

North Dakota

HIV/AIDS Epidemiologic Profile

2008



NORTH DAKOTA
DEPARTMENT *of* HEALTH

North Dakota Department of Health
Division of Disease Control

Contributing Authors:

Rachel Birk
HIV Surveillance/TB Coordinator

Krissie Guerard
HIV/AIDS/TB Program Manager

Denise Larson
HIV Prevention Coordinator/TB Consultant

Julie Wagendorf
STD/Viral Hepatitis Program Manager

Sarah Weninger
Adult Viral Hepatitis Prevention Coordinator

Danielle Streit
HIV/AIDS/TB Program Intern

Kirby Kruger
Division of Disease Control Director/State Epidemiologist

Field Epidemiologists

Valerie McGee	Bismarck
Stacy Lovelace	Fargo
Eugenie Lang	Jamestown
Gerry Haag	Dickinson
Beth Erickson	Grand Forks
Linda Larson	Minot
Jill Sletteland	Devil's Lake
Lacy Oylo	Williston

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Summary

- At the time of the 2000 U.S. census, North Dakota had 642,200 residents, 92.4 percent of whom were white.
- The median household income was \$34,604, with 11.9 percent of individuals and 8.3 percent of households below the poverty level.
- From 1984 to 2008, 441 cases of HIV/ AIDS were reported to the North Dakota Department of Health, 265 (60%) of which were diagnosed in North Dakota.
- Thirty-five percent of all cases reported in North Dakota were AIDS at first diagnosis.
- There were 188 people known to be living in North Dakota with HIV/ AIDS as of Dec. 31, 2008, while 142 people with HIV/ AIDS died in North Dakota between 1984 and 2008.
- Eighty-five percent of all HIV/ AIDS cases diagnosed in the state between 1984 and 2008 were between the ages of 20 and 49.
- The average HIV/ AIDS incidence rate (excluding infection in foreign countries) from 2004 to 2008 for blacks was 10.2 per 100,000, whereas it was 1.4 per 100,000 and 2.6 per 100,000 for whites and Native Americans, respectively.
- Male-to-male sexual relations remains the most frequently reported risk factor for HIV/ AIDS; however, there has been an increase in reports of heterosexual relations, with 32 percent of cases diagnosed in North Dakota between 2004 and 2008 identifying this risk.
- There were 2,370 HIV tests reported in North Dakota during 2008, two of whom were positive.
- The North Dakota CARES Program serves 73 (39%) of the 188 people living with HIV/ AIDS in North Dakota, 78 percent of whom are male.
- The rates of chlamydia and gonorrhea are highest among blacks at 2,757.9 per 100,000 and 485.2 per 100,000, respectively.
- Racial and ethnic minorities comprise the majority of all TB disease cases in North Dakota at 63 percent.
- There were 58 cases of chronic hepatitis B, two cases of acute hepatitis B, two cases of acute hepatitis A and 578 cases of hepatitis C reported in North Dakota in 2007.
- The most common co-morbidity with HIV between 2004 and 2008 was hepatitis C, with 32 percent of all co-morbidities.

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Introduction

The North Dakota Department of Health (NDDoH) receives funding from the U.S. Centers for Disease Control and Prevention (CDC) to collect information about HIV infection and AIDS diagnoses among North Dakota residents. The HIV/AIDS data are used to characterize and predict the changing epidemic at the local, regional and national levels. North Dakota HIV/AIDS data are summarized annually to help the NDDoH to:

- Monitor the incidence and estimated prevalence of HIV/AIDS in the state.
- Assess the risks for HIV infection and develop effective HIV prevention programs.
- Develop surveillance methods to allow for a more current estimate and characterization of HIV/AIDS risks and needs.
- Justify necessary federal and state funding to support continued HIV/AIDS prevention, services and surveillance activities.

This report includes HIV/AIDS data regarding North Dakota residents for the reporting period ending Dec. 31, 2008.

HIV Surveillance in North Dakota

In North Dakota, HIV/AIDS became a reportable condition in 1984, at which time the NDDoH established a surveillance system to track newly diagnosed HIV/AIDS cases. Standardized case report forms are used by regional field epidemiologists to collect socio-demographic information, mode of exposure, laboratory and clinical information, vital statistics (i.e., living or dead), and referrals for treatment of services. HIV surveillance data may underestimate the level of recently infected people because some infected individuals either do not know they are infected or have not sought medical care. Additionally, new cases are reported at all points along the clinical spectrum of disease when first diagnosed. Consequently, HIV infection data may not necessarily represent the characteristics of people who have recently been infected with HIV.

Methods

HIV Surveillance Data

A diagnosis of AIDS and/or HIV is legally reportable in North Dakota and must be reported to the department of health according to North Dakota Century Code Chapter 23-07-01 and North Dakota Administrative Code Chapter 33-06-01. Reports of HIV/AIDS cases can be provided by physicians, hospitals, laboratories and other institutions. These data are stored in the HIV/AIDS Reporting System (HARS) database. Statistics and trends presented in this report were derived from HIV/AIDS case data reported to the NDDoH cumulatively from 1984 through Dec. 31, 2008. To protect the privacy of individuals diagnosed with HIV or AIDS, no county data will be released. Data reported as persons with HIV/AIDS should be interpreted as individuals who have either been diagnosed with HIV or AIDS the first time diagnosed, as some people may have progressed to AIDS before ever being diagnosed with HIV.

HIV Counseling and Testing Data

There are 31 HIV counseling, testing and referral (CTR) sites throughout North Dakota that provide free services to “at-risk” individuals. These sites include local public health units, community-based organizations and college health facilities. HIV counseling and testing data are collected to analyze the characteristics of the population accessing the services in an attempt to reach the populations most at risk for HIV infection.

North Dakota CARES Program Data

The North Dakota CARES (Comprehensive HIV/AIDS Resources and Emergency Services) Program provides financial assistance for medical services and antiretroviral medication to HIV/AIDS clients who qualify through the Health Resources and Service Administration (HRSA) under Part B of the Ryan White HIV/AIDS Treatment Modernization Act of 2006. North Dakota CARES data are collected to assess the population of HIV/AIDS clients who are receiving medical care.

STD Surveillance Data

The Sexually Transmitted Disease (STD) Program offers STD clinical services, including testing and treatment. The program conducts statewide surveillance to determine STD incidence and trends. In addition, the program conducts partner counseling and referral services for people with gonorrhea, syphilis and complicated chlamydia to reduce the spread of these diseases.

Viral Hepatitis Surveillance Data

The Hepatitis Program receives reports of hepatitis A, B and C acute and chronic infections from various reporting sources. Acute hepatitis infections are investigated to determine postexposure immunoprophylaxis. Basic demographic information is collected on chronic hepatitis B and C cases. Morbidity is based on reported positive lab results. There is under-reporting of both acute and chronic infections in North Dakota. Morbidity is also based on U.S. Centers for Disease Control and Prevention (CDC) case definitions. Hepatitis C virus infection past or present (chronic hepatitis C) classification is given to those infected with the hepatitis C virus and the numbers do not distinguish between resolved and active infections. Hepatitis B virus infection, chronic classification is given to those infected with the hepatitis B virus and includes both confirmed and probable cases. Case interviews and partner notification are not included. Year 2005 is baseline year for viral hepatitis data due to the implementation of a electronic reporting system and more stringent follow-up. Current date was not de-duplicated prior to 2005.

Women of child-bearing age, 14-44 years, that are hepatitis B positive, are followed-up to determine if they are pregnant. Pregnant women who are hepatitis B positive are then followed by the perinatal coordinator in the immunization program. The coordinator ensures the hospital has hepatitis B immune globulin (HBIG) for administration to the baby at time of delivery. The coordinator also confirms the baby is given the hepatitis B vaccine series and ensures serology testing is done at completion of the vaccine series to ensure the child is not infected and immune to the hepatitis B virus.

Hepatitis C Testing and Hepatitis A and B Vaccination

There are 12 HIV CTR sites throughout North Dakota that are offer hepatitis C screening and counseling and hepatitis B and A vaccinations free-of-charge for those in high risk populations.

Population Profile of North Dakota

Population

North Dakota is a rural state with a population of 642,200, according to the 2000 U. S. Census. There are 356 incorporated communities. Nine cities have populations above 10,000; 15 cities have populations above 2,500. County populations in North Dakota range from 767 to 123,138 people. Four counties, two along the eastern border with Minnesota, account for 49 percent of the state's population, demonstrating the complexity of population dispersion in North Dakota.

Demographic Composition

The demographic composition describes who is living in North Dakota. The population is broken down by gender, age and race/ethnicity. At the time of the 2000 U.S. census, the population was split almost evenly between males and females. The median age was 36.2 years. The majority of the population was white (92.4%), while African Americans and Native Americans comprised 0.6 percent and 4.9 percent, respectively.

