuals interviewed with HIV or Syphilis, 2004-2008

Sex Partners	Heterosexual with HIV (n= 4,001)		Heterosexual with Syphilis (n= 1,429)	
	N	Pct.	n	Pct.
>1 partner, 90 days	272	6.8%	376	26.3%
>1 partner, one year	971	24.3%	719	50.3%
New partner, 90 days	222	5.5%	345	24.1%
Sex for Drugs or Money	764	19.1%	411	28.8%
Previous STDs	980	24.5%	549	38.4%

Among persons interviewed with HIV, 24.5 percent reported having had a previous STD; among those interviewed with syphilis, 38.4 percent reported a previous STD. Among individuals interviewed from 2004-2008, 19.1 percent of HIV cases associated with heterosexual risk and 28.8 percent of syphilis cases associated with heterosexual risk reported exchanging sex for drugs or money (Table 3.4).

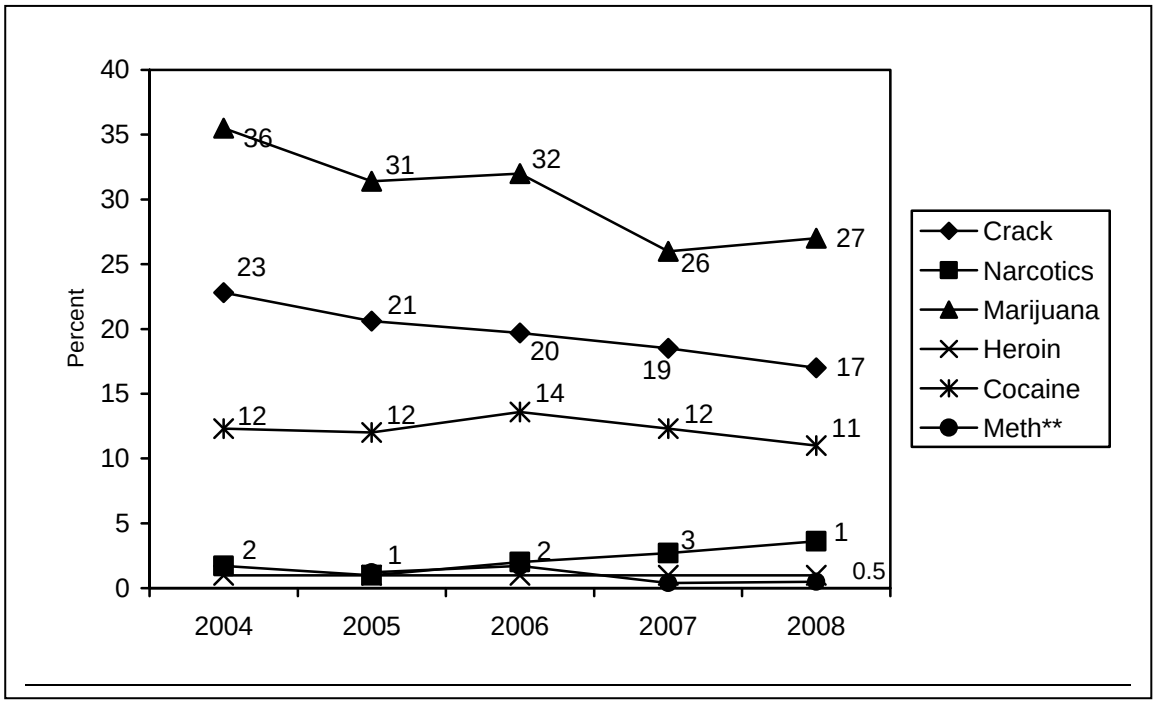
Figure 3.11. Condom use by heterosexuals with HIV or syphilis, 2004-2008



Crack Cocaine and Non Injection Drug Use

The most common drugs used among HIV and syphilis cases interviewed by DIS in 2008 were marijuana (27%), crack-cocaine (17%), cocaine (11%), narcotics (4%), meth (1%) and heroin (1%). Over the past five years, the proportions of marijuana and crack-cocaine use have declined, and other drugs have fluctuated but have been relatively stable (Figure 3.12).

Figure 3.12. Non-injection drug use among heterosexual HIV or syphilis cases, 2004-2008



AFRICAN AMERICANS

African Americans or blacks are impacted to a greater degree by new HIV infections, pediatric cases, AIDS cases and AIDS related death in North Carolina. Blacks make up 22 percent of North Carolina's population, but represent 68 percent of cumulative HIV cases in the state. In 2008, African Americans contributed 64 percent of new adult/adolescent HIV disease diagnoses. The HIV disease rate for African Americans in North Carolina for 2008 was 79.5 per 100,000 population, a rate that was over eight times higher than for white, non Hispanics (9.6 per 100,000) and over twice rate of HIV disease for Hispanics (35.8 per 100,000).

Gender differences

Reports for HIV are distributed disproportionately among black males and females. Many more black men than black women were diagnosed as HIV cases in previous five years, resulting in a male-to-female ratio of 2:1. African American men represent 44.5 percent of total adult/adolescent HIV disease cases in 2008, with the highest rate (120.5 per 100,000 population) among all gender and ethnic groups. The rate for African American men is 7.3 times higher than that for white men (16.6 per 100,000) and 2.3 times higher than that for Hispanic men (52.5 per 100,000). African American women had the rate of 44.7 per 100,000 population, which is highest rate among female ethnic groups, and ranks third among all gender and ethnic groups (lower than African American men and Hispanic men) in 2008 (see Table 2.2, pg 20; Figure 2.4, pg 23).

Mode of HIV Transmission

In the past five years, 46.2 percent of HIV disease cases among African Americans were associated with MSM (including MSM/IDU), 5.8 percent were associated with IDU, 47.2 percent were associated with heterosexual risk, and 0.6 percent (n=32) were cases of perinatal transmission of HIV. The proportion of IDU-associated HIV transmission among blacks was similar with that of whites (both 5.8%).

Figure 3.13. Risk associated with HIV among black males, 2004-2008

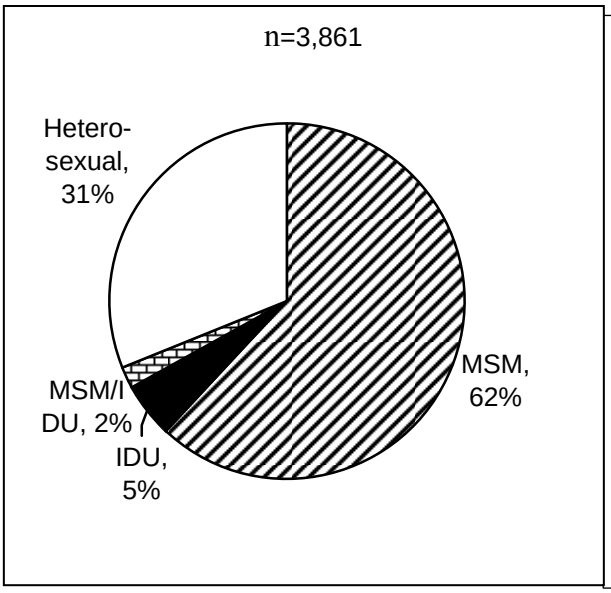
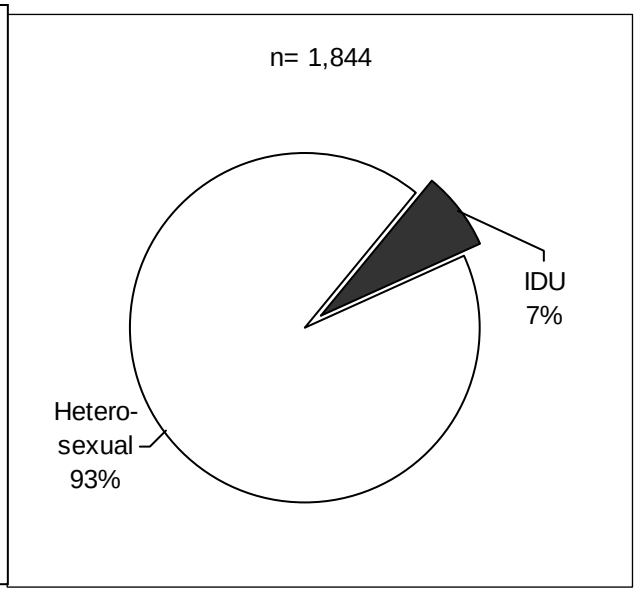


Figure 3.14. Risk associated with HIV among black females, 2004-2008



The proportions of HIV cases associated with heterosexual transmission among both black males (27%) and females (92%) are higher than those among whites (9% and 84% correspondingly). The majority of black men diagnosed with HIV disease in the past five years (61.8%) reported having sex with other men; 31.3 percent of black men reported only having heterosexual sex as a risk factor, and 5.2 percent reported injecting drug use (Figure 3.13). Over 43 percent of African American men diagnosed with HIV from 2004 to 2008 who reported MSM risk also reported having female sex partners (Figure 3.3, pg 43). The vast majority of black women (92.5%) reported their only risk was having heterosexual sex; and the remaining seven percent were associated with injection drugs (Figure 3.14).

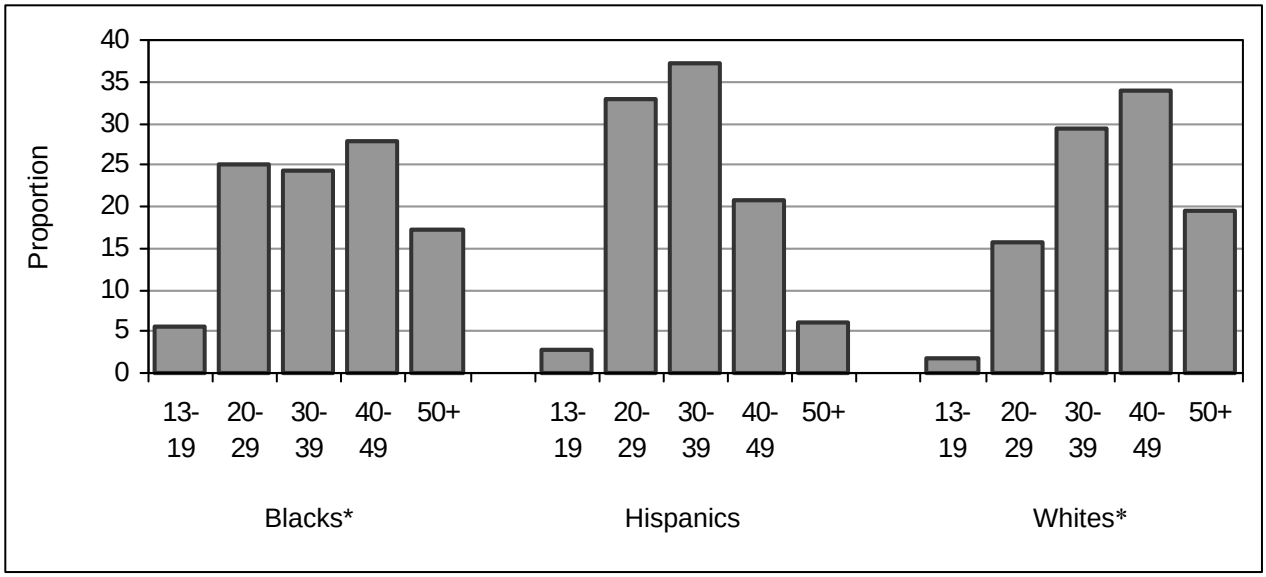
Age

African Americans are more likely to be diagnosed with HIV disease at younger ages (13 to 39 year olds) than whites (Figure 3.15). More African Americans were diagnosed between age 13 to 19 (5.6%) than whites (1.8%) and Hispanics (2.8%); and more African Americans were diagnosed between 20-39 years old (49.3%) than whites that age (45.0%), but less than Hispanics (70.2%).

Black adolescent HIV cases

African Americans or blacks consist of 81 percent of adolescent HIV disease cases newly diagnosed in 2008 (310 cases aged between 13 to 24 years). Among African American adolescent HIV cases, 82 percent of them were male and 18 percent were female. In the previous five years, African Americans have constantly represented over 75 percent of total adolescent HIV disease cases.

Figure 3.15. Age at diagnosis with HIV disease by Race/Ethnicity, 2004-2008



* non-Hispanic

Perinatal HIV transmission among African Americans

The majority of children diagnosed and reported with HIV infection are African American. In the last five years, African American children made up 82 percent (n=32) of children under the age of 13 years old with HIV diseases.

HIV/AIDS related death

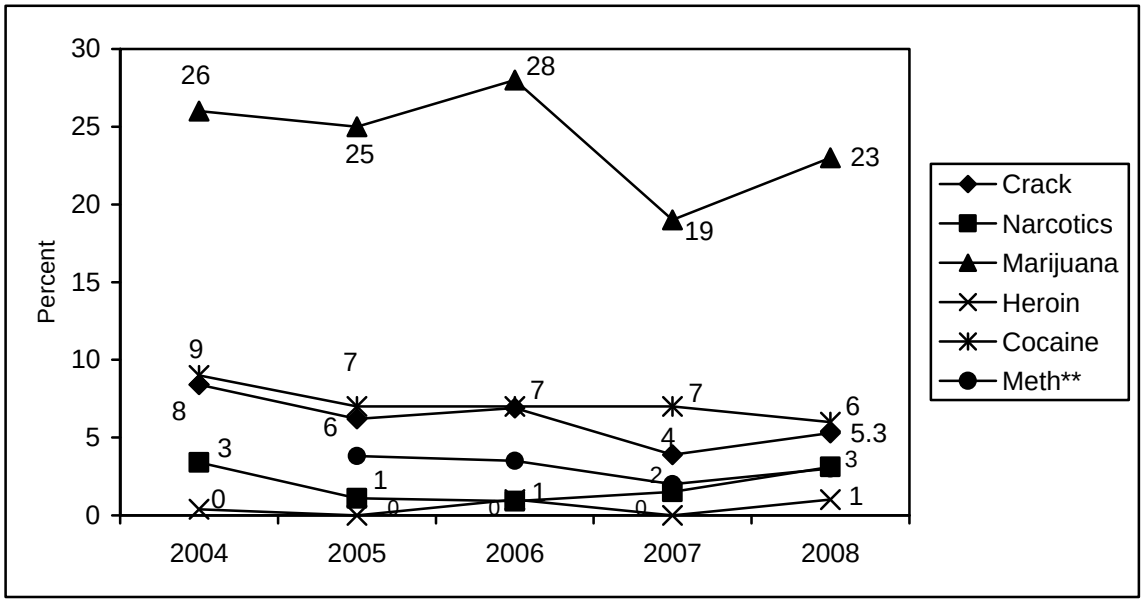
For the past five years in North Carolina, 75 percent of all HIV/AIDS related death was among African Americans. African Americans represented 78 percent of all HIV/AIDS related death in 2007 in N.C.

Partner Contact and Referral Services Data (PCRS)

DIS interviewed patients with HIV and/or syphilis infection about their condom usage. Of African Americans interviewed from 2004 to 2008, 32 percent of females and 20 percent of males reported that they never used a condom. Among African Americans interviewed with HIV and/or syphilis from 2004 to 2008, the proportions of individuals reporting non injection

drug use, including marijuana, crack-cocaine and cocaine, have decreased. In 2008, over six percent of blacks interviewed reported cocaine use, over five percent reported smoking crack, and 23 percent reported marijuana use. Around three percent of patients reported narcotic use (Figure 3.16).

Figure 3.16. Non-injection Drug use among blacks* with HIV or syphilis, 2004-2008



*Persons with HIV or syphilis interviewed through PCRS

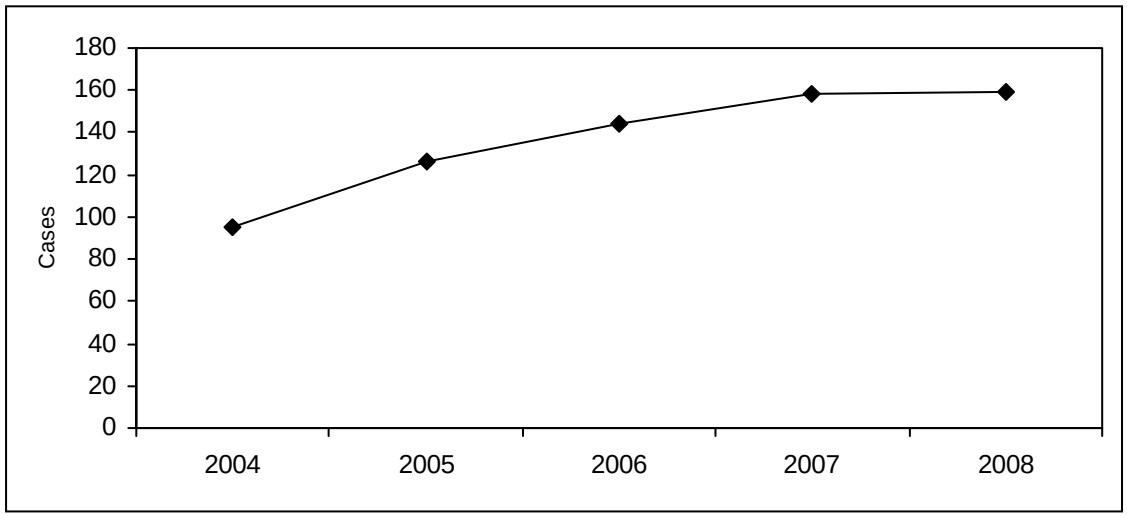
HISPANICS

The number of HIV positive individuals has been increasing rapidly among Hispanics in recent years, and Hispanics have ranked the third for the number of HIV cases in the past five years. In 2008, there were 159 individuals diagnosed as HIV cases, which was 1.7 times higher than the number in five years ago (Figure 3.17). Hispanics represent seven percent of the total N.C. population. The proportion of Hispanic HIV cases has increased in N.C. from 6% in 2004 to 8% in 2008. In 2008, the rate of HIV Disease for Hispanics (35.8 per 100,000 population) was almost four times higher than the rate of HIV Disease for white, non Hispanics (9.6 per 100,000). Hispanic men in N.C. are diagnosed with HIV Disease at a rate of 52.5 per 100,000 population and have the second highest rate among all gender and race/ethnic groups in 2008. HIV/AIDS was the seventh leading cause of death among Hispanics/Latino aged 25–44 years in 2007 (Table 2.15, pg 37).

Mode of HIV transmission

Among the 682 Hispanics diagnosed with HIV disease in North Carolina over the past five years, 46 percent were associated with MSM activity, 48 percent with heterosexual activity as their only risk factor, 4 percent with IDU, and less than 2 percent reported MSM/IDU behavior.

Figure 3.17. Number of Hispanic HIV disease cases diagnosed, 2004-2008



For the HIV disease cases diagnosed in the past five years, the proportion of Hispanic HIV cases reporting MSM risk (47.3%) was higher than that for blacks (42.5%), but lower than that for whites (73.0%). A higher proportion of MSM reported also having sex with females among HIV positive Hispanic MSM (35.6%) than HIV positive white MSM (26.3%), but lower than HIV positive black MSM (43.5%) (Figure 3.3, pg 43).

Gender differences

The male-to-female ratio of Hispanics diagnosed with HIV Disease has increased over the past five years from 2.5:1 in 2004 to 6:1 in 2008. Of all Hispanics diagnosed and reported with HIV disease in the past five years, about 80 percent were male (n=546), and 20 percent were female (n=139). As in all other race/ethnicity groups, there was a gender difference in the proportion of HIV transmission modes. Over the past five years, the majority of HIV cases among Hispanic males were associated with MSM activity (58%), and 37 percent of male cases were associated with heterosexual sex only. Among Hispanic females, about 93 percent of HIV cases were associated with heterosexual risk.

Age at HIV disease diagnosis

The median age of the Hispanic population in North Carolina is much younger than the state as a whole (25.6 versus 35.8 years old, see Chapter 1). Overall, more Hispanics were diagnosed with HIV disease at younger ages (13-39 years old) than whites and blacks. More Hispanics were diagnosed between 20-29 years (33.0%) and 30-39 year (37.2%) than blacks and whites (Figure 3.15, pg 55).

HIV disease among foreign-born Hispanics

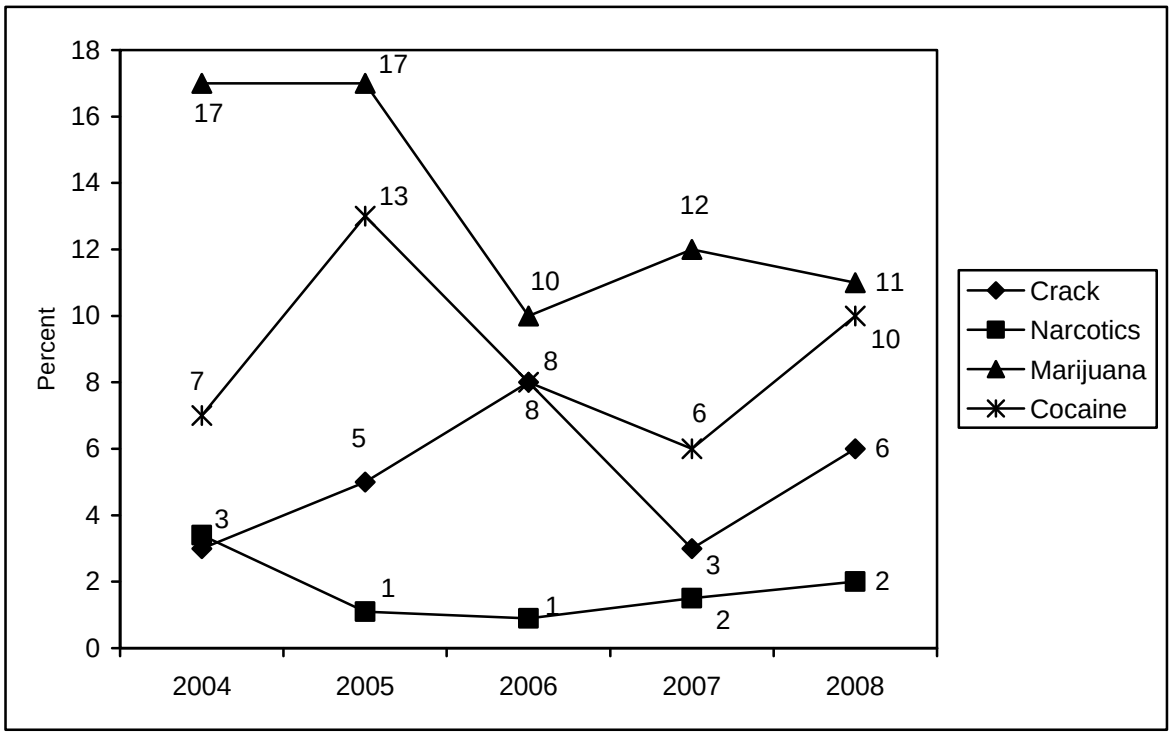
Among the 682 Hispanics diagnosed with HIV disease in the past five years, 27 percent were born in the United States, 37 percent were born in Mexico, 4 percent were born in Honduras, 3 percent in Guatemala, and 20 percent did not have complete information available. Because the Hispanic population is not homogenous in N.C., language and culture should be considered when HIV/AIDS interventions target Hispanics and Latinos.

Partner Contact and Referral Services data

Non-injection drug use

Among the interviewed patients with HIV or syphilis, marijuana use declined from 17 percent to 11 percent during previous five years, while crack and cocaine use fluctuated. In 2008, ten percent of Hispanics interviewed reported cocaine use, six percent smoked crack, and two percent of patients reported narcotic use (Figure 3.18).

Figure 3.18. Non-injection Drug use among interviewed Hispanics with HIV or syphilis, 2004-2008



CHAPTER 4: HIV TESTING & RELATED PROGRAMS

HIGHLIGHTS

- From November 2002 through December 2008, 124 people have been identified with Acute HIV infections (antibody negative but tested positive for the virus using PCR/RNA). These people were diagnosed very early in their HIV infections by this procedure, allowing better case management and earlier partner notifications thus lessening the likelihood of additional transmissions.
- As expected the majority of Serologic Testing Algorithm for Recent HIV Seroconversion (STARHS) cases were distributed among the younger age categories (13-19 years and 20-29 years). This contrasts with the morbidity reports with 30-39 and 40-49 age groups represented the majority of cases. This highlights the fact that many people delay getting tested for HIV once infected. Other STARHS demographics were very similar to overall morbidity patterns.
- In 2008, 13,487 rapid HIV tests were performed which aided in the identification of 113 new cases yielding a 1.0 percent overall rate of positivity. This program offers clinics more testing options for difficult to reach clients.
- The number of HIV tests performed at publicly-funded CTR sites has increased in recent years from about 119,617 in 2004 to about 214,521 tests in 2008.
- In 2008, the positivity rate at NTS venues (0.81%) was over three times the positivity rates at traditional health department venues (0.24%).
- For females tested through CTR, the highest HIV positivity was among blacks (0.21%) which was three times that for whites (0.07%) and over five times that for Hispanics (0.04%).
- For males tested through CTR, the highest HIV positivity was among blacks (1.10%) which was over twice that for any other group.

Different types of tests are used to diagnosis initial HIV 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 (incidence), describe voluntary testing for HIV in the public sector, and increase the number of high-risk individuals being tested for HIV. 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 and recommended routinizing HIV testing of adults, adolescents and

pregnant women in health care settings. The CDC also recommends reducing barriers to HIV testing where necessary (CDC, 2006). In 2007, the N.C. Commission for Public Health and Rules Review modified HIV testing rules to simplify the requirements for signed consent and expanded the requirement of testing pregnant women and newborns. As North Carolina continues to encourage routine testing, the number of HIV disease reports is expected to increase.

Get Real, Get Tested Campaign

The *Get Real, Get Tested* campaign is a statewide campaign focused on increasing HIV education and awareness and encouraging people to get tested for HIV and know their HIV status. The initiative involves HIV prevention messages via Internet and televised public service announcements sponsored by WRAZ/FOX 50, Gilead Sciences, and N.C. Communicable Disease Branch. Over the past year, *Get Real, Get Tested* commercials have reached over three million viewers. As of July 1, 2008, there have been close to 7,000 hits on the *Get Real, Get Tested* web site. According to data from WRAZ/FOX 50, there were over 14 million gross impressions among adults ages 18 years and older.

A total of 2,248 people were tested for HIV and syphilis during the 2006-2007 *Get Real, Get Tested* community campaign. There were 27 identified people who tested positive for HIV and 23 people who tested positive for syphilis. The testing component of *Get Real, Get Tested,* includes going door-to-door to offer testing and setting up at stationary sites. 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

Screening and Tracing Active Transmission (STAT program)

The Screening and Tracing Active Transmission (STAT) program is an initiative designed to detect individuals who likely are newly infected with HIV or 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. It began in May 2002 as a two-month pilot program through the research laboratory of Dr. Chris Pilcher at the UNC-Chapel Hill School of Medicine. For the pilot, aliquots of serum with undetectable levels of HIV antibody by EIA and Western Blot testing (i.e., seronegative) were sent from the State Laboratory for Public Health to Dr. Pilcher's laboratory for further testing. These sera were tested for the presence of the HIV virus (not the antibody) using the polymerase chain reaction (PCR) to detect viral RNA. Due to the large number of specimens which are seronegative (more than 100,000 per year) and for the purposes of cost containment, the serum aliquots were pooled such that up to 100 sera were tested together. If a pool of 100 sera tested positive, the researchers worked backwards in the dilution scheme to identify which individual specimen(s) contained viral nucleic acid. Following the demonstration of feasibility through the pilot program, STAT

was implemented as a routine program at the North Carolina Public Health Laboratory in November of 2002.

Table 4.1. Demographics for Cases Identified through STAT: Jan. 2003 – Dec. 2008

Year	2003		2004		2005		2006		2007		2008		Cumulative Total	
	(n=22)		(n=21)		(n=21)		(n=15)		(n=16)		(n=29)		(n=124)	
Gender	n	Pct.	n	Pct.	n	Pct.	n	Pct.	n	Pct.	n	Pct.	n	Pct.
Male	15	68%	16	76%	17	81%	13	87%	14	88%	24	83%	99	80%
Female	7	32%	5	24%	4	19%	2	13%	2	13%	5	17%	25	20%
Age group														
13-14	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
15-19	1	5%	3	14%	1	5%	1	7%	7	44%	3	10%	16	13%
20-24	5	23%	7	33%	4	19%	6	40%	4	25%	9	31%	35	28%
25-29	2	9%	4	19%	7	33%	3	20%	2	13%	8	28%	26	21%
30-34	4	18%	2	10%	5	24%	1	7%	1	6%	3	10%	16	13%
35-39	3	14%	2	10%	2	10%	1	7%	0	0%	3	10%	11	9%
40-44	5	23%	1	5%	0	0%	0	0%	1	6%	1	3%	8	6%
Over 45	2	9%	2	10%	2	10%	3	20%	1	6%	2	7%	12	10%
Race														
Black*	14	64%	16	76%	14	67%	7	47%	11	69%	17	59%	79	64%
White*	5	23%	4	19%	5	24%	7	47%	4	25%	9	31%	34	27%
Hispanic	2	9%	1	5%	2	10%	1	7%	1	6%	3	10%	10	8%
Am. In/AN*	1	5%	0	0%	0	0%	0	0%	0	0%	0	0%	1	1%
Other	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%

In a one-year period (November 1, 2002 to October 31, 2003), 109,250 individuals were tested. Of these, 583 had antibody-positive established infections. An additional 23 individuals were antibody negative but tested positive for the virus using PCR (i.e., were acute infections). The majority of these 23 acutely infected individuals were male (65%), black (70%) and were over 24 years old (70%). The most common risk categories were people also positive for another STD (30%) and men who have sex with men (also 30%). Roughly four percent (n=23) of the HIV-1 infected patients were EIA antibody negative and would not have been detected until possibly much later without the use of the STAT procedure (Pilcher, 2005).

Since November 2002, there have been 124 people identified with Acute HIV infection. Information derived from this project is used along with routine HIV surveillance data by public health officials in developing and implementing treatment and prevention programs. Recently infected individuals can receive counseling and treatment earlier with the goal of better health outcomes and ultimately preventing inadvertent exposure to partners. The case follow up protocol for Disease Intervention Specialists (DIS) is to contact individuals with acute HIV

infection within 72 hours of receipt of the case. The DIS interview and counsel individuals and their partners (sexual and/or needle sharing) and offer HIV and STD testing. Patients are encouraged to have a repeat HIV-antibody test within two weeks (and at 4 and 12 weeks, if necessary).

Because acute case numbers are small, assessing meaningful demographic trends is difficult, but the results from the pilot and ongoing testing activity showed a distribution of positive acute tests that reflects what is seen with EIA/Western Blot testing. Additionally, the use of social networks to identify cases may bias the data toward certain groups. It is noteworthy however that the cumulative data indicate that blacks and males are being disproportionately identified as acute cases. Cumulatively, 80 percent of the 124 people identified through the STAT project are males (see Table 4.1). The median age of acute HIV infection is 26 years old (range: 16-56 years). Forty nine percent (49%) of STAT cases were diagnosed among person in their twenties, with 28 percent 20 to 24 years old.

In addition to the laboratory initiated STAT cases, Branch field staff also work with medical providers throughout the state to identify any new HIV acute (primary infection) cases that were diagnosed through private care providers. The DIS attempt to identify any newly diagnosed people that had a recently documented HIV-negative antibody test. These cases are collectively referred to as community acute/recent cases. In 2008, a total of 52 community acute/recent 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.

Changes in HIV Testing at the N.C. State Laboratory for Public Health

Beginning January 2008, The N.C. SLPH implemented the use of the HIV-1/HIV-2 plus O EIA antibody assay along with using the APTIMA HIV-1 RNA Qualitative Assay by GenProbe for identifying potential Acute HIV cases. Use of the APTIMA HIV-1 RNA Qualitative Assay enables the N.C. SLPH to identify Acute HIV infection by identifying HIV RNA in persons prior to the development of antibodies to HIV-1. The STAT program noted a 113% increase in the number of people identified with Acute HIV in 2008. The increase is attributed to the implementation of new HIV testing technology used at the N.C. SLPH, in addition to increased testing. In 2003, when the STAT program was implemented, N.C. SLPH processed approximately 109,000 HIV tests. In 2008, the N.C. SLPH performed roughly 215,000 HIV tests. The additional 106,000 tests processed in 2008 accounted for a 49 percent increase in HIV testing since 2003. The increase HIV testing is result of several projects that the state has initiated to expand HIV testing to help increase the number of persons that are aware of their HIV status and provide linkages into to HIV care and treatment services.

<u>HIV Incidence (STARHS program)</u>

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 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. North Carolina is one of 25 jurisdictions participating in the HIV Incidence Surveillance Program as part of a cooperative agreement with the Centers for Disease Control and Prevention (CDC).

Methods

The HIV Incidence program builds upon the existing HIV/AIDS case reporting system by combining additional laboratory testing, Serologic Testing Algorithm for Recent HIV Seroconversion (STARHS), to determine the proportion of individuals who test positive for HIV for the first time who may have been recently infected with HIV. Remnant sera, which have 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 (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 assay detects levels of anti-HIV IgG relative to total IgG and is based on observation that the ratio of anti-HIV IgG to total IgG increases with time shortly after HIV infection. The combination of diagnostic testing (confirmed HIV antibody-positive) followed by testing for a recent infection is known as Serologic Testing Algorithm for Recent HIV Seroconversion (STARHS). Laboratory test results are combined with information collected regarding previous HIV testing and treatment to generate estimates for number of new HIV infections. Additional information regarding the complex methodology used for generating HIV estimates can is described in *Estimating HIV Incidence in the United States from HIV/AIDS Surveillance Data and Biomarker HIV Test Results* (Karon, 2008). North Carolina implemented the HIV Incidence project by routinely collecting remnant diagnostic specimens and collecting Testing and Treatment History (TTH) questionnaires for STARHS in the summer of 2005 for newly diagnosed and reported cases.

Remnant samples of confirmed HIV antibody–positive serum (by Western Blot) from the N.C. State Laboratory of Public Health (N.C. SLPH) and several commercial laboratories that conduct testing for providers in N.C. are sent to the CDC STARHS designated laboratory in New York for STARHS testing. The HIV incidence surveillance project in N.C. is informed on a regular basis by the laboratory designees of all stored specimens at the public health laboratory. Serum specimens are retained in the N.C. SLPH until the coordinator, using routine HIV/AIDS surveillance reporting procedures, determines whether the specimen represents the person's first reported positive HIV test result. HIV positive serum for persons that have been previously reported and/or diagnosed are not considered eligible for additional STARHS testing. The specimens are handled according to routine laboratory protocols for HIV-positive specimens.

All newly reported persons in N.C. undergo a review of medical records to complete case report information which is used to determine if the case is STARHS eligible. People with a positive HIV test result will be considered STARHS eligible if they meet the following requirements:

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

In order to account for persons diagnosed through private providers, commercial laboratories have been recruited by the N.C. HIV Incidence project. In 2008, Laboratory Corporation of America, Associated Regional University Pathologists (ARUP), Quest Diagnostics, University of North Carolina Hospitals, Duke University Medical Center and Mayo Laboratories provided remnant HIV diagnostic specimens to the STARHS laboratory in New York for testing.

The N.C. HIV Incidence program monitors the test results received from the private laboratories and forwards the STARHS-designated laboratory a list of eligible accession numbers for specimens that need to be tested. Results are identified by the STARHS laboratory by accession number and linked to the unique identification numbers used to label the original specimen. The collection of private labs along with the N.C. SLPH accounts for approximately 75 percent of the new HIV/AIDS cases reported each year to the N.C. Communicable Disease Branch. Collaboration of private laboratories and the N.C. SLPH helps ensures that data used to estimate HIV incidence is truly representative of the HIV epidemic in N.C.