Table 1 - Demographics of General Population

	Number	Percentage
Gender		
Male	320,524	49.9
Female	321,676	50.1
Age		
Median age (years)	36.2	N/A
Race/Ethnicity		
White	593,181	92.4
Black or African American	3,916	0.6
American Indian and Alaska Native	31,329	4.9
Asian	3,606	0.6
Native Hawaiian and Other Pacific Islander	230	0.0
Some other race	2,540	0.4
Two or more races	7,398	1.2

* Due to rounding, totals may not add up to 100%

Social Characteristics

The social characteristics of North Dakota include education, marital status, and place of birth. These characteristics describe the social background and interaction of the population of North Dakota.

A majority (83.9%) of the population 25 and older had graduated from high school at the time of the 2000 U.S. Census. More than half (56.8%) of the population older than 15 years of age was married. Only 1.9 percent of the population was born in a country other than the United States. Of those who were foreign born, 33.1 percent originated from Europe and 23.1 percent originated from Asia.

Table 2 - Social Characteristics of General Population

	Number	Percentage
Education of People Aged 25 Years and Older		
High school graduate or higher	342,629	83.9
Bachelor's degree or higher	89,843	22.0
Marital Status of People Aged 15 Years and Older		
Never married	141,300	27.6
Now married, not separated	290,833	56.8
Separated	3,610	0.7
Widowed	36,702	7.2
Divorced	39,836	7.8
Place of Birth		
Native born	630,086	98.1
Foreign born	12,114	1.9
Region of Origin of Foreign Born		
Europe	4,008	33.1
Asia	2,793	23.1
Africa	793	6.5
Oceania	121	1.0
Latin America	1,373	11.3
Northern America	3,026	25.0

* Due to rounding, totals may not add up to 100%

Economic Characteristics

Economic characteristics describe the lifestyle of the population of North Dakota, as well as the ability to access medical care. Economic characteristics include annual household income level and the percentage of the population living below the poverty level.

In 2000, 68.6 percent of the population had an income level of between \$15,000 and \$74,999. The mean earnings per household was \$42,510, and the median household income was \$34,604. Almost 12 percent (11.9%) of individuals and 8.3 percent of households were below the poverty level.

Table 3 - Economic Characteristics of General Population

	Number	Percentage
Households at Income Level		
Less than \$10,000	28,417	11.0
\$10,000 to \$14,999	20,575	8.0
\$15,000 to \$24,999	41,324	16.1
\$25,000 to \$34,999	39,618	15.4
\$35,000 to \$49,999	47,810	18.6
\$50,000 to \$74,999	47,549	18.5
\$75,000 to \$99,999	17,389	6.8
\$100,000 to \$149,999	9,698	3.8
\$150,000 to \$199,999	2,229	0.9
\$200,000 or more	2,625	1.0
Total Household Income		
Mean earnings (dollars)	42,510	N/A
Median household income (dollars)	34,604	N/A
Below Poverty Level		
Individuals	73,457	11.9
Households	13,890	8.3

* Due to rounding, totals may not add up to 100%

Trends in HIV/AIDS in North Dakota

Cumulative HIV/AIDS Data

HIV/AIDS has been a reportable condition in North Dakota since 1984. The cumulative reported infections include cases newly diagnosed in the state, as well as cases diagnosed elsewhere who moved to North Dakota. As of Dec. 31, 2008, a cumulative total of 441 HIV/AIDS cases have been reported in North Dakota, including 162 AIDS cases and 279 HIV (non-AIDS) cases. Of the cumulative total HIV/AIDS cases, 188 were known to still be living in North Dakota as of Dec. 31, 2008. Table 4 outlines the cumulative cases and those still living in North Dakota.

Table 4 -- Profile of HIV/AIDS Population	Cumulative Cases		Living in ND	
	Number	Percentage*	Number	Percentage*
Disease Status at Diagnosis				
HIV	277	63	112	64
AIDS	164	37	67	36
Gender				
Male	372	84.	147	78
Female	69	16	41	22
Age Group at Diagnosis				
≤ 12	6	1	3	2
13 - 19	11	2	1	1
20 - 29	128	29	43	23
30 - 39	172	39	80	43
40 - 49	85	19	36	19
50 - 59	29	7	16	9
≥ 60	10	2	3	2
Race/Ethnicity				
American Indian	42	10	18	10
Black	47	11	28	13
Hispanic (all races)	12	3	7	4
Asian/Pacific Islander	2	1	2	1
White	338	77	133	71
Risk Factors				
Hemophilia/Coagulation disorder	12	3	2	1
Heterosexual relations	78	18	62	33
Injecting drug use (IDU)	57	13	19	10
Male to male sexual relations (MSM)	227	51	83	44
MSM/IDU	35	8	9	5
Perinatal	7	2	3	2
Blood/tissue transfusion	8	2	1	1
No risk identified	17	4	7	4
Total	441		188	

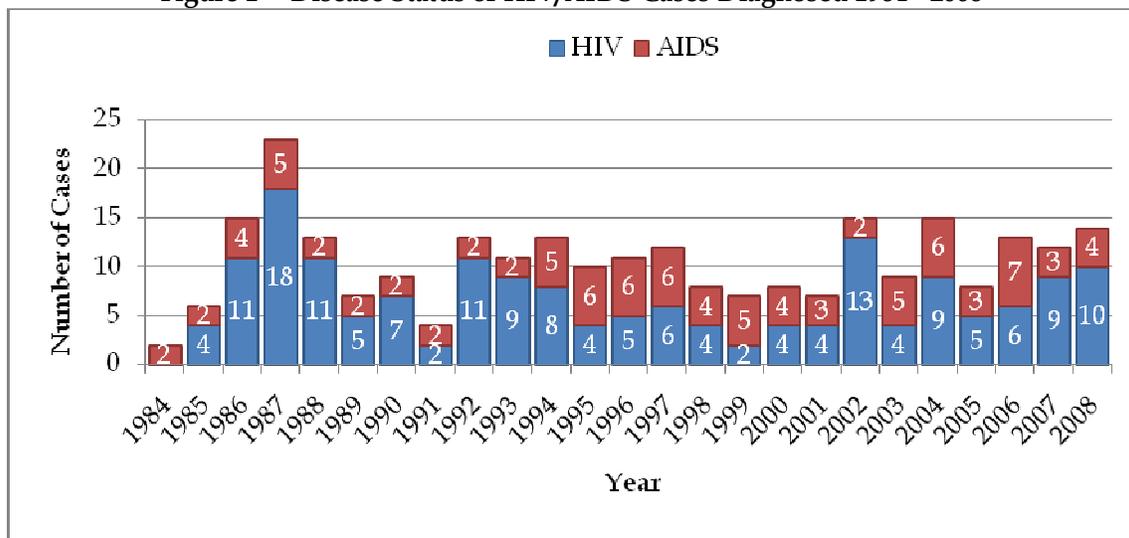
* Due to rounding, totals may not add up to 100%

Incidence of HIV/AIDS 1984 - 2008

The following figures describe HIV/AIDS cases that were diagnosed in North Dakota, and exclude cases that were diagnosed elsewhere and moved to the state.

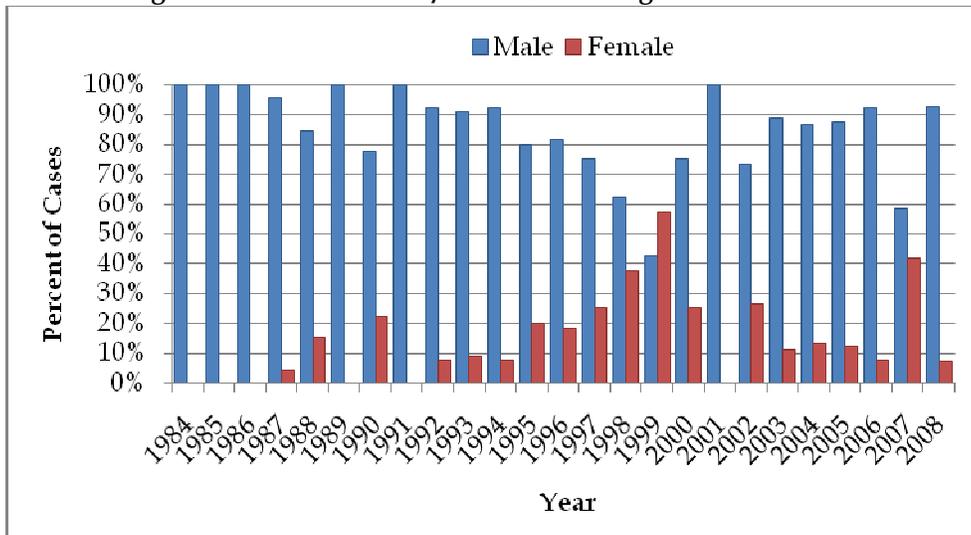
Due to North Dakota's low incidence of HIV/AIDS, trends in diagnosis and reporting are difficult to interpret. On average, there are 10 cases per year that are diagnosed in North Dakota. Thirty-five percent of the cases diagnosed in North Dakota since 1984 were classified as AIDS at the time of diagnosis. In total, 265 HIV/AIDS cases were diagnosed in the state between 1984 and 2008.

Figure 1 -- Disease Status of HIV/AIDS Cases Diagnosed 1984 - 2008



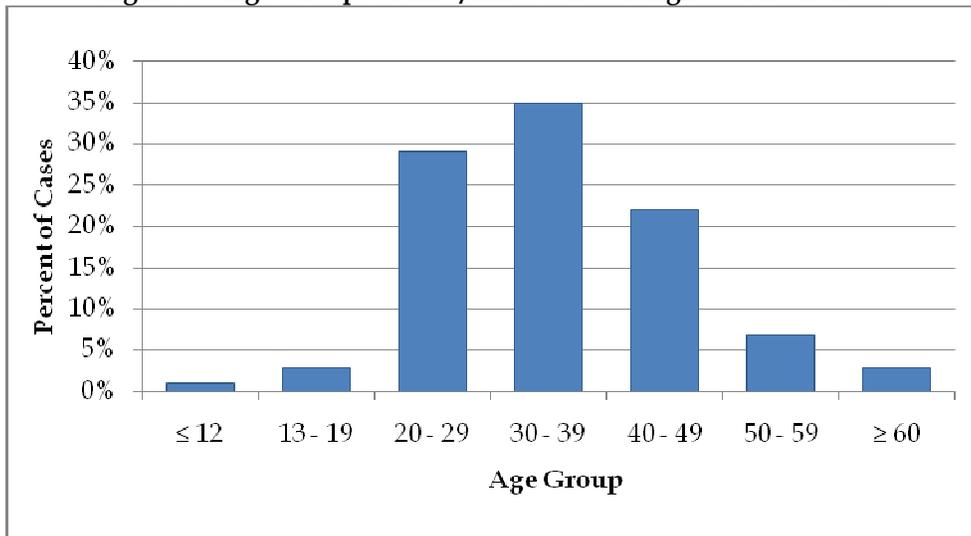
There is a clear gender disparity in the diagnosis of HIV/AIDS. Eighty-five percent of all cases diagnosed in North Dakota since 1984 are male. However, the proportion of women diagnosed with HIV/AIDS has been increasing in the last 15 years.

Figure 2 - Gender of HIV/AIDS Cases Diagnosed 1984 - 2008



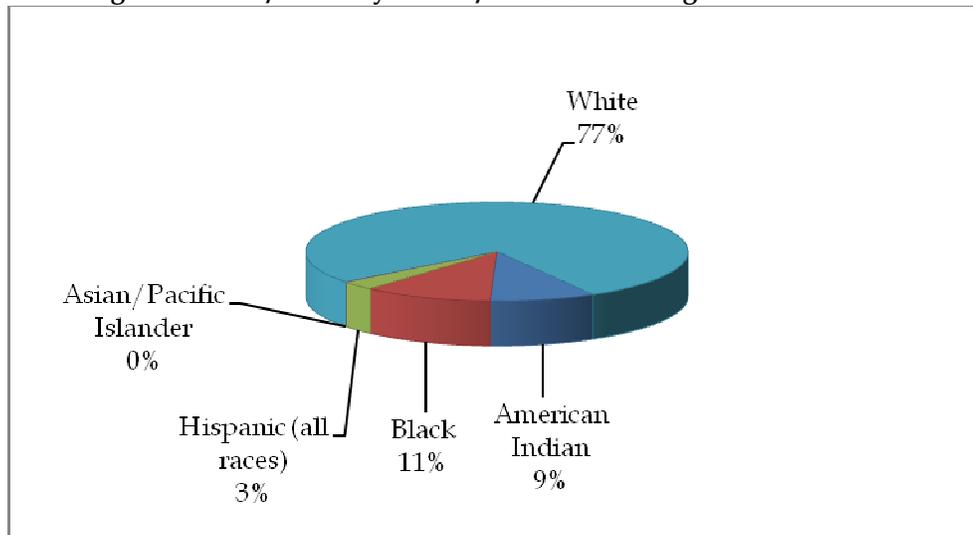
The predominant ages affected by HIV/AIDS were 30 to 39-year-olds. Eighty-five percent of all HIV/AIDS cases diagnosed in the state fall between the ages of 20 and 49.

Figure 3 - Age Groups of HIV/AIDS Cases Diagnosed 1984 - 2008



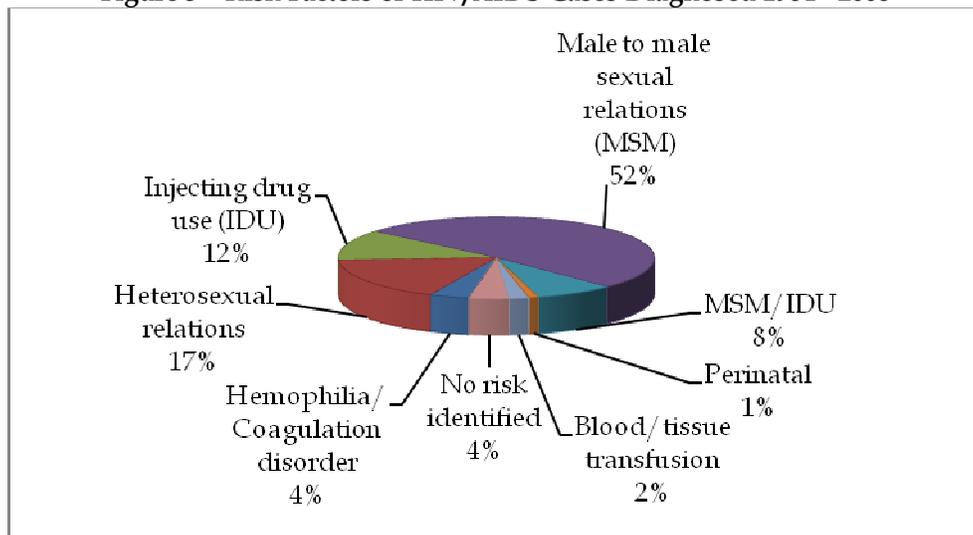
Although they make up less than 1 percent of the population of North Dakota, blacks are 11 percent of all HIV/AIDS cases diagnosed in the state. A similar disparity is seen with Native Americans, who make up 4.9 percent of the state population, and account for 9 percent of all HIV/AIDS diagnoses in the state.

Figure 4 - Race/Ethnicity of HIV/AIDS Cases Diagnosed 1984 - 2008



Male-to-male sexual relations remain the most frequently reported risk factor associated with HIV/AIDS, with heterosexual relations in a distant second place. More than half of all HIV/AIDS cases diagnosed in North Dakota reported having male-to-male sexual relations. In the last 15 years, however, reports of heterosexual relations as a risk factor have increased in conjunction with the increase in female HIV/AIDS diagnoses. Injecting drug use remains a major risk factor associated with HIV/AIDS in North Dakota.

Figure 5 - Risk Factors of HIV/AIDS Cases Diagnosed 1984 - 2008

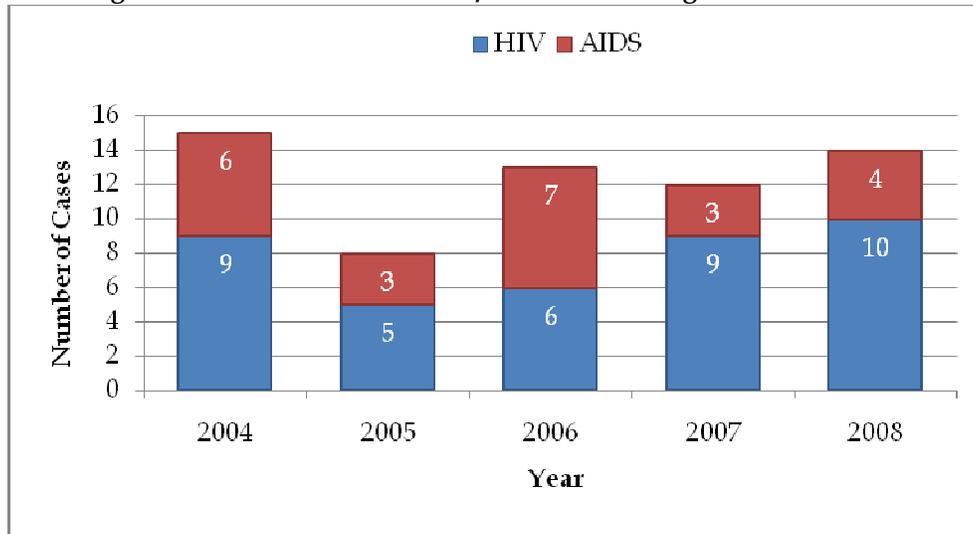


Incidence of HIV/AIDS 2004 - 2008

The following figures describe HIV/AIDS cases diagnosed in North Dakota between 2004 and 2008. These figures are intended to present an in-depth look at HIV/AIDS trends during this time period.