Because of the variability in antibody development in individuals, the predictive value of an individual's STARHS result is low. 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." Consequently, STARHS results cannot be returned to individuals or to care providers.

Testing Treatment History Questionnaire (TTH)

To ensure incidence estimates can be accurately derived, information on prior HIV testing and antiretroviral drug use is needed for all eligible persons reported. The TTH information is collected routinely as part of follow up for all new cases. However, not all of the required elements for STARHS have been collected uniformly prior to the implementation of the project. Therefore, a standard set of questions and corresponding data elements was developed for the project. In N.C. the TTH is collected when the individual returns to receive test results and/or during HIV counseling. Obtaining the HIV testing history when individuals return for the HIV test result takes advantage of the individual's ability to recall information about HIV testing behaviors. Local surveillance personnel use their best judgment in each instance regarding when to approach individuals for their testing history. However, should more time be required to gather the information because of logistical or other reasons, a reasonable time frame for gathering that information is one to three months after the diagnosis of HIV. Standard HIV investigation procedures are followed in contacting individuals to prevent them from becoming lost to follow-up. Data, such as the date of the previous negative HIV test(s), test location, and result, may be obtained from care providers or other data systems if the patient is not able to be interviewed. The data management system for the HIV incidence surveillance program allows for the collection of information for each data element from multiple sources to be identified in the database.

Results

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

2008). 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). The state estimate was generated by using data collected through April 30, 2008. The demographic breakdown of N.C. data highlights that 72 percent were male, 67 percent were black, and 57 percent are estimated to have occurred among MSM & MSM/IDU combined.

Table 4.2. North Carolina and United States HIV Incidence Estimates, 2006

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

*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 population

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 to 39 years old had the highest rate of new infections at 48.6 per 100,000 population, and persons aged 40 to 49 and 50 years and older in N.C. had a higher rate than the national rate. This trend has been noted in previous N.C. Epidemiologic Profiles for HIV/STD Prevention and Care Planning. As expected, the incidence estimates for N.C. highlights that blacks are disproportionately affected by the HIV. The stimated state HIV incidence rate for 2006 was 9 times greater for blacks (102.2 per 100,000) as among whites (11.3 per 100,000).

Accurately measuring HIV incidence will help us better understand how HIV is spreading, where to more effectively focus prevention efforts, and evaluate our progress in reducing the spread of HIV in N.C. over time. The estimated number of new HIV infections generated from the STARHS program mirrors existing HIV/AIDS surveillance data. HIV/AIDS case surveillance data in 2006 showed that approximately 73 percent of the reported cases were males, 67 percent were among blacks, and approximately 52 percent were among MSM. (See Appendices: Tables B & D).

The new HIV incidence estimates illustrate the critical need for adequate funding of HIV prevention efforts in North Carolina. Additionally, these findings confirm the need to provide focused prevention efforts for all MSM, as well groups that are disproportionately impacted by HIV especially among African Americans and Hispanics. .

RAPID TEST PROGRAM

The rapid HIV antibody screening test program was 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. 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 to 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.

Beginning in the spring of 2005, 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. At the end of 2008, rapid tests were supplied to 35 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, local health departments, migrant camps, hospital emergency departments and community based organizations. Collectively 13,487 rapid tests were performed in 2008 with 133 positives identified (1.0% positivity).

HIV COUNSELING, TESTING AND REFERRAL (CTR)

Testing for HIV infection is provided at no charge to clients in all local health departments and a number of community-based organizations (CBOs) in North Carolina. The testing program is known as the CTR (Counseling, Testing and Referral) system, in reference to the CDC

recommendation for program activities related to HIV testing and referral. Data collected through CTR includes risk, demographics and prior testing history. These data are sent with the blood samples to the North Carolina State Laboratory for Public Health in Raleigh for analysis. While the CTR data does not provide a true monitoring of seroprevalence, it is a useful tool to evaluate voluntary testing for HIV in the public sector. The raw number of tests, number of positives and positivity rate (calculated as proportion of positive tests) for the most recent five years for publicly funded HIV testing in North Carolina is presented in Table 4.4. The data in table 4.4 includes all HIV testing submitted to the State Laboratory of Public Health for analysis and includes not only testing from traditional settings but also testing from nontraditional settings (see discussion below).

There have been dramatic increases in HIV testing through the state laboratory of public health in recent years as new HIV testing initiatives have been implemented. Viewing positivity rates over time should be done with caution and with the testing changes in mind. As mentioned above, testing recommendations have changed and testing has increased overall and thus, the testing population has changed. More people with lower risk have been added; thus, positivity rates have decreased over time. While the number of tests processed by the state laboratory of public health has increased for the last three years, the raw positivity rate has declined from 0.60 percent in 2001 to 0.48 percent in 2008. However, more individuals are testing HIV positive through CTR and in 2008 there were over 1,000 HIV positive individuals. For county-level data, please see Appendix D, Table M, pg. D-19.

Table 4.4. HIV testing in publicly funded sites in N.C., 2004-2008

Year of Test	Tests Performed*	Positives	Positivity (%)**
2004	119,617	716	0.60
2005	131,826	813	0.62
2006	147,218	837	0.57
2007	176,726	915	0.52
2008	214,521	1,027	0.48

*Total tests performed, regardless of result. Some clients are tested multiple times for various reasons.
** Positivity calculated with inconclusive or missing test results removed from denominator.

HIV Testing History

When describing the demographics or risk factors reported by individuals who sought HIV testing through the CTR program, it may be appropriate to consider all tests performed, regardless of prior testing history. However, in order to provide a meaningful analysis of testing and positivity trends, previous positives are removed. Positivity rates are calculated with inconclusive or missing test results removed from the denominator.

The proportion of people who report that they have never been tested for HIV before is lower in 2007 and 2008 than in previous years (Table 4.5.), while the proportion of repeat tests among those reporting a previous negative test has been fairly constant. However, efforts to routinize HIV testing have likely caused an increase in tests with missing testing history information and these tests may be obscuring changes.

Table 4.5. HIV counseling and testing by previous test result, 2004-2008

Previous test result	Year of Test									
	2004		2005		2006		2007		2008	
	Tests	Pct	Tests	Pct	Tests	Pct	Tests	Pct	Tests	Pct
No previous	43,219	36.1	48,475	36.8	54,030	36.7	57,592	32.6	69,606	30.1
Negative	74,273	62.1	79,996	60.7	87,941	59.7	107,381	60.8	130,955	61.1
Positive	200	0.2	308	0.2	317	0.2	399	0.2	534	0.3
Inconclusive	113	0.1	146	0.1	161	0.1	257	0.2	304	0.1
Unknown	18,12	1.5	1,879	1.4	2,226	1.5	2,469	1.4	3,314	1.5
Missing	0	0	1,022	0.8	2,543	1.7	8,628	4.9	14,808	6.9
Total	119,617	100	131,826	100	147,218	100	176,726	100	214,521	100

Individuals who have had a previous positive HIV test are sometimes tested again for a variety of reasons. Of the 214,521 tests recorded through the CTR program in 2008, 534 (0.3%) reported that they had previously tested positive. Table 4.6. presents the corrected overall positivity in which these previous positive results were removed from consideration. The denominator used in the positivity calculation in this table does include other previous tests (for example, people reporting previous negative tests). All subsequent discussions of testing and positivity rates in this section are based on these corrected values, with previous positive tests removed from consideration.

Table 4.6. Corrected CTR positivity*, 2004-2008 (previous positives removed)

Year of Test	Tests Performed*	Positives	Positivity (%)**
2004	119,453	552	0.46
2005	130,440	590	0.45
2006	145,396	645	0.44
2007	175,341	670	0.38
2008	214,154	728	0.34

* Previous positives and missing test results removed.

NONTRADITIONAL COUNSELING TESTING AND REFERRAL SITES (NTS)

The North Carolina Commission for Health Services' ruling to discontinue anonymous testing for HIV in May 1997 raised concern that, by removing the anonymous test option, testing among people at high risk for HIV infection would be reduced. Before the option for anonymous testing was removed, the Communicable Disease Branch implemented procedures to make HIV testing available in nontraditional settings. Some nontraditional HIV test sites (NTS) operate as stand-alone test sites that deliver HIV testing in non-routine settings and times through a community-based organization (CBO). Others are physically located in a local health department but operate outside the normal working hours of 9 to 5. As HIV testing recommendations have expanded and testing has been offered in other clinics and settings at health departments, the distinction

between NTS and traditional test sites within the HIV testing data at the State Laboratory of Public Health has become imprecise. Additionally, the use of rapid testing at NTS and other sites means that data within CTR may not fully capture NTS program outcomes or measures. Discussion of NTS in this document is limited to information available in the CTR data base (testing performed at the State Laboratory of Public Health).

The number of HIV tests conducted at public (CTR) sites other than NTS increased every year since 1999 and positivity has remained less than one percent since 1994. High-risk clients (MSM, MSM/IDU, IDU, people who exchange sex for drugs or money, people who have sex while using non-injecting drugs and people who are sex partners of people at risk or people infected with HIV) continue to seek testing through publicly funded test sites. The vast majority of tests are performed at traditional health department settings (Table 4.7.). However, a greater proportion of those tested in nontraditional test sites, test positive than in traditional health department sites and other venues. For 2004, the NTS positivity rate was 0.90 percent, compared to 0.40 percent to 0.46 percent for all other public site testing. Since its inception, NTS positivity has been at least twice that of testing from traditional health department settings and remained higher than testing in other public settings not part of NTS.

Table 4.7. Number of tests performed and number positive by site type (Non Traditional, Health Department, Others) 2004-2008*

Testing Venue	Year of Test									
	2004		2005		2006		2007		2008	
	Tests	Pos. (%)	Tests	Pos. (%)	Tests	Pos. (%)	Tests	Pos. (%)	Tests	Pos. (%)
NTS	5,898	53 (0.90)	13,464	110 (0.82)	15,660	142 (0.91)	15,715	145 (0.92)	23,757	192 (0.81)
Health Dept**	97,011	384 (0.40)	104,030	374 (0.36)	113,261	379 (0.33)	137,714	407 (0.30)	160,336	379 (0.24)
Other	15,939	115 (0.72)	12,894	105 (0.81)	16,383	124 (0.76)	21,768	117 (0.54)	29,899	154 (0.52)
Missing	37	0	52	1	92	0	144	1	162	3
Total	118,885	552 (0.46)	130,440	590 (0.45)	145,396	645 (0.44)	175,341	670 (0.38)	214,154	728

*Positivity calculated with previous positives and missing test results removed from denominator
** Includes traditional settings such as STD, family planning, and prenatal/OB clinics within health department

CTR HIV Testing By Site/Clinic Type Or Venue

Table 4.8 displays the number of tests and positivity for persons tested at different clinic types or venues and includes all testing performed at public sites. As HIV testing has increased, almost all clinic types or venues are testing more persons. The positivity (or number of positives per persons tested) does vary considerably and in general likely reflects the differing levels of risks among clients. The venues that tested the most people in 2008 were STD clinics (78,401 tests) followed by family planning clinics (41,212 tests) and then prenatal/OB clinics (37,149 tests). Although family planning and prenatal/OB clinics tested high numbers of persons, the positivity

rates were relatively low at 0.03 percent for both. STD clinics on the other hand had a positivity rates almost ten times greater at 0.33 percent and accounted for almost 36 percent of new positives (260/728) in 2008. High positivity rates among venues were found in persons tested in HIV testing sites/clinics (1.44% positivity) and prisons/jails (0.84% positivity). One venue that has a particularly high positivity is for persons tested during DIS (disease intervention specialist) visits. During partner services visits for contacts of known cases, DIS sometimes draw a blood sample for HIV testing if the client is not able to go to a nearby clinic. Testing for these people has a positivity rate of 3.77 percent. Because this group is comprised of contacts to known cases, the positivity is expected to be high; but this positivity rate is not representative of all contacts because most contact are referred and tested at health department clinics.

Table 4.8 HIV Tests by venue 2004-2008*

	Year of Test									
	2004		2005		2006		2007		2008	
	Tests	Pos (%)	Tests	Pos (%)	Tests	Pos (%)	Tests	Pos (%)	Tests	Pos (%)
STD Clinics	49,049	220 (0.45)	53,475	223 (0.42)	57,477	215 (0.37)	66,815	249 (0.37)	78,401	260 (0.33)
Family Planning	20,200	11 (0.05)	21,565	7 (0.03)	24,934	3 (0.01)	31,938	17 (0.05)	41,212	11 (0.03)
Prenatal/OB	18,861	11 (0.06)	20,342	17 (0.08)	21,813	18 (0.08)	32,561	18 (0.06)	37,149	13 (0.03)
HIV testing sites	11,594	155 (1.34)	11,978	148 (1.24)	11,503	159 (1.38)	8,500	133 (1.56)	7,381	106 (1.44)
Prison/Jail	2,689	19 (0.71)	3,139	20 (0.64)	4,594	28 (0.61)	4,420	43 (0.97)	11,001	92 (0.84)
Drug Tx	1,564	6 (0.38)	1,564	3 (0.19)	2,082	8 (0.38)	1,336	6 (0.45)	1,664	7 (0.42)
Community Health/Public Health Ctr	1,404	10 (0.71)	2,541	24 (0.94)	3,671	24 (0.65)	3,832	16 (0.42)	4,530	27 (0.60)
TB Clinic	916	1 (0.11)	856	2 (0.23)	1095	3 (0.27)	1,420	3 (0.21)	1,839	4 (0.22)
Hospital/ PrivateMD**	16	0	13	0	4	0	7	1 (14.29)	85	2 (2.35)
DIS Field Visit	3,037	49 (1.61)	2,483	51 (2.05)	1,365	62 (4.54)	1,926	47 (2.44)	1,537	58 (3.77)
Other	8915	65 (0.73)	10,096	85 (0.84)	11459	104 (0.91)	13,683	101 (0.74)	16,928	108 (0.64)
Missing	640	5 (0.78)	2,388	10 (0.42)	5,399	21 (0.39)	8903	36 (0.40)	1,2427	40 (0.32)
Total	118,885	552 (0.46)	130,440	590 (0.45)	145,396	645 (0.44)	175,341	670 (0.38)	214,154	728 (0.34)

* Previous positives and missing test results removed. ** This category likely represents special clinic within the health department or may represent misclassification of type.

CTR HIV Testing Demographics

As mentioned earlier, HIV testing through the CTR program has increased dramatically from 2004 to 2008 and the testing population has changed. HIV testing has increased more so for women than men (Table 4.9). Overall testing for women has increased from 77,973 tests in 2004 to 148,867 tests in 2008, a 91 percent increase. Correspondently, the positivity for women has decreased from 0.20 percent in 2004 to 0.13 percent in 2008. For men tested through the CTR program, the picture is a bit different. HIV tests for men increased from 39,295 in 2004 to 64,030 in 2008, a 63 percent increase. Positivity for men decreased from 0.98 percent in 2004 to 0.83 percent in 2008. The reason for the greater increase in HIV testing among women is likely due to the 2007 changes in testing rules for pregnant women discussed on page 60. One notable change in CTR data is information about transgender persons. The CTR changes in 2005 allowed for information to be collected on transgender persons as a separate category. Although this group represents few persons within the HIV testing data, it represents a group with a relatively high positivity rate. In 2008, 2 transgender persons were identified as HIV positive out of 37 persons tested with a resulting positivity of 5.41 percent (Table 4.9).

Table 4.9 HIV Tests by Gender, 2004-2008*

	Year of Test									
	2004		2005		2006		2007		2008	
	Tests	Pos (%)	Tests	Pos (%)	Tests	Pos (%)	Tests	Pos (%)	Tests	Pos (%)
Men	39,295	385 (0.98)	42,879	411 (0.96)	47,274	467 (0.99)	50,390	460 (0.91)	64,030	530 (0.83)
Women	77,973	159 (0.20)	86,156	168 (0.19)	96,835	171 (0.18)	121,048	191 (0.16)	148,768	189 (0.13)
Transgender	--		35	2 (5.71)	67	1 (1.49)	25	1 (4.00)	37	2 (5.41)
Unknown/ Missing	1,617	8 (0.49)	1,370	9 (0.66)	1,220	6 (0.49)	3,878	18 (0.46)	1,319	7 (0.53)
Total	118,885	552 (0.46)	130,440	590 (0.45)	145,396	645 (0.44)	175,341	670 (0.38)	214,154	728 (0.34)

* Previous positives and missing test results removed.

Because HIV testing populations have changed inferring trends for some different demographic groups over time is difficult. Discussions will focus on the relative difference of positivity for groups as of 2008. Readers are reminded that differences in the screening populations can account for differences in positivity. Table 4.10 displays positivity rates for different age groups for both genders. For males and females the age groups with the highest positivity in 2008 were those aged 40 years and older. For males, the highest positivity was for those aged 50 years and greater (1.25%) followed by those aged 40 to 49 years (1.22%). For females however, the groups were reversed with women age 40 to 49 years having a higher positivity (0.45%) as compared to those aged 50 years and greater (0.40%). For males the racial/ethnic group with the highest positivity was among blacks (1.10%) which was over twice that for any other group excluding the unknown category (Table 4.11). The risk or transmission category with the highest positivity (4.71%) was for men who have sex with men (MSM). That positivity was over

twice positivity for the next group (2.07%), men who have sex with men and inject drug (MSM/IDU). The positivity for both of these groups was substantially higher than the other risk groups (Table 4.12).

Table 4.10 HIV tests by gender and age, 2004-2008*

	Year of Test									
	2004		2005		2006		2007		2008	
	Tests	Pos (%)	Tests	Pos (%)	Tests	Pos (%)	Tests	Pos (%)	Tests	Pos (%)
MEN										
0-12 years	116	1 (0.86)	156	1 (0.64)	240	1 (0.42)	170	1 (0.59)	291	1 (0.34)
13-19 years	4,656	16 (0.34)	5,464	27 (0.49)	6,179	34 (0.55)	6,711	46 (0.69)	8,754	29 (0.33)
20-29 years	17,143	129 (0.75)	19,005	147 (0.77)	21,176	184 (0.87)	22,749	185 (0.81)	28,462	206 (0.72)
30-39 years	8,200	113 (1.38)	8,842	120 (1.36)	9,403	108 (1.15)	9,840	112 (1.14)	127,408	125 (0.98)
40-49 years	5,741	85 (1.48)	5,952	79 (1.33)	6,669	104 (1.56)	6,696	89 (1.33)	8,524	104 (1.22)
50+ years	2,896	37 (1.28)	3,179	36 (1.13)	3,607	36 (1.00)	4,224	27 (0.64)	5,189	65 (1.25)
Missing	543	4 (0.74)	281	1 (0.36)	0	0	0	0	102	0
Total	39,295	385 (0.98)	42,879	411 (0.96)	47,274	467 (1.00)	50,390	460 (0.91)	64,030	530 (0.83)
WOMEN										
0-12 years	186	2 (1.08)	311	0	438	1 (0.23)	321	0	545	1 (0.18)
13-19 years	17,962	9 (0.05)	19,533	13 (0.07)	21,668	11 (0.05)	26,667	10 (0.04)	31,650	12 (0.04)
20-29 years	37,550	39 (0.10)	42,014	47 (0.11)	47,519	49 (0.10)	60,204	57 (0.09)	73,654	54 (0.07)
30-39 years	13,277	54 (0.41)	14,853	45 (0.30)	17,081	45 (0.26)	21,773	62 (0.28)	27,767	56 (0.20)
40-49 years	5,799	37 (0.64)	6,450	48 (0.74)	7,436	52 (0.70)	8,529	43 (0.50)	10,630	48 (0.45)
50+ years	1,948	15 (0.77)	2,291	14 (0.61)	2,693	13 (0.48)	3,554	19 (0.53)	4,260	17 (0.40)
Missing	1,251	3 (0.24)	704	1 (0.14)	0		0	0	262	1 (0.38)
Total	77,973	159 (0.20)	86,156	168 (0.19)	96,835	171 (0.18)	121,048	191 (0.16)	148,768	189 (0.13)

* Previous positives and missing test results removed.

For females the racial/ethnic group with the highest positivity was among blacks (0.21%) which was three times that for whites (0.07%) and over five times that for Hispanics (0.04%) excluding the unknown category (Table 4.11). The risk or transmission category with the highest positivity (0.46%) was for females was injecting drug use (IDU), followed by high-risk heterosexual activity which included a partner with HIV or within a high risk group (Table 4.12).

Table 4.11 HIV tests by gender and race/ethnicity, 2004-2008*

	Year of Test									
	2004		2005		2006		2007		2008	
	Tests	Pos (%)	Tests	Pos (%)	Tests	Pos (%)	Tests	Pos (%)	Tests	Pos (%)
MEN										
White NH	13886	70 (0.50)	13942	78 (0.56)	14174	101 (0.71)	14380	91 (0.63)	17001	80 (0.47)
Black NH	20173	276 (1.37)	21645	278 (1.28)	23986	297 (1.24)	26804	290 (1.08)	34212	377 (1.10)
Hispanic	4174	31 (0.74)	5033	42 (0.83)	5778	37 (0.64)	6298	44 (0.70)	7679	40 (0.52)
American Indian	417	4 (0.96)	493	1 (0.20)	494	1 (0.20)	606	2 (0.33)	1489	6 (0.40)
Asian/PI	256	0	343	1 (0.29)	355	4 (1.13)	368	4 (1.09)	415	2 (0.48)
Other/Unk	389	4 (1.03)	1423	11 (0.77)	2487	27 (1.09)	1934	29 (1.50)	3234	25 (0.77)
Total	39295	385 (0.98)	42879	411 (0.96)	47274	467 (0.99)	50390	460 (0.91)	64030	530 (0.83)
WOMEN										
White NH	27965	25 (0.09)	29381	25 (0.09)	31450	27 (0.09)	37628	27 (0.07)	43456	32 (0.07)
Black NH	33274	122 (0.37)	35678	121 (0.34)	39022	116 (0.30)	49316	141 (0.29)	60671	126 (0.21)
Hispanic	14682	8 (0.05)	16774	16 (0.10)	20268	18 (0.09)	28589	17 (0.06)	35724	16 (0.04)
American Indian	681	1 (0.15)	886	3 (0.34)	918	0	1018	1 (0.10)	1439	0
Asian/PI	643	1 (0.16)	848	1 (0.12)	858	2 (0.23)	1097	2 (0.18)	1458	0
Other/Unk	728	2 (0.27)	2589	2 (0.08)	4319	8 (0.19)	3400	3 (0.09)	6020	15 (0.25)
Total	77973	159 (0.20)	86156	168 (0.19)	96835	171 (0.18)	121048	191 (0.16)	148678	189 (0.13)

* Previous positives and missing test results removed.

Table 4.12 HIV tests* by gender and hierarchical risk category, 2004-2008**

	Year of Test									
	2004		2005		2006		2007		2008	
	Tests	Pos (%)	Tests	Pos (%)	Tests	Pos (%)	Tests	Pos (%)	Tests	Pos (%)
MEN										
MSM/IDU	163	3 (1.84)	155	6 (3.87)	136	8 (5.88)	974	14 (1.44)	145	3 (2.07)
MSM	3929	176 (4.48)	4236	199 (4.70)	4545	264 (5.81)	4931	248 (5.03)	5185	244 (4.71)
IDU	1236	14 (1.13)	1059	4 (0.38)	1078	7 (0.65)	912	3 (0.33)	987	6 (0.61)
Hetero (High Risk)	18055	93 (0.52)	17476	89 (0.51)	16714	79 (0.47)	16171	65 (0.40)	18698	96 (0.51)
Hetero (Other)	13745	69 (0.50)	17352	89 (0.51)	21499	80 (0.37)	23214	83 (0.36)	32342	113 (0.35)
All Other	441	9 (2.04)	274	4 (1.46)	376	4 (1.06)	578	9 (1.56)	501	0
No Risk/ Missing	1726	21 (1.22)	2327	20 (0.86)	2926	25 (0.85)	3610	38 (1.05)	6172	68 (1.10)
Total	39295	385 (0.98)	42879	411 (0.96)	47274	467 (0.99)	50390	460 (0.91)	64030	530 (0.83)
WOMEN										
IDU	1083	8 (0.74)	973	5 (0.51)	933	5 (0.54)	3166	9 (0.28)	874	4 (0.46)
Hetero (High Risk)	33470	101 (0.30)	28507	83 (0.29)	21223	79 (0.37)	22480	66 (0.29)	22027	68 (0.31)
Hetero (Other)	40282	40 (0.10)	52268	66 (0.13)	68886	70 (0.10)	81908	93 (0.11)	103372	87 (0.08)
All Other	1463	6 (0.41)	1368	7 (0.51)	1605	10 (0.62)	2077	8 (0.39)	2462	3 (0.12)
No Risk/ Missing	1675	4 (0.24)	3040	7 (0.23)	4188	7 (0.17)	11417	15 (0.13)	20033	27 (0.13)
Total	77973	159 (0.20)	86156	168 (0.19)	96835	171 (0.18)	121048	191 (0.16)	148768	189 (0.13)

* Previous positives and missing test results removed. **MSM/IDU includes men reporting any male partners who also report injection drug use. MSM includes men reporting any male partners and no injection drug use. IDU includes women and men who are not MSM who report injection drug use. Heterosexual high risk includes heterosexuals (women who report any male partners and men who report only female partners) who report sex partners with HIV risk: MSM, IDU, HIV positive, Other HIV risk OR who report sexual risk: victim of sexual assault, trade sex for drugs or money, recent STD diagnosis, sex while using non-injection drugs. Heterosexual other includes heterosexuals who do not also report the risks listed above. All other includes individuals who can not be classified in one of the other categories: women who have sex with women, persons with either gender or the gender of their sex partners missing, Some of these also report these risks: blood/tissue recipient, health care exposure, child of HIV infected woman.

CHAPTER 5: SPECIAL STUDIES

CONTENTS

MORBIDITY AND RISK BEHAVIOR SURVEILLANCE: THE 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 Medical Monitoring Project (MMP), as it now called, 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 provide nationally representative estimates of clinical and behavioral outcomes among persons living with HIV infection. The data collected from this national probability sample of HIV-infected persons receiving care in the U.S. will provide:

- A description of the clinical care and status of HIV-infected patients
- Better understanding of the existence and quality of HIV support services
- Prevalence data for co-morbidities related to HIV disease
- An understanding of the prevalence of ongoing risk behaviors
- Insight into the access and utilization of prevention services
- An ability to identify met and unmet needs for HIV care and prevention services 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 completed the three-stage sampling procedure for the 2008 data collection cycle. 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 by prescribing anti-retroviral medications or monitoring patient health (through changes in CD4 levels and viral loads). A total of 179 facilities that treat patients with HIV were identified. The general location and type of these 179 providers are summarized in Table 5.1. The majority of the HIV care providers are located in the Piedmont region of the state.

The N.C. MMP team requested an estimated patient load (EPL) for the calendar year 2007 from each of the providers. The EPL represents the total number of HIV-infected patients who were treated at each facility during that time period. The EPL for calendar year 2007 ranged from zero patients to a maximum of 1,121 patients. A coded list of these 179 providers was submitted to CDC, and thirty-one providers were subsequently randomly chosen to participate in MMP. The thirty one selected providers were then asked by the N.C. MMP team to participate in the project by providing a list of all HIV-infected patients seen at their facility between January 1, 2008, and April 30, 2008. Of the original thirty-one providers, 14 were eligible to participate and provided patient lists to the MMP team. A coded patient list (no names included) was sent to the CDC

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

	VA Hospitals		General Medical Clinics		ID Clinics		Hospitals		Total Providers	
Region[1]	n	Pct.	n	Pct.	n	Pct.	n	Pct.	n	Pct.
Mountains	1	25.0%	12	8.4%	1	8.3%	2	10.0%	16	8.9%
Piedmont	3	75.0%	80	55.9%	9	75.0%	10	50.0%	102	57.0%
Coastal Plain	0	0.0%	51	35.7%	2	16.7%	8	40.0%	61	34.1%
Total	4	100%	143	100%	12	100%	20	100%	179	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.

and 400 patients were then randomly selected for recruitment and participation in the project. Patients were contacted, interviewed, and medical records abstractions were performed during February, March, and April, 2009. A total of 49 interviews were completed and 40 medical record abstractions were completed.

Table 5.2 includes a summary of select demographic characteristics of the 49 patients interviewed during the 2008 data cycle. Of these 49 patients, more males than females were interviewed (33 versus 16) and 32 (65.4%) were between the ages of 31 and 50; one patient was

born outside the United States. Additionally, 21 of the interviewees (42.9%) identified themselves as heterosexual; one interviewee had been arrested and put in jail, detention, or prison for more than 24 hours during the year immediately preceding the interview; 32 (65.3%) of the interviewed patients had at least some college education, 13 (26.5%) reported not having health insurance of any kind, 5 (10.2%) reported being homeless at some point during the year preceding the interview. Table 5.2 is simply a description of some of the characteristics of the patients interviewed and should not be interpreted as being statistically meaningful or generalizable to the general adult HIV-infected population in N.C. The 2008 data collection cycle ended nationwide on April 30, 2009, to enable all 26 project areas to be on a synchronized schedule for the 2009 data collection cycle. The interview and abstraction completion percentages included in this report reflect the shortened data collection cycle.

Table 5.2. Patients Interviewed in North Carolina, 2008 Data Cycle, Select Demographics

	n	Pct.
Gender		
Male	33	67.4%
Female	16	32.7%
Intersex/Ambiguous	0	0.0%
Age		
0-20 years	0	0.0%
21-30 years	1	2.0%
31-40 years	11	22.5%
41-50 years	21	42.9%
51-60 years	13	26.5%
>61 years	3	6.1%
Race/Ethnicity (* indicates non-Hispanic)		
Asian *	1	2.0%
Black or African American*	22	44.9%
American Indian or Alaska Native *	1	2.0%
Hawaiian or other Pacific Islander *	0	0.0%
White *	24	49.0%
Hispanic	1	2.0%
Education		
No School	0	0.0%
Grade 1-8	1	2.0%
Grade 9-11	1	2.0%
Grade 12 or GED	15	30.6%
Some college	25	51.0%
Bachelor degree	5	10.2%
Post graduate work	2	4.1%

Table 5.2 (continued). Patients Interviewed in North Carolina

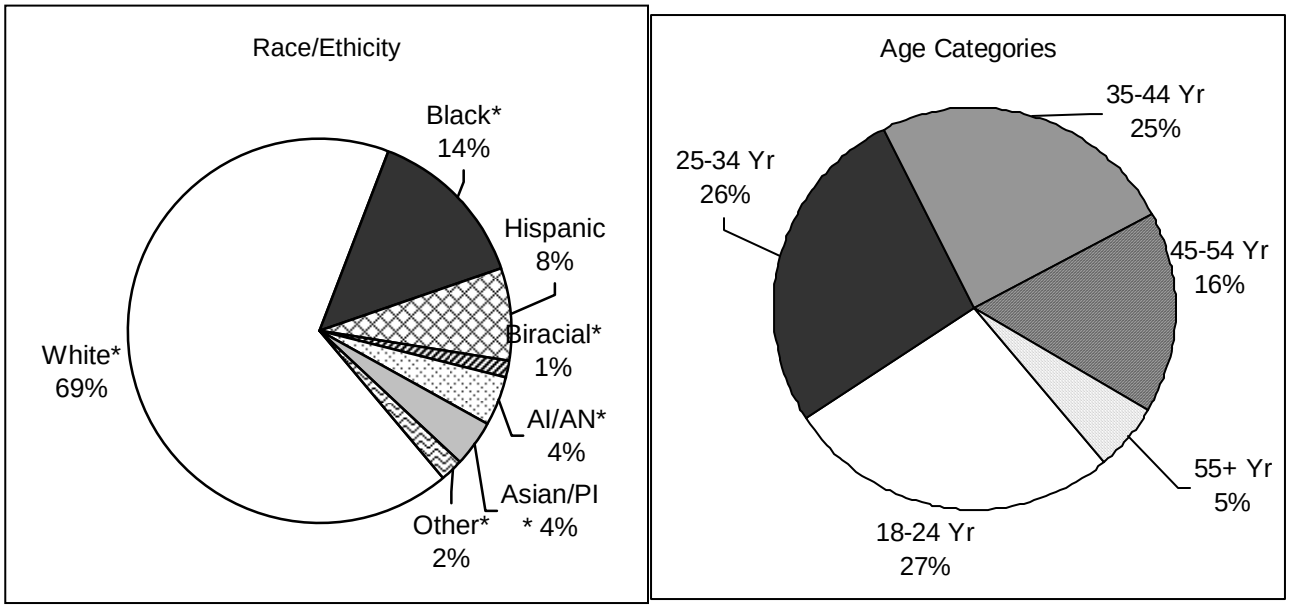
	n	Pct.
Health Insurance		
No	13	26.5%
Yes	36	73.5%
Sexual Orientation		
Heterosexual	21	42.9%
Homosexual	22	44.9%
Bisexual	6	12.2%
Country or Territory of Birth		
United States	48	98.0%
Other	1	2.0%
Homeless in the 12 months Preceding the 2008 MMP Interview		
Yes	5	10.2%
No	44	89.8%
Jail, Detention, or Prison (for > 24 hours) in the 12 months Preceding the 2008 MMP Interview		
Yes	1	2.0%
No	48	98.0%
Total	**49**	**100%**

NORTH CAROLINA MSM RAPID BEHAVIORAL ASSESSMENT, 2008

BACKGROUND AND METHODS

The Rapid Behavioral Assessment (RBA) attempts to address the deficiency of HIV behavioral data from men who have sex with men (MSM) living in North Carolina in order to ascertain the prevalence of HIV risk behavior among men attending gay Pride events in North Carolina, who may be at increased risk for HIV infection. The North Carolina Communicable Disease Branch collaborated with volunteers from CBOs, local health departments and universities and collected behavioral data from MSM attending N.C. Gay Pride on September 27, 2007 at Duke University, Durham, N.C.

Figure 5.1. MSM interviewed by age category and race/ethnicity, 2008



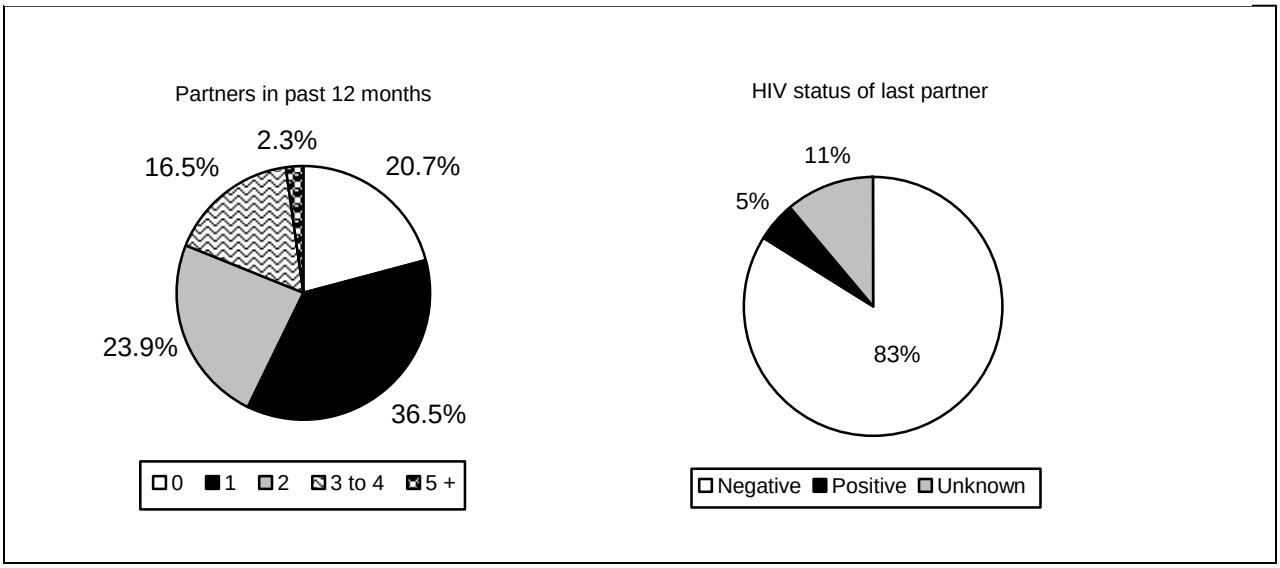
*non-Hispanic

Prior to the event, CDC staff conducted training for the volunteers on 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 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. 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. 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), and being "out". The anonymous survey lasted approximately ten minutes and answers were entered directly into handheld computers. No personal identifiers were collected. 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, N.C.) for cleaning and analysis.