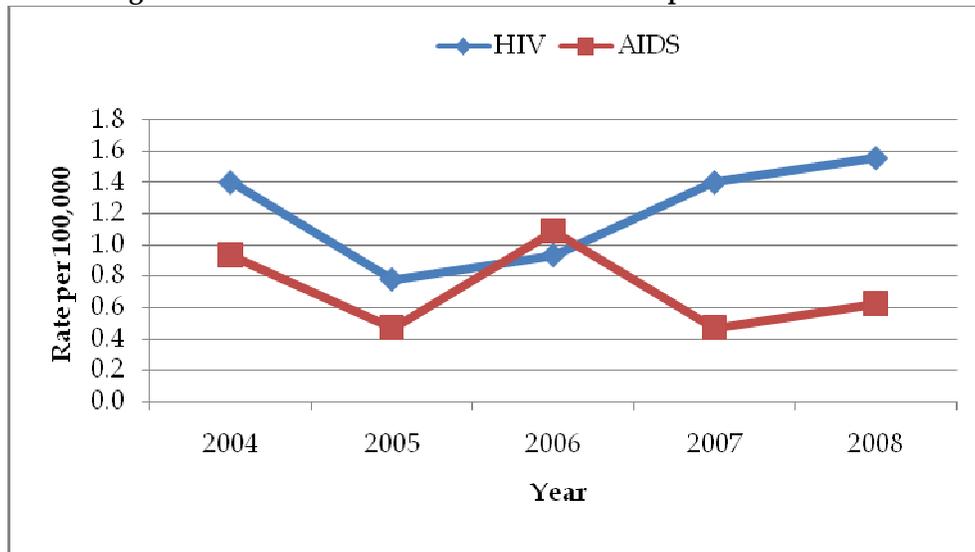
Between 2004 and 2008, 62 cases of HIV/AIDS were diagnosed in North Dakota. Of those cases, 37 percent were classified as AIDS at diagnosis.

Figure 6 - Disease Status of HIV/AIDS Cases Diagnosed 2004 - 2008



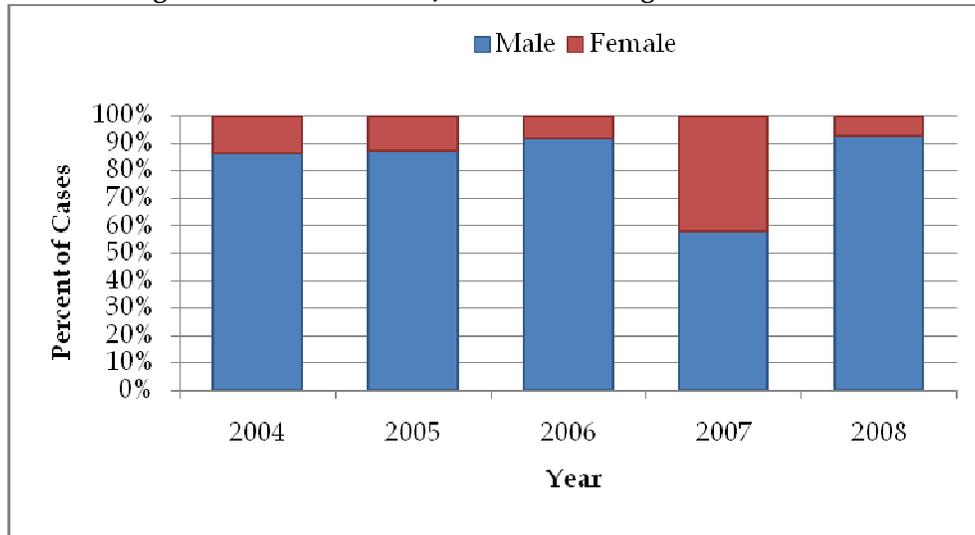
There was an average incidence rate of 1.9 per 100,000 for HIV/AIDS between 2004 and 2008. The incidence rate of HIV (non-AIDS) has been higher than that of AIDS over the last five years. The average incidence rate of HIV over this time period was 1.2 per 100,000, while for AIDS it was 0.7 per 100,000.

Figure 7 - Incidence Rate of HIV and AIDS Reported 2004 - 2008



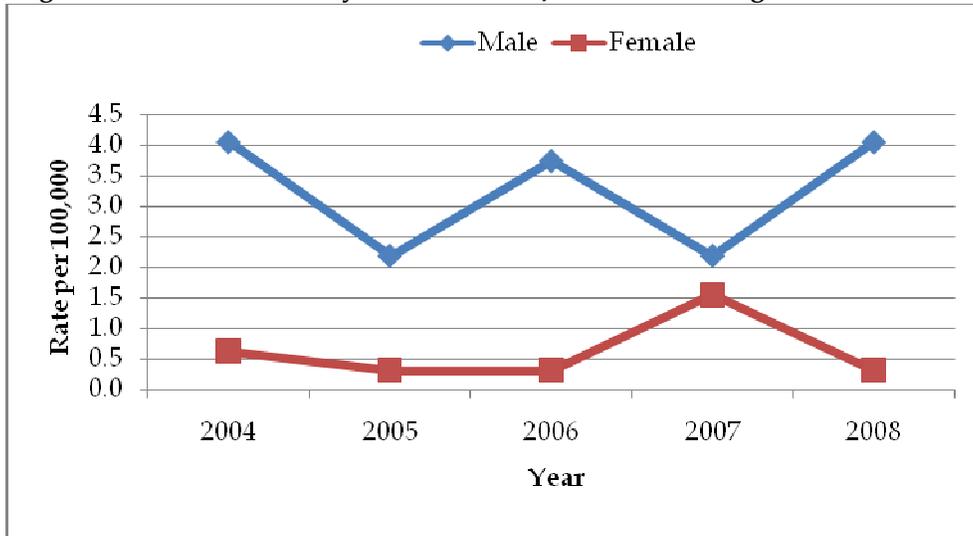
Although the majority of HIV/AIDS cases diagnosed between 2004 and 2008 were male, the percentage of cases that were female increased in recent years. Between 2004 and 2008, 16 percent of HIV/AIDS diagnoses were female, while females comprised 15 percent of all HIV/AIDS diagnoses since 1984.

Figure 8 - Gender of HIV/AIDS Cases Diagnosed 2004 - 2008



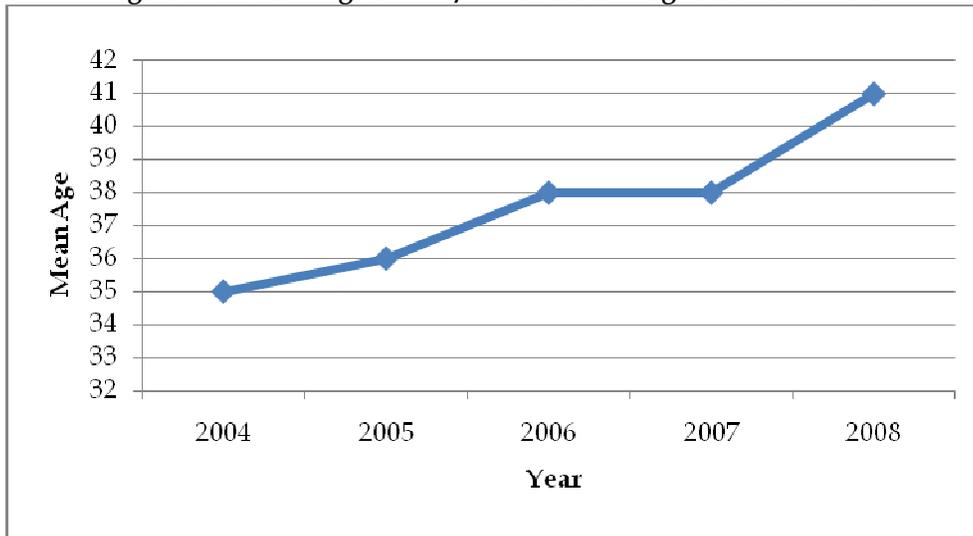
The increase in HIV/AIDS among women can be seen in the incidence rates from 2004 to 2008. The incidence rate of HIV/AIDS in females was 1.6 per 100,000 in 2007, whereas it was 0.6 per 100,000 in 2004.