RESULTS

Data were gathered from three hundred and ten seven (310) men. The majority was white (63%), ages 18 to 34 years old, and 83percent percent had some additional education beyond High school. Ninety percent (90%) identified as homosexual or gay, ten percent (10%) identified as bisexual; 246 (79%) were considered sexually active MSM. Most men (94%) were "out" to their MSM friends, 80 percent were out to their other (not MSM) friends, 75 percent were out to their family and 70 percent were out to their health care provider.

Figure 5.2. Number and HIV status of male sex partners in the past 12 months



Partners

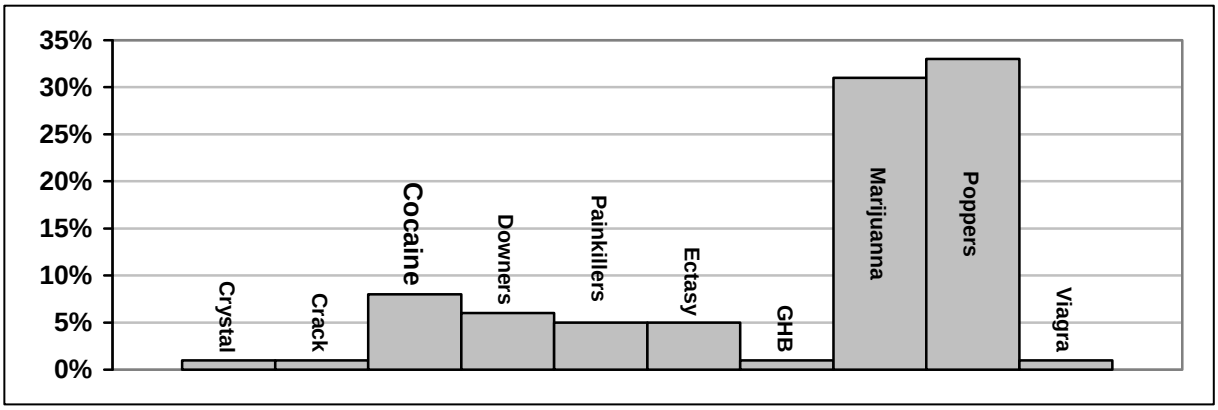
Of the 310 respondents, the range of male sex partners was 0 to 30 with a median of 1.0. Twelve (n=12) men had at least one female sex partner during the preceding 12 months (of these men, 7 considered themselves homosexual, and 5 considered themselves to be bisexual. Forty three percent (n=132) of men interviewed had more than one male sex partner during the preceding 12 months; 42 percent of these men, (n=55) reported having unprotected anal intercourse (UAI). Among sexually active MSM engaging in unprotected anal intercourse (n=55), the median number of male anal sex partners in the past 12 months was 1.0 (Range: 1-23 sex partners). The most common answers men gave about the places they meet their sex partners, were the Internet (52%) and at a bar or club (36%). Less commonly reported meeting places were adult bookstores (n=6) and at a sex club or private sex party (n=2). Forty-five percent reported meeting male sex partners "somewhere else."

Last sex partner

Sixty one (61%) of sexually active men felt committed to their last sex partner (described as a "main" partner), 39 percent of sexually active MSM had sex with a casual partner, or someone they did not feel committed to. Seventy five percent (75%) of the men who reported having sex with a "main partner" during the last time they had sex, stated their partner "definitely did not"

have sex with other people, 11percent reported they "probably did not," 13% reported their partner "probably did" or "definitely did" have sex with other people. Eleven percent of men reporting their last sex partner was their "main" partner also reported having sex with other people. Of the 75 men who were the insertive partner during the last time they had sex, 19 percent reported using condoms "none of the time," 13 percent "some of the time," and 68 percent reported using condoms "the whole time." Of the 75 men who were the receptive partner during the last time they had sex, 21 percent reported their partner used a condoms "non of the time," 8 percent some of the time, and 71 percent reported their partner used a condom "the whole time." Thirty one percent (31%) of respondents indicated they "always" drank alcohol or did drugs right before or during sex, 10 percent indicated they sometimes drank or did drugs before or during sex. Of the 246 men who were sexually active in the past 12 months, 83 percent reported their last sex partner was HIV negative, 5 percent (n=13) reported their last sex partner was HIV positive and 11 percent reported they did not know the status of their last sex partner.

Figure 5.3. Drugs used prior to or during sex, 2008



HIV testing and STDs

The results indicated that 92 percent of the participants had ever been tested for HIV. Of those, 90 percent had tested negative in their most recent test, 8 percent (n=22) tested positive during their most recent test. Of the positive testers, 41 percent (n=9) had tested positive before their most recent test. Of the 89 percent who had seen a doctor in the past 12 months for any reason, 42 percent were offered a test for HIV, 58 percent were not offered a HIV test. The main reason given for not getting tested was "has not engaged in any risk behavior," and in a monogamous relationship. Eight men reported having been diagnosed with a sexually transmitted disease in the past 12 months; four cases of herpes, three cases of gonorrhea, two cases of chlamydia, and one case of anal warts. Forty six percent (46%) had been tested for syphilis in the past 12 months, and none reported being diagnosed with syphilis in the past 12 months.

PREP and PEP

Eighteen percent had ever heard of people who do not have HIV taking AIDS medicines to keep from getting HIV; none had ever used AIDS medicines just before engaging in a risky activity (PREP) or right after engaging in a risky activity, because they thought it would reduce their

chances of getting HIV, and none of the HIV positive respondents had ever given their sex partner who was HIV-negative AIDS medicines because they thought it might protect them from getting HIV.

Receipt of Preventive Services and Exposure to Prevention Messages

Sixty-five percent of men surveyed received free condoms, 15 percent from a community based organization, 14 percent from the health department, 32 percent from a bar/club, and 20 percent received condoms from somewhere else. Only six percent had been referred from STD testing in the past 12 months, and 37 percent, reported they received information from a counselor or outreach worker on ways to protect themselves and their partners from getting HIV or other sexually transmitted diseases. Forty-nine percent had seen the statewide "Get Real. Get Tested." HIV testing campaign logo.

DISCUSSION

In 2008, MSM activity accounted for 56 percent of all new HIV reports (including MSM/IDU) in North Carolina. This represents a 24 percent increase in overall MSM reports from 2004 to 2008 (45%-56%). Recent outbreaks of syphilis and other sexually transmitted infections among MSM indicate a resurgence of unprotected sex in this population. Sexually transmitted diseases, such as gonorrhea and syphilis, increase the risk of HIV infection. High STD rates are markers for high-risk sexual practices and are cause for concern. Although 92 percent of MSM surveyed had been tested for HIV and knew their status, and 11 percent did not know their last sex partner's HIV status. Although many of the men surveyed had recently been exposed to prevention messages and services, 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.

CONCLUSIONS

The Rapid Behavioral Assessment allows North Carolina the ability to monitor key behavior indicators over time and to evaluate some of our local prevention programs. 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.
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

Thanks also to N.C. Pride for their permission to conduct the Men's Health Survey during their festivities and special thanks to the CDC staff and to the RBA volunteers from UNC Team Epi

Aid, and the Communicable Disease Branch staff for all of their hard work and their high degree of professionalism.

BEHAVIORAL RISK FACTOR SURVEILLANCE SYSTEM

Effective HIV/STD prevention requires monitoring risk behaviors among persons who are infected, persons who are at highest risk for infection, and the general population. General population surveys such as the N.C. BRFSS can contribute to the description and monitoring of HIV/STD risk behaviors, provide estimates of the prevalence of sexual and other risk behaviors and, enables NC to project the need for HIV/STD prevention messages to promote risk reduction in the general population (for a more detailed description and strengths and limitations, please see Appendix B on pg. B-5). In North Carolina, the BRFSS survey is conducted by the State Center for Health Statistics. In 2001, 2004, 2006 and 2008 several sexual behavior questions were added to the survey in N.C. and data were collected about sexual behavior in those years only. In 2008 the Communicable Disease Branch sponsored a question to ascertain the prevalence of same sex behaviors. Routine surveillance data of sexual and gender minorities (lesbian, gay, bisexual and transgender) are needed to inform the development and evaluation of interventions to reduce health disparities experienced in those populations (e.g., mental health, violence prevention, tobacco control and HIV/STD prevention).

Sexual Partners and Condom Use

In 2008, adults age 18 to 49 were asked how many different people they had sexual intercourse with over the past 12 months; 8.3 percent of males and 1.8 percent of females reported three or more sexual partners over the past 12 months; 2.9 percent of whites, 10.5 percent of African Americans, 10.8 percent of Native Americans, and 7.5 percent of other minorities had three or more sex partners in the previous 12 months (NC SCHS, BRFSS, 2008).

In 2008, the questions "How many new sex partners did you have during the past twelve months?" and "During the past 12 months, have you had sex with only males, only females, or both?" were asked of persons who reported having more than one partner. Twenty nine percent (29.1%) responded that they had more than two *new* sex partners within that time period; 14 percent of females and 34.5 percent of males had more than two new sex partners. The gender of the sexual partners was specified this year, and among all males with more than one sex partner in the past 12 months, 5.5 percent reported only male sex partners (5.4% of white males, 7.5% of African American males, and 2.8% of other minority males).

History of STDs and other high risk indicators

The 2008 BRFSS Sexual Behavior Module asked the question "Do any of the situations apply to you in the past year: have used intravenous drugs, have been treated for a sexually transmitted or venereal disease, have given or received money for drugs in exchange for sex, had anal sex without a condom?" Over three percent (3.4%) of the total respondents answered "yes"; 6 percent of blacks responded "yes", as compared to 2.6 percent of whites, 8 percent of American Indians, 4.8 percent of Hispanics and 3.5 percent of other minorities. Of those respondents aged 18 to 24 years, 8.2 responded "yes"; 4.8 percent of 25 to 34 year olds, 2.2 percent of 35 to 44

year olds and 1.9 percent of 45 to 54 year olds responded that they had been treated for a STD in the past five years. Forty seven percent of those responding that they had been treated for a STD in 2007 were treated at a health department STD clinic (this question not asked in 2008).

HIV testing

The standard HIV/AIDS risk question in the BRFSS survey asked each year is "Have you ever been tested for HIV? Do not count tests you may have had as part of a blood donation". According to the 2008 BRFSS Survey, 42.3 percent of respondents had been tested for HIV; 45.6 percent of women and 39 percent of men. African Americans are more likely to have been tested for HIV (59.8%) than whites (37.3%). There have been increases in recent years in the number of respondent who have ever been tested (38.3% overall in 2006 to 42.3% overall in 2008); most notably among African Americans (from 53% in 2006 to 60% in 2008) and Hispanics (from 36% in 2006 to 45.5% in 2008).

The majority of persons with health insurance had the HIV test through a private doctor (48%) whereas the majority of persons without health insurance had their test performed at a clinic (35.5%). Persons taking a rapid HIV test have increased from 15 percent in 2006 to 20 percent in 2008, with the largest increase seen among those without health insurance (from 12% in 2006 to 24% in 2008).

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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

- 17,995 AIDS cases have been reported in North Carolina, cumulatively from the beginning of the epidemic through December 2008.
- North Carolina ranked 13th among the 50 states and dependent areas in cumulative reported AIDS cases (2007).
- 961 AIDS cases were diagnosed in the adult/adolescent population of North Carolina in 2008 (12.9 cases per 100,000 adult/adolescent population).
- Blacks accounted for 69 percent (n=659) of AIDS cases diagnosed in North Carolina in 2008; whites accounted for 22 percent (n=212), Hispanics accounted for 8 percent (n=76)
- Black adults and adolescents in North Carolina are diagnosed with AIDS at 10 times the rate for whites and nearly two and a half times the rate for Hispanics. The rate of AIDS diagnosed in black women (26.4 per 100,000) was 20 times the rate for white women (1.3 per 100,000). The AIDS rate among adult/adolescent black men (60.2 per 100,000) was 8.5 times the rate for white men (7.1 per 100,000).
- Over half (54%) of individuals diagnosed with AIDS in 2008 represent late diagnosis (AIDS was diagnosed at the same time or within 6 months of the initial HIV diagnosis).

AIDS SURVEILLANCE

All 50 states, the District of Columbia and the U. S. dependent areas report AIDS cases to the Center for Disease Control and Prevention (CDC) by using a uniform surveillance case definition and case report form. For persons with laboratory-confirmed HIV infection, AIDS cases represent individuals with CD4+ T-lymphocyte percentages of less than 14 or CD4+ T-lymphocyte counts of fewer than 200 cells/μL or the presence of one of 23 clinical conditions indicating an impaired immune system. The date of AIDS diagnosis represents the date that an individual is diagnosed with AIDS based on the above case definition. The majority of individuals are diagnosed with HIV infection first and then later with AIDS. However, in North Carolina approximately 25 percent of all individuals diagnosed with HIV infection are diagnosed with AIDS at the same time or within 6 months.

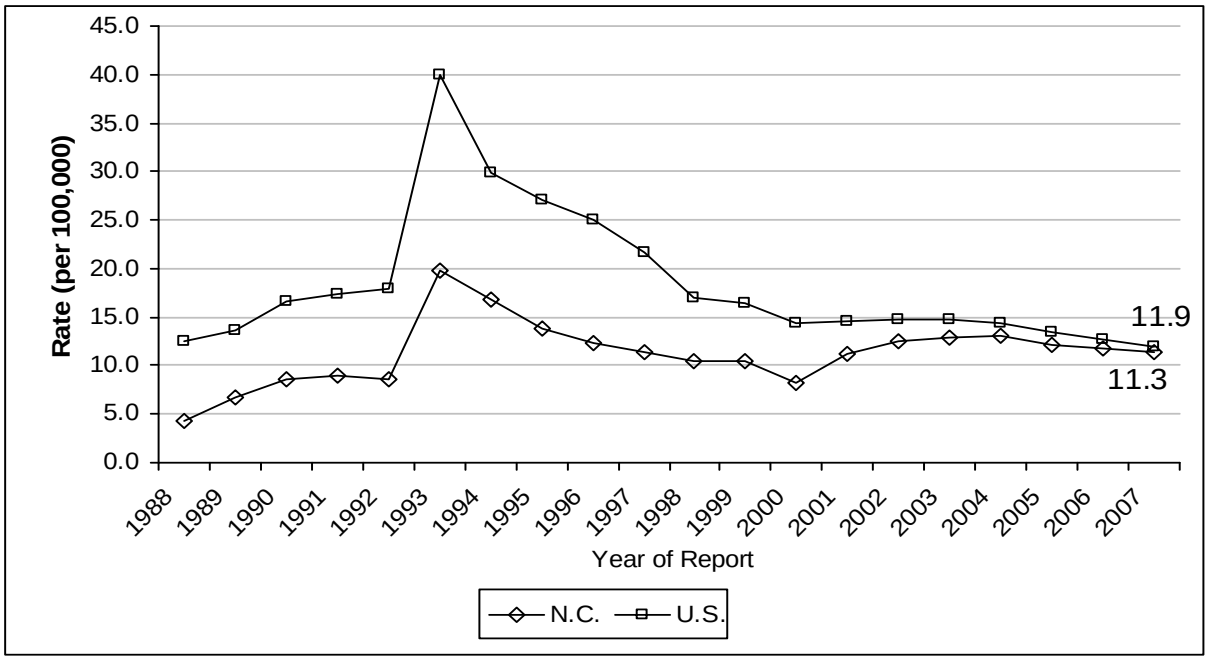
Monitoring changes in AIDS cases in North Carolina helps provide a valuable measure of the continuing impact of treatment as well as describing those who may not have access to care. Close attention should be paid to the demographic changes in AIDS cases, especially by agencies that provide care services for clients. It should be noted, however, AIDS diagnoses do not provide a current or full understanding of the epidemic, given the lag time between HIV infection and progression to an AIDS diagnosis, particularly since the introduction of ARVs. Increases in AIDS reports may indicate that more HIV-infected individuals are not receiving

effective treatments or that current treatments are not as effective. The estimated HIV incidence provides the fullest picture of the current epidemic because it captures both infections that have been diagnosed and those estimated to have occurred, but have not yet been diagnosed (see Chapter 2, HIV Incidence). *Readers should note for the assessments of trends in AIDS cases, deaths or prevalence, data are presented by year of diagnosis, as opposed to year of report, to eliminate artifacts of reporting.*

N.C. AND THE U.S.

According to the CDC, the national AIDS case rate (United States and dependent areas) in 2007 was 11.9 per 100,000 population. During the same time period, North Carolina's AIDS case rate was 11.3 per 100,000 population (CDC, HIV/AIDS Surveillance Report, 2007). AIDS case reporting is helpful in comparing North Carolina to the nation; as all states have named base reporting by law and data that are acceptable for state to state comparisons. Comparing North Carolina to the nation is limited to earlier years because national surveillance data is released later than state data. Figure 6.1. compares North Carolina's AIDS case rates to the United States over the past twenty years (1988-2007). *Please note that the aforementioned counts and rates are calculated by the CDC and may differ slightly from N.C. surveillance counts and rates because national data have been statistically adjusted for delays in the reporting of cases.*

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



There is growing concern about the impact of HIV/AIDS in the South. In 2007 the South had the greatest number of new AIDS cases overall (46%) and the greatest number of people estimated to be living with AIDS (Kaiser, 2008). In 2007, of the top 10 states or dependent areas reporting the most AIDS **cases**, five (FL, TX, GA, MD, and NC) were in the South (CDC, HIV/AIDS Surveillance Report, 2007). North Carolina ranked 10th among all states and the District of Columbia, in the number of new AIDS **cases** reported (see Table 6.1).

In 2007, seven of the top ten states by AIDS **case rate** were in the South (DC, MD, FL, LA, DE, GA and SC) and North Carolina ranked eleventh (CDC, HIV/AIDS Surveillance Report, 2007).

Table 6.1. AIDS Cases by Top 10 States/Dependent Areas, 2007

State/Dependent Area	AIDS Cases	Rank
California	4,952	1
New York	4,810	2
Florida	3,961	3
Texas	2,964	4
Georgia	1,877	5
Pennsylvania	1,750	6
Maryland	1,394	7
Illinois	1,348	8
New Jersey	1,164	9
North Carolina	1,024	10

Source:CDC *HIV/AIDS Surveillance Report*, 2007. Vol.19

As of December 31, 2008, 17,995 cases of AIDS had been reported in the state since 1983 with North Carolina as the state of residence at the time of diagnosis (see *N.C. 2008 HIV/STD Surveillance Report*). Overall there have been increases in the rate of AIDS diagnosis in North Carolina over the past five years (2004-2008). In 2008, 961 new adult/adolescent AIDS cases were diagnosed in North Carolina with a rate of 12.9 per 100,000 adult/adolescent population (Table O, pg. D-25). This represents a 16 percent increase in AIDS diagnoses over the past five years (11.1 in 2004 to 12.9 per 100,000 adult/adolescent population). Tables O and P (pp. D-24 and D-25) display the AIDS cases and rates by gender, age and race/ethnicity for the last five years. Changes in rates may indicate changes in the anticipated care needs for certain groups.

IMPACT ON RACIAL AND ETHNIC MINORITIES

Racial and ethnic minorities continue to be disproportionately affected by the AIDS epidemic. Minorities represented 78 percent of new AIDS cases diagnosed in North Carolina (2008). Blacks and Hispanics account for a disproportionate share of new AIDS cases, relative to their size in the population of North Carolina. Blacks have the highest AIDS case rates of any racial/ethnic group. Black adults and adolescents in North Carolina are diagnosed with AIDS at 10 times the rate for whites and nearly two and a half times the rate for Hispanics. The rate of AIDS diagnosed in black women (26.4 per 100,000) was 20 times the rate for white women (1.3 per 100,000). The AIDS rate among adult/adolescent black men (60.2 per 100,000) was 8.5 times the rate for white men (7.1 per 100,000). The AIDS case rate has increased 19 percent among black females and eight percent among black males over the past five years (2004-2008). The disparity between blacks and whites is higher for AIDS cases than for HIV disease cases (10 time higher rate for AIDS versus 8 times higher for HIV). In 2007, HIV disease was the 3rd leading cause of death among African American females ages 25-44 years, and the 4th leading cause of death among African American males ages 25-44 years.

Blacks accounted for 69 percent (n=659) of AIDS cases diagnosed in North Carolina in 2008; whites accounted for 22 percent (n=212), Hispanics accounted for 8 percent (n=76).

In 2008, black males represented 45 percent of all adult/adolescent AIDS cases, and 63 percent of all male AIDS cases. Black females represented 23 percent of all AIDS cases and accounted for 82 percent of 2008 AIDS cases diagnosed among women in North Carolina; Latinas represented four percent and white women, 12 percent.

The rate of AIDS diagnosis among Hispanics has increased 115 percent over the past five years (8.0 to 17.2/100,000 adult/adolescent population), with the AIDS case rate among Hispanic males increasing 139 percent (from 10.5 to 25.1 per 100,000) and the rate among Hispanic females increasing 43 percent (from 4.2 to 6.0 per 100,000). *Readers should note that the estimated population of Hispanics in N.C. has increased 34 percent in that same time period from an estimated 509,799 in 2004 to an estimated 684,770 in 2008 (Population Division, U.S. Census Bureau, 5/14/09).* The 2008 AIDS case rate among Hispanics (17.2/100,000 adult/adolescent population) was over four times higher than for whites (4.1/100,000 adult/adolescent population). HIV disease was the 4th leading cause of death among Hispanic females in 2007 and the 10th leading cause of death among Hispanic males (ages 25-44 years).

The AIDS rate among white males has increased nine percent over the past five years (6.5 to 7.1/100,000 adult/adolescent population) and the AIDS rate among white females has remained fairly stable over the past five years with a slight decrease in 2008 (1.3 per 100,000). HIV disease was the 9th leading cause of death among white males age 25-44 years in 2007, and was not listed among the top ten causes of death among white females. The AIDS rate among American Indians and Asians has decreased in 2008 to the lowest in the past 5 years (see Table P, pg.D-25). HIV disease was the 8th leading cause of death among American Indians males and the 3rd leading cause of death among American Indian females (ages 25-44 years).

LATE AIDS DIAGNOSES

People who test late in the course of HIV infection are not able to benefit fully from antiretroviral therapy and prophylaxis to prevent opportunistic infections and, thus, are more likely to progress to AIDS (Palella, 2003). Late testing results in missed opportunities for preventing HIV infections, as knowledge of positive HIV status promotes adoption of safer sex practices (CDC, 2000). Table 6.2. displays the proportion of AIDS reports that represent late diagnoses over the past five years (2004-2008). Over half of AIDS diagnoses in North Carolina represent people diagnosed very late in their illness (AIDS was the initial diagnosis for an individual, or AIDS was diagnosed within 6 months of the initial HIV diagnosis).

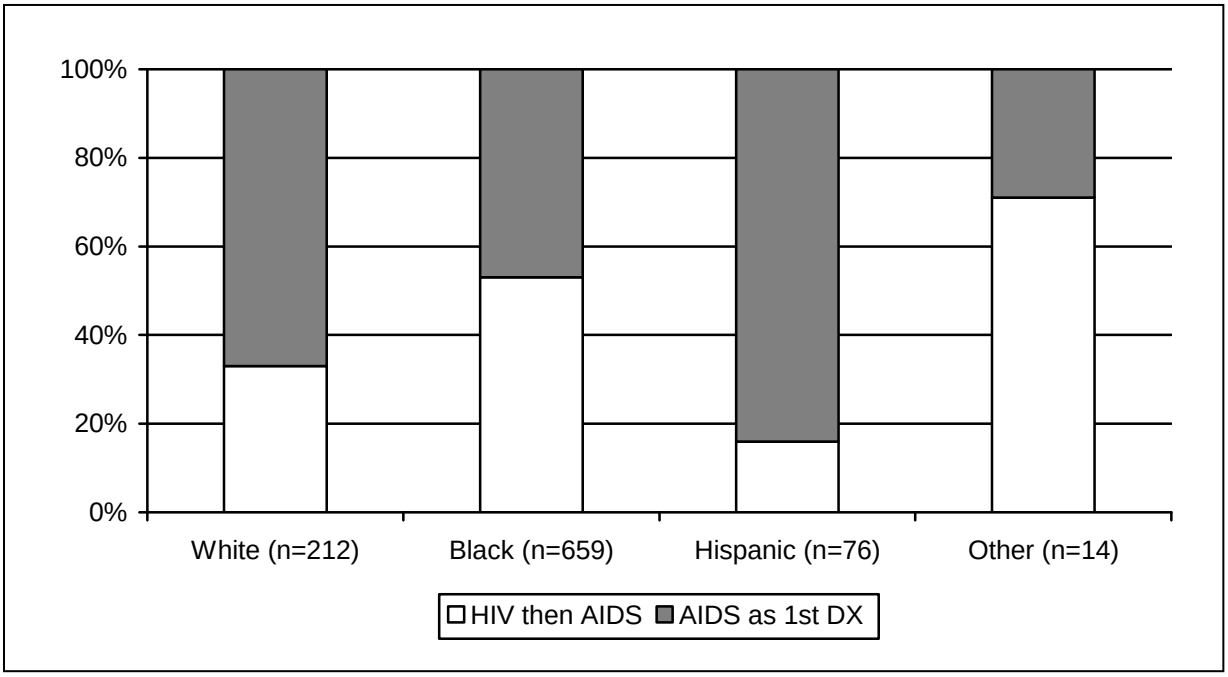
Table 6.2. AIDS reports diagnosed with/without prior HIV diagnosis, 2004-2008

Year of AIDS Diagnosis	HIV then AIDS		AIDS*		Total	
	N	Pct	N	Pct	N	Pct
2004	336	43%	447	57%	783	100%
2005	421	47%	472	53%	893	100%
2006	425	47%	480	53%	905	100%
2007	412	46%	483	54%	895	100%
2008	440	46%	521	54%	961	100%

Figure 6.2. displays late AIDS diagnoses in 2008 by race/ethnicity. Hispanics are more likely to be late testers, reflecting possible cultural and language barriers to testing and access to care. This significant proportion of late diagnoses, in general, indicates the need for increased HIV testing in North Carolina. Late testing results in missed opportunities for prevention and treatment of HIV. A previous study of late versus early testing using SHAS data collected by 16 local state or local health departments compared persons who were tested late in the course of HIV disease. This study found that late testers were more likely than early testers to be black or Hispanic, to have a high school or less education, and to have been exposed to HIV through heterosexual contact (CDC, 2003). Late testers were also more likely to have tested negative previously before their first positive HIV test, possibly assuming they were safe and therefore not retesting for a long time

The Communicable Disease Branch is actively pursuing new policies and guidelines aimed at making HIV testing part of routine medical care settings and working with HIV-infected persons and their partners to reduce transmission. Rapid HIV tests have also created new opportunities to expand HIV testing to nontraditional and high prevalence settings (e.g. emergency rooms, correctional facilities, community outreach settings and mobile testing sites). In addition, the Branch has enacted specific initiatives such as "Get Real.Get Tested.", a statewide campaign designed to encourage North Carolinians to get educated about and get tested for HIV and AIDS (see Chapter 4).

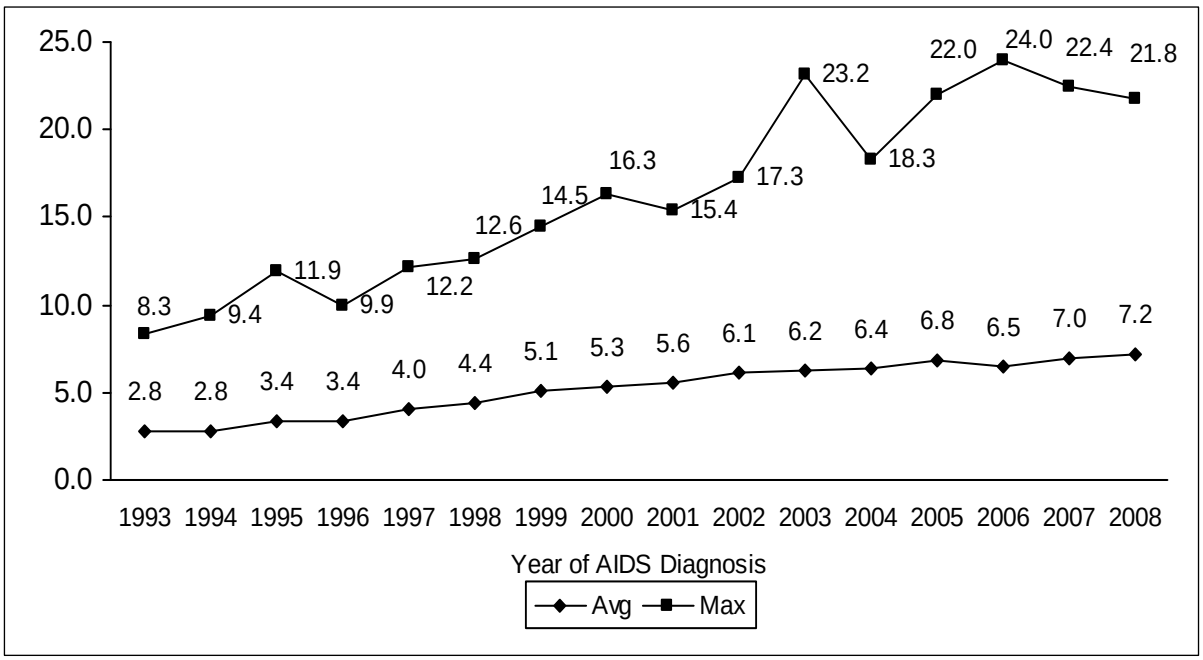
Figure 6.2. Percent of 2008 AIDS cases with AIDS as the initial diagnoses



TREATMENT

Current treatment for HIV infection consists of highly active antiretroviral therapy, or HAART. HAART has been highly beneficial to many HIV-infected individuals since its introduction in 1996, when the protease inhibitor-based HAART initially became available. Many HIV-infected individuals have experienced remarkable improvements in their general health and quality of life, which has led to a large reduction in HIV-associated morbidity and mortality (Palella, 1998). Figure 6.3. shows the average increase in the number of years between first reported HIV diagnosis and first reported AIDS diagnosis, indicating that these new treatments are slowing the progressing from HIV to AIDS.

Figure 6.3. Average and Maximum years between HIV & AIDS 1993-2008**



**Avg. excludes persons with an AIDS diagnosis within 6 months of their initial HIV diagnosis.

HAART does not cure the patient of HIV, nor does it remove all symptoms. If treatment is stopped, high levels of HIV-1 virus, sometimes anti-retroviral drug resistant, return (Dybul, 2002). Non-adherence to antiretroviral therapy is the major reason individuals fail to benefit from HAART (Becker, 2002). The reasons for non-adherence with HAART are varied and include: poor access to medical care, inadequate social supports, psychiatric disease and drug abuse (Nieuwkerk, 2001). The complexity of HAART regimens, whether due to pill number, dosing frequency, meal restrictions or side effects of the medication, contribute to the problem of intentional non-adherence (Heath, 2002). The side effects include loss of subcutaneous fat (lipodystrophy), the accumulation of fat in some parts of the body, insulin resistance, and an increase in cardiovascular risks (Montessori, 2004).

AIDS RELATED DEATH

Despite advances in combating HIV, eventually most HIV-infected individuals develop AIDS. Without treatment, progression from HIV infection to AIDS has been observed to occur at a median of between nine to ten years and the median survival time after developing AIDS is only 9.2 months (Morgan, 2002). Once HIV has progressed to diagnosable AIDS, the average survival time with antiretroviral therapy is estimated to be more than 5 years (Schneider, 2005). These individuals mostly die from opportunistic infections or malignancies associated with the progressive failure of the immune system. One study suggests the average life expectancy of an HIV infected individual is 32 years from the time of infection if treatment is started when the CD4 count is 350/µL (Schackman, 2006). In a recent study published in 2008, Robert Hogg, Jonathan Sterne, and colleagues with the Antiretroviral Therapy (ART) Cohort Collaboration predicted that a 20-year-old person starting ARV treatment between 2003 and 2005 was expected to live an additional 49 years, to the age of 69.

The age adjusted death rate for HIV disease in North Carolina for 2006 was 4.7 per 100,000, ranking N.C. 11th in the nation (the U.S. death rate was 4.0 per 100,000). North Carolina was 14th in the nation for cumulative deaths among persons with AIDS through 2007 (CDC, 2009). Nationally, survival (the estimated proportion of persons surviving a given length of time after diagnosis) was greatest among MSM and among children with perinatally acquired HIV infection. Survival was lowest among male and female adults and adolescents who were injecting drug users (IDU). Survival was greater among Asians, whites and Hispanics than among blacks/African Americans (CDC, 2009). Vital Status may not be determined or reported for all cases. Reporting of AIDS cases in N.C. is more than 85 percent complete. However, the reporting of deaths for persons reported as having AIDS is estimated to be more than 90 percent complete.

THE GOVERNMENT RESPONSE

A variety of federally and state-supported prevention services are provided by state and local health departments and community based organizations. In FY 2008, federal funding to combat HIV totaled $23.3 billion. Of this, half was for care, 12 percent was for research, 10 percent for case and housing assistance, 4 percent for prevention and 25 percent for the international epidemic (Kaiser, 2009). Key programs that provide health insurance coverage, care, and support for people living with HIV in North Carolina include Medicaid, Medicare, the Ryan White Program, the AIDS Drug Assistance Program (ADAP) and Housing Opportunities for Persons with HIV/AIDS (HOPWA). See Chapter Seven: Ryan White HIV/AIDS Care Act and Other Service Considerations for additional information about these programs in North Carolina.

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

HIGHLIGHTS

- From July 1, 2008 through June 30, 2009, the Ryan White Part B program served 7,376 total clients (exclusive of those receiving assistance from ADAP).
- The majority of services for Ryan White Part B clients involved ambulatory/outpatient medical services, followed by non-medical and medical case management.
- 5,508 individuals were served by NC's AIDS Drug Assistance Program (ADAP) at some point during calendar year 2008.
- In state fiscal year (SFY) 2007-2008, approximately 3,089 clients and families received Housing Opportunities for Persons with AIDS (HOPWA) services.
- In calendar year 2008, it was estimated that 19,442 (75%) of persons living with HIV/AIDS were estimated to be "in care." The estimated number of persons living with HIV with unmet need was 28% as compared to 20% of persons living with AIDS.

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.

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), Mecklenburg County and the four other N.C. counties in the Charlotte metropolitan area (including one county in South Carolina) are direct-funded. This has led to a significant increase in federal resources to the State for HIV/AIDS care purposes, and has allowed some of the State's Part B funding which formerly went to the Charlotte region, to be redirected to other areas of the State. Two significant changes

in the Part B program (Assistance to States and Territories) include: 1) 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), and 2) 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, will 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. Implementation of the new Patient Management Model is expected to occur in April 2010, with the beginning of the Ryan White 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. 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. The complete data includes service information as well as clinical information. Data collected through CAREWare are 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 Ryan White-funded providers. Table 7.1 summarizes the CAREWare service information for Part B clients during 2008.

From July 1, 2008 through June 30, 2009, the Ryan White Part B program served 7,376 total clients (exclusive of those receiving assistance from ADAP) received services. 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 living with HIV/AIDS listed by county of residence and sorted by consortia are found in Table M (pp. D-18 to D-20). This estimation of reported people living with HIV can be used to anticipate care needs within the State.

Table 7.1. Services provided to Ryan White Part B clients, 2008

Services	No. Clients	Percent of Services Provided (n=152,664*)
Outpatient/Ambulatory Medical Care	51,487	33.7%
Case Management (non-medical)	33,814	22.2%
Medical Case Management	11,217	7.3%
Food Bank/Home-delivered Meals	8,384	5.5%
Medical Transportation Services	7,604	5.0%
Health education/Risk Reduction/Prevention	7,033	4.6%
Treatment Adherence Counseling	5,360	3.5%
Housing Services	4,636	3.0%
Emergency Financial Assistance	4,054	2.7%
Oral Health Care	3,167	2.1%
Mental Health Services	3,117	2.0%
Respite Care	2,928	1.9%
Medical Nutrition Therapy	2,750	1.8%
Psychosocial Support	1,964	1.3%
Referral Services	1,876	1.2%
Substance Abuse: Outpatient	1,474	1.0%
Health Insurance Premium/Cost Sharing	687	0.4%
Outreach Services	578	0.4%
Home and Community-based Health Services	159	0.1%
Legal Services	166	0.1%
Linguistics Services	135	0.1%
AIDS Pharmaceutical Assistance	14	0.0%
Child Care Services	3	0.0%
Home Health Care Services	56	0.0%
Substance Abuse: Residential	1	0.0%
Total	152,664	100%

* may receive more than one service

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. AIDS Drug Assistance Programs 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.

Table 7.2. N.C. living HIV/AIDS cases, Ryan White Part B and ADAP clients, 2008

	Ryan White Part B clients	ADAP enrollees CY 2008	Persons living** with HIV/AIDS
	(n=7,376)	(n=5,508)	(n=23,363)
Gender			
Male	64%	69%	69%
Female	36%	31%	31%
Transgender	<1%	0%	-
Race/ethnicity			
White*	28%	30%	26%
Black*	60%	60%	67%
Am Indian/AN*	1%	<1%	1%
Asian/PI*	<1%	<1%	<1%
Hispanic	8%	8%	5%
Other*	2%	2%	<1%
Age Group			
<2	<1%	0%	<1%
2-12	1%	<1%	<1%
13-24	7%	4%	4%
25-44	47%	54%	43%
45-64	43%	40%	49%
65 and over	2%	2%	4%

* includes Hispanics for Title II groupings; represents non-Hispanics for the others **Living as of 12/31/2008

North Carolina's AIDS Drug Assistance Program (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 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 added some preventative medicines, such as common vaccines and smoking cessation aids.

In order for someone to be eligible for ADAP in North Carolina, the individual must have a gross family income of less than/equal to 300 percent of the federal poverty level, not have third-party coverage (e.g., private insurance or Medicaid), and meet other program criteria. A significant change occurred effective October 1, 2008 when the financial eligibility of the N.C. ADAP was increased to a gross family income of less than/equal to 300 percent of the federal poverty level. For the first time in many years, North Carolina's ADAP was finally able to operate for the entire 2006 and 2007 calendar years without a waiting list. During CY 2008, 5,508 individuals were served in North Carolina's AIDS Drug Assistance Program at some point during the year.

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 (MSA) 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. Charlotte and Raleigh became eligible for a HOPWA formula allocation in 1998 and the overall State's area was reduced. Since 1998, North Carolina's state grant serves persons living with HIV/AIDS and their families who live outside of the Charlotte and Raleigh MSAs (covering 92 of the 100 counties in N.C.).

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) 2007-2008, approximately 3,089 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/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.

ESTIMATE OF UNMET NEED IN NORTH CAROLINA, 2008

Background

Specific information about the disparities in access and services among HIV-affected subpopulations and underserved communities guides state and national planning and resource allocations. The Health Resources and Administration (HRSA) requires that each Part A and Part B program determine the size and demographics of the population of individuals with HIV disease and to determine the needs of such populations, with particular attention to individuals who know their positive HIV status and are not receiving HIV-related primary health care. Primary medical care includes medical evaluation and clinical care that is consistent with U.S. Public Health Service guidelines for the treatment of HIV/AIDS and must include access to antiretrovirals and other drug therapies and treatment of opportunistic infections. The term "unmet need" is used only to describe the unmet need for HIV-related primary health care. An individual with HIV/AIDS is considered to have an "unmet need" for care (or to be out of care) when there is no evidence of any of the following three components of HIV primary medical care: 1) viral load testing, 2) CD4 count or percent and/or, 3) provision of anti-retroviral therapy (ART). A person is considered to have "met need" (or to be in care) when there is evidence of any one or more of these three, measured during the specified 12-month time frame.

Data Sources and Methodology

The Surveillance Unit of the Communicable Disease Branch maintains the public health surveillance system for all morbidity and laboratory reports for HIV and AIDS in North Carolina. All HIV/AIDS cases reported to the state are stored a central HIV/AIDS surveillance system (eHARS). EHARS records are updated with additional information including laboratory test results, changes in address, diagnostic information and, vital status. EHARS is estimated to represent 85 percent of all persons diagnosed with HIV disease in North Carolina, and eHARS was used to identify persons eligible for consideration in the unmet need estimate. The eligibility criteria to be included in the estimate of unmet need was, 1) only individuals reported to the Communicable Disease Surveillance Unit with current residency listed as North Carolina or unknown, 2) vital status was living (as of 4/01/08) and, 3) not in care through the Veterans Administration. HIV disease reports diagnosed by Veterans Administration (VA) facilities are grossly underreported in North Carolina, so published VA data was used to estimate unmet need for persons diagnosed and treated through VA facilities.

Individuals meeting the definition of "in care" were initially identified based on the available laboratory information collected within the surveillance system. North Carolina does not mandate universal reporting of all laboratory tests associated with HIV disease but laboratories are required to report positive antibody, PCR, RNA and DNA results that indicate HIV. This includes HIV viral load results and CD4 test results for individuals with CD4 lymphocytes count less than 200 or less than 14%, indicating a possible AIDS diagnosis. All cases that had a CD4 or viral load test reported in 2008 were identified as receiving care. The private laboratory data in the surveillance system captured 28 percent of persons with HIV (non AIDS) and 42 percent of

persons with AIDS "in care" in 2008. The eligible population was then linked to Medicaid, AIDS Drug Assistance Program (ADAP) data, and CAREWare to further assess "unmet need." Because North Carolina does not require universal reporting of all labs (i.e. CD4 T-lymphocytes counts greater than 200 or 14%) estimates of additional private care were then made by comparing the proportional relationship of care identified through public data sources only (Medicaid, ADAP and CAREWare) with persons care identified through both public data sources and through private laboratory reporting (laboratory reports captured in eHARS from private payer sources). This calculation is preformed separately for HIV non-AIDS and AIDS cases. The estimates of persons in private care who were not captured through laboratory reporting in eHARS were then redistributed by disease status and by demographic groups.

The principal benefit of this method to calculate "private pay" is that it relies on centrally maintained databases which are generally consistent. This method is valid as long as our capture of persons who receive their care through public funding is complete and there is no laboratory reporting bias. The methodology used to calculate private payer healthcare was also used in the 2007 estimation of unmet need, so comparisons for the 2007-2008 time periods should be valid.

Results

The estimated number of persons living with HIV Disease in North Carolina (including the VA estimates) was 25,904. Of these, 19,518 (75%) were estimated to be "in care" during calendar year 2008. The remaining 6,386 (25%) were estimated to be not "in care", thus represent those with unmet need. The estimated number of persons living with HIV (PLWH) with unmet need was 4,324 (28%), as compared to 2,062 (20%) persons living with AIDS (PLWA). To further describe the subpopulations that have unmet need for HIV primary medical care, Tables 2-5 present unmet need by age, race/ethnicity, gender and mode of HIV transmission. Table 6 presents unmet need by Patient Management Model regions (see Figure 7.1 for a map of PMM regions).

Discussion

Overall, the unmet need distribution resembles the distribution of the HIV/AIDS aware population; however, there are more males in the unmet need population. The percentage of unmet need in each racial/ethnic subgroup also resembles the overall distribution of the HIV/AIDS aware population in North Carolina. There are a higher proportion of blacks (24.5%) and Hispanics (29.2%) with unmet need, compared with whites (23.4%). The age range 65+ has highest unmet need (28.2%), but some individuals in this age category may have moved to another state and since died. A notable finding was that over 34 percent of persons with HIV had unmet need in the Charlotte Transitional Area (most populous region), and also 34 percent of persons in Region 5 with HIV had unmet need. Region 9 had the highest proportion (36.3%) of PLWA with unmet need (Table 7) but some of these people might be accessing medical care in bordering Virginia. The 2007 estimate of unmet need was 30 percent (32 percent of PLWH and 26 percent of PLWA). This indicates that more people were in care in 2008 than in 2007.

Limitations

The methodology used to calculate "private pay" is valid as long as our capture of persons who receive their care through public funding is complete. The assumption that there is no laboratory reporting bias for government and private payer groups must be true for the proportional relationship that is applied to eHARS data to calculate "private pay" estimate to be valid. The redistribution of published Veterans Administration (VA) data to estimate unmet need for persons diagnosed and treated through VA facilities is limited by the availability of VA data. The last data published by Veterans Administration was for FY 2005 and demographics were not published, therefore Tables 7.4-7.8 do not include VA data.

Table 7.3. North Carolina Unmet Need Estimate, 2008

Input Population Sizes	**Value**	**Data Source**
A. Number of persons living with AIDS	10,405	HIV/AIDS Reporting System (eHARS)+VA
B. Number of persons living with HIV non AIDS	15,499	HIV/AIDS Reporting System (eHARS)+VA
Care Patterns	**Value**	**Data Source**
C. PLWA who received HIV primary medical care	8,343	Surveillance, Ryan White Titles, ADAP, Medicaid, VA
D. PLWH (non-AIDS) who received HIV primary medical care	11,175	Surveillance, Ryan White Titles, ADAP, Medicaid, VA
Calculated Results	**Value**	**Calculation**
E. PLWA not receiving primary medical care	2,062 (19.8%)	A-C (E/A)
F. PLWH not receiving primary medical care	4,324 (27.9%)	B-D (F/B)
G. Total HIV Disease not receiving primary medical care	6,462 (24.9%)	E+F (G/A+B)

Figure 7.1. Patient Management Model Regions and Charlotte Transitional Area

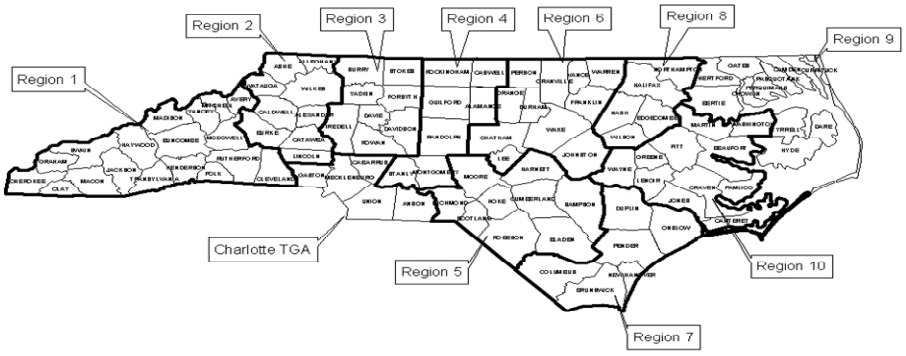

Table 7.4. Persons Living† with HIV/AIDS with Unmet Need by Gender, 2008

GENDER	Persons Living with HIV (PLWH)			Persons Living with AIDS (PLWA)			Total Persons Living with HIV/AIDS (PLWHA)		
	PLWH Unmet Need	PLWH	% Unmet Need	PLWA Unmet Need	PLWA	% Unmet Need	PLWHA Unmet Need	PLWHA	% Unmet Need
MALE	3,025	10,010	30.2%	1,637	7,302	22.4%	4,662	17,312	26.9%
FEMALE	1,111	5,008	22.2%	344	2,627	13.1%	1,455	7,635	19.1%
TOTAL	4,137	15,020	27.5%	1,981	9,929	20.0%	6,118	24,949	24.5%

Table 7.5. Persons Living† with HIV/AIDS with Unmet Need by Age, 2008

CURRENT AGE	Persons Living with HIV (PLWH)			Persons Living with AIDS (PLWA)			Total Persons Living with HIV/AIDS (PLWHA)		
	PLWH Unmet Need	PLWH	% Unmet Need	PLWA Unmet Need	PLWA	% Unmet Need	PLWHA Unmet Need	PLWHA	% Unmet Need
0-12	1	59	2.0%	0	0	0.0%	1	59	2.0%
13-24	233	925	25.2%	5	104	4.7%	238	1,029	23.1%
25-44	2,145	7,616	28.2%	767	4,232	18.1%	2,912	11,848	24.6%
45-64	1,632	6,014	27.1%	1,118	5,255	21.3%	2,750	11,269	24.4%
65+	113	388	29.2%	90	335	27.0%	204	723	28.2%
TOTAL	4,137	15,020	27.5%	1,981	9,929	20.0%	6,118	24,949	24.5%

Table 7.6. Persons Living† with HIV/AIDS with Unmet Need by Race/ethnicity, 2008

RACE/ ETHNICITY	Persons Living with HIV (PLWH)			Persons Living with AIDS (PLWA)			Total Persons Living with HIV/AIDS (PLWHA)		
	PLWH Unmet Need	PLWH	% Unmet Need	PLWA Unmet Need	PLWA	% Unmet Need	PLWHA Unmet Need	PLWHA	% Unmet Need
WHITE*	919	3,930	23.4%	597	2,558	23.4%	1,517	6,488	23.4%
BLACK*	2,873	9,995	28.7%	1,207	6,637	18.2%	4,080	16,632	24.5%
HISPANIC	230	730	31.5%	152	578	26.3%	382	1,308	29.2%
OTHER*	115	365	31.5%	24	156	15.7%	139	521	26.7%
TOTAL	4,137	15,020	27.5%	1,981	9,929	20.0%	6,118	24,949	24.5%

†Persons Living totals do not include Veterans Administration data

*non Hispanic **Other includes Asian, Pacific Isl, American Indian, AL Native

Table 7.7. Persons living† with HIV/AIDS with unmet need by Mode of Transmission, 2008

Transmission Category	Persons Living with HIV (PLWH)			Persons Living with AIDS (PLWA)			Total Persons Living with HIV/AIDS (PLWHA)		
	PLWH Unmet Need	PLWH	% Unmet Need	PLWA Unmet Need	PLWA	% Unmet Need	PLWHA Unmet Need	PLWHA	% Unmet Need
MSM	1,249	4,772	26.2%	641	3,082	20.8%	1,889	7,854	24.1%
IDU	363	1,202	30.2%	302	1,210	25.0%	665	2,412	27.6%
MSM/IDU	99	342	28.8%	77	311	24.7%	176	653	26.9%
BLOOD PROD.	14	41	33.8%	31	66	47.5%	45	107	42.2%
HETEROSEXUAL	598	2,377	25.1%	254	1,758	14.4%	851	4,135	20.6%
PEDIATRIC	30	185	16.5%	0	1	0.0%	30	186	16.4%
NIR/NRR	1,785	6,101	29.3%	676	3,501	19.3%	2,461	9,602	25.6%
TOTAL	4,137	15,020	27.5%	1,981	9,929	20.0%	6,118	24,949	24.5%

†Persons Living totals do not include Veterans Administration data
MSM=Men who have sex with men; IDU=Injection Drug User; NIR/NRR=No Indicated/Reported Risk

Table 7.8. Persons living† with HIV/AIDS with unmet need by PMM Regions, 2008

PMM REGION	Persons Living with HIV (PLWH)			Persons Living with AIDS (PLWA)			Total Persons Living with HIV/AIDS (PLWHA)		
	PLWH Unmet Need	PLWH	% Unmet Need	PLWA Unmet Need	PLWA	% Unmet Need	PLWHA Unmet Need	PLWHA	% Unmet Need
CHARLOTTE	1,226	3,531	34.7%	445	1,821	24.4%	1,670	5,352	31.2%
REGION 1	119	687	17.4%	74	562	13.1%	193	1,249	15.5%
REGION 2	40	300	13.3%	27	235	11.3%	66	535	12.4%
REGION 3	199	1260	15.8%	117	715	16.3%	316	1,975	16.0%
REGION 4	375	1757	21.3%	130	845	15.4%	505	2,602	19.4%
REGION 5	519	1493	34.7%	180	1,020	17.6%	698	2,513	27.8%
REGION 6	939	3208	29.3%	482	2,251	21.4%	1,421	5,459	26.0%
REGION 7	261	823	31.7%	138	667	20.6%	399	1,490	26.7%
REGION 8	131	613	21.3%	63	538	11.8%	194	1,151	16.9%
REGION 9	100	332	30.2%	106	291	36.3%	206	623	33.0%
REGION 10	205	964	21.3%	128	864	14.8%	333	1,828	18.2%
TOTAL	4,137	15020	27.5%	1,981	9,929	20.0%	6,118	24,949	24.5%

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, early syphilis rates began to rise again for males in 2004 and rates for females began to rise in 2006.
- 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.
- The overall early syphilis rate in 2008 was 5.6 cases per 100,000. In 2008, the male to female ratio for N.C. early syphilis cases was 3.6
- The six Syphilis Elimination Effort (SEE) counties (Mecklenburg, Guilford, Wake, Forsyth, Durham, and Robeson) together accounted for more than half of 2008 early syphilis reports in North Carolina.
- Preliminary data for 2009 (January – September) indicate a substantial increase in syphilis morbidity for N.C.
- Gonorrhea case reports reflect severe racial disparities. The differences were most dramatic among males, where 2008 gonorrhea rate among blacks was almost 27 times higher than among whites. The gonorrhea rate for American Indians was over eight times higher, and the rate for Hispanics was more than two times higher.
- The racial disparity in gonorrhea rates were less severe among females; the 2008 gonorrhea rate for black females was 11 times higher than for white females and the GC rate for American Indian females was over eight times higher than for white females.
- The age groups with the highest 2008 chlamydia rate were 20 to 24 year olds for both females (4,040.6 per 100,000) and males (835.5 per 100,000).
- Racial disparities in female chlamydia reports have remained fairly stable over the past five years (2004-2008), with a rate about seven times higher among black females than among whites; and a rate three to four times higher among American Indian/Alaska Native and Hispanic females than among white females.

REPORTABLE STDS IN NORTH CAROLINA

In addition to HIV disease and AIDS there are 18 other sexually transmitted conditions 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), mucopurulent cervicitis (MPC) and, pelvic inflammatory disease (PID), all must be reported within seven days to the local health department. 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, 2008

	Gender		
	Male	Female	Total
Chlamydia (lab-confirmed)	6,540	31,015	37,555
Gonorrhea	6,522	8,344	14,866
Syphilis			
Primary Syphilis	73	9	82
Secondary Syphilis	170	35	205
Early Latent Syphilis	151	71	222
Late Syphilis	59	29	88
Late Latent Syphilis	243	149	392
Late Syphilis w. symptoms	0	1	1
Neurosyphilis	16	1	17
Congenital Syphilis	8	4	12
Syndromic Diagnoses			
Nongonococcal Urethritis (NGU)	4,040	n/a	4,040
Pelvic Inflammatory Disease (PID)	n/a	535	535
Other STDs			
Chancroid	2	2	4
Granuloma Inguinale	4	8	12
Lymphogranuloma Venereum (LGV)	5	0	5
Opthalmia Neonatorum (gonorrhea)	0	2	2

Table 8.1 describes STD cases reported to the Communicable Disease Branch in 2008. 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 2008, there were 535 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 2008 there were four cases of chancroid reported, twelve cases of granuloma inguinale, and five cases of lymphogranuloma venereum. There were two reported cases of opthalmia neonatorum (opthalmic infection with N. gonorrhoeae in infants) in 2008.

NON-REPORTABLE STDS IN NORTH CAROLINA

It is worth noting that there are a number of important sources of sexually transmitted infections that are not reportable in the state of North Carolina.

Human papillomavirus (HPV)

The Centers for Disease Contol and Prevention 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 other strains 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. Thus, 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 is 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 genital herpes (CDC, HSV Fact Sheet, 2004). Herpes is not reportable for a number of reasons. Historically, there have not been good diagnostic tests available. 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 trich infections per year in the U.S. (CDC, Trichmoniasis Fact Sheet, 2004). Trichmoniasis is a sexually transmitted 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. However, trich may cause obstetric complications and may facilitate HIV infection. Trich often coexists with gonorrhea (in up to 40% of some studies) (Benenson, 1995).

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 BV 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 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 takes place at a number of private labs; most public clinics send their samples to the State Laboratory of Public Health. The provider reports laboratory confirmed chlamydia to the local health department. Infected patients are treated and encouraged to bring their partners in for.

Beginning in 2008, morbidity reports are forwarded electronically to the Communicable Disease Surveillance Unit at the State Division of Public Health via the North Carolina Electronic Disease Surveillance System (NC EDSS). This reporting of morbidity through NC EDSS represents a substantial improvement in surveillance reporting for laboratory-based diseases. However, because implementation of NC EDSS requires extensive changes in surveillance procedures, morbidity data for 2008 should be viewed with extreme caution. Please see Appendix B for more information. Chlamydia cases for males are severely underreported. The data for females is more complete, 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

Due to screening bias, the vast majority (over 80%) of reported chlamydia cases are among females. Male cases are often detected when a female tests positive and refers her male sex partner 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 2008, only 17 percent of the 37,555 cases reported were male.

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 rates for 15 to 19 years olds and 20 to 24 year olds is much closer, with 15 to 19 year olds having the highest rates in 2004 through 2006. In 2007 and 2008, the chlamydia rate for females was slightly higher for 20 to 24 year olds (Table Q, pg. D-26). 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 increase observed in 2008 likely reflects reporting issues rather than changes in morbidity or screening.

Race/Ethnicity

Chlamydia case reports reflect severe racial disparities that have remained relatively consistent over the past five years. The rate among black males is 9-11 times higher than the rate for whites, and the rate for Hispanics is three to four times higher than the rate for whites (Table R, pg.D-28). The data for females, which are slightly more reliable, is nearly as severe, with black female chlamydia rates seven times higher than white female rates, and American Indian/Alaska Native and Hispanic rates are each three 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.

NGU and MPC

Nongonococcal urethritis (NGU) in males is a and mucopurulent cervicitis (MPC) in 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. 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, making it inappropriate to group them with laboratory-confirmed cases of *C. trachomatis*. There were 4,040 male cases of NGU reported in 2008 (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.

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 via NC EDSS. Reporting issues for NC EDSS require that morbidity data for 2008 be viewed with extreme caution (see Appendix B for more information about NC EDDS).

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

From 2004-2008, reports for gonorrhea have ranged from 164 to 195 per 100,000 population. The highest rate (195.2 per 100,000) was observed in 2006. There is no discernable trend for overall rates. The fluctuations are likely the result of reporting issues. Nationally rates have remained fairly stable. The proportion of female cases has increased from 49 percent of cases in 2004 to 56 percent of cases in 2008. 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.

Gender

In 2004 to 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; the ratio dropped to 0.8 in 2008. In 2008, female reports for all racial/ethnic groups outnumbered reports for males. In general, this would indicate a lack of substantial MSM transmission. However, this information should be viewed with caution as reports with missing race/ethnicity have increased in recent years and missing information may be obscuring differences among the groups. 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. From 2004 to 2008, the age group for both males and females with the highest gonorrhea rates has been 20 to 24 year olds. However the age group with the second highest rates is different for the genders. For males, the age group with the second highest gonorrhea rate has consistently been 25 to 29 year olds. For females the age group with the second highest rate was generally 15 to 19 year olds with rates very close to rates for 20 to 24 year olds. (Table S, pg. D-29).

Race/Ethnicity

Trends over time for various racial/ethnic groups are difficult to determine because more reports in recent years are missing racial/ethnic information. However, gonorrhea case reports reflect severe racial disparities. The differences are most dramatic among males, where gonorrhea rates for 2008 among blacks are almost 27 times higher than for whites, rates for American Indians (AI/AN) are over eight times higher, and rates for Hispanics are more than two times higher.

Among females, the trends are similar but less severe, with black rates in 2008, 11 times higher than whites and American Indian rates over 8 times higher. The 2008 gonorrhea rates for Hispanic females are less than two times higher than white rates (Table T, pg. D-31). While rates for most race/ethnicity groups in 2008 remained below their rate in 2007, the rates for American Indians were higher in 2008 for both males and females. In 2008, the gonorrhea rates for American Indian males and females was over eight times higher than the rates for white non-Hispanics.

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 2007, 171 men were tested at the Greensboro site. Almost 90 percent were black, just over 35 percent were age 20 to 24 years. About seven percent reported having sex with other men. About 60 percent reported ever having a previous episode of gonorrhea and about 35 percent in the previous 12 months. Resistance to penicillin and/or tetracycline was detected in 14 percent of the samples (CDC, GISP Report, 2009).

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)

In 1999, CDC announced the beginning of the Syphilis Elimination Project (SEP), now called SEE, which provides funding to high-morbidity areas (HMAs). The current project focuses on three strategic goals: investment in and enhancement of public health services; prioritization of evidence-based, culturally competent interventions; and increasing accountability for syphilis elimination services and interventions. These goals incorporate enhancements in surveillance,

outbreak response, clinical and laboratory services, health promotion and community involvement.

North Carolina has identified six counties for enhanced efforts. These counties which have had historically high morbidity include Forsyth, Guilford, Mecklenburg, Robeson, Wake and Durham.

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 was 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 2008 rate for early syphilis was 5.6 per 100,000. The six SEE counties accounted for 53 percent of the total early syphilis morbidity for the state in 2008 (Table W, pg. D-36). Wayne, New Hanover and Nash counties have experienced substantial increases in reports of early syphilis since 2006; all three were among the top ten counties for early syphilis reports in 2008. Preliminary data for 2009 (January – September) indicate a substantial increase in syphilis morbidity in N.C.

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 2008 the North Carolina primary and secondary syphilis rate (3.2 per 100,000) was below the national rate of 4.5 and its ranking was 17th.

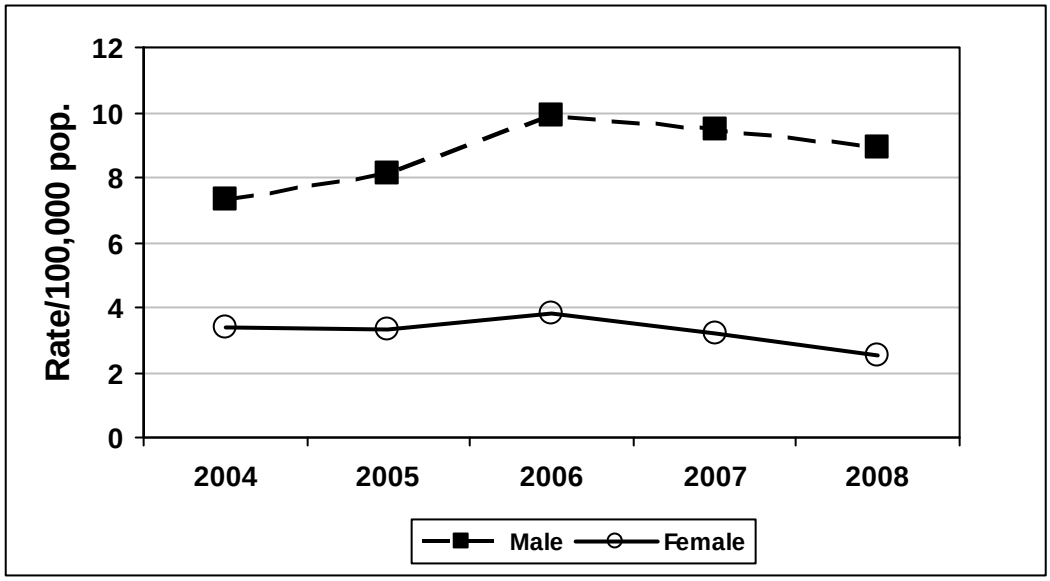
Gender

Male early syphilis rates began to rise in 2004 and continued to rise through 2006. Although the number of reports has decreased slightly, as a proportion of all reports, males continue to increase. In 2008, male cases represent 78 percent of all early syphilis reports and the male-to-female ratio was 3.6. 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.

In 2008, four counties had particularly high male-to-female ratios including Wake County with 11.3 male cases for every female case, Cumberland County with 8.5, Mecklenburg County with

7.3, and Guilford County with 6.1. Buncombe County was also noteworthy for male reports in 2008 because all 17 of its cases were for males. Female early syphilis cases declined to 2.5 cases per 100,000 in 2008 which was the lowest observed rate for 2004 to 2008 (see Figure 8.3).

Figure 8.3. PSEL syphilis rates by gender, 2004-2008



Age

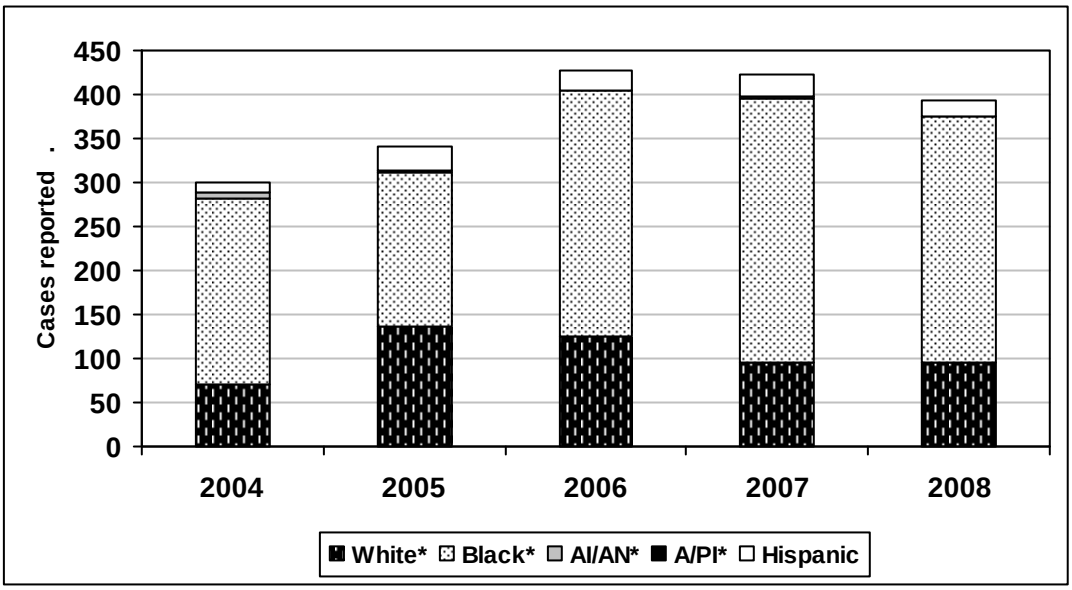
Syphilis cases in North Carolina are generally found in an older population than that affected by gonorrhea and chlamydia with the age category with the highest rates almost always older among men than women (Table U, pg. D-32). In 2004 the age groups with the highest early syphilis rate was 35 to 39 year olds for both men and women. Since than time, the highest early syphilis rates have been found among younger age groups. In 2006 and 2007, the highest early syphilis rates for males were found in 25 to 29 year olds while the highest rates for females were among 20 to 24 year olds. Rates for 15 to 19 year old males have increased from 2004 to 2008. In 2008, the age groups for males with the highest rates was 20 to 24 year olds; the same as for females. 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-34). 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. In 2008, the early syphilis rate for black males was over nine times that for white males. 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 and 2008 there were slight decreases in cases among minority females. In 2008, the early syphilis rate for black females was 11 times that for white females. It should be noted that cases for American Indians have decreased since 2003 and there were no cases reported in 2008 for either males or females.

Figure 8.4. PSEL syphilis cases by race/ethnicity– Males, 2004-2008

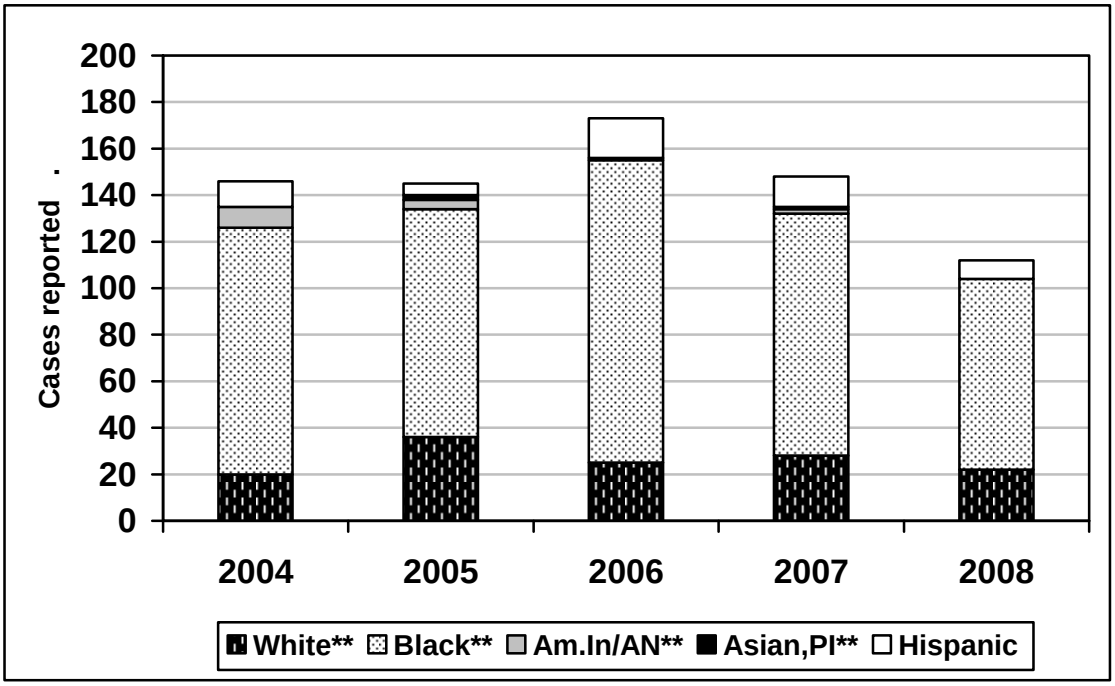


*non-Hispanic; AI/AN=American Indian/Alaska Native; A/PI=Asian/Pacific Islander

HIV Comorbidity

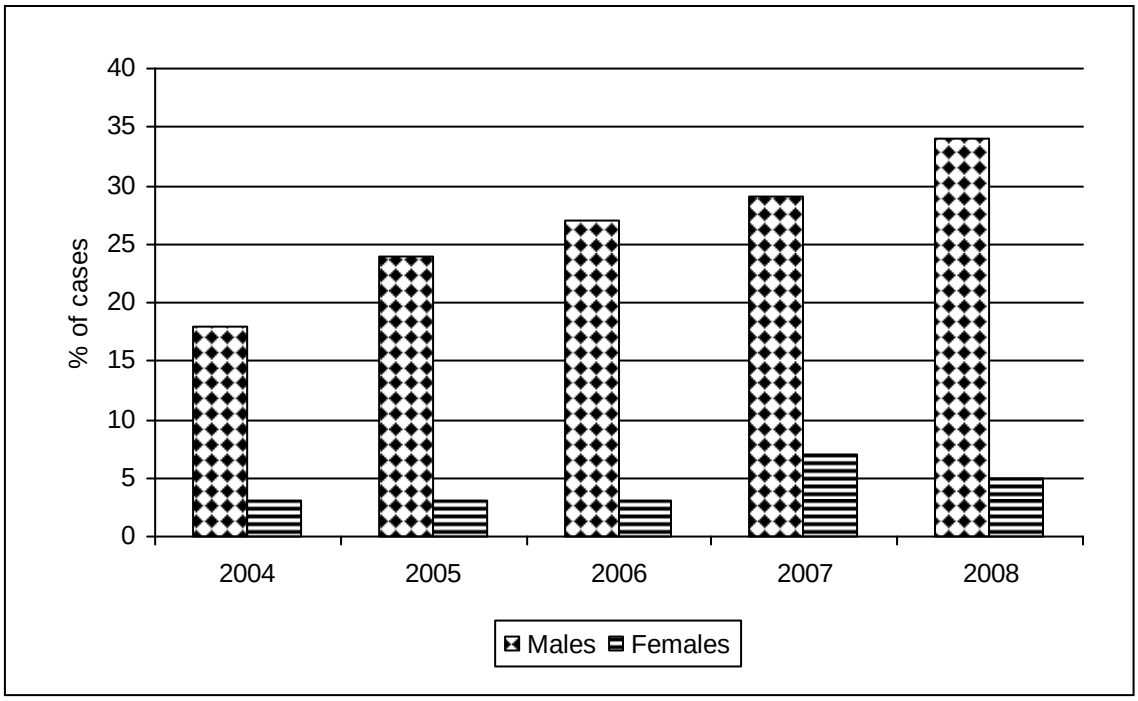
Syphilis cases that are also infected with HIV have increased as a proportion of cases. In 1999, the proportion of early syphilis cases with HIV was 4.3 percent. In recent years, the proportion of comorbid cases has increased. In 2004, the proportion of male syphilis cases with HIV was about 18 percent and three percent for females. By 2008, the proportion of male syphilis cases with HIV had increased to 34 percent and the proportion of female cases with HIV had increased to 5 percent (Figure 8.6).