Figure 9 – Incidence Rate by Gender of HIV/AIDS Cases Diagnosed 2004 - 2008



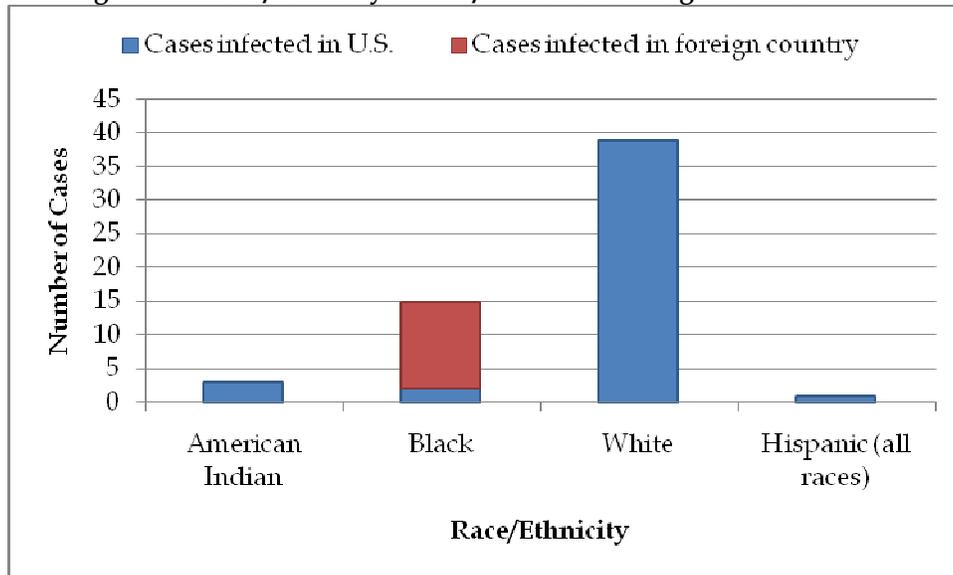
The mean age of individuals diagnosed with HIV/AIDS between the years of 2004 and 2008 is 38. This is consistent with the mean age of HIV/AIDS cases diagnosed in North Dakota since 1984, which is 36.

Figure 10 – Mean Age of HIV/AIDS Cases Diagnosed 2004 - 2008



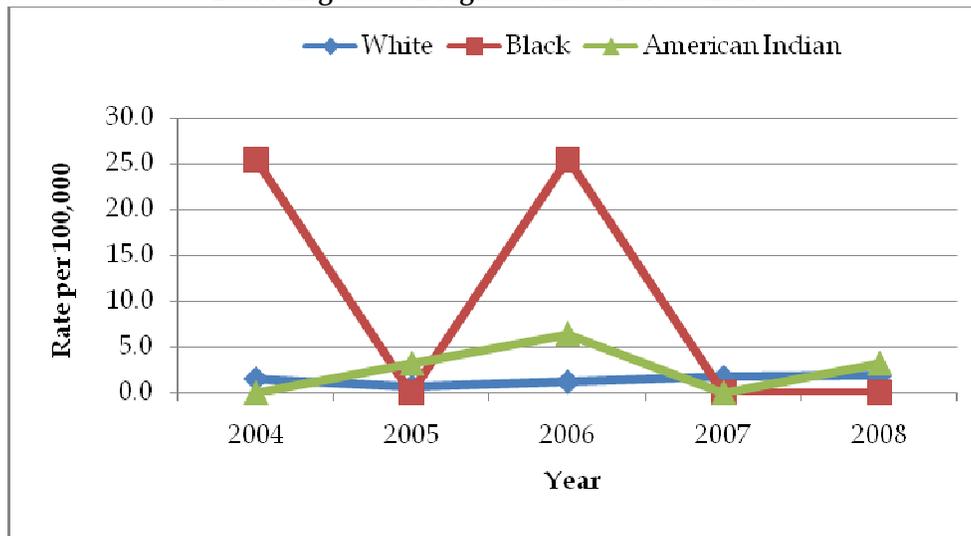
Between 2004 and 2008, 24 percent of HIV/AIDS cases diagnosed in North Dakota identified themselves as black. However, it is important to note that 87 percent of these cases were actually diagnosed in a foreign country. Due to the limitations of the HIV/AIDS reporting software, individuals diagnosed in other countries must be counted towards North Dakota incidence if it is their first state of residence after entering the United States.

Figure 11 - Race/Ethnicity of HIV/AIDS Cases Diagnosed 2004 - 2008



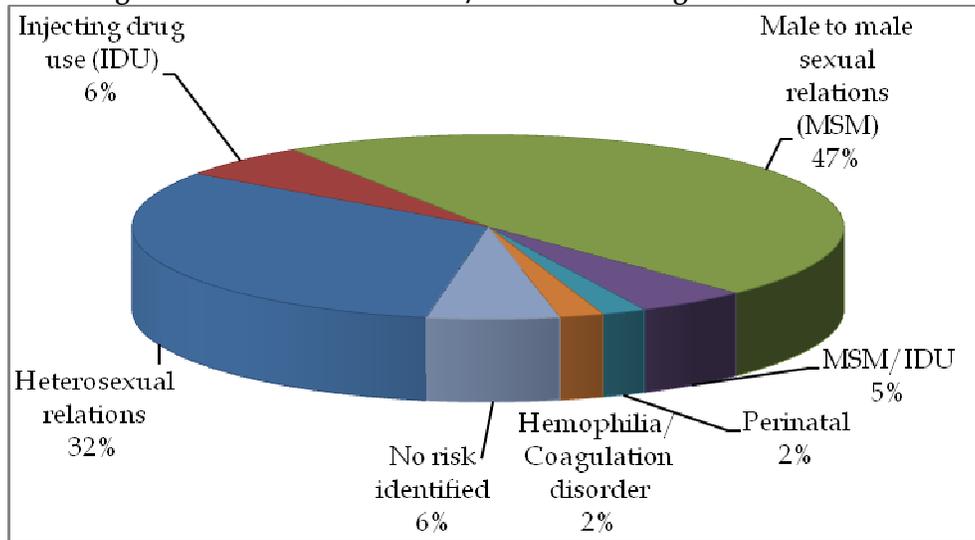
The HIV/AIDS incidence rate for blacks in North Dakota is also significantly higher than that of whites and Native Americans. The average HIV/AIDS incidence rate from 2004 to 2008 for blacks was 10.2 per 100,000, whereas it was 1.4 per 100,000 and 2.6 per 100,000 for whites and Native Americans, respectively.

Figure 12 - Incidence Rate by Race/Ethnicity of HIV/AIDS Cases Diagnosed 2004 - 2008 Excluding Cases Diagnosed in Other Countries



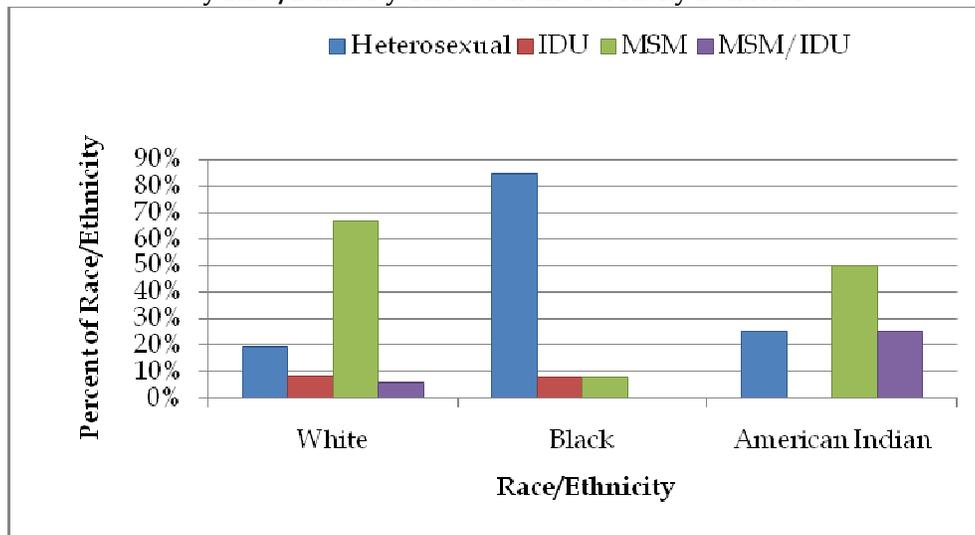
While male-to-male sexual relations remained the most frequently reported risk factor for HIV/AIDS between 2004 and 2008, heterosexual relations was also a major risk factor identified. Thirty-two percent of HIV/AIDS cases diagnosed between 2004 and 2008 reported having heterosexual relations. Only 18 percent of the cumulative HIV/AIDS cases reported having heterosexual relations.

Figure 13 - Risk Factors of HIV/AIDS Cases Diagnosed 2004 - 2008



The race/ethnicity groups reported different risky behaviors at diagnosis of HIV/AIDS between 2004 and 2008. A greater proportion of newly diagnosed white HIV/AIDS clients reported having male-to-male sexual relations than any other race, whereas a greater proportion of newly diagnosed black HIV/AIDS clients reported having heterosexual relations than any other race.

Figure 14 - Percentage of HIV/AIDS Cases Diagnosed 2004 - 2008 by Race/Ethnicity That Identified a Risky Behavior

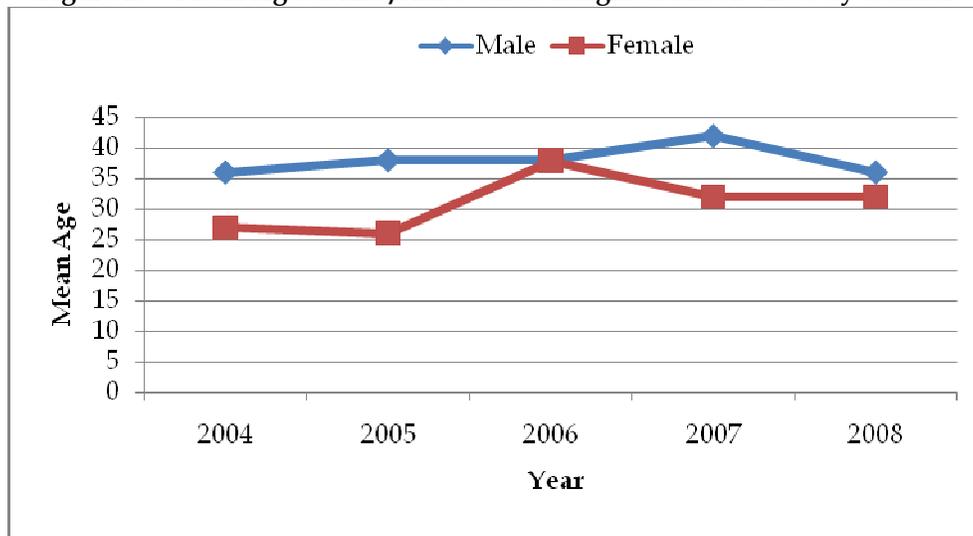


HIV/AIDS and Gender 2004 - 2008

Gender plays an important role in the prevention of HIV/AIDS. Generally, males have been affected the most by the epidemic because they comprise the majority of HIV/AIDS cases in the United States. However, in recent years, HIV/AIDS among females has been increasing. The following figures analyze the effect of gender on HIV/AIDS in North Dakota.

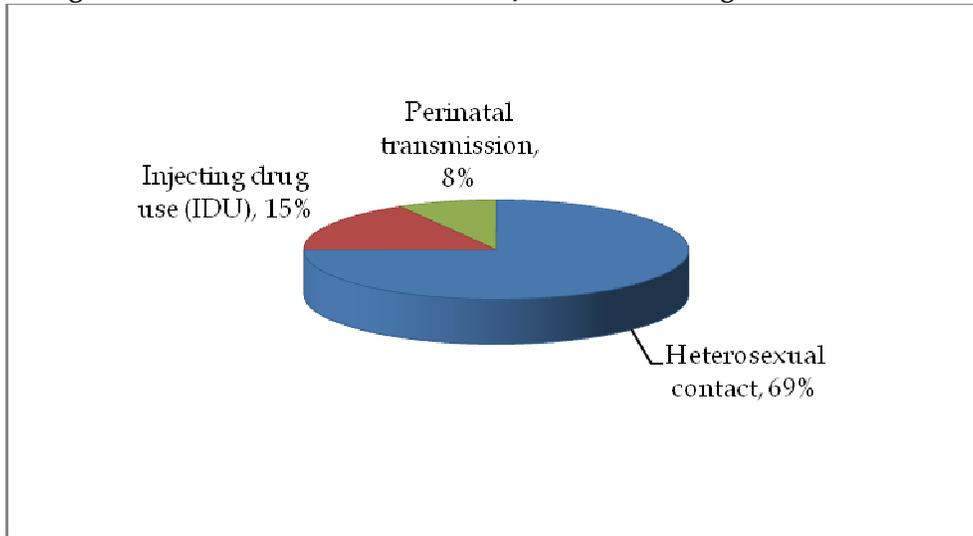
Females diagnosed with HIV/AIDS in North Dakota between 2004 and 2008 were, on average, younger than their male counterparts at the time of diagnosis. Females were diagnosed with HIV/AIDS at an average age of 31, which is seven years younger than the average age at which males were diagnosed.

Figure 15 - Mean Age of HIV/AIDS Cases Diagnosed 2004 - 2008 by Gender



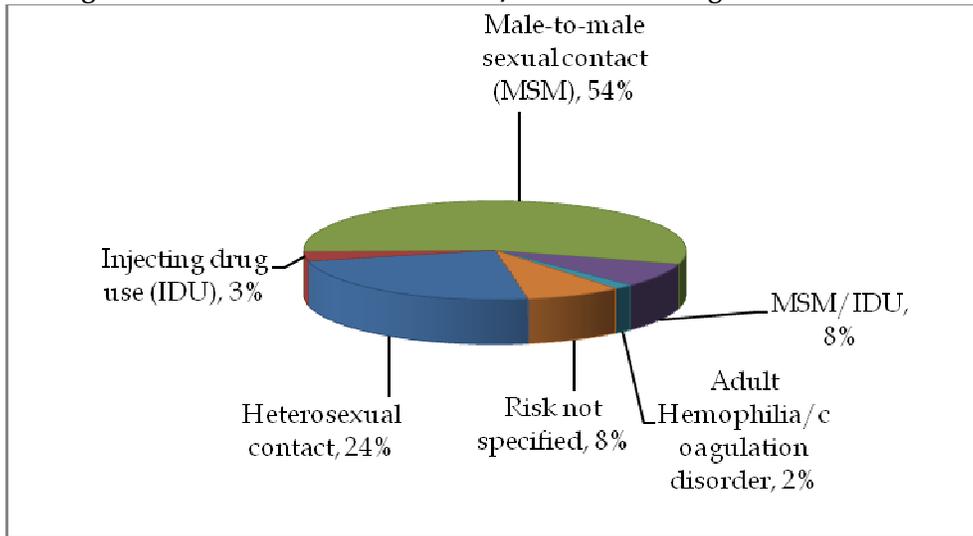
The risk factors reported by males and females at the time of their HIV/AIDS diagnosis varied greatly from 2004 to 2008. As was expected, a higher proportion of females than males reported having heterosexual relations. Unexpectedly, a higher proportion of females than males reported injecting drug use as a risk factor.

Figure 16 - Risk Factors of Female HIV/AIDS Cases Diagnosed 2004 - 2008



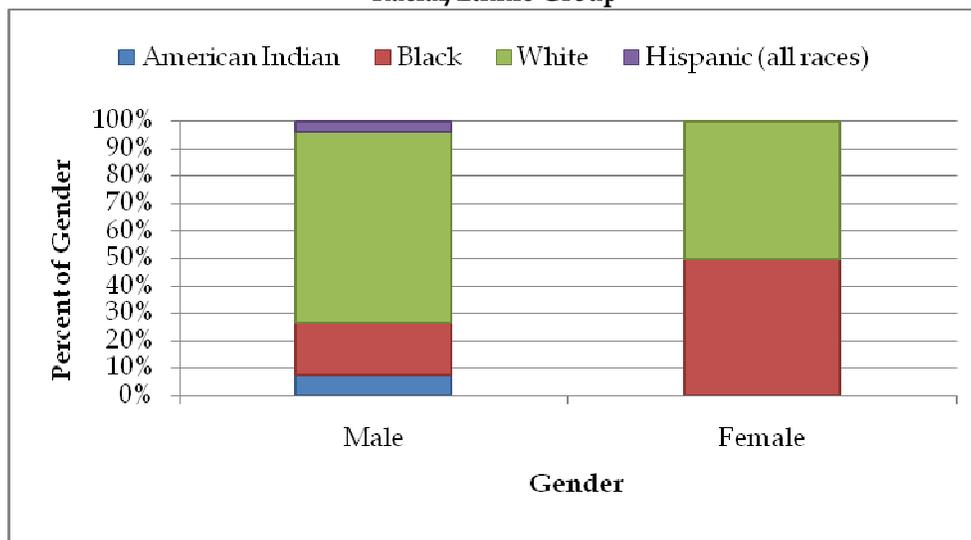
Between 2004 and 2008, a higher proportion of males reported having heterosexual relations, and a lower proportion reported injecting drug use than the cumulative HIV/AIDS cases.

Figure 17 - Risk Factors of Male HIV/AIDS Cases Diagnosed 2004 - 2008



A higher proportion of females than males diagnosed with HIV/AIDS between 2004 and 2008 were black. Also, no females diagnosed during this time period were Native American.