Figure 8.5. PSEL syphilis cases by race/ethnicity– Females, 2004-2008



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

Figure 8.6. Percent of PSEL syphilis cases with HIV by gender, 2004-2008



Congenital Syphilis

Untreated syphilis in pregnant women can lead to serious complications, including premature birth and infant death. Women with early syphilis are the most likely to infect their fetuses in uteri, but women with late latent syphilis can also have congenitally infected infants (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. Ten infants were born to mothers who had active or inadequately treated cases of syphilis in 2008. Because of the delay in reporting and confirming congenital syphilis diagnoses, this number should be considered preliminary. In 2007, nine infants were born to mothers who had active or inadequately treated cases of syphilis. This was up from 2006 which had seven congenital syphilis cases. 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 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 prenatal care often miss these opportunities for screening. According to the N. C. Pregnancy Risk Assessment Monitoring System (PRAMS) survey for 2007, 39 percent of N.C. mothers reported a barrier to receiving prenatal care services (NCSCHS, PRAMS, 2009). Younger mothers and those of black or Hispanic race/ethnicity were most likely to report experiencing barriers to adequate prenatal care. The Communicable Disease Branch is currently partnering with the Women & Children's Health Section to refer at-risk women into prenatal care services.

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APPENDIX A: MAPS

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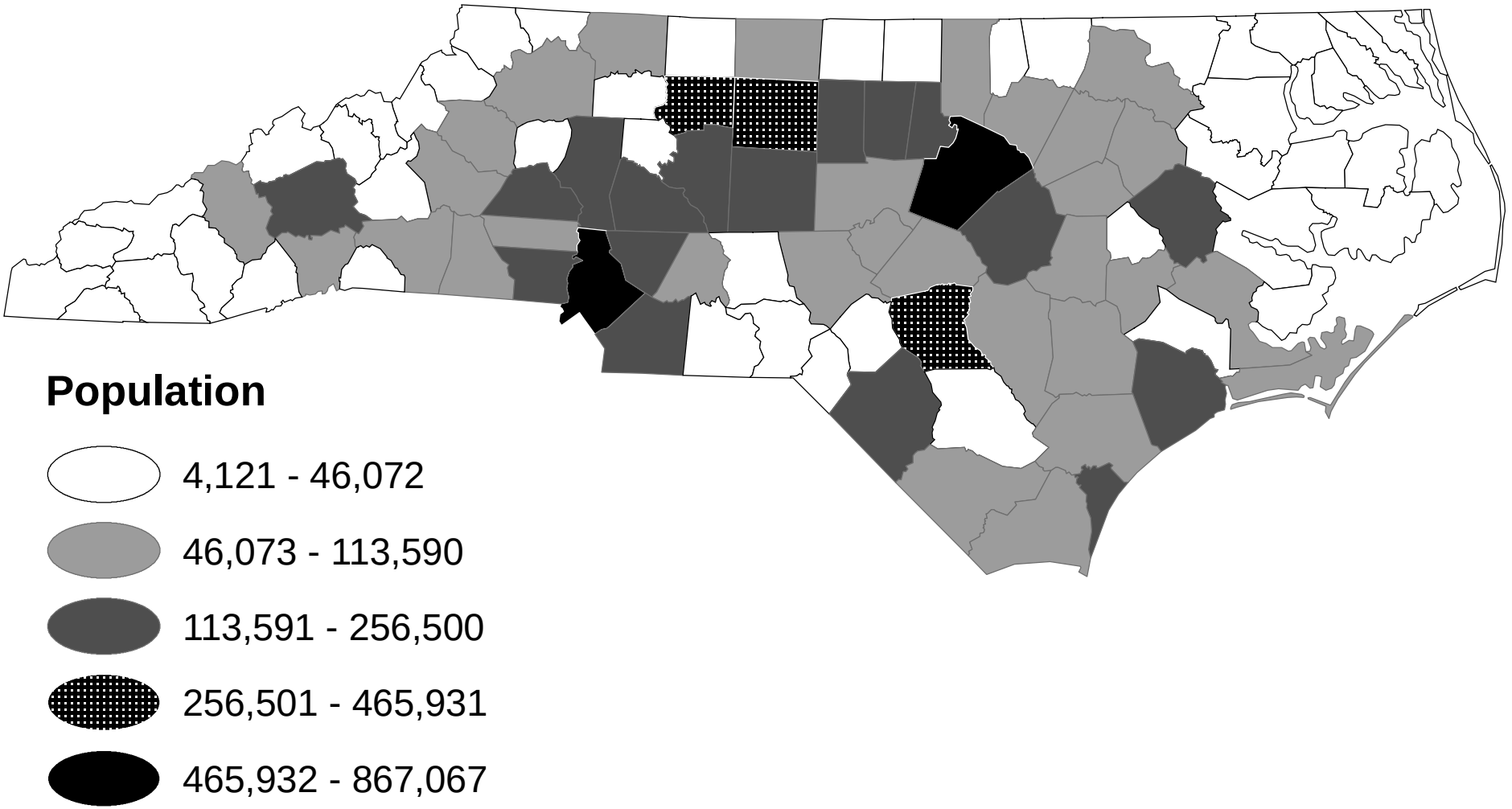
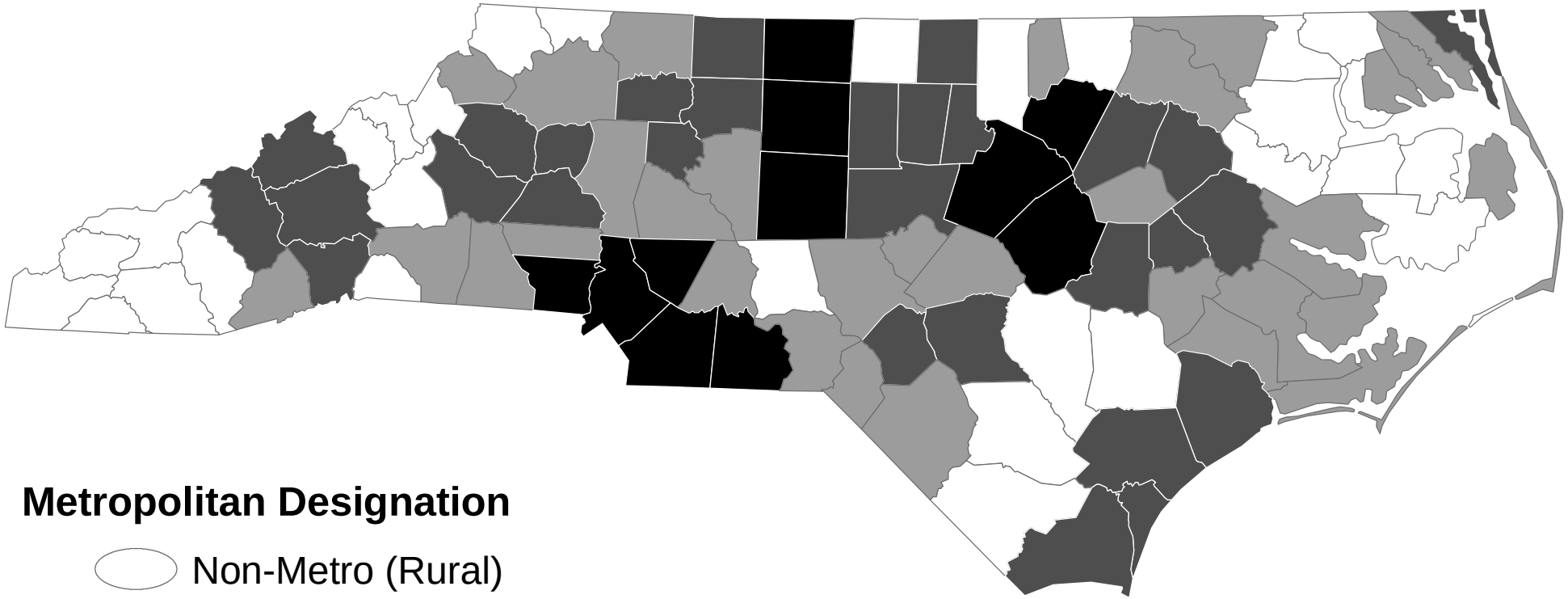
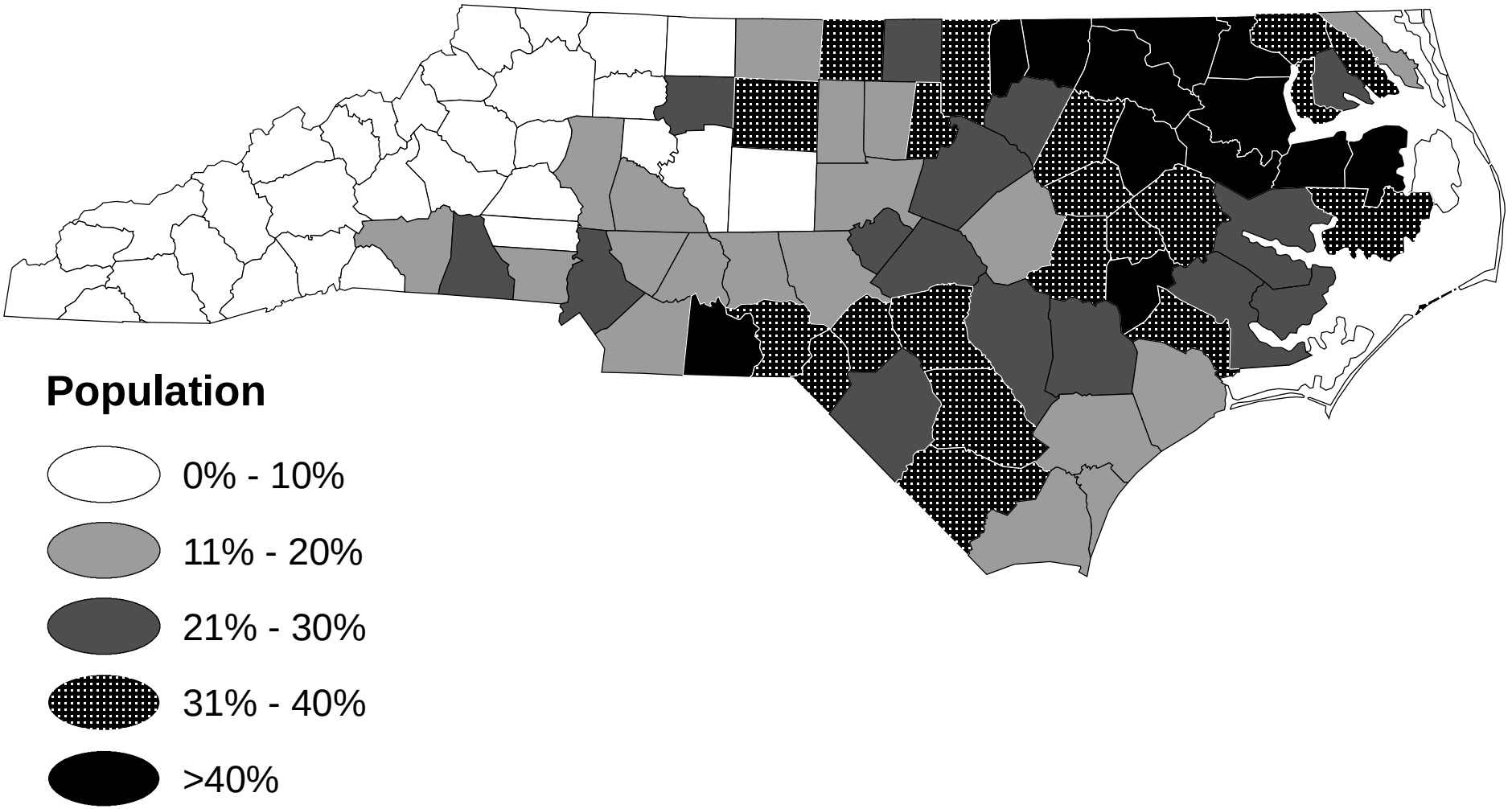
Map 1. North Carolina County Populations, 2007



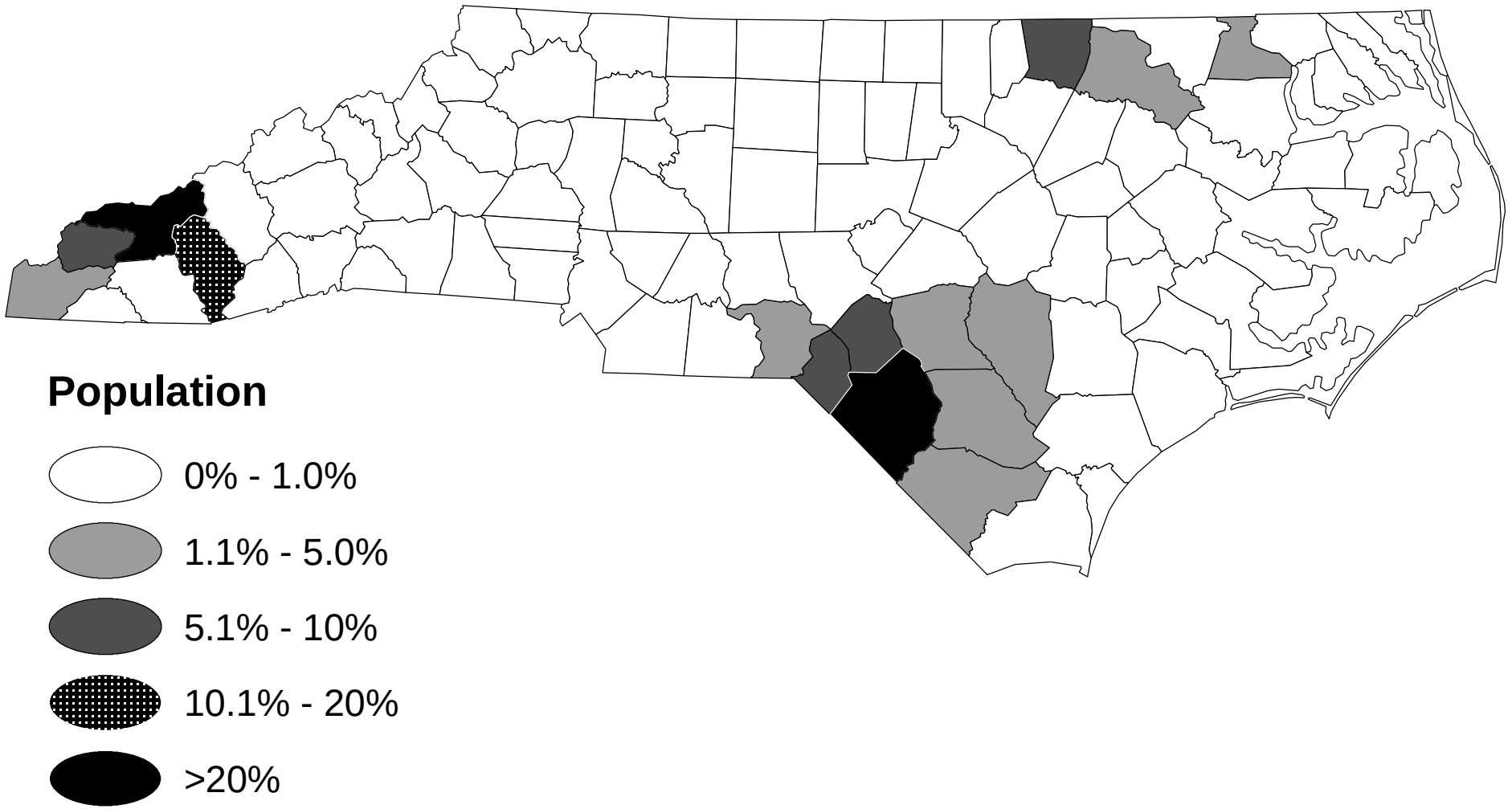
Map 2. North Carolina Metropolitan Designations



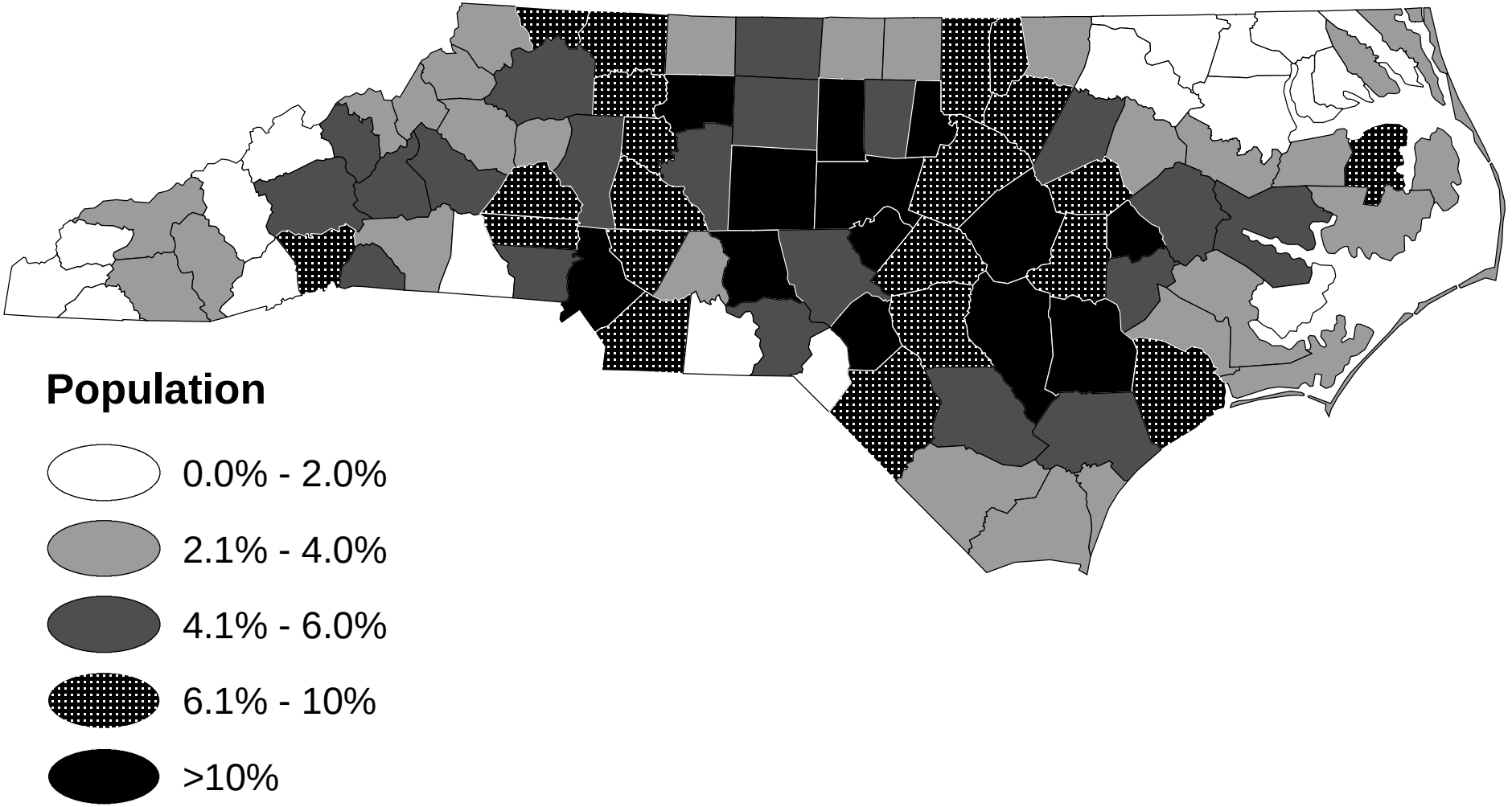
Map 3. North Carolina African American or Black Population, 2007



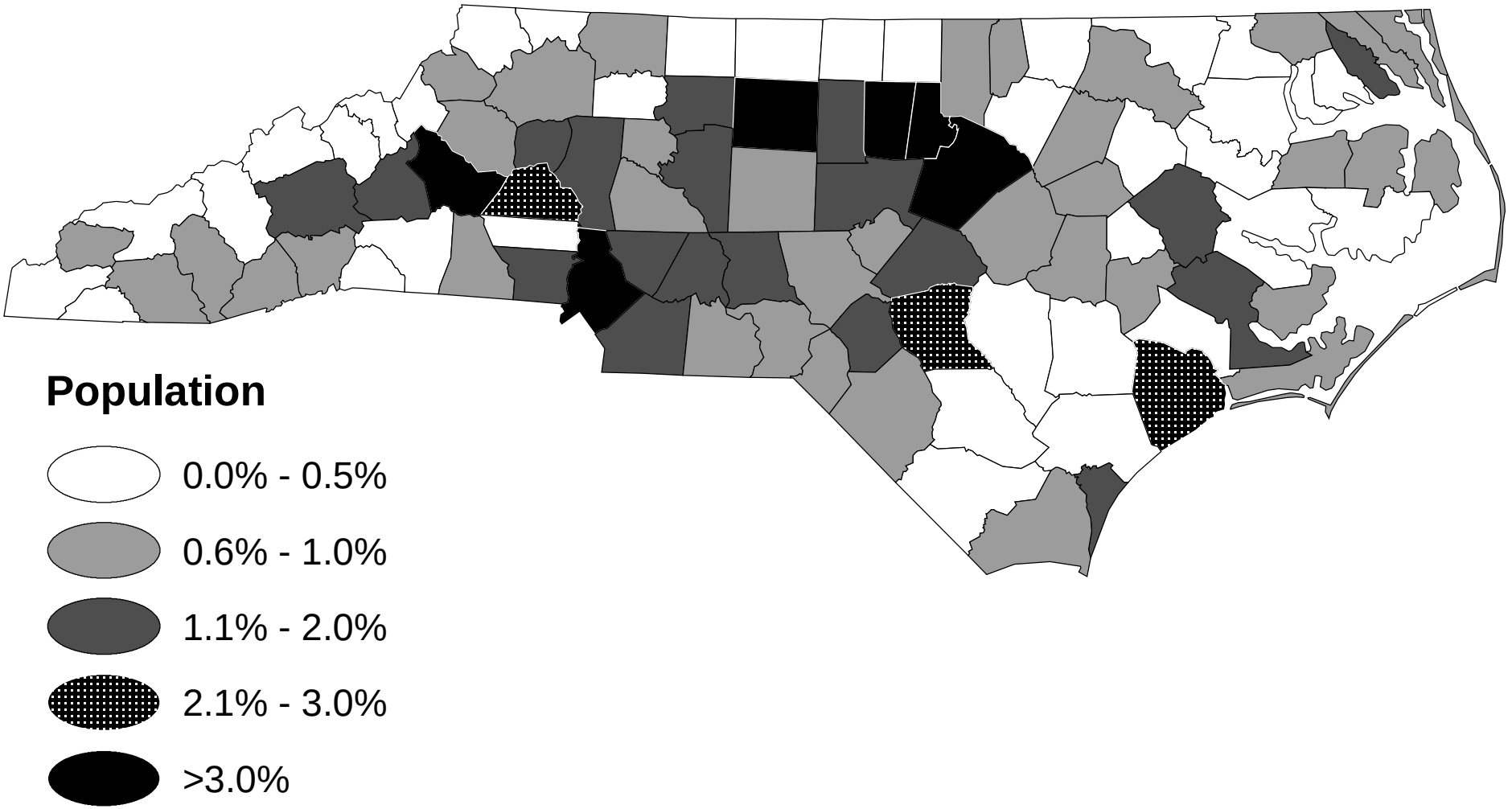
Map 4. North Carolina American Indian/Alaskan Native Population, 2007



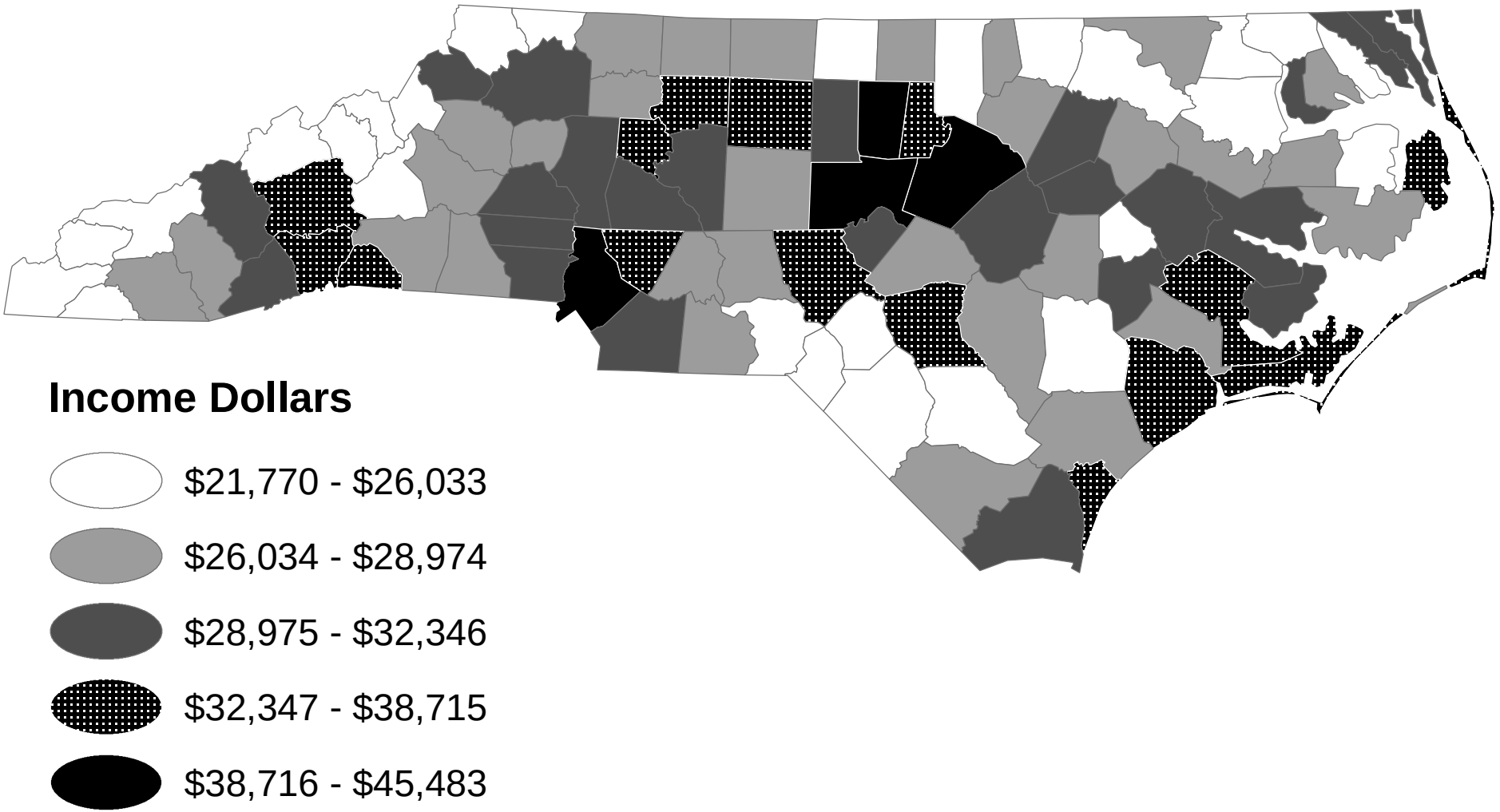
Map 5. North Carolina Hispanic or Latino Population, 2007