Figure 18 - Percent of HIV/AIDS Cases Diagnosed 2004 - 2008 by Gender That Identified a Racial/Ethnic Group

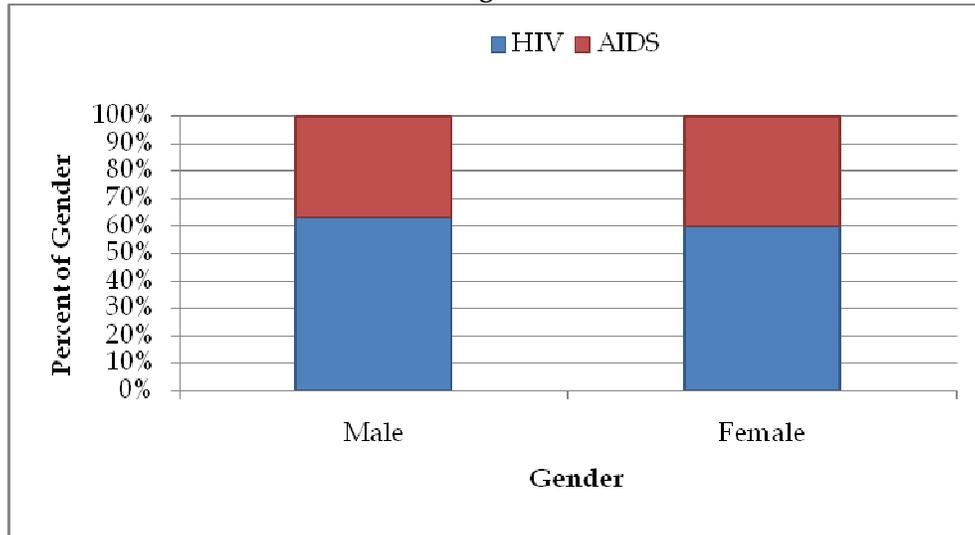


Factors that Affect Disease Status at HIV/AIDS Diagnosis

Many factors may influence whether an individual will be classified as having HIV (non-AIDS) or AIDS at the initial HIV/ AIDS diagnosis. Limited access to medical care and social stigma are examples of possible influences on disease status at diagnosis. The following figures address some of these issues by analyzing HIV/ AIDS cases diagnosed in North Dakota between 2004 and 2008.

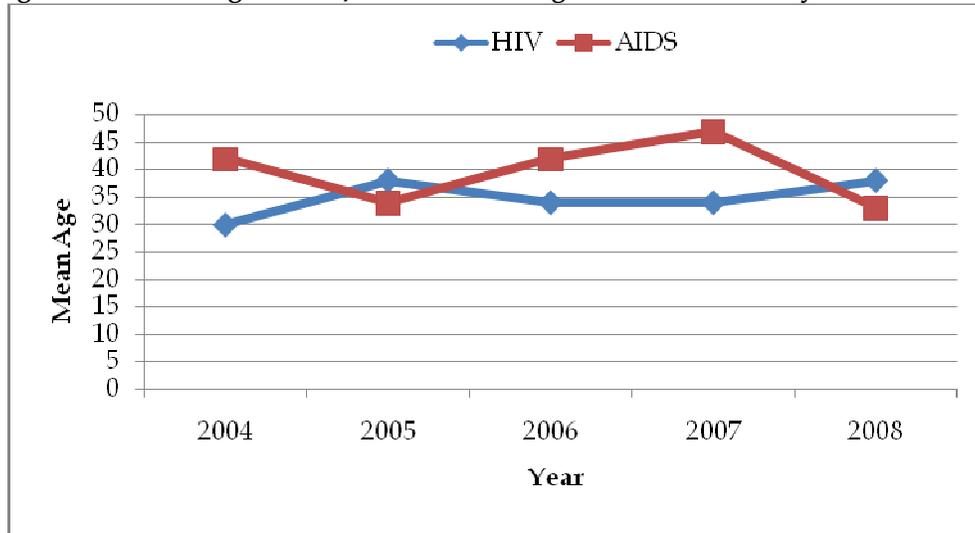
Gender is a factor that may affect disease status at diagnosis of HIV/ AIDS. Between 2004 and 2008, a slightly higher proportion of females were classified as having AIDS at their initial HIV/ AIDS diagnosis.

Figure 19 - Percent of HIV/AIDS Cases Diagnosed 2004 - 2008 by Gender With HIV or AIDS at Diagnosis



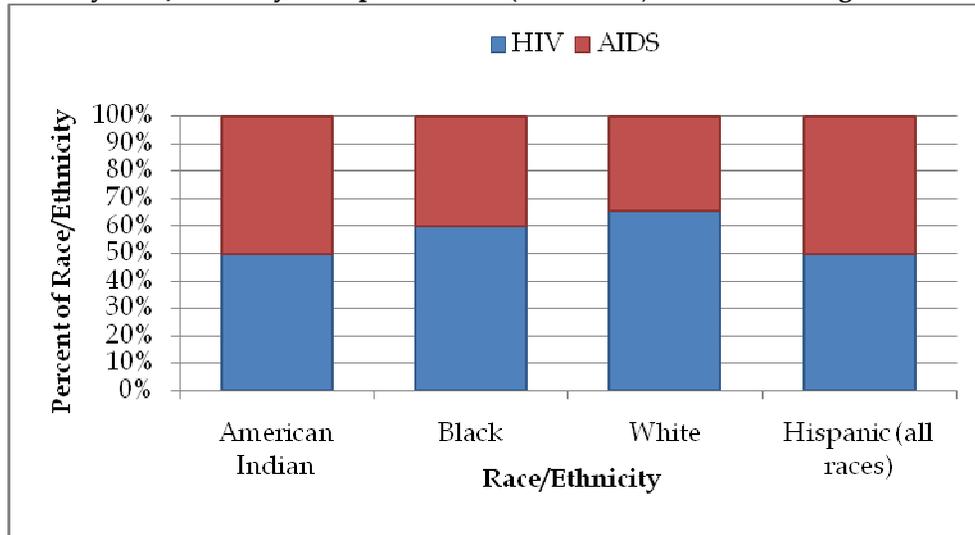
On average, individuals who were diagnosed with AIDS at their initial HIV/AIDS diagnosis between 2004 and 2008 were older than those diagnosed with HIV (non-AIDS). The average age of HIV/AIDS clients with AIDS at their initial diagnosis was five years older than those with HIV (non-AIDS).

Figure 20 - Mean Age of HIV/AIDS Cases Diagnosed 2004 - 2008 by Disease Status



Fifty percent of Native Americans diagnosed with HIV/AIDS in North Dakota from 2004 to 2008 were diagnosed with AIDS. Of black and white HIV/AIDS clients diagnosed during this same time period, 40 percent and 34 percent, respectively, were diagnosed with AIDS.

Figure 21 - Percentage of HIV/AIDS Cases Diagnosed 2004 - 2008 by Race/Ethnicity Group With HIV (non-AIDS) or AIDS at Diagnosis



Vital Status of HIV/AIDS Cases

Of the 441 HIV/AIDS cases reported since 1984, only 188 were known to be living in North Dakota as of Dec. 31, 2008. Of the cases not currently living in the state, some have died and some have moved. The following figures concentrate on the characteristics of HIV/AIDS mortality in North Dakota.

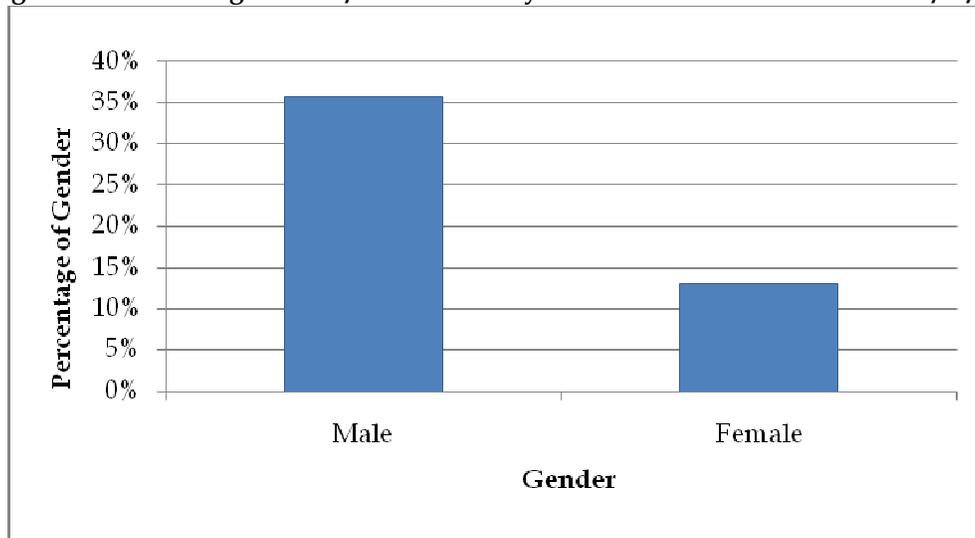
Of the 441 HIV/AIDS cases reported in North Dakota since 1984, 85 have moved out of the state and 168 have died.