Map 6. North Carolina Asian/Pacific Islander Population, 2007

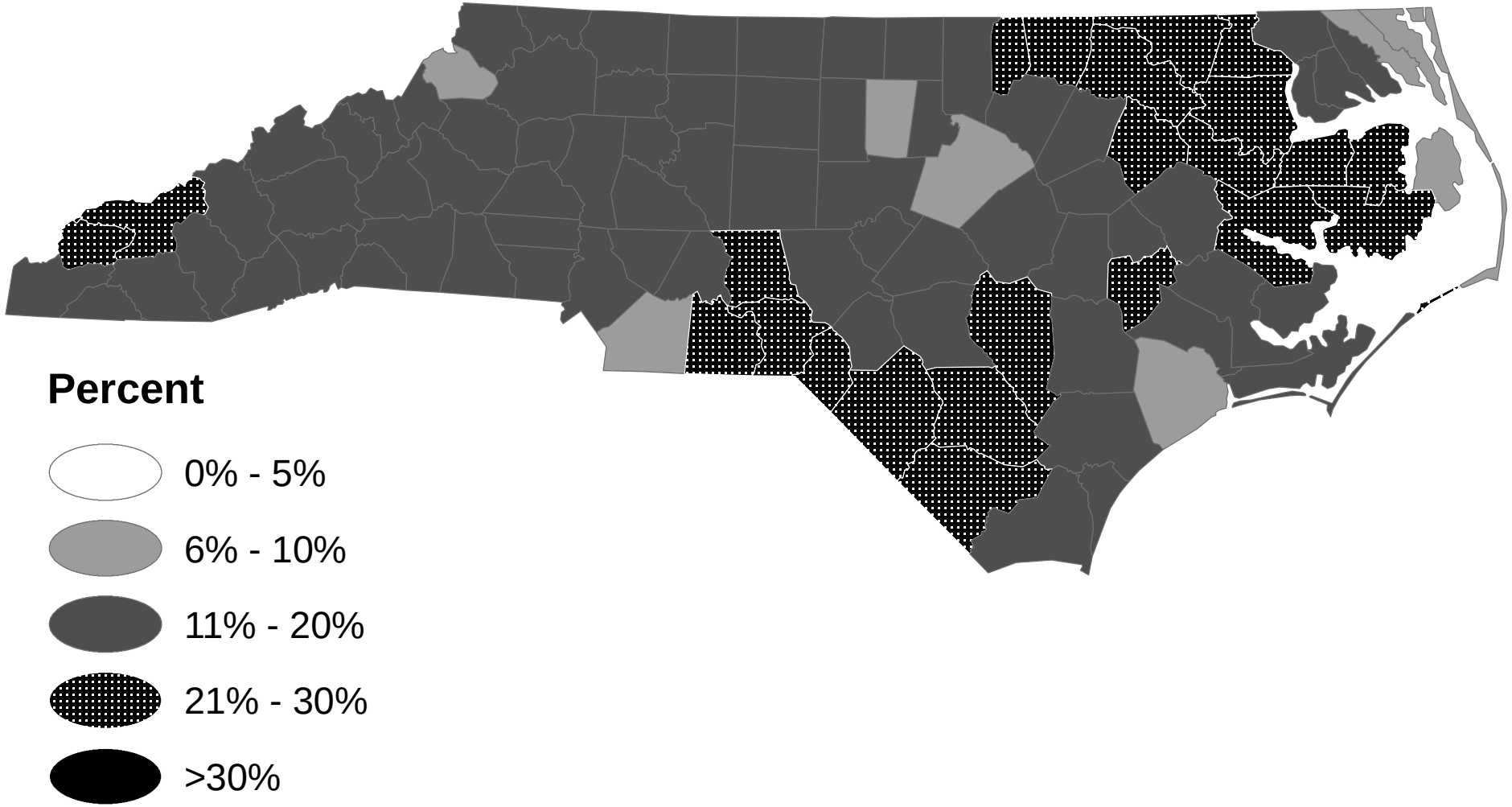


Map 7. North Carolina Per Capita Income, 2007



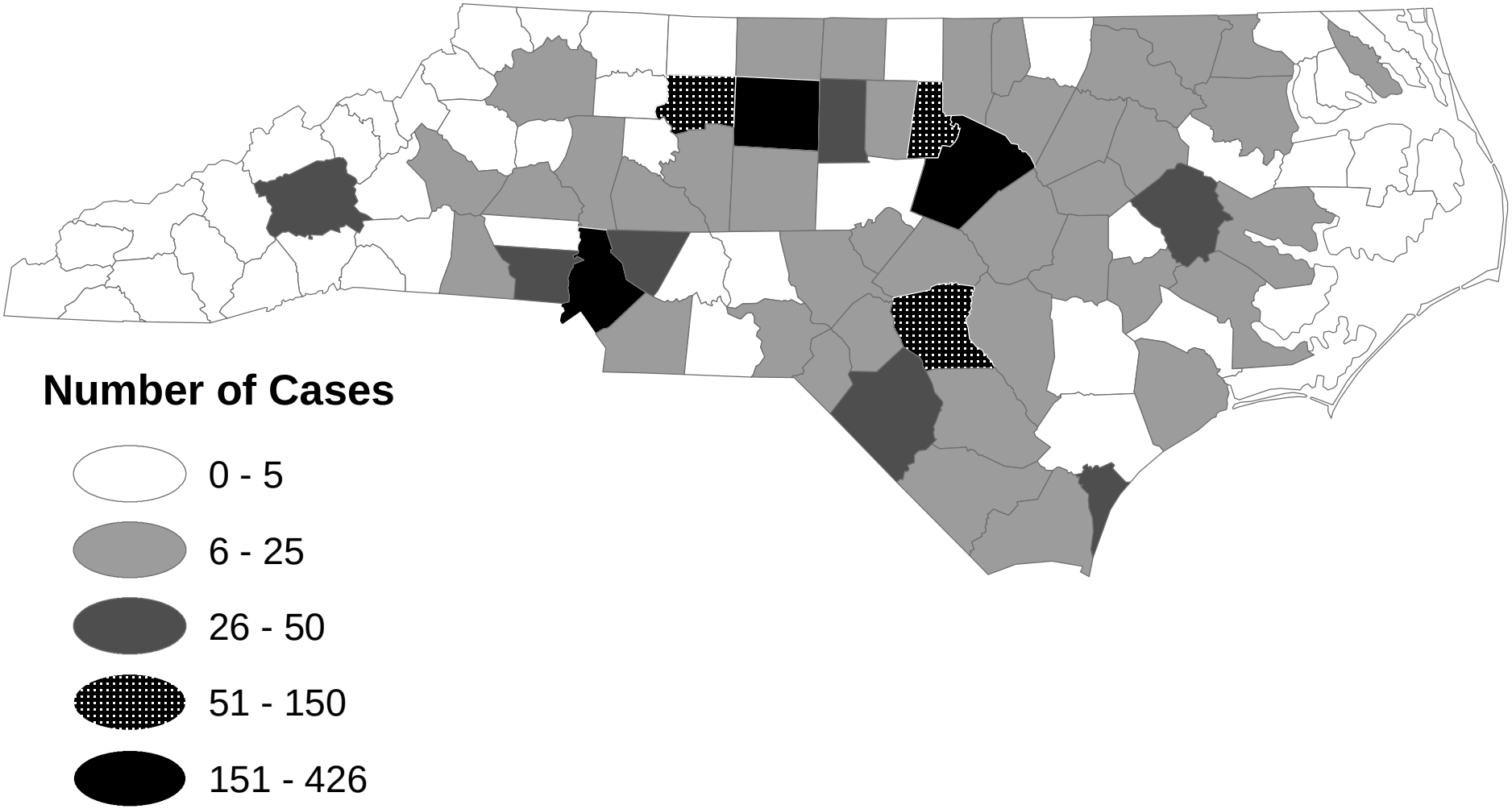
Source: US Bureau Of Economic Analysis

Map 8. North Carolina Medicaid Eligibles, 2008

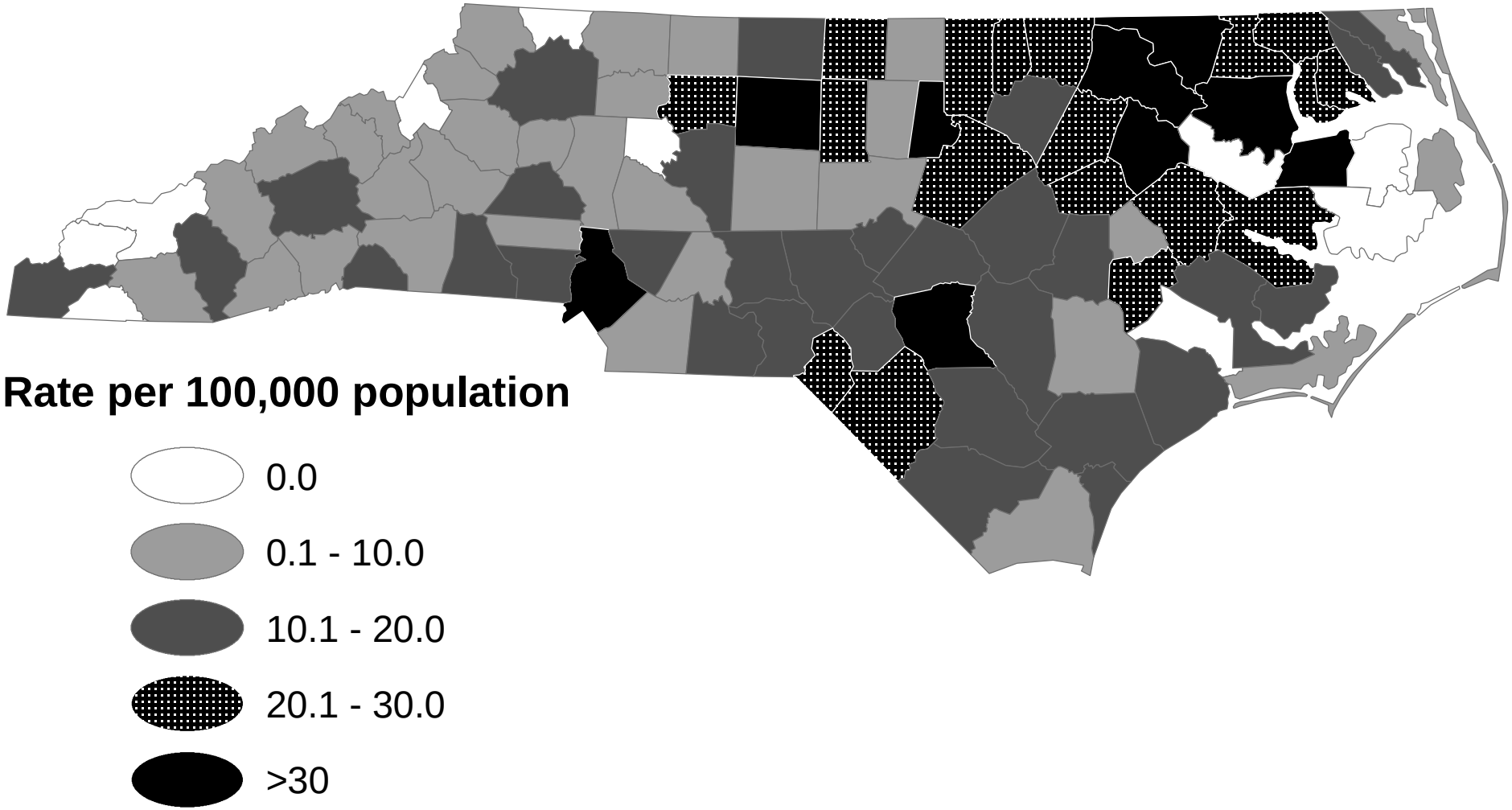


Source: NC DHHS Division of Medical Assistance

Map 9. North Carolina HIV Disease Cases, 2008
By Year Of Diagnosis



Map 10. North Carolina HIV Disease Rates, 2008
By Year Of Diagnosis



APPENDIX B: DATA SOURCES

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CORE HIV/AIDS SURVEILLANCE

HIV/AIDS SURVEILLANCE

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

Population: All 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 comparison of 2002-2003 surveillance data to outside sources of information (i.e., Medicaid, ADAP, CAREWare) indicated that completeness varies from at least 75 percent to at least 90 percent depending on the source. This estimate of completeness is used to adjust estimates of prevalence.

ENHANCED PERINATAL SURVEILLANCE

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

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

North Carolina is obtained from a central laboratory that processes most of the blood work for HIV-exposed infants.

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

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

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

NATIONAL HIV/AIDS SURVEILLANCE DATA (CDC)

Overview: The Centers for Disease Control and Prevention (CDC) compiles de-identified HIV and AIDS case-report information from each of the 50 states and U.S. territories. This information 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 (n = 5,316, 2005).

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).

YRBS – YOUTH RISK BEHAVIOR SURVEILLANCE

Overview: Youth Risk Behavior Surveillance System includes a national school-based survey conducted by CDC and state and local school-based surveys conducted by state and local education and health agencies. YRBS monitors six categories of priority health-risk behaviors among youth and young adults, including behaviors that contribute to unintentional injuries and violence; tobacco use; alcohol and other drug use; sexual behaviors that contribute to unintended pregnancy and sexually transmitted diseases (STDs), including HIV; unhealthy dietary behaviors; and physical inactivity.

Population: Youth and young adults in grades 9-12 (n=13,917, 2005)

Strengths: The survey is well designed to attain a representative sample of the nation's youth.

Limitations: YRBS only surveys youth who attend school and, therefore, are not representative of all people in this age group. Nationally approximately 5% of persons aged 16-17 are not enrolled in a high school program. The questionnaire does not include questions about homosexual or bisexual behavior.

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.

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 HIV/STD Prevention & Care Branch at the State Division of

Public Health where information on patient demographics and disease diagnosis is compiled for analysis.

Population: All 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 HIV/STD Prevention & Care Branch at the state Division of Public Health, where information on patient demographics and disease diagnosis is compiled for analysis.

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

Population: All 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 North Carolina. From 1998-

2001 the North Carolina site was located at Fort Bragg. Partway through 2002, the participating clinic was changed to Greensboro.

Population: Ongoing sample of up to 25 men per month from the STD clinic in Greensboro, N.C. (n=177 in 2005).

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

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

PCRS - PARTNER COUNSELING & REFERRAL SERVICES

Overview: The HIV/STD Prevention & Care Branch's Field Services Unit has responsibility for conducting patient interviews of persons newly diagnosed with HIV or syphilis. The interviews are conducted to counsel patients on prevention of subsequent risk, to assist with referrals for treatment and services, and to help with partner notification. Information is collected on clinical status and treatment, patient demographics, and detailed mode of exposure risk. The information is maintained in local STD-MIS. Information is limited to interviewed patients. It is estimated that 98 percent of syphilis cases and 85-90 percent HIV cases are interviewed.

Population: People interviewed by Field Services staff as part of HIV (n=8,590) or syphilis (n=2,586) case follow-up or partner notification from 2002-2006.

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

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

HIV COUNSELING & TESTING DATA

CTS - COUNSELING AND TESTING SYSTEM

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

Population: All clients who receive confidential HIV testing services at a publicly funded counseling and testing site in North Carolina. (In 2006, approximately140,000 tests were performed in publicly funded sites.)

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

Limitations: CTS covers only publicly funded clinics and therefore does not reflect all the HIV tests done in the state. In fact, only about 35 percent of new HIV cases reported to the state come from the CTS. Estimation of statewide seroprevalence is not possible because clients are either self-selected for HIV testing or agree to testing after presentation to a counselor at a CTS site. Data are collected without names, making it difficult to check for duplicates in the database. Although clients are asked whether or not they have been tested before, the validity of these responses and other self-reported data is questionable.

SUBSTANCE ABUSE DATA

NSDUH – NATIONAL SURVEY ON DRUG USE AND HEALTH

Overview: 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.

ABORTION DATA

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

The information reported here can be found at the State Center for Health Statistics website in the publication at: http://www.schs.state.nc.us/SCHS/data/pregnancies/2005/

Population: Abortions performed on North Carolina state residents (n=27,674 for 2005)

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

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

PRAMS – PREGNANCY RISK ASSESSMENT MONITORING SYSTEM

Overview:

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/2003/#5

Population: Mothers who had given birth to a live infant in North Carolina during 2003 (n=1475).

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.

APPENDIX C: SPECIAL NOTES

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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.

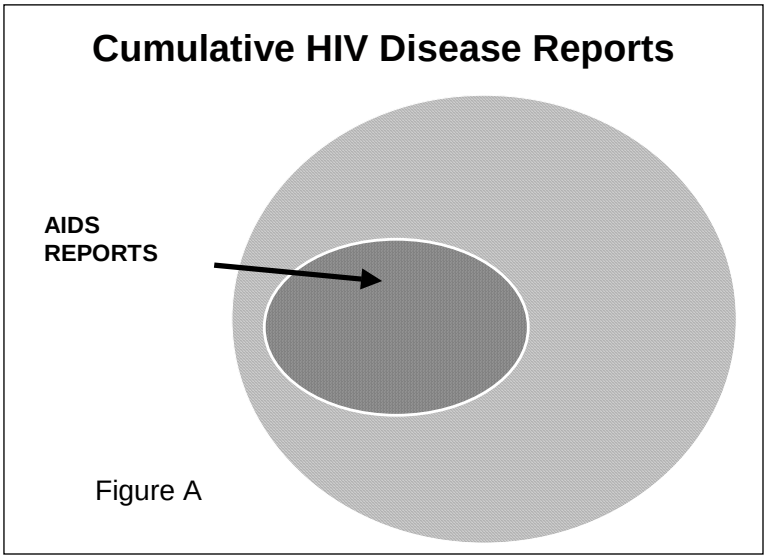

Figure A

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

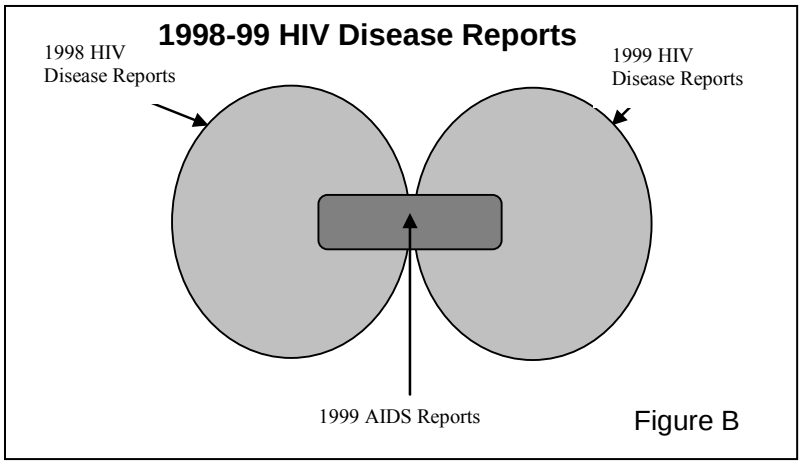

Figure B

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

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 1,700 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.

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.

APPENDIX D: TABLES

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Table A: North Carolina Adult/Adolescent HIV Disease† Demographic Rates, Gender and Age, 2004-2008

Age		2004 Cases	2004 Pct	2004 Rate*	2005 Cases	2005 Pct	2005 Rate*	2006 Cases	2006 Pct	2006 Rate*	2007 Cases	2007 Pct	2007 Rate*	2008 Cases	2008 Pct	2008 Rate*
Male	**13-14 Years**	2	0%	1.6	1	0%	0.8	1	0%	0.8	1	0%	0.8	0	0%	0.0
	15-19 Years	29	2%	9.9	50	3%	16.5	46	3%	14.8	78	4%	24.6	64	3%	20.2
	20-24 Years	125	8%	40.2	135	8%	43.3	146	9%	44.9	170	8%	53.2	192	10%	60.1
	25-29 Years	118	7%	40.7	133	8%	45.8	172	10%	57.7	186	9%	61.7	202	10%	67.0
	30-34 Years	148	9%	46.5	175	11%	56.2	143	8%	46.6	162	8%	53.3	156	8%	51.3
	35-39 Years	184	12%	58.6	176	11%	55.3	188	11%	57.4	195	10%	58.2	171	9%	51.0
	40-44 Years	202	13%	61.4	198	12%	60.0	183	11%	55.4	224	11%	67.8	215	11%	65.0
	45-49 Years	133	8%	43.1	144	9%	45.5	152	9%	46.9	195	10%	58.9	194	10%	58.6
	50-54 Years	87	6%	31.6	85	5%	30.1	93	6%	32.0	110	5%	36.5	130	7%	43.1
	55-59 Years	48	3%	19.9	57	3%	22.4	47	3%	17.6	75	4%	27.9	72	4%	26.8
	60-64 Years	38	2%	20.8	23	1%	12.1	25	1%	12.6	35	2%	16.0	39	2%	17.9
	65+ Years	20	1%	4.7	18	1%	4.2	16	1%	3.6	23	1%	5.0	25	1%	5.5
	Total	**1.134**	**72%**	**33.3**	**1.196**	**73%**	**34.5**	**1.212**	**72%**	**34.2**	**1.454**	**72%**	**40.3**	**1.460**	**75%**	**40.5**
Female	**13-14 Years**	2	0%	1.7	2	0%	1.7	3	0%	2.5	0	0%	0.0	1	0%	0.8
	15-19 Years	19	1%	6.8	16	1%	5.6	25	1%	8.5	22	1%	7.3	20	1%	6.6
	20-24 Years	39	2%	13.7	49	3%	17.3	44	3%	15.4	59	3%	20.3	33	2%	11.4
	25-29 Years	45	3%	15.6	62	4%	21.1	47	3%	15.5	59	3%	19.2	55	3%	17.9
	30-34 Years	62	4%	19.8	59	4%	19.0	51	3%	16.7	68	3%	22.2	62	3%	20.2
	35-39 Years	83	5%	26.4	70	4%	22.1	67	4%	20.5	91	5%	27.1	63	3%	18.8
	40-44 Years	70	4%	20.6	67	4%	19.7	70	4%	20.6	91	5%	26.8	96	5%	28.2
	45-49 Years	60	4%	18.5	55	3%	16.6	70	4%	20.7	71	4%	20.6	67	3%	19.4
	50-54 Years	34	2%	11.5	24	1%	7.9	50	3%	16.0	52	3%	16.1	48	2%	14.9
	55-59 Years	16	1%	6.1	19	1%	6.9	26	2%	9.0	29	1%	9.9	25	1%	8.5
	60-64 Years	6	0%	3.0	7	0%	3.3	12	1%	5.4	10	0%	4.1	13	1%	5.4
	65+ Years	7	0%	1.1	7	0%	1.1	6	0%	0.9	15	1%	2.3	9	0%	1.4
	Total	**444**	**28%**	**12.2**	**437**	**27%**	**11.8**	**471**	**28%**	**12.5**	**567**	**28%**	**14.7**	**492**	**25%**	**12.8**

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

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Table A (continued): North Carolina Adult/Adolescent HIV Disease† Demographic Rates, Gender and Age, 2004-2008

Age		2004 Cases	2004 Pct	2004 Rate*	2005 Cases	2005 Pct	2005 Rate*	2006 Cases	2006 Pct	2006 Rate*	2007 Cases	2007 Pct	2007 Rate*	2008 Cases	2008 Pct	2008 Rate*
Total	**13-14 Years**	4	0%	1.6	3	0%	1.2	4	0%	1.7	1	0%	0.4	1	0%	0.4
	15-19 Years	48	3%	8.4	66	4%	11.2	71	4%	11.7	100	5%	16.1	84	4%	13.5
	20-24 Years	164	10%	27.6	184	11%	30.9	190	11%	31.1	229	11%	37.5	225	12%	36.9
	25-29 Years	163	10%	28.2	195	12%	33.4	219	13%	36.4	245	12%	40.3	257	13%	42.2
	30-34 Years	210	13%	33.3	234	14%	37.6	194	12%	31.7	230	11%	37.7	218	11%	35.7
	35-39 Years	267	17%	42.5	246	15%	38.7	255	15%	39.0	286	14%	42.6	234	12%	34.9
	40-44 Years	272	17%	40.7	265	16%	39.5	253	15%	37.8	315	16%	47.0	311	16%	46.4
	45-49 Years	193	12%	30.5	199	12%	30.7	222	13%	33.5	266	13%	39.3	261	13%	38.6
	50-54 Years	121	8%	21.2	109	7%	18.6	143	8%	23.7	162	8%	25.9	178	9%	28.5
	55-59 Years	64	4%	12.8	76	5%	14.4	73	4%	13.1	104	5%	18.5	97	5%	17.2
	60-64 Years	44	3%	11.4	30	2%	7.5	37	2%	8.8	45	2%	9.8	52	3%	11.3
	65+ Years	27	2%	2.6	25	2%	2.4	22	1%	2.0	38	2%	3.4	34	2%	3.1
	Total	**1,578**	**100%**	**22.4**	**1,633**	**100%**	**22.8**	**1,683**	**100%**	**23.0**	**2,021**	**100%**	**27.1**	**1,952**	**100%**	**26.2**

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

Table B: North Carolina Adult/Adolescent HIV Disease† Demographic Rates Gender and Race/Ethnicity, 2004-2008

Race/Ethnicity		2004 Cases	2004 Pct	2004 Rate*	2005 Cases	2005 Pct	2005 Rate*	2006 Cases	2006 Pct	2006 Rate*	2007 Cases	2007 Pct	2007 Rate*	2008 Cases	2008 Pct	2008 Rate*
Male	**White****	335	21%	13.9	337	21%	13.8	343	20%	13.8	490	24%	19.5	418	21%	16.6
	Black**	718	46%	106.1	732	45%	106.1	732	43%	103.4	819	41%	113.6	869	45%	120.5
	Am.In/AN**	11	1%	27.8	14	1%	34.9	10	1%	24.5	6	0%	14.5	10	1%	24.2
	Asian,PI**	2	0%	3.4	8	0%	12.9	11	1%	16.8	9	0%	13.0	8	0%	11.6
	Hispanic	67	4%	30.4	103	6%	44.6	113	7%	46.0	127	6%	49.0	136	7%	52.5
	Unknown	1	0%	---	2	0%	---	3	0%	---	3	0%	---	19	1%	---
	Total	**1,134**	**72%**	**33.3**	**1,196**	**73%**	**34.5**	**1,212**	**72%**	**34.2**	**1,454**	**72%**	**40.3**	**1,460**	**75%**	**40.5**
Female	**White****	65	4%	2.5	74	5%	2.8	71	4%	2.7	92	5%	3.4	82	4%	3.0
	Black**	349	22%	43.8	326	20%	40.1	363	22%	43.7	431	21%	50.7	380	19%	44.7
	Am.In/AN**	2	0%	4.7	9	1%	20.7	1	0%	2.3	5	0%	11.2	0	0%	0.0
	Asian,PI**	1	0%	1.6	4	0%	6.0	3	0%	4.3	1	0%	1.4	2	0%	2.7
	Hispanic	27	2%	18.7	24	1%	15.5	31	2%	18.5	35	2%	19.2	22	1%	12.1
	Unknown	0	0%	---	0	0%	---	2	0%	---	3	0%	---	6	0%	---
	Total	**444**	**28%**	**12.2**	**437**	**27%**	**11.8**	**471**	**28%**	**12.5**	**567**	**28%**	**14.7**	**492**	**25%**	**12.8**
Total	**White****	400	25%	8.0	411	25%	8.1	414	25%	8.1	582	29%	11.2	500	26%	9.6
	Black**	1,067	68%	72.4	1,058	65%	70.4	1,095	65%	71.1	1,250	62%	79.5	1,249	64%	79.5
	Am.In/AN**	13	1%	15.8	23	1%	27.5	11	1%	12.9	11	1%	12.8	10	1%	11.6
	Asian,PI**	3	0%	2.4	12	1%	9.3	14	1%	10.3	10	0%	7.0	10	1%	7.0
	Hispanic	94	6%	25.8	127	8%	32.9	144	9%	34.8	162	8%	36.7	158	8%	35.8
	Unknown	1	0%	---	2	0%	---	5	0%	---	6	0%	---	25	1%	---
	Total	**1,578**	**100%**	**22.4**	**1,633**	**100%**	**22.8**	**1,683**	**100%**	**23.0**	**2,021**	**100%**	**27.1**	**1,952**	**100%**	**26.2**

*per 100,000 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 diagnosis (HIV or AIDS)

Table C: North Carolina HIV Disease† Demographic Rates, Age 13-24 Years Gender and Race/Ethnicity, 2004-2008

Race/Ethnicity		2004	2004	2004	2005	2005	2005	2006	2006	2006	2007	2007	2007	2008	2008	2008
		Cases	Pct	Rate*	Cases	Pct	Rate*	Cases	Pct	Rate*	Cases	Pct	Rate*	Cases	Pct	Rate*
Male	**White****	18	8%	3.9	28	11%	6.0	21	8%	4.4	28	8%	5.9	27	9%	5.7
	Black**	122	56%	66.2	143	57%	75.9	152	57%	78.2	194	59%	99.2	206	66%	105.3
	Other***	16	7%	18.8	15	6%	17.7	20	8%	22.9	27	8%	30.8	23	7%	26.2
	Total	**156**	**72%**	**21.4**	**186**	**74%**	**25.2**	**193**	**73%**	**25.4**	**249**	**75%**	**32.7**	**256**	**83%**	**33.7**
Female	**White****	6	3%	1.4	10	4%	2.3	15	6%	3.4	8	2%	1.8	8	3%	1.8
	Black**	51	24%	27.8	47	19%	25.1	47	18%	24.6	67	20%	34.5	44	14%	22.6
	Other***	3	1%	4.7	10	4%	15.3	10	4%	14.8	6	2%	8.4	2	1%	2.8
	Total	**60**	**28%**	**8.8**	**67**	**26%**	**9.7**	**72**	**27%**	**10.3**	**81**	**25%**	**11.4**	**54**	**17%**	**7.6**
Total	**White****	24	11%	2.7	38	15%	4.2	36	14%	3.9	36	11%	3.9	35	11%	3.8
	Black**	173	80%	47.0	190	75%	50.6	199	75%	51.6	261	79%	66.9	250	81%	64.1
	Other***	19	9%	12.7	25	10%	16.7	30	11%	19.4	33	10%	20.8	25	8%	15.7
	Total	**216**	**100%**	**15.3**	**253**	**100%**	**17.7**	**265**	**100%**	**18.2**	**330**	**100%**	**22.4**	**310**	**100%**	**21.1**

*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 D: North Carolina Adult/Adolescent HIV Disease† Cases Gender and Mode of Transmission, 2004-2008

Mode of Transmission		2004		2005		2006		2007		2008	
		Cases	Pct	Cases	Pct	Cases	Pct	Cases	Pct	Cases	Pct
Male	**MSM**	540	34%	580	36%	617	37%	747	37%	760	39%
	IDU	67	4%	48	3%	30	2%	39	2%	37	2%
	MSM/IDU	23	1%	13	1%	21	1%	19	1%	25	1%
	Blood Products	3	0%	---	---	1	0%	1	0%	1	0%
	Heterosexual-CDC	119	8%	93	6%	75	4%	55	3%	103	5%
	NIR	382	24%	461	28%	468	28%	593	29%	534	27%
	Total	**1,134**	**72%**	**1,195**	**73%**	**1,212**	**72%**	**1,454**	**72%**	**1,460**	**75%**
Female	**IDU**	34	2%	31	2%	19	1%	21	1%	26	1%
	Blood Products	1	0%	3	0%	1	0%	1	0%	---	---
	Heterosexual-CDC	165	10%	110	7%	92	5%	115	6%	135	7%
	NIR	243	15%	293	18%	359	21%	430	21%	331	17%
	Total	**443**	**28%**	**437**	**27%**	**471**	**28%**	**567**	**28%**	**492**	**25%**
Total	**MSM**	540	34%	580	36%	617	37%	747	37%	760	39%
	IDU	101	6%	79	5%	49	3%	60	3%	63	3%
	MSM/IDU	23	1%	13	1%	21	1%	19	1%	25	1%
	Blood Products	4	0%	3	0%	2	0%	2	0%	1	0%
	Heterosexual-CDC	284	18%	203	12%	167	10%	170	8%	238	12%
	NIR	625	40%	754	46%	827	49%	1,023	51%	865	44%
	Total	**1,577**	**100%**	**1,632**	**100%**	**1,683**	**100%**	**2,021**	**100%**	**1,952**	**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 diagnosis (HIV or AIDS)

Table E: North Carolina Adult/Adolescent HIV† Disease Cases
Gender and Mode of Transmission (NIRs Redistributed), 2004-2008

Mode of Transmission		2004		2005		2006		2007		2008	
		Cases	Pct	Cases	Pct	Cases	Pct	Cases	Pct	Cases	Pct
Male	**MSM***	680	60%	790	66%	843	70%	1072	74%	1050	72%
	IDU*	84	7%	65	5%	41	3%	56	4%	51	4%
	MSM/IDU	29	3%	18	1%	29	2%	27	2%	35	2%
	Blood products*	4	0%	0	0%	1	0%	1	0%	1	0%
	Heterosexual-All	336	29%	322	27%	297	24%	297	20%	323	22%
	Total††	**1,134**	**100%**	**1,195**	**100%**	**1,212**	**100%**	**1,454**	**100%**	**1,460**	**100%**
Female	**IDU***	52	12%	55	13%	41	9%	42	7%	47	10%
	Blood products*	2	0%	5	1%	2	0%	2	0%	0	0%
	Heterosexual-All	390	88%	376	86%	428	90%	523	92%	445	91%
	Total††	**443**	**100%**	**437**	**100%**	**471**	**100%**	**567**	**100%**	**492**	**100%**
Total	**MSM***	680	43%	790	48%	843	50%	1,072	53%	1,050	54%
	IDU*	136	9%	121	7%	82	5%	98	5%	98	5%
	MSM/IDU*	29	2%	18	1%	29	2%	27	1%	35	2%
	Blood products*	5	0%	5	0%	4	0%	3	0%	1	0%
	Heterosexual-All	726	46%	698	43%	725	43%	821	40%	768	40%
	Total††	**1,577**	**100%**	**1,632**	**100%**	**1,683**	**100%**	**2,021**	**100%**	**1,952**	**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 diagnosis (HIV or AIDS)
††Totals may not correspond to cases listed above due to redistribution of NIR cases **(See Appendix C, pg C-4.)**

Table F: North Carolina Adult/Adolescent Female HIV Disease† Cases Race/Ethnicity and Mode of Transmission (NIRs* Redistributed), 2004-2008

Mode of Transmission		2004		2005		2006		2007		2008	
		Cases	Pct	Cases	Pct	Cases	Pct	Cases	Pct	Cases	Pct
White, NH*	IDU*	19	30%	17	23%	19	26%	16	17%	14	17%
	Blood products*	0	0%	2	2%	2	3%	0	0%	0	0%
	Heterosexual-All	46	71%	55	75%	50	70%	76	83%	68	84%
	Total††	**65**	**100%**	**74**	**100%**	**71**	**100%**	**92**	**100%**	**82**	**100%**
Black, NH*	IDU*	29	8%	33	10%	19	5%	22	5%	31	8%
	Blood products*	1	0%	3	1%	0	0%	1	0%	0	0%
	Heterosexual-All	317	91%	290	89%	344	95%	405	94%	349	92%
	Total††	**348**	**100%**	**326**	**100%**	**363**	**100%**	**431**	**100%**	**380**	**100%**
All Other	IDU*	3	11%	3	9%	3	9%	3	7%	2	7%
	Blood products*	0	0%	2	4%	0	0%	0	0%	0	0%
	Heterosexual-All	27	89%	32	87%	34	91%	41	93%	28	93%
	Total	**30**	**100%**	**37**	**100%**	**37**	**100%**	**44**	**100%**	**30**	**100%**
Total	IDU	52	12%	56	13%	42	9%	41	7%	48	10%
	Blood Products	1	0%	5	1%	1	0%	1	0%	0	0%
	Heterosexual-All	390	88%	376	86%	426	90%	522	92%	446	91%
	Total††	**443**	**100%**	**437**	**100%**	**471**	**100%**	**567**	**100%**	**492**	**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 diagnosis (HIV or AIDS)
††Totals may not correspond to cases listed above due to redistribution of NIR cases **(See Appendix C, pg C-4.)**

Table G: North Carolina Adult/Adolescent Male HIV Disease† Cases Race/Ethnicity and Mode of Transmission (NIRs* Redistributed), 2004-2008

Mode of Transmission		2004		2005		2006		2007		2008	
		Cases	Pct	Cases	Pct	Cases	Pct	Cases	Pct	Cases	Pct
White, NH*	MSM*	274	82%	284	84%	289	84%	435	89%	339	81%
	IDU*	19	6%	8	2%	8	2%	13	3%	18	4%
	MSM/IDU	11	3%	10	3%	12	4%	14	3%	20	5%
	Blood Products*	1	0%	0	0%	0	0%	0	0%	0	0%
	Heterosexual-All	30	9%	35	10%	33	10%	29	6%	39	9%
	Total††	**335**	**100%**	**337**	**100%**	**343**	**100%**	**490**	**100%**	**418**	**100%**
Black, NH*	MSM*	353	49%	438	60%	452	62%	543	66%	601	69%
	IDU*	63	9%	50	7%	24	3%	41	5%	24	3%
	MSM/IDU	17	2%	6	1%	15	2%	14	2%	9	1%
	Blood Products*	2	0%	0	0%	1	0%	1	0%	0	0
	Heterosexual-All	281	39%	237	32%	237	32%	218	26%	234	27%
	Total††	**718**	**100%**	**731**	**100%**	**732**	**100%**	**819**	**100%**	**869**	**100%**
All Other	MSM*	52	65%	65	51%	94	69%	87	60%	104	60%
	IDU*	3	3%	9	7%	9	7%	2	1%	10	6%
	MSM/IDU	0	0%	1	1%	0	0%	0	0%	5	3%
	Blood Products*	0	0%	0	0%	0	0%	0	0%	2	1%
	Heterosexual-All	26	32%	52	41%	33	25%	56	39%	52	30%
	Total††	**81**	**100%**	**127**	**100%**	**137**	**100%**	**145**	**100%**	**173**	**100%**
Total	MSM*	679	60%	786	66%	836	70%	1,065	74%	1,045	72%
	IDU*	85	7%	66	5%	42	3%	56	4%	52	4%
	MSM/IDU	28	3%	18	2%	27	2%	28	2%	34	2%
	Blood Products*	3	0%	0	0%	1	0%	1	0%	2	0%
	Heterosexual-All	337	30%	324	27%	305	25%	304	20%	327	22%
	Total††	**1,134**	**100%**	**1,195**	**100%**	**1,212**	**100%**	**1,454**	**100%**	**1,460**	**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 diagnosis (HIV or AIDS)

††Totals may not correspond to cases listed above due to redistribution of NIR cases **(See Appendix C, pg C-4.)**

Table H: North Carolina HIV Disease† Cases Age 13-24 Years Mode of Transmission by Gender (NIRs* Redistributed), 2004-2008

Mode of Transmission		2004		2005		2006		2007		2008	
		Cases	Pct	Cases	Pct	Cases	Pct	Cases	Pct	Cases	Pct
Male	**MSM***	131	84%	164	88%	169	88%	229	92%	225	88%
	IDU*	2	1%	0	0%	2	1%	1	0%	0	0%
	MSM/IDU	2	1%	0	0%	2	1%	2	1%	3	1%
	Blood products*	0	0%	0	0%	0	0%	0	0%	0	0%
	Heterosexual-All	21	14%	22	12%	19	11%	16	7%	28	11%
	Total††	**156**	**100%**	**186**	**100%**	**193**	**100%**	**249**	**100%**	**256**	**100%**
Female	**IDU***	1	2%	1	2%	3	5%	4	5%	2	3%
	Blood products*	0	0%	1	2%	0	0%	0	0%	0	0%
	Heterosexual-All	58	98%	64	96%	68	95%	78	95%	53	97%
	Total††	**60**	**100%**	**67**	**100%**	**72**	**100%**	**81**	**100%**	**54**	**100%**
Total	**MSM***	131	60%	164	65%	169	64%	229	69%	225	72%
	IDU*	3	2%	1	1%	6	2%	5	2%	2	1%
	MSM/IDU*	2	1%	0	0%	2	1%	2	1%	3	1%
	Blood products*	0	0%	1	1%	0	0%	0	0%	0	0%
	Heterosexual-All	80	37%	86	34%	89	34%	94	29%	80	26%
	Total††	**216**	**100%**	**253**	**100%**	**265**	**100%**	**330**	**100%**	**310**	**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 diagnosis (HIV or AIDS)
††Totals may not correspond to cases listed above due to redistribution of NIR cases **(See Appendix C, pg C-4.)**

Table I: Persons Living in North Carolina with HIV Disease† as of 12/31/2008 Gender and Mode of Transmission, (NIRs* Redistributed)

Mode of Transmission		2008	
		Cases	Pct
Male	**MSM***	9,490	59%
	IDU*	1874	12%
	MSM/IDU	790	5%
	Blood Products*	84	0%
	Heterosexual-All	3820	23%
	Pediatric	109	1%
	Total††	**16,167**	**100%**
Female	**IDU***	1,239	17%
	Blood Products*	52	1%
	Heterosexual-All	5790	80%
	Pediatric	114	2%
	Total††	**7,196**	**100%**
Total	**MSM***	9,490	41%
	IDU*	3,113	13%
	MSM/IDU	790	3%
	Blood Products*	137	1%
	Heterosexual-All	9,610	41%
	Pediatric	223	1%
	Total††	**23,363**	**100%**

*MSM= men who have sex with men; IDU= intravenous drug use; "Blood products" include adult hemophilia; NIR = No identified risk reported

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

††Totals may not correspond to cases listed above due to redistribution of NIR cases **(See Appendix C, pg C-4.)**

Table J: Persons Living with HIV Disease as of 12/31/2008
Gender and Race/Ethnicity

Race/Ethnicity		Cases	Pct	Rate*
Male	**White****	4,880	30%	162.4
	Black**	10,038	62%	1,089.2
	Am.In/AN**	140	1%	271.7
	Asian,PI**	73	1%	82.9
	Hispanic	943	6%	261.4
	Total	**16,167**	**69%**	**365.1**
Female	**White****	1,205	17%	38.1
	Black**	5,582	78%	533.5
	Am.In/AN**	62	1%	113.4
	Asian,PI**	32	0%	34.5
	Hispanic	277	4%	99.7
	Total	**7,196**	**31%**	**155.3**
Total	**White****	6,085	26%	98.7
	Black**	15,620	67%	793.7
	Am.In/AN**	202	1%	190.2
	Asian,PI**	105	0%	58.0
	Hispanic	1,220	5%	191.1
	Total	**23,363**	**100%**	**257.8**

*per 100,000 population **non Hispanic; Am. In/AN= American Indian/Alaskan Native; Asian, PI= Asian/Pacific Islander
†HIV Disease includes all HIV infected individuals (HIV or AIDS)

Table K: Cumulative HIV Disease† Cases by County of Residence, 1983-2008

COUNTY	83-90	91-96	97-02	2003	2004	2005	2006	2007	2008	CUMULATIVE
ALAMANCE	25	125	89	24	19	29	18	23	93	445
ALEXANDER	1	11	9	1	3	4	2	2	4	37
ALLEGHANY	0	0	0	0	0	0	0	2	0	2
ANSON	4	51	20	1	3	0	6	0	5	90
ASHE	0	1	2	0	1	0	2	3	1	10
AVERY	2	3	3	0	0	0	0	1	2	11
BEAUFORT	18	57	45	5	5	9	6	10	11	166
BERTIE	8	24	46	2	9	7	5	4	8	113
BLADEN	7	33	26	12	5	3	8	5	5	104
BRUNSWICK	8	47	52	19	16	10	8	15	20	195
BUNCOMBE	41	277	195	23	19	21	27	48	37	688
BURKE	8	37	20	5	1	9	2	8	6	96
CABARRUS	23	96	62	19	7	18	18	14	27	284
CALDWELL	5	34	10	2	1	5	3	2	7	69
CAMDEN	0	7	10	1	0	2	1	1	0	22
CARTERET	12	39	11	7	6	0	2	4	9	90
CASWELL	0	14	8	3	1	0	1	4	9	40
CATAWBA	20	83	72	21	9	9	15	28	19	276
CHATHAM	5	35	22	6	6	3	1	8	20	106
CHEROKEE	1	8	3	1	0	2	2	4	3	24
CHOWAN	3	17	10	2	1	3	0	0	3	39
CLAY	0	1	2	0	1	1	1	1	0	7
CLEVELAND	21	107	68	14	20	26	14	18	12	300
COLUMBUS	18	83	71	22	7	16	13	15	12	257
CRAVEN	31	121	85	24	10	12	22	18	17	340
CUMBERLAND	135	570	360	92	66	76	131	128	166	1,724
CURRITUCK	2	7	8	2	1	1	3	3	1	28
DARE	5	14	14	3	7	1	2	1	3	50
DAVIDSON	24	98	73	12	13	18	13	14	22	287
DAVIE	4	16	15	0	1	2	1	2	1	42
DUPLIN	14	68	66	20	15	15	14	12	12	236
DURHAM	171	761	547	91	71	111	97	92	189	2,130
EDGECOMBE	15	129	99	38	21	18	27	24	16	387
FORSYTH	136	492	507	132	90	92	94	87	80	1,710
FRANKLIN	11	38	33	7	5	7	16	3	14	134
GASTON	58	315	188	36	19	32	33	33	25	739
GATES	0	3	4	2	0	0	0	1	3	13
GRAHAM	0	2	1	0	1	0	0	0	0	4
GRANVILLE	17	66	35	18	9	15	6	9	22	197
GREENE	3	33	30	1	2	4	4	2	0	79
GUILFORD	156	844	732	108	118	121	157	203	159	2,598
HALIFAX	20	105	75	9	6	9	10	10	21	265
HARNETT	12	84	48	13	12	9	21	8	33	240
HAYWOOD	6	27	16	0	2	9	2	7	5	74
HENDERSON	12	48	40	3	3	3	3	12	7	131
HERTFORD	11	34	33	7	5	3	2	10	12	117
HOKE	8	44	39	7	1	6	13	8	21	147
HYDE	0	3	2	2	2	1	0	0	0	10
IREDELL	14	65	42	13	9	12	14	8	11	188
JACKSON	2	8	4	0	1	2	5	1	4	27
JOHNSTON	30	138	115	21	12	22	28	14	62	442
JONES	0	11	9	1	2	1	0	0	1	25

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Table K (continued): Cumulative HIV Disease† Cases by County of Residence, 1983-2008

COUNTY	83-90	91-96	97-02	2003	2004	2005	2006	2007	2008	CUMULATIVE
LEE	11	49	61	9	11	5	12	9	27	194
LENOIR	26	159	123	18	11	24	21	22	13	417
LINCOLN	4	22	24	8	5	2	2	4	3	74
MACON	2	10	9	1	2	4	1	2	2	33
MADISON	1	7	6	1	1	0	2	1	1	20
MARTIN	4	36	36	10	5	7	8	10	0	116
MCDOWELL	5	14	8	0	1	0	2	1	0	31
MECKLENBURG	456	1,918	1,420	428	341	319	384	490	375	6,131
MITCHELL	1	5	4	0	0	0	0	1	0	11
MONTGOMERY	4	19	15	1	5	3	1	3	8	59
MOORE	16	51	64	11	7	13	13	11	37	223
NASH	21	147	108	18	12	23	25	20	30	404
NEW HANOVER	54	258	255	55	47	62	53	39	64	887
NORTHAMPTON	9	36	26	5	2	3	2	5	19	107
ONSLOW	29	87	84	18	11	14	13	13	21	290
ORANGE	42	117	76	16	16	16	21	19	82	405
PAMLICO	3	11	7	3	0	2	2	1	3	32
PASQUOTANK	5	36	28	10	6	3	11	7	8	114
PENDER	9	37	20	7	5	5	5	3	5	96
PERQUIMANS	1	10	18	2	0	3	1	0	3	38
PERSON	5	35	25	5	5	0	2	9	7	93
PITT	46	298	206	35	22	37	21	42	36	743
POLK	1	13	9	3	1	0	1	1	3	32
RANDOLPH	12	53	49	19	9	7	12	12	15	188
RICHMOND	5	75	38	9	4	11	11	16	29	198
ROBESON	22	174	142	30	32	40	25	48	51	564
ROCKINGHAM	10	76	52	3	11	7	5	11	15	190
ROWAN	23	133	65	18	20	18	10	22	16	325
RUTHERFORD	12	31	30	1	5	4	8	0	5	96
SAMPSON	17	89	57	9	5	12	16	7	21	233
SCOTLAND	6	74	42	6	13	10	4	4	16	175
STANLY	7	31	37	1	8	1	3	9	3	100
STOKES	2	9	10	2	3	5	2	4	2	39
SURRY	4	23	20	4	5	9	1	2	3	71
SWAIN	5	7	8	3	0	2	1	1	0	27
TRANSYLVANIA	5	14	12	5	0	1	3	2	2	44
TYRRELL	2	2	2	0	0	0	0	1	0	7
UNION	14	74	56	12	8	6	9	23	17	219
VANCE	19	91	62	21	15	6	9	10	21	254
WAKE	306	932	796	207	177	196	237	249	312	3,412
WARREN	5	11	17	5	3	2	5	2	4	54
WASHINGTON	3	37	23	2	2	8	2	8	4	89
WATAUGA	4	5	2	5	0	5	3	1	3	28
WAYNE	45	146	139	21	17	16	20	18	24	446
WILKES	3	12	11	2	4	4	2	5	7	50
WILSON	39	194	142	20	16	30	24	22	25	512
YADKIN	3	8	8	4	3	3	3	2	2	36
YANCEY	1	6	4	1	1	0	0	1	0	14
UNASSIGNED*	12	376	566	106	73	95	162	114	86	1590
NC TOTAL	**2,468**	**11,392**	**9,098**	**2,032**	**1,594**	**1,822**	**2,053**	**2,237**	**2,650**	**35,346**

Table L: HIV Disease† Rates by County Rank Order, 2006-2008

COUNTY	2006	2007	2008	2006	2007	2008	AVG	RANK
MECKLENBURG	307	458	426	36.8	52.8	49.1	46.2	1
EDGECOMBE	20	20	19	37.7	38.0	36.1	37.3	2
DURHAM	96	75	102	38.4	29.2	39.8	35.8	3
CUMBERLAND	108	114	92	35.1	37.2	30.0	34.1	4
GUILFORD	147	165	161	32.2	35.4	34.6	34.1	4
NORTHAMPTON	4	3	14	19.2	14.4	67.2	33.6	6
WASHINGTON	2	7	4	15.3	54.2	31.0	33.5	7
LENOIR	21	19	12	36.8	33.5	21.1	30.5	8
BERTIE	5	4	6	26.8	21.5	32.3	26.9	9
WAKE	193	222	219	24.3	26.7	26.3	25.8	10
ROBESON	20	46	32	15.7	35.9	25.0	25.5	11
WILSON	19	20	19	25.0	26.1	24.8	25.3	12
RICHMOND	10	17	7	21.8	37.0	15.2	24.7	13
FORSYTH	85	81	75	25.6	23.9	22.1	23.9	14
HOKE	11	9	8	26.7	21.2	18.9	22.3	15
NASH	24	15	22	26.2	16.1	23.7	22.0	16
NEW HANOVER	50	41	34	26.7	21.5	17.9	22.0	16
HALIFAX	7	9	20	12.7	16.3	36.3	21.8	18
HERTFORD	3	6	6	12.9	25.9	25.9	21.6	19
COLUMBUS	10	15	9	18.5	27.8	16.7	21.0	20
NORTH CAROLINA	**1689**	**2031**	**1964**	**19.0**	**22.4**	**21.7**	**21.0**	
PITT	19	41	34	12.8	27.0	22.4	20.7	21
PASQUOTANK	9	7	8	22.8	17.3	19.7	19.9	22
MARTIN	7	7	0	29.3	29.7	0.0	19.7	23
GRANVILLE	7	10	15	13.0	18.2	27.3	19.5	24
VANCE	5	9	11	11.6	20.9	25.6	19.4	25
CRAVEN	19	18	14	19.7	18.6	14.5	17.6	26
LEE	10	12	7	17.6	20.7	12.1	16.8	27
BEAUFORT	3	10	10	6.6	21.8	21.8	16.7	28
ALAMANCE	12	24	33	8.5	16.5	22.7	15.9	29
DUPLIN	11	9	5	21.0	17.0	9.4	15.8	30
BUNCOMBE	26	41	34	11.7	18.1	15.0	14.9	31
CLEVELAND	14	17	13	14.3	17.3	13.2	14.9	31
GASTON	31	27	31	15.7	13.3	15.3	14.8	33
SCOTLAND	2	4	10	5.5	11.0	27.5	14.7	34
CASWELL	1	3	6	4.3	12.9	25.8	14.3	35
WARREN	2	2	4	10.3	10.3	20.6	13.7	36
MOORE	13	9	12	15.7	10.7	14.2	13.5	37
PAMLICO	2	1	2	15.9	8.0	15.9	13.3	38
ANSON	5	0	5	19.8	0.0	19.8	13.2	39
FRANKLIN	12	3	7	21.6	5.2	12.2	13.0	40
ORANGE	15	21	12	12.3	16.9	9.7	13.0	40
CABARRUS	19	13	30	12.2	8.0	18.4	12.9	42
JOHNSTON	25	15	20	16.6	9.5	12.7	12.9	42
WAYNE	11	18	15	9.8	15.8	13.2	12.9	42
BLADEN	2	4	6	6.2	12.4	18.6	12.4	45
CATAWBA	11	25	19	7.2	16.1	12.2	11.8	46
SAMPSON	8	6	8	12.7	9.4	12.6	11.6	47
GREENE	3	2	2	14.7	9.8	9.8	11.4	48
HARNETT	14	8	14	13.2	7.4	12.9	11.2	49
PERQUIMANS	1	0	3	8.3	0.0	24.0	10.8	50

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Table L (continued): HIV Disease† Rates by County Rank Order, 2006-2008

COUNTY	2006	2007	2008	2006	2007	2008	AVG	RANK
ROCKINGHAM	5	12	13	5.4	13.0	14.1	10.8	50
PERSON	3	7	2	8.1	18.7	5.4	10.7	52
CAMDEN	1	1	1	10.9	10.5	10.5	10.6	53
ROWAN	7	22	13	5.2	16.0	9.5	10.2	54
DAVIDSON	13	12	20	8.4	7.7	12.8	9.6	55
BRUNSWICK	5	14	9	5.3	14.1	9.1	9.5	56
CHOWAN	0	0	4	0.0	0.0	27.3	9.1	57
RANDOLPH	12	13	12	8.7	9.3	8.6	8.9	58
CHEROKEE	1	3	3	3.8	11.3	11.3	8.8	59
UNION	7	25	16	4.1	13.5	8.7	8.8	59
GATES	0	0	3	0.0	0.0	25.6	8.5	61
MONTGOMERY	1	3	3	3.7	10.9	10.9	8.5	61
CURRITUCK	2	3	1	8.5	12.5	4.2	8.4	63
ONSLOW	9	14	18	5.6	8.6	11.1	8.4	63
JACKSON	4	1	4	11.0	2.7	10.9	8.2	65
CHATHAM	2	9	4	3.3	14.6	6.5	8.1	66
PENDER	4	3	5	8.4	6.0	10.0	8.1	66
TYRRELL	0	1	0	0.0	24.3	0.0	8.1	66
STANLY	3	9	2	5.1	15.2	3.4	7.9	69
IREDELL	11	10	13	7.5	6.6	8.6	7.6	70
HAYWOOD	4	5	3	7.1	8.9	5.3	7.1	71
POLK	1	1	2	5.3	5.3	10.5	7.0	72
CLAY	1	1	0	10.0	9.8	0.0	6.6	73
MADISON	2	1	1	9.9	4.9	4.9	6.6	73
ALEXANDER	2	2	3	5.6	5.5	8.2	6.4	75
BURKE	1	8	8	1.1	9.0	9.0	6.4	75
RUTHERFORD	6	2	4	9.5	3.2	6.3	6.3	77
ALLEGHANY	0	2	0	0.0	18.3	0.0	6.1	78
WILKES	1	4	7	1.5	6.0	10.5	6.0	79
DARE	2	1	3	5.9	3.0	8.9	5.9	80
HENDERSON	2	11	4	2.0	10.9	4.0	5.6	81
CARTERET	3	2	5	4.7	3.2	7.9	5.3	82
YADKIN	2	2	2	5.3	5.3	5.3	5.3	82
ASHE	0	3	1	0.0	11.8	3.9	5.2	84
WATAUGA	3	1	3	6.8	2.2	6.7	5.2	84
MACON	1	2	2	3.1	6.1	6.1	5.1	86
TRANSYLVANIA	2	1	1	6.7	3.3	3.3	4.4	87
CALDWELL	2	4	4	2.5	5.0	5.0	4.2	88
MITCHELL	0	1	1	0.0	6.3	6.3	4.2	88
LINCOLN	2	4	3	2.8	5.5	4.1	4.1	90
AVERY	0	2	0	0.0	11.3	0.0	3.8	91
STOKES	1	3	1	2.2	6.5	2.2	3.6	92
YANCEY	1	0	1	5.5	0.0	5.4	3.6	92
MCDOWELL	3	0	1	6.9	0.0	2.3	3.1	94
DAVIE	1	2	0	2.5	4.9	0.0	2.5	95
SWAIN	0	1	0	0.0	7.3	0.0	2.4	96
SURRY	1	1	3	1.4	1.4	4.1	2.3	97
GRAHAM	0	0	0	0.0	0.0	0.0	0.0	98
HYDE	0	0	0	0.0	0.0	0.0	0.0	98
JONES	0	0	0	0.0	0.0	0.0	0.0	98

†HIV Disease includes all newly reported HIV infected individuals by the date of first report (HIV or AIDS)
*three-year average of rates per 100,000 population

Table M: Persons Living in North Carolina with HIV Disease† as of 12/31/08, County of Residence and Patient Management Model Regions

		Report Category		
		HIV (NON AIDS)	AIDS	TOTAL
HIV CARE	COUNTY			
CHARLOTTE TRANSITIONAL	ANSON	20	38	58
	CABARRUS	121	64	185
	GASTON	279	147	426
	MECKLENBURG	2709	1355	4064
	UNION	82	55	137
	TOTAL	3211	1659	4870
REGION 1	COUNTY			
	AVERY	4	4	8
	BUNCOMBE	251	193	444
	CHEROKEE	7	8	15
	CLAY	4	0	4
	CLEVELAND	106	66	172
	GRAHAM	1	2	3
	HAYWOOD	21	30	51
	HENDERSON	31	46	77
	JACKSON	11	12	23
	MACON	11	13	24
	MADISON	11	4	15
	MCDOWELL	5	14	19
	MITCHELL	4	4	8
	POLK	11	9	20
	RUTHERFORD	29	27	56
	SWAIN	5	10	15
	TRANSYLVANIA	15	9	24
	YANCEY	2	6	8
	TOTAL	529	457	986
REGION 2	COUNTY			
	ALEXANDER	16	13	29
	ALLEGHANY	2	0	2
	ASHE	6	3	9
	BURKE	36	37	73
	CALDWELL	18	20	38
	CATAWBA	90	91	181
	LINCOLN	30	21	51
	WATAUGA	10	9	19
	WILKES	21	16	37
	TOTAL	229	210	439
REGION 3	COUNTY			
	DAVIDSON	123	73	196
	DAVIE	13	13	26
	FORSYTH	751	383	1134
	IREDELL	58	48	106
	ROWAN	112	101	213
	STOKES	19	13	32
	SURRY	29	19	48
	YADKIN	11	14	25
	TOTAL	1116	664	1780

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

Continued on Next Page

Table M (continued): Persons Living in North Carolina with HIV Disease† as of 12/31/08, County of Residence and Patient Management Model Regions

		Report Category		TOTAL
		HIV (NON AIDS)	AIDS	
REGION 4	COUNTY			
	ALAMANCE	192	107	299
	CASWELL	20	10	30
	GUILFORD	1140	563	1703
	MONTGOMERY	21	18	39
	RANDOLPH	88	50	138
	ROCKINGHAM	86	40	126
	STANLY	46	21	67
	TOTAL	1593	809	2402
REGION 5	COUNTY			
	BLADEN	33	36	69
	CUMBERLAND	742	381	1123
	HARNETT	78	83	161
	HOKE	53	50	103
	MOORE	90	56	146
	RICHMOND	81	39	120
	ROBESON	213	173	386
	SAMPSON	67	64	131
	SCOTLAND	66	42	108
	TOTAL	1423	924	2347
REGION 6	COUNTY			
	CHATHAM	49	20	69
	DURHAM	875	469	1344
	FRANKLIN	44	41	85
	GRANVILLE	84	50	134
	JOHNSTON	155	137	292
	LEE	104	41	145
	ORANGE	191	85	276
	PERSON	38	19	57
	VANCE	86	63	149
	WAKE	1263	1170	2433
	WARREN	24	10	34
	TOTAL	2913	2105	5018
REGION 7	COUNTY			
	BRUNSWICK	67	60	127
	COLUMBUS	84	71	155
	DUPLIN	70	83	153
	NEW HANOVER	354	255	609
	ONSLOW	118	82	200
	PENDER	25	34	59
	TOTAL	718	585	1303
REGION 8	COUNTY			
	EDGECOMBE	139	116	255
	HALIFAX	70	76	146
	NASH	134	123	257
	NORTHAMPTON	33	30	63
	WILSON	149	148	297
	TOTAL	525	493	1018

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

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Table M (continued): Persons Living in North Carolina with HIV Disease† as of 12/31/08, County of Residence and Patient Management Model Regions

		Report Category		TOTAL
		HIV (NON AIDS)	AIDS	
REGION 9	COUNTY	30	42	72
	BERTIE			
	CAMDEN	3	8	11
	CHOWAN	14	16	30
	CURRITUCK	11	7	18
	DARE	17	14	31
	HERTFORD	27	40	67
	HYDE	1	6	7
	PAMLICO	12	6	18
	PASQUOTANK	45	36	81
	PERQUIMANS	16	12	28
	TYRRELL	3	2	5
	TOTAL	179	189	368
REGION 10	COUNTY	54	49	103
	BEAUFORT			
	CARTERET	27	24	51
	CRAVEN	111	118	229
	GATES	7	3	10
	GREENE	24	34	58
	JONES	9	6	15
	LENOIR	144	110	254
	MARTIN	42	36	78
	PITT	241	235	476
	WASHINGTON	23	30	53
	WAYNE	119	135	254
	TOTAL	801	780	1581
UNASSIGNED		808	443	1251
TOTAL		14045	9318	23363

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

Table N: HIV Testing at North Carolina Counseling and Testing Sites, 2006-2008

TESTING COUNTY	2006 Tests	2006 Positives	2007 Tests	2007 Positives	2008 Tests	2008 Positives
ALAMANCE	3,106	11	3,551	8	3,583	10
ALEXANDER	247	0	312	0	407	0
ALLEGHANY	55	0	121	0	114	0
ANSON	664	0	716	1	800	1
ASHE	143	0	338	0	465	1
AVERY	178	0	168	0	205	0
BEAUFORT	1,118	1	1,366	2	1,341	7
BERTIE	426	3	422	0	580	3
BLADEN	628	0	969	1	883	1
BRUNSWICK	802	1	1,248	3	1,553	1
BUNCOMBE	4,275	19	4,381	41	4,947	110
BURKE	1,396	3	1,380	2	1,504	4
CABARRUS	2,435	8	3,127	8	3,484	6
CALDWELL	1,313	0	1,559	1	1,628	2
CAMDEN	46	1	52	0	53	0
CARTERET	770	0	706	1	790	2
CASWELL	415	0	504	2	489	1
CATAWBA	3,294	6	3,460	7	3,795	3
CHATHAM	608	0	685	1	813	0
CHEROKEE	171	0	277	1	312	0
CHOWAN	145	0	219	1	266	1
CLAY	80	0	97	0	101	0
CLEVELAND	1,773	7	2,348	12	2,921	3
COLUMBUS	1,008	2	1,272	4	1,434	12
CRAVEN	1,050	9	1,912	7	2,853	4
CUMBERLAND	5,628	88	5,593	75	6,897	73
CURRITUCK	253	0	264	0	237	0
DARE	752	2	922	1	942	1
DAVIDSON	1,562	0	1,883	1	1,943	3
DAVIE	592	1	590	2	626	0
DUPLIN	789	2	988	3	1,279	2
DURHAM	5,371	42	6,553	35	10,479	45
EDGECOMBE	3,019	17	2,537	13	2,808	12
FORSYTH	6,226	46	7,237	42	9,380	37
FRANKLIN	873	4	1,108	1	1,387	2
GASTON	5,160	23	6,667	19	8,256	40
GATES	237	1	197	0	191	0
GRAHAM	49	0	78	0	82	0
GRANVILLE	640	0	774	1	1,087	6
GREENE	372	1	385	1	502	0
GUILFORD	10,182	105	11,912	99	15,614	114
HALIFAX	796	1	1,027	6	1,248	19
HARNETT	803	2	1,180	5	1,300	2
HAYWOOD	760	1	957	2	972	0
HENDERSON	1,701	1	1,804	3	2,074	1
HERTFORD	241	4	891	2	1,229	3
HOKE	492	4	861	3	919	3
HYDE	49	0	72	0	117	0
IREDELL	1,725	7	2,499	9	3,034	7
JACKSON	493	4	531	0	726	0
JOHNSTON	1,297	6	2,031	7	2,394	6

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Table N. HIV Testing at North Carolina Counseling and Testing Sites, 2006-2008

TESTING	2006	2006	2007	2007	2008	2008
JONES	60	0	188	1	210	0
LEE	746	2	1,046	1	915	3
LENOIR	1,546	10	1,833	11	1,657	6
LINCOLN	385	4	692	1	764	0
MACON	313	1	380	1	477	0
MADISON	232	0	316	0	351	0
MARTIN	716	2	727	3	760	1
MCDOWELL	575	0	729	0	882	0
MECKLENBURG	10,959	148	12,244	195	15,744	205
MITCHELL	117	0	172	0	171	0
MONTGOMERY	444	0	441	0	538	1
MOORE	763	1	1,075	1	1,071	6
NASH	1,503	8	3,489	8	3,899	10
NEW HANOVER	3,344	29	3,564	16	4,571	15
NORTHAMPTON	544	5	586	0	832	6
ONSLOW	2,409	8	2,251	6	2,088	6
ORANGE	1,535	2	1,773	2	1,848	0
PAMLICO	54	2	37	1	52	0
PASQUOTANK	737	5	1,008	4	1,052	4
PENDER	425	1	501	1	911	1
PERQUIMANS	159	2	166	1	225	3
PERSON	809	2	1,169	2	1,335	0
PITT	4,392	17	4,885	27	5,404	14
POLK	116	1	126	2	97	1
RANDOLPH	764	5	1,083	5	1,219	5
RICHMOND	742	2	812	5	944	2
ROBESON	2,304	9	2,469	14	5,131	24
ROCKINGHAM	1,208	0	1,259	1	1,467	3
ROWAN	1,436	3	1,371	5	1,989	4
RUTHERFORD	944	4	1,308	0	1,391	1
SAMPSON	2,727	13	3,630	20	4,729	21
SCOTLAND	1,118	0	1,369	0	1,558	4
STANLY	527	2	615	2	804	3
STOKES	187	0	218	1	173	0
SURRY	571	0	540	1	529	0
SWAIN	35	1	63	0	94	0
TRANSYLVANIA	307	0	377	0	389	0
TYRRELL	156	0	343	2	342	0
UNION	1,403	1	1,864	8	2,041	4
VANCE	520	2	520	1	569	1
WAKE	15,475	89	19,607	106	22,621	94
WARREN	441	2	475	3	497	2
WASHINGTON	333	0	395	1	475	0
WATAUGA	335	0	575	0	953	1
WAYNE	3,379	13	3,974	16	4,209	11
WILKES	443	1	568	0	816	3
WILSON	2,070	6	2,205	5	3,680	11
YADKIN	396	1	544	0	585	0
YANCEY	211	0	260	0	256	0
MISSING/UNK	95	0	153	2	162	3
TOTAL	**147,218**	**837**	**176,726**	**915**	**214,521**	**1,027**

Table O: N.C. Adult/Adolescent AIDS Demographic Rates, Gender and Age by Year of Diagnosis, 2004-2008

Age		2004 Cases	2004 Pct	2004 Rate*	2005 Cases	2005 Pct	2005 Rate*	2006 Cases	2006 Pct	2006 Rate*	2007 Cases	2007 Pct	2007 Rate*	2008 Cases	2008 Pct	2008 Rate*
Male	**13-14 Years**	2	0%	1.6	2	0%	1.6	0	0%	0.0	0	0%	0.0	0	0%	0.0
	15-19 Years	4	1%	1.4	4	0%	1.3	8	1%	2.6	5	1%	1.6	7	1%	2.2
	20-24 Years	19	2%	6.1	24	3%	7.7	34	4%	10.5	27	3%	8.4	30	3%	9.4
	25-29 Years	48	6%	16.6	50	6%	17.2	73	8%	24.5	67	8%	22.2	66	7%	21.9
	30-34 Years	67	9%	21.1	78	9%	25.0	90	10%	29.3	72	8%	23.7	85	9%	27.9
	35-39 Years	104	13%	33.1	96	11%	30.2	116	13%	35.4	94	11%	28.0	97	10%	28.9
	40-44 Years	119	15%	36.2	132	15%	40.0	116	13%	35.1	124	14%	37.5	121	13%	36.6
	45-49 Years	77	10%	24.9	100	11%	31.6	88	10%	27.1	122	14%	36.9	111	12%	33.5
	50-54 Years	63	8%	22.9	50	6%	17.7	63	7%	21.7	62	7%	20.5	78	8%	25.9
	55-59 Years	28	4%	11.6	42	5%	16.5	37	4%	13.9	27	3%	10.0	50	5%	18.6
	60-64 Years	20	3%	10.9	18	2%	9.4	15	2%	7.6	15	2%	6.9	27	3%	12.4
	65+ Years	14	2%	3.3	14	2%	3.2	14	2%	3.2	9	1%	2.0	16	2%	3.5
	Total	**565**	**72%**	**16.6**	**610**	**68%**	**17.6**	**654**	**72%**	**18.4**	**624**	**70%**	**17.3**	**688**	**72%**	**19.1**
Female	**13-14 Years**	0	0%	0.0	0	0%	0.0	1	0%	0.8	1	0%	0.8	0	0%	0.0
	15-19 Years	0	0%	0.0	1	0%	0.3	4	0%	1.4	1	0%	0.3	4	0%	1.3
	20-24 Years	11	1%	3.9	10	1%	3.5	9	1%	3.2	11	1%	3.8	5	1%	1.7
	25-29 Years	14	2%	4.8	34	4%	11.6	20	2%	6.6	13	1%	4.2	22	2%	7.2
	30-34 Years	29	4%	9.3	33	4%	10.6	31	3%	10.1	32	4%	10.4	31	3%	10.1
	35-39 Years	54	7%	17.2	57	6%	18.0	50	6%	15.3	55	6%	16.4	50	5%	14.9
	40-44 Years	34	4%	10.0	51	6%	15.0	46	5%	13.6	49	6%	14.4	63	7%	18.5
	45-49 Years	31	4%	9.6	56	6%	16.9	45	5%	13.3	48	5%	13.9	45	5%	13.0
	50-54 Years	23	3%	7.8	19	2%	6.3	14	2%	4.5	31	3%	9.6	25	3%	7.7
	55-59 Years	11	1%	4.2	11	1%	4.0	22	2%	7.6	13	1%	4.4	15	2%	5.1
	60-64 Years	4	1%	2.0	7	1%	3.3	7	1%	3.2	5	1%	2.1	8	1%	3.3
	65+ Years	8	1%	1.3	4	0%	0.6	3	0%	0.5	7	1%	1.1	5	1%	0.8
	Total	**219**	**28%**	**6.0**	**283**	**32%**	**7.7**	**252**	**28%**	**6.7**	**266**	**30%**	**6.9**	**273**	**28%**	**7.1**

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Table O (continued): N.C. Adult/Adolescent AIDS Demographic Rates, Gender and Age by Year of Diagnosis, 2004-2008

Age		2004	2004	2004	2005	2005	2005	2006	2006	2006	2007	2007	2007	2008	2008	2008
		Cases	Pct	Rate*	Cases	Pct	Rate*	Cases	Pct	Rate*	Cases	Pct	Rate*	Cases	Pct	Rate*
Total	**13-14 Years**	2	0%	0.8	2	0%	0.8	1	0%	0.4	1	0%	0.4	0	0%	0.0
	15-19 Years	4	1%	0.7	5	1%	0.8	12	1%	2.0	6	1%	1.0	11	1%	1.8
	20-24 Years	30	4%	5.0	34	4%	5.7	43	5%	7.0	38	4%	6.2	35	4%	5.7
	25-29 Years	62	8%	10.7	84	9%	14.4	93	10%	15.5	80	9%	13.1	88	9%	14.5
	30-34 Years	96	12%	15.2	111	12%	17.9	121	13%	19.7	104	12%	17.0	116	12%	19.0
	35-39 Years	158	20%	25.2	153	17%	24.1	166	18%	25.4	149	17%	22.2	147	15%	21.9
	40-44 Years	153	20%	22.9	183	20%	27.3	162	18%	24.2	173	19%	25.8	184	19%	27.4
	45-49 Years	108	14%	17.1	156	17%	24.1	133	15%	20.1	170	19%	25.1	156	16%	23.1
	50-54 Years	86	11%	15.1	69	8%	11.8	77	8%	12.8	93	10%	14.9	103	11%	16.5
	55-59 Years	39	5%	7.8	53	6%	10.0	59	7%	10.6	40	4%	7.1	65	7%	11.5
	60-64 Years	24	3%	6.2	25	3%	6.2	22	2%	5.2	20	2%	4.3	35	4%	7.6
	65+ Years	22	3%	2.1	18	2%	1.7	17	2%	1.6	16	2%	1.5	21	2%	1.9
	Total	**784**	**100%**	**11.1**	**893**	**100%**	**12.5**	**906**	**100%**	**12.4**	**890**	**100%**	**11.9**	**961**	**100%**	**12.9**

*per 100,000 population

Table P: North Carolina Adult/Adolescent AIDS Demographic Rates
Gender and Race/Ethnicity, by Year of Diagnosis, 2004-2008

Race/Ethnicity		2004	2004	2004	2005	2005	2005	2006	2006	2006	2007	2007	2007	2008	2008	2008
		Cases	Pct	Rate*	Cases	Pct	Rate*	Cases	Pct	Rate*	Cases	Pct	Rate*	Cases	Pct	Rate*
Male	**White****	156	20%	6.5	171	19%	7.0	154	17%	6.2	164	18%	6.5	178	19%	7.1
	Black**	374	48%	55.3	389	44%	56.4	416	46%	58.8	398	45%	55.2	434	45%	60.2
	Am.In/AN**	9	1%	22.7	6	1%	15.0	9	1%	22.0	2	0%	4.8	6	1%	14.5
	Asian,PI**	3	0%	5.1	1	0%	1.6	4	0%	6.1	2	0%	2.9	1	0%	1.4
	Hispanic	23	3%	10.5	40	4%	17.3	69	8%	28.1	56	6%	21.6	65	7%	25.1
	Unknown	0	0%	---	3	0%	---	2	0%	---	2	0%	---	4	0%	---
	Total	**565**	**72%**	**16.6**	**610**	**68%**	**17.6**	**654**	**72%**	**18.4**	**624**	**70%**	**17.3**	**688**	**72%**	**19.1**
Female	**White****	35	4%	1.4	36	4%	1.4	39	4%	1.5	41	5%	1.5	34	4%	1.3
	Black**	175	22%	22.0	232	26%	28.5	191	21%	23.0	205	23%	24.1	225	23%	26.4
	Am.In/AN**	1	0%	2.3	3	0%	6.9	2	0%	4.5	6	1%	13.4	0	0%	0.0
	Asian,PI**	0	0%	0.0	1	0%	1.5	2	0%	2.9	1	0%	1.4	0	0%	0.0
	Hispanic	6	1%	4.2	10	1%	6.4	18	2%	10.7	11	1%	6.0	11	1%	6.0
	Unknown	2	0%	---	1	0%	---	0	0%	---	2	0%	---	3	0%	---
	Total	**219**	**28%**	**6.0**	**283**	**32%**	**7.7**	**252**	**28%**	**6.7**	**266**	**30%**	**6.9**	**273**	**28%**	**7.1**
Total	**White****	191	24%	3.8	207	23%	4.1	193	21%	3.8	205	23%	3.9	212	22%	4.1
	Black**	549	70%	37.3	621	70%	41.3	607	67%	39.4	603	68%	38.4	659	69%	41.9
	Am.In/AN**	10	1%	12.1	9	1%	10.8	11	1%	12.9	8	1%	9.3	6	1%	7.0
	Asian,PI**	3	0%	2.4	2	0%	1.6	6	1%	4.4	3	0%	2.1	1	0%	0.7
	Hispanic	29	4%	8.0	50	6%	12.9	87	10%	21.1	67	8%	15.2	76	8%	17.2
	Unknown	2	0%	---	4	0%	---	2	0%	---	4	0%	---	7	1%	---
	Total	**784**	**100%**	**11.1**	**893**	**100%**	**12.5**	**906**	**100%**	**12.4**	**890**	**100%**	**11.9**	**961**	**100%**	**12.9**

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

Table Q: North Carolina Chlamydia Demographic Rates, Gender and Age, 2004-2008

Age		2004 Cases	2004 Pct	2004 Rate*	2005 Cases	2005 Pct	2005 Rate*	2006 Cases	2006 Pct	2006 Rate*	2007 Cases	2007 Pct	2007 Rate*	2008 Cases	2008 Pct	2008 Rate*
Male	**10-14 Years**	28	0%	9.3	25	0%	8.3	25	0%	8.3	24	0%	7.9	16	0%	5.3
	15-19 Years	1,031	4%	350.5	1,150	4%	379.8	1,338	4%	430.0	1,236	4%	389.2	1,460	4%	459.7
	20-24 Years	2,125	7%	683.9	2,239	7%	717.9	2,571	8%	791.2	2,167	7%	678.1	2,670	7%	835.5
	25-29 Years	925	3%	319.1	1,013	3%	348.8	1,230	4%	412.3	1,037	3%	344.0	1,161	3%	385.1
	30-34 Years	437	2%	137.4	492	2%	157.9	537	2%	174.9	459	1%	150.9	550	1%	180.8
	35-39 Years	233	1%	74.3	247	1%	77.7	310	1%	94.7	254	1%	75.8	308	1%	91.9
	40-44 Years	139	0%	42.2	143	0%	43.3	132	0%	39.9	138	0%	41.7	171	0%	51.7
	45-49 Years	64	0%	20.7	85	0%	26.9	99	0%	30.5	90	0%	27.2	83	0%	25.1
	50-54 Years	33	0%	12.0	39	0%	13.8	42	0%	14.4	48	0%	15.9	46	0%	15.2
	55-59 Years	17	0%	7.0	10	0%	3.9	9	0%	3.4	18	0%	6.7	23	0%	8.6
	60-64 Years	6	0%	3.3	11	0%	5.8	5	0%	2.5	9	0%	4.1	9	0%	4.1
	65+ Years	6	0%	1.4	13	0%	3.0	10	0%	2.3	6	0%	1.3	10	0%	2.2
	Total	**5,063**	**17%**	**121.2**	**5,481**	**18%**	**129.2**	**6,313**	**19%**	**145.4**	**5,493**	**18%**	**124.1**	**6,540**	**17%**	**147.7**
Female	**10-14 Years**	505	2%	174.6	487	2%	169.3	444	1%	154.5	319	1%	110.1	369	1%	127.4
	15-19 Years	9,704	33%	3486.2	10,367	33%	3607.4	10,812	32%	3660.1	9,689	32%	3203.7	12,002	32%	3968.6
	20-24 Years	8,760	30%	3087.4	9,541	31%	3365.4	10,135	30%	3555.9	9,381	31%	3229.5	11,737	31%	4040.6
	25-29 Years	3,017	10%	1043.6	3,328	11%	1133.3	3,638	11%	1201.1	3,414	11%	1111.7	4,178	11%	1360.4
	30-34 Years	1,212	4%	386.8	1,138	4%	366.9	1,305	4%	426.9	1,354	4%	441.5	1,520	4%	495.7
	35-39 Years	401	1%	127.7	498	2%	156.9	554	2%	169.5	529	2%	157.6	677	2%	201.7
	40-44 Years	180	1%	53.0	171	1%	50.2	210	1%	61.9	233	1%	68.5	263	1%	77.4
	45-49 Years	75	0%	23.2	84	0%	25.3	120	0%	35.4	100	0%	29.0	109	0%	31.6
	50-54 Years	23	0%	7.8	34	0%	11.2	38	0%	12.2	44	0%	13.6	50	0%	15.5
	55-59 Years	16	0%	6.1	10	0%	3.6	18	0%	6.2	23	0%	7.8	22	0%	7.5
	60-64 Years	2	0%	1.0	8	0%	3.8	6	0%	2.7	4	0%	1.7	7	0%	2.9
	65+ Years	10	0%	1.6	6	0%	1.0	3	0%	0.5	3	0%	0.5	2	0%	0.3
	Total	**23,935**	**83%**	**548.7**	**25,704**	**82%**	**579.4**	**27,301**	**81%**	**603.1**	**25,111**	**82%**	**541.9**	**31,015**	**83%**	**669.4**

*per 100,000 population

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Table Q (continued): North Carolina Chlamydia Demographic Rates, Gender and Age, 2004-2008

Age		2004 Cases	2004 Pct	2004 Rate*	2005 Cases	2005 Pct	2005 Rate*	2006 Cases	2006 Pct	2006 Rate*	2007 Cases	2007 Pct	2007 Rate*	2008 Cases	2008 Pct	2008 Rate*
Total	**10-14 Years**	533	2%	90.1	512	2%	86.8	469	1%	79.5	343	1%	57.8	385	1%	64.9
	15-19 Years	10,735	37%	1875.0	11,517	37%	1951.5	12,150	36%	2003.1	10,928	36%	1762.5	13,462	36%	2171.2
	20-24 Years	10,885	38%	1831.1	11,780	38%	1978.5	12,706	38%	2083.1	11,551	38%	1893.4	14,407	38%	2361.6
	25-29 Years	3,942	14%	680.9	4,341	14%	743.3	4,868	14%	809.7	4,453	15%	731.7	5,339	14%	877.3
	30-34 Years	1,649	6%	261.2	1,630	5%	262.2	1,842	5%	300.6	1,813	6%	296.8	2,070	6%	338.9
	35-39 Years	634	2%	101.0	745	2%	117.2	864	3%	132.1	783	3%	116.7	985	3%	146.8
	40-44 Years	319	1%	47.7	314	1%	46.8	342	1%	51.1	371	1%	55.3	434	1%	64.7
	45-49 Years	139	0%	22.0	169	1%	26.1	219	1%	33.0	190	1%	28.1	192	1%	28.4
	50-54 Years	56	0%	9.8	73	0%	12.5	80	0%	13.3	92	0%	14.7	96	0%	15.4
	55-59 Years	33	0%	6.6	20	0%	3.8	27	0%	4.9	41	0%	7.3	45	0%	8.0
	60-64 Years	8	0%	2.1	19	0%	4.7	11	0%	2.6	13	0%	2.8	16	0%	3.5
	65+ Years	16	0%	1.5	19	0%	1.8	13	0%	1.2	9	0%	0.8	12	0%	1.1
	Total	**28,998**	**100%**	**339.6**	**31,185**	**100%**	**359.3**	**33,614**	**100%**	**379.0**	**30,612**	**100%**	**337.8**	**37,555**	**100%**	**414.5**

*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, 2004-2008

Race/Ethnicity		2004 Cases	2004 Pct	2004 Rate*	2005 Cases	2005 Pct	2005 Rate*	2006 Cases	2006 Pct	2006 Rate*	2007 Cases	2007 Pct	2007 Rate*	2008 Cases	2008 Pct	2008 Rate*
Male	**White****	1,184	4%	41.1	1,186	4%	40.7	1,359	4%	45.8	1,030	3%	34.3	1,048	3%	34.9
	Black**	3,343	12%	383.7	3,642	12%	411.7	4,056	12%	448.5	3,480	11%	377.6	3,474	9%	376.9
	Am.In/AN**	37	0%	74.0	41	0%	81.5	36	0%	70.6	33	0%	64.1	51	0%	99.0
	Asian,PI**	30	0%	39.8	42	0%	53.2	37	0%	44.3	49	0%	55.7	34	0%	38.6
	Hispanic	402	1%	135.8	413	1%	131.2	535	2%	158.3	492	2%	136.4	438	1%	121.4
	Unknown	67	0%	---	157	1%	---	290	1%	---	409	1%	---	1,495	4%	---
	Total	**5,063**	**17%**	**121.2**	**5,481**	**18%**	**129.2**	**6,313**	**19%**	**145.4**	**5,493**	**18%**	**124.1**	**6,540**	**17%**	**147.7**
Female	**White****	6,357	22%	209.9	6,754	22%	220.5	7,148	21%	230.0	6,276	21%	198.5	6,423	17%	203.1
	Black**	15,114	52%	1532.9	15,697	50%	1566.4	16,094	48%	1573.5	14,019	46%	1339.9	15,104	40%	1443.6
	Am.In/AN**	356	1%	673.2	424	1%	793.8	331	1%	613.3	337	1%	616.5	448	1%	819.6
	Asian,PI**	177	1%	222.7	203	1%	243.2	193	1%	219.6	156	1%	168.0	211	1%	227.2
	Hispanic	1,735	6%	803.8	1,900	6%	812.2	2,048	6%	805.3	1,807	6%	650.6	1,977	5%	711.8
	Unknown	196	1%	---	726	2%	---	1,487	4%	---	2,516	8%	---	6,852	18%	---
	Total	**23,935**	**83%**	**548.7**	**25,704**	**82%**	**579.4**	**27,301**	**81%**	**603.1**	**25,111**	**82%**	**541.9**	**31,015**	**83%**	**669.4**
Total	**White****	7,541	26%	127.6	7,940	25%	132.8	8,507	25%	140.1	7,306	24%	118.5	7,471	20%	121.1
	Black**	18,457	64%	993.8	19,339	62%	1025.0	20,150	60%	1045.6	17,505	57%	889.5	18,578	49%	944.0
	Am.In/AN**	393	1%	381.9	465	1%	448.3	367	1%	349.6	370	1%	348.4	499	1%	469.9
	Asian,PI**	207	1%	133.7	245	1%	150.9	230	1%	134.1	205	1%	113.3	245	1%	135.4
	Hispanic	2,137	7%	417.5	2,313	7%	421.5	2,583	8%	436.2	2,299	8%	360.1	2,415	6%	378.3
	Unknown	263	1%	---	883	3%	---	1,777	5%	---	2,927	10%	---	8,347	22%	---
	Total	**28,998**	**100%**	**339.6**	**31,185**	**100%**	**359.3**	**33,614**	**100%**	**379.0**	**30,612**	**100%**	**337.8**	**37,555**	**100%**	**414.5**

*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, 2004-2008

Age		2004	2004	2004	2005	2005	2005	2006	2006	2006	2007	2007	2007	2008	2008	2008
		Cases	Pct	Rate*	Cases	Pct	Rate*	Cases	Pct	Rate*	Cases	Pct	Rate*	Cases	Pct	Rate*
Male	**10-14 Years**	19	0%	6.3	23	0%	7.6	27	0%	8.9	19	0%	6.3	20	0%	6.6
	15-19 Years	1,214	8%	412.7	1,116	7%	368.6	1,369	8%	440.0	1,257	8%	395.8	1,129	8%	355.5
	20-24 Years	2,537	17%	816.5	2,196	15%	704.1	2,578	15%	793.4	2,346	14%	734.1	2,144	14%	670.9
	25-29 Years	1,539	10%	530.9	1,479	10%	509.3	1,724	10%	577.9	1,449	9%	480.6	1,229	8%	407.6
	30-34 Years	915	6%	287.7	882	6%	283.1	981	6%	319.4	906	5%	297.9	713	5%	234.4
	35-39 Years	548	4%	174.6	599	4%	188.4	658	4%	201.0	578	3%	172.5	436	3%	130.1
	40-44 Years	418	3%	127.0	513	3%	155.5	461	3%	139.4	452	3%	136.7	317	2%	95.9
	45-49 Years	299	2%	96.8	346	2%	109.3	370	2%	114.1	301	2%	91.0	255	2%	77.1
	50-54 Years	160	1%	58.2	175	1%	61.9	206	1%	70.9	202	1%	66.9	143	1%	47.4
	55-59 Years	86	1%	35.7	107	1%	42.1	112	1%	42.0	118	1%	43.9	59	0%	21.9
	60-64 Years	46	0%	25.2	52	0%	27.3	56	0%	28.2	54	0%	24.7	27	0%	12.4
	65+ Years	25	0%	5.9	33	0%	7.6	45	0%	10.2	39	0%	8.5	24	0%	5.3
	Total	**7,811**	**51%**	**187.0**	**7,524**	**50%**	**177.3**	**8,590**	**50%**	**197.8**	**7,723**	**46%**	**174.4**	**6,522**	**44%**	**147.3**
Female	**10-14 Years**	144	1%	49.8	135	1%	46.9	150	1%	52.2	117	1%	40.4	86	1%	29.7
	15-19 Years	2,617	17%	940.2	2,573	17%	895.3	2,882	17%	975.6	2,911	17%	962.5	2,760	19%	912.6
	20-24 Years	2,484	16%	875.5	2,577	17%	909.0	3,046	18%	1068.7	3,185	19%	1096.5	3,015	20%	1037.9
	25-29 Years	1,138	7%	393.6	1,194	8%	406.6	1,375	8%	454.0	1,440	9%	468.9	1,332	9%	433.7
	30-34 Years	509	3%	162.4	499	3%	160.9	571	3%	186.8	623	4%	203.2	567	4%	184.9
	35-39 Years	238	2%	75.8	275	2%	86.6	348	2%	106.4	339	2%	101.0	278	2%	82.8
	40-44 Years	138	1%	40.7	173	1%	50.8	197	1%	58.1	171	1%	50.3	150	1%	44.1
	45-49 Years	72	0%	22.2	74	0%	22.3	93	1%	27.4	95	1%	27.5	87	1%	25.2
	50-54 Years	22	0%	7.5	20	0%	6.6	35	0%	11.2	32	0%	9.9	26	0%	8.1
	55-59 Years	9	0%	3.5	8	0%	2.9	8	0%	2.8	12	0%	4.1	9	0%	3.1
	60-64 Years	4	0%	2.0	4	0%	1.9	6	0%	2.7	1	0%	0.4	3	0%	1.2
	65+ Years	1	0%	0.2	4	0%	0.6	1	0%	0.2	2	0%	0.3	1	0%	0.2
	Total	**7,387**	**49%**	**169.3**	**7,545**	**50%**	**170.1**	**8,719**	**50%**	**192.6**	**8,936**	**54%**	**192.9**	**8,344**	**56%**	**180.1**

*per 100,000 population

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Table S (continued): North Carolina Gonorrhea Demographic Rates, Gender and Age, 2004-2008

Age		2004 Cases	2004 Pct	2004 Rate*	2005 Cases	2005 Pct	2005 Rate*	2006 Cases	2006 Pct	2006 Rate*	2007 Cases	2007 Pct	2007 Rate*	2008 Cases	2008 Pct	2008 Rate*
Total	**10-14 Years**	163	1%	27.5	158	1%	26.8	177	1%	30.0	136	1%	22.9	106	1%	17.9
	15-19 Years	3,831	25%	669.1	3,689	24%	625.1	4,251	25%	700.8	4,168	25%	672.2	3,889	26%	627.2
	20-24 Years	5,021	33%	844.7	4,773	32%	801.7	5,624	32%	922.0	5,531	33%	906.6	5,159	35%	845.7
	25-29 Years	2,677	18%	462.4	2,673	18%	457.7	3,099	18%	515.4	2,889	17%	474.7	2,561	17%	420.8
	30-34 Years	1,424	9%	225.5	1,381	9%	222.1	1,552	9%	253.3	1,529	9%	250.3	1,280	9%	209.6
	35-39 Years	786	5%	125.2	874	6%	137.5	1,006	6%	153.8	917	6%	136.7	714	5%	106.4
	40-44 Years	556	4%	83.2	686	5%	102.3	658	4%	98.3	623	4%	92.9	467	3%	69.7
	45-49 Years	371	2%	58.7	420	3%	64.8	463	3%	69.8	396	2%	58.6	342	2%	50.6
	50-54 Years	182	1%	31.9	195	1%	33.3	241	1%	40.0	234	1%	37.5	169	1%	27.1
	55-59 Years	95	1%	18.9	115	1%	21.7	120	1%	21.6	130	1%	23.1	68	0%	12.1
	60-64 Years	50	0%	13.0	56	0%	13.9	62	0%	14.8	55	0%	11.9	30	0%	6.5
	65+ Years	26	0%	2.5	37	0%	3.5	46	0%	4.3	41	0%	3.7	25	0%	2.3
	Total	**15,198**	**100%**	**178.0**	**15,069**	**100%**	**173.6**	**17,309**	**100%**	**195.2**	**16,659**	**100%**	**183.9**	**14,866**	**100%**	**164.1**

*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 T: North Carolina Gonorrhea Demographic Rates
Gender and Race/Ethnicity, 2004-2008

Race/Ethnicity		2004 Cases	2004 Pct	2004 Rate*	2005 Cases	2005 Pct	2005 Rate*	2006 Cases	2006 Pct	2006 Rate*	2007 Cases	2007 Pct	2007 Rate*	2008 Cases	2008 Pct	2008 Rate*
Male	**White****	866	6%	30.0	915	6%	31.4	981	6%	33.1	823	5%	27.4	549	4%	18.3
	Black**	6,554	43%	752.3	6,072	40%	686.4	6,888	40%	761.6	5,971	36%	647.9	4,517	30%	490.1
	Am.In/AN**	76	1%	152.0	77	1%	153.0	60	0%	117.6	63	0%	122.3	80	1%	155.3
	Asian,PI**	24	0%	31.9	25	0%	31.7	21	0%	25.1	27	0%	30.7	18	0%	20.4
	Hispanic	219	1%	74.0	245	2%	77.8	276	2%	81.7	233	1%	64.6	166	1%	46.0
	Unknown	72	0%	---	190	1%	---	364	2%	---	606	4%	---	1,192	8%	---
	Total	**7,811**	**51%**	**187.0**	**7,524**	**50%**	**177.3**	**8,590**	**50%**	**197.8**	**7,723**	**46%**	**174.4**	**6,522**	**44%**	**147.3**
Female	**White****	1,542	10%	50.9	1,557	10%	50.8	1,830	11%	58.9	1,768	11%	55.9	1,317	9%	41.7
	Black**	5,481	36%	555.9	5,469	36%	545.8	6,061	35%	592.6	5,892	35%	563.1	4,953	33%	473.4
	Am.In/AN**	115	1%	217.5	121	1%	226.5	97	1%	179.7	131	1%	239.6	192	1%	351.2
	Asian,PI**	27	0%	34.0	34	0%	40.7	34	0%	38.7	39	0%	42.0	29	0%	31.2
	Hispanic	167	1%	77.4	154	1%	65.8	184	1%	72.4	167	1%	60.1	209	1%	75.3
	Unknown	55	0%	---	210	1%	---	513	3%	---	939	6%	---	1,644	11%	---
	Total	**7,387**	**49%**	**169.3**	**7,545**	**50%**	**170.1**	**8,719**	**50%**	**192.6**	**8,936**	**54%**	**192.9**	**8,344**	**56%**	**180.1**
Total	**White****	2,408	16%	40.7	2,472	16%	41.4	2,811	16%	46.3	2,591	16%	42.0	1,866	13%	30.3
	Black**	12,035	79%	648.0	11,541	77%	611.7	12,949	75%	671.9	11,863	71%	602.8	9,470	64%	481.2
	Am.In/AN**	191	1%	185.6	198	1%	190.9	157	1%	149.5	194	1%	182.7	272	2%	256.2
	Asian,PI**	51	0%	32.9	59	0%	36.3	55	0%	32.1	66	0%	36.5	47	0%	26.0
	Hispanic	386	3%	75.4	399	3%	72.7	460	3%	77.7	400	2%	62.7	375	3%	58.7
	Unknown	127	1%	---	400	3%	---	877	5%	---	1,545	9%	---	2,836	19%	---
	Total	**15,198**	**100%**	**178.0**	**15,069**	**100%**	**173.6**	**17,309**	**100%**	**195.2**	**16,659**	**100%**	**183.9**	**14,866**	**100%**	**164.1**

*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, 2004-2008

Age		2004 Cases	2004 Pct	2004 Rate*	2005 Cases	2005 Pct	2005 Rate*	2006 Cases	2006 Pct	2006 Rate*	2007 Cases	2007 Pct	2007 Rate*	2008 Cases	2008 Pct	2008 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	13	3%	4.3	20	3%	6.4	25	4%	7.9	30	6%	9.4
	20-24 Years	39	9%	12.6	48	10%	15.4	68	11%	20.9	66	12%	20.7	77	15%	24.1
	25-29 Years	49	11%	16.9	51	10%	17.6	70	12%	23.5	76	13%	25.2	60	12%	19.9
	30-34 Years	38	8%	11.9	51	10%	16.4	58	10%	18.9	49	9%	16.1	29	6%	9.5
	35-39 Years	57	13%	18.2	47	10%	14.8	72	12%	22.0	58	10%	17.3	60	12%	17.9
	40-44 Years	43	9%	13.1	59	12%	17.9	63	10%	19.1	61	11%	18.5	58	11%	17.5
	45-49 Years	26	6%	8.4	38	8%	12.0	43	7%	13.3	37	7%	11.2	37	7%	11.2
	50-54 Years	19	4%	6.9	15	3%	5.3	14	2%	4.8	25	4%	8.3	27	5%	8.9
	55-59 Years	13	3%	5.4	13	3%	5.1	12	2%	4.5	13	2%	4.8	12	2%	4.5
	60-64 Years	10	2%	5.5	5	1%	2.6	5	1%	2.5	5	1%	2.3	2	0%	0.9
	65+ Years	3	1%	0.7	2	0%	0.5	5	1%	1.1	7	1%	1.5	3	1%	0.7
	Total	**306**	**68%**	**7.3**	**343**	**70%**	**8.1**	**430**	**71%**	**9.9**	**422**	**74%**	**9.5**	**395**	**78%**	**8.9**
Female	**10-14 Years**	1	0%	0.3	0	0%	0.0	0	0%	0.0	0	0%	0.0	1	0%	0.3
	15-19 Years	11	2%	4.0	16	3%	5.6	20	3%	6.8	8	1%	2.6	14	3%	4.6
	20-24 Years	22	5%	7.8	23	5%	8.1	31	5%	10.9	30	5%	10.3	21	4%	7.2
	25-29 Years	22	5%	7.6	18	4%	6.1	15	2%	5.0	22	4%	7.2	13	3%	4.2
	30-34 Years	21	5%	6.7	16	3%	5.2	24	4%	7.9	19	3%	6.2	17	3%	5.5
	35-39 Years	29	6%	9.2	25	5%	7.9	25	4%	7.6	24	4%	7.1	13	3%	3.9
	40-44 Years	24	5%	7.1	22	4%	6.5	25	4%	7.4	20	4%	5.9	12	2%	3.5
	45-49 Years	9	2%	2.8	14	3%	4.2	19	3%	5.6	18	3%	5.2	13	3%	3.8
	50-54 Years	5	1%	1.7	8	2%	2.6	9	1%	2.9	6	1%	1.9	7	1%	2.2
	55-59 Years	3	1%	1.2	2	0%	0.7	4	1%	1.4	0	0%	0.0	1	0%	0.3
	60-64 Years	0	0%	0.0	1	0%	0.5	0	0%	0.0	0	0%	0.0	1	0%	0.4
	65+ Years	0	0%	0.0	1	0%	0.2	0	0%	0.0	0	0%	0.0	0	0%	0.0
	Total	**147**	**32%**	**3.4**	**146**	**30%**	**3.3**	**172**	**29%**	**3.8**	**147**	**26%**	**3.2**	**114**	**22%**	**2.5**

*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.

Continued on Next Page

Table U (continued): North Carolina Early Syphilis Demographic Rates (Primary, Secondary, Early Latent), Gender and Age, 2004-2008

Age		2004	2004	2004	2005	2005	2005	2006	2006	2006	2007	2007	2007	2008	2008	2008
		Cases	Pct	Rate*	Cases	Pct	Rate*	Cases	Pct	Rate*	Cases	Pct	Rate*	Cases	Pct	Rate*
Total	**10-14 Years**	1	0%	0.2	0	0%	0.0	0	0%	0.0	0	0%	0.0	1	0%	0.2
	15-19 Years	20	4%	3.5	29	6%	4.9	40	7%	6.6	33	6%	5.3	44	9%	7.1
	20-24 Years	61	13%	10.3	71	15%	11.9	99	16%	16.2	96	17%	15.7	98	19%	16.1
	25-29 Years	71	16%	12.3	69	14%	11.8	85	14%	14.1	98	17%	16.1	73	14%	12.0
	30-34 Years	59	13%	9.3	67	14%	10.8	82	14%	13.4	68	12%	11.1	46	9%	7.5
	35-39 Years	86	19%	13.7	72	15%	11.3	97	16%	14.8	82	14%	12.2	73	14%	10.9
	40-44 Years	67	15%	10.0	81	17%	12.1	88	15%	13.1	81	14%	12.1	70	14%	10.4
	45-49 Years	35	8%	5.5	52	11%	8.0	62	10%	9.3	55	10%	8.1	50	10%	7.4
	50-54 Years	24	5%	4.2	23	5%	3.9	23	4%	3.8	31	5%	5.0	34	7%	5.4
	55-59 Years	16	4%	3.2	15	3%	2.8	16	3%	2.9	13	2%	2.3	13	3%	2.3
	60-64 Years	10	2%	2.6	6	1%	1.5	5	1%	1.2	5	1%	1.1	3	1%	0.7
	65+ Years	3	1%	0.3	3	1%	0.3	5	1%	0.5	7	1%	0.6	3	1%	0.3
	Total	**453**	**100%**	**5.3**	**489**	**100%**	**5.6**	**602**	**100%**	**6.8**	**569**	**100%**	**6.3**	**509**	**100%**	**5.6**

*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 V: North Carolina Early Syphilis Rates (Primary, Secondary, Early Latent) Gender and Race/Ethnicity, 2004-2008

Race/Ethnicity		2004 Cases	2004 Pct	2004 Rate*	2005 Cases	2005 Pct	2005 Rate*	2006 Cases	2006 Pct	2006 Rate*	2007 Cases	2007 Pct	2007 Rate*	2008 Cases	2008 Pct	2008 Rate*
Male	**White****	77	17%	2.7	136	28%	4.7	125	21%	4.2	97	17%	3.2	95	19%	3.2
	Black**	211	47%	24.2	175	36%	19.8	281	47%	31.1	298	52%	32.3	279	55%	30.3
	Am.In/AN**	6	1%	12.0	0	0%	0.0	0	0%	0.0	2	0%	3.9	0	0%	0.0
	Asian,PI**	1	0%	1.3	2	0%	2.5	1	0%	1.2	1	0%	1.1	2	0%	2.3
	Hispanic	11	2%	3.7	28	6%	8.9	22	4%	6.5	23	4%	6.4	18	4%	5.0
	Unknown	0	0%	---	2	0%	---	1	0%	---	1	0%	---	1	0%	---
	Total	**306**	**68%**	**7.3**	**343**	**70%**	**8.1**	**430**	**71%**	**9.9**	**422**	**74%**	**9.5**	**395**	**78%**	**8.9**
Female	**White****	20	4%	0.7	36	7%	1.2	25	4%	0.8	28	5%	0.9	22	4%	0.7
	Black**	106	23%	10.8	98	20%	9.8	129	21%	12.6	104	18%	9.9	82	16%	7.8
	Am.In/AN**	9	2%	17.0	4	1%	7.5	1	0%	1.9	2	0%	3.7	0	0%	0.0
	Asian,PI**	0	0%	0.0	2	0%	2.4	0	0%	0.0	1	0%	1.1	0	0%	0.0
	Hispanic	11	2%	5.1	5	1%	2.1	17	3%	6.7	12	2%	4.3	8	2%	2.9
	Unknown	1	0%	---	1	0%	---	0	0%	---	0	0%	---	2	0%	---
	Total	**147**	**32%**	**3.4**	**146**	**30%**	**3.3**	**172**	**29%**	**3.8**	**147**	**26%**	**3.2**	**114**	**22%**	**2.5**
Total	**White****	97	21%	1.6	172	35%	2.9	150	25%	2.5	125	22%	2.0	117	23%	1.9
	Black**	317	70%	17.1	273	56%	14.5	410	68%	21.3	402	71%	20.4	361	71%	18.3
	Am.In/AN**	15	3%	14.6	4	1%	3.9	1	0%	1.0	4	1%	3.8	0	0%	0.0
	Asian,PI**	1	0%	0.6	4	1%	2.5	1	0%	0.6	2	0%	1.1	2	0%	1.1
	Hispanic	22	5%	4.3	33	7%	6.0	39	6%	6.6	35	6%	5.5	26	5%	4.1
	Unknown	1	0%	---	3	1%	---	1	0%	---	1	0%	---	3	1%	---
	Total	**453**	**100%**	**5.3**	**489**	**100%**	**5.6**	**602**	**100%**	**6.8**	**569**	**100%**	**6.3**	**509**	**100%**	**5.6**

*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, 2004-2008

		Cases				
Rank*	**County**	**2004**	**2005**	**2006**	**2007**	**2008**
1	**MECKLENBURG**	82	142	188	141	91
2	**GUILFORD**	91	68	74	45	50
3	**FORSYTH**	6	16	34	31	46
4	**DURHAM**	32	15	33	47	39
5	**WAKE**	44	65	60	39	37
6	**WAYNE**	3	5	15	17	28
7	**NEW HANOVER**	6	8	12	35	22
8	**CUMBERLAND**	23	18	26	18	19
9	**BUNCOMBE**	4	6	7	5	17
10	**NASH**	2	3	16	15	16
11	**EDGECOMBE**	7	0	7	11	13
12	**PITT**	2	2	5	7	12
13	**ALAMANCE**	3	4	6	7	6
14	**BRUNSWICK**	1	2	4	5	6
15	**ROBESON**	51	20	4	15	5
16	**JOHNSTON**	4	9	12	10	5
17	**GASTON**	1	6	12	10	5
18	**WILSON**	21	5	5	3	5
19	**MOORE**	5	1	1	3	5
20	**PENDER**	0	0	0	1	5
21	**CRAVEN**	0	0	2	12	4
22	**CLEVELAND**	0	5	2	6	4
23	**CABARRUS**	3	5	5	5	4
24	**ROCKINGHAM**	3	2	3	5	4
25	**ORANGE**	1	0	5	8	3
26	**LENOIR**	5	5	1	5	3
27	**FRANKLIN**	1	1	0	4	3
28	**DUPLIN**	2	0	1	2	3
29	**BURKE**	0	3	0	2	3
30	**DAVIE**	0	1	1	1	3
31	**STOKES**	0	3	0	0	3
32	**HALIFAX**	0	3	2	4	2
33	**ONSLOW**	0	0	3	3	2
34	**SAMPSON**	1	2	1	3	2
35	**MARTIN**	2	0	2	1	2
36	**UNION**	3	4	3	0	2
37	**VANCE**	1	4	3	0	2
38	**SURRY**	2	1	3	0	2
39	**NORTHAMPTON**	0	0	3	0	2
40	**ANSON**	0	0	1	0	2
40	**HOKE**	0	0	1	0	2
42	**JACKSON**	0	0	0	0	2
43	**STANLY**	0	1	3	3	1
44	**RANDOLPH**	2	11	4	2	1
45	**CATAWBA**	2	2	2	2	1
46	**COLUMBUS**	0	3	1	2	1
47	**IREDELL**	1	1	3	1	1
48	**SCOTLAND**	1	2	0	1	1
49	**GRANVILLE**	0	2	0	1	1
49	**MCDOWELL**	0	2	0	1	1
51	**HAYWOOD**	0	1	0	1	1

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

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Table W (continued): North Carolina Early Syphilis Cases (Primary, Secondary, Early Latent) County Rank, 2004-2008

		Cases				
Rank*	**County**	**2003**	**2004**	**2005**	**2006**	**2007**
52	**LINCOLN**	1	0	0	1	1
53	**LEE**	0	3	4	0	1
54	**WILKES**	1	1	0	0	1
55	**CHEROKEE**	0	1	0	0	1
56	**RICHMOND**	3	0	0	0	1
57	**CALDWELL**	1	0	0	0	1
58	**GATES**	1	0	0	0	1
59	**MADISON**	0	0	0	0	1
60	**ROWAN**	3	4	1	5	0
61	**CARTERET**	1	0	0	4	0
62	**DAVIDSON**	2	2	2	3	0
63	**GREENE**	0	1	0	3	0
64	**HARNETT**	1	1	1	2	0
65	**YADKIN**	1	2	0	2	0
66	**WASHINGTON**	0	1	0	2	0
67	**BLADEN**	5	3	3	1	0
68	**CHATHAM**	1	4	1	1	0
69	**RUTHERFORD**	2	1	0	1	0
70	**JONES**	0	1	0	1	0
71	**TRANSYLVANIA**	2	0	0	1	0
72	**CHOWAN**	0	0	0	1	0
73	**PERSON**	1	0	4	0	0
74	**WATAUGA**	1	0	2	0	0
75	**PERQUIMANS**	0	0	2	0	0
76	**MONTGOMERY**	0	1	1	0	0
77	**BEAUFORT**	1	0	1	0	0
77	**PASQUOTANK**	1	0	1	0	0
79	**BERTIE**	0	0	1	0	0
79	**HERTFORD**	0	0	1	0	0
79	**HYDE**	0	0	1	0	0
82	**ALEXANDER**	1	2	0	0	0
83	**WARREN**	4	1	0	0	0
84	**MACON**	0	1	0	0	0
85	**CASWELL**	1	0	0	0	0
86	**ALLEGHANY**	0	0	0	0	0
86	**ASHE**	0	0	0	0	0
86	**AVERY**	0	0	0	0	0
86	**CAMDEN**	0	0	0	0	0
86	**CLAY**	0	0	0	0	0
86	**CURRITUCK**	0	0	0	0	0
86	**DARE**	0	0	0	0	0
86	**GRAHAM**	0	0	0	0	0
86	**HENDERSON**	0	0	0	0	0
86	**MITCHELL**	0	0	0	0	0
86	**PAMLICO**	0	0	0	0	0
86	**POLK**	0	0	0	0	0
86	**SWAIN**	0	0	0	0	0
86	**TYRRELL**	0	0	0	0	0
86	**YANCEY**	0	0	0	0	0
	NC TOTAL	**453**	**489**	**602**	**569**	**509**

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

GLOSSARY

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

CD4 T-lymphocyte	Type of white blood cell that coordinates a number of important immunologic functions. These cells are the primary targets of HIV. Severe declines in the number of these cells indicate progression of an immunologic disease. When the count of these cells reaches <200/uL or 14%, the HIV-infected patient is classified as having progressed to AIDS.
CDC	U.S. Centers for Disease Control and Prevention - agency under the U.S. Department of Health and Human Services. Located in Atlanta, GA. Mission: to promote health and quality of life by preventing and controlling disease, injury, and disability.
chancroid	A sexually transmitted disease characterized by painful genital ulceration and inflammatory inguinal adenopathy, caused by infection with *Haemophilus ducreyi*. Chancroid is a reportable disease in North Carolina.
chlamydia	Chlamydial infection (infection with *Chlamydia trachomatis* bacteria). To meet the surveillance case definition, all reported cases must be confirmed by laboratory diagnosis: either isolation of *C. trachomatis* by culture or by detection of antigen or nucleic acid. Chlamydial infection is a reportable disease in North Carolina.
congenital	Of or relating to a condition that is present at birth (example: congenital syphilis).
Ct	Infection with *Chlamydia trachomatis*. See chlamydia.
CTS	Counseling and Testing System - a national CDC program administered in North Carolina by the Division of Public Health to provide HIV counseling and testing services at 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. Source: CDC
syphilis	Infection with *Treponema pallidum*. See: primary syphilis, secondary syphilis, early latent syphilis, early syphilis, latent syphilis.
Syphilis Elimination Project	See *SEP*
TB	Tuberculosis (infection with *Mycobacterium tuberculosis*).
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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