Figure 22 - Residency Status of HIV/AIDS Cases Reported 1984 - 2008 as of 12/31/08



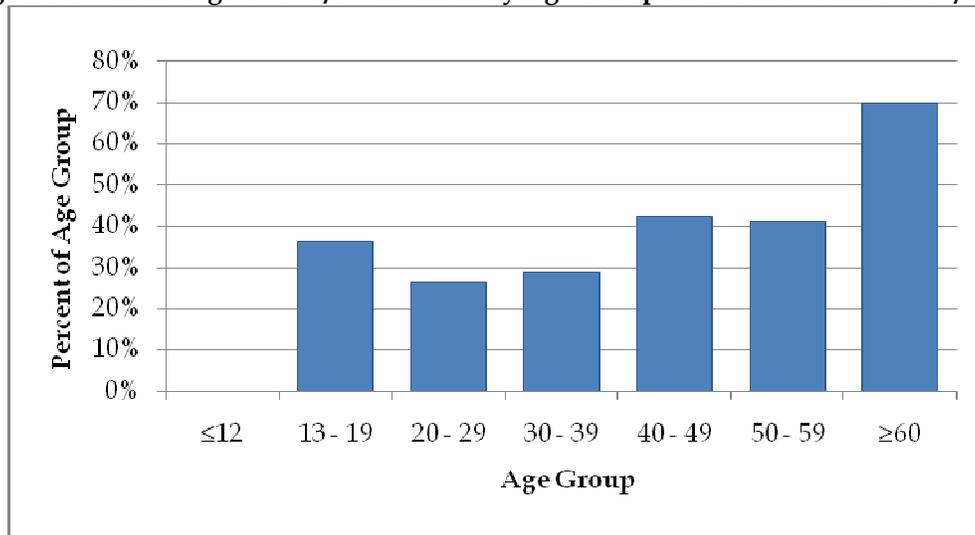
Thirty-six percent of all male HIV/AIDS cases reported in North Dakota have died, while only 13 percent of all female cases have died.

Figure 23 - Percentage of HIV/AIDS Cases by Gender Who Have Died as of 12/31/08



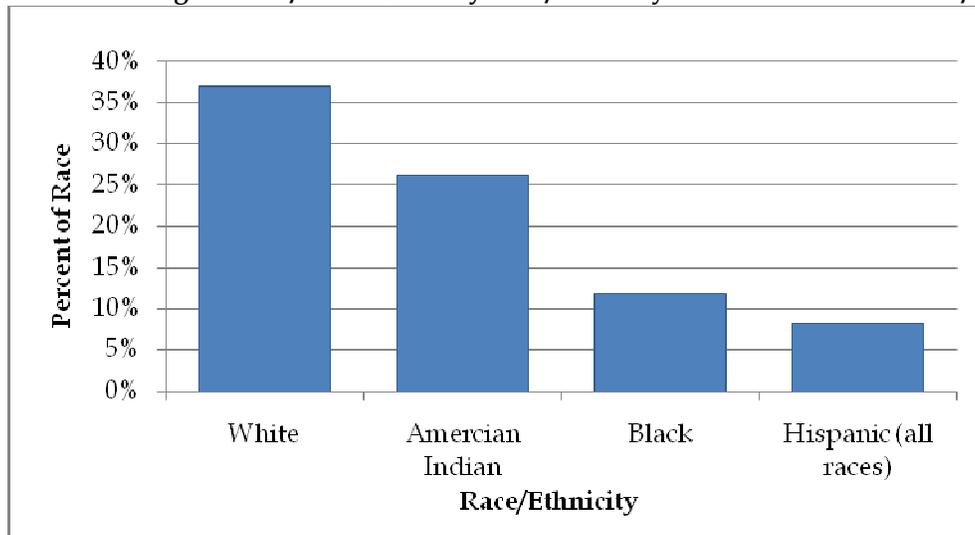
On average, 39 percent of all HIV/AIDS cases reported in North Dakota who were between the ages of 13 and 59 at diagnosis have died. None of the cases who were 12 years old and younger have died. Seventy percent of the cases who were 60 and older at diagnosis have died.

Figure 24 - Percentage of HIV/AIDS Cases by Age Group Who Have Died as of 12/31/08



Whites have the highest mortality rate of all races/ethnicities among HIV/AIDS cases diagnosed in North Dakota. Thirty-seven percent of all white HIV/AIDS cases have died, while only 12 percent of all black HIV/AIDS cases have died. Native Americans have the second highest mortality rate, with 26 percent of all HIV/AIDS cases of that race having died.

Figure 25 - Percentage of HIV/AIDS Cases by Race/Ethnicity Who Have Died as of 12/31/2008



HIV Counseling and Testing

There are 31 HIV counseling, testing and referral (CTR) sites throughout North Dakota that provide free services to “at-risk” individuals. These sites include local public health units, community action facilities, and college health facilities. The CTR sites provide not only HIV testing, but also risk reduction counseling to those being tested. Referrals for specialized services also may be provided at the CTR sites. The following data were collected from state CTR sites and other testing facilities that submitted *HIV Counseling and Testing Report* forms.

In 2008, 2,370 tests for HIV were performed at CTR sites in North Dakota. Of those tested, there were two positive tests for a positivity rate of 0.08 percent. Most of the HIV testing during 2008 was performed at local public health units (60%). Seventeen percent of tests were performed at colleges and universities, 8 percent were performed in jails or prisons and 16 percent were performed in other types of facilities, such as community action and family planning. Males made up 61 percent of individuals tested for HIV at CTR sites in North Dakota during 2008, and 100 percent of the positives identified from these sites. The majority of individuals tested at state CTR sites were white and between the ages of 19 and 34.

Table 5 - Characteristics of Individuals Tested for HIV in North Dakota during 2008	Total Tests		Positive Tests	
	Number	Percentage ¹	Number	Percentage ^{1,2}
Gender				
Male	1451	61	2	100
Female	919	39	0	0
Race/Ethnicity				
White	1891	80	2	100
Black	118	5	0	0
Asian/Pacific Islander	30	1	0	0
American Indian	255	11	0	0
Multiple races	15	1	0	0
Unknown	61	3	0	0
Age Group				
≤ 13	5	1	0	0
13 - 18	145	6	0	0
19 - 24	1074	45	0	0
25 - 34	716	30	1	50
35 - 44	257	11	1	50
≥ 45	173	7	0	0
Total	2370		2	

¹ Due to rounding totals may not add up to 100%.

² In this case, percentage refers to percentage of total positive tests.

The most common risk behaviors reported by individuals receiving HIV testing at state CTR sites during 2008 were sex without a condom (40%), sex with a female (28%), sex with a male (22%), sex with an IDU (3%) and sex while using drugs or alcohol (3%).

Table 6 - Risk Factors of Individuals Tested for HIV in North Dakota during 2008	Responses	
	Number	Percentage ¹
Risk Factors		
Sex with male	931	22
Sex with female	1197	28
Sex without condom	1752	40
Sex with an IDU	115	3
Sex with MSM	6	0
Sex with HIV positive	14	0
IDU	68	2
Sex with anonymous partner	49	1
Sex while using drugs/alcohol	117	3
No Indicated Risk	77	2
Total	4326	

¹ Due to rounding totals may not add up to 100%.

North Dakota CARES Program

North Dakota CARES (Comprehensive HIV/AIDS Resources and Emergency Services) is a program that assists low-income North Dakota residents living with HIV or AIDS to access confidential health and supportive services. In order to be a part of the CARES program, one must be a resident of North Dakota, have a net income of less than 400 percent of the Federal Poverty Level (FPL) and have proof of HIV infection.

Services available for clients in the North Dakota CARES Program include case management, drug assistance, outpatient services, supportive services and emergency assistance. This program is funded by a federal grant, and services available are subject to change because of changes in funding.

Currently, the North Dakota CARES Program serves 73 (39%) of the 188 people living with HIV/AIDS in North Dakota. The majority of clients are male (77%), which can be compared with the 78 percent of males living in North Dakota with HIV/AIDS. The highest risk factors for clients include 40 percent heterosexual contact and 37 percent MSM. Following behind was injecting drug use with 10 percent, MSM/IDU with 8 percent, perinatal transmission with 3 percent, 1 percent had hemophilia, and 1 percent were unknown or undecided. Forty-four percent of the clients have been diagnosed with AIDS, while 56 percent have not yet met the criteria for AIDS diagnosis.

Sexually Transmitted Diseases Other Than HIV/AIDS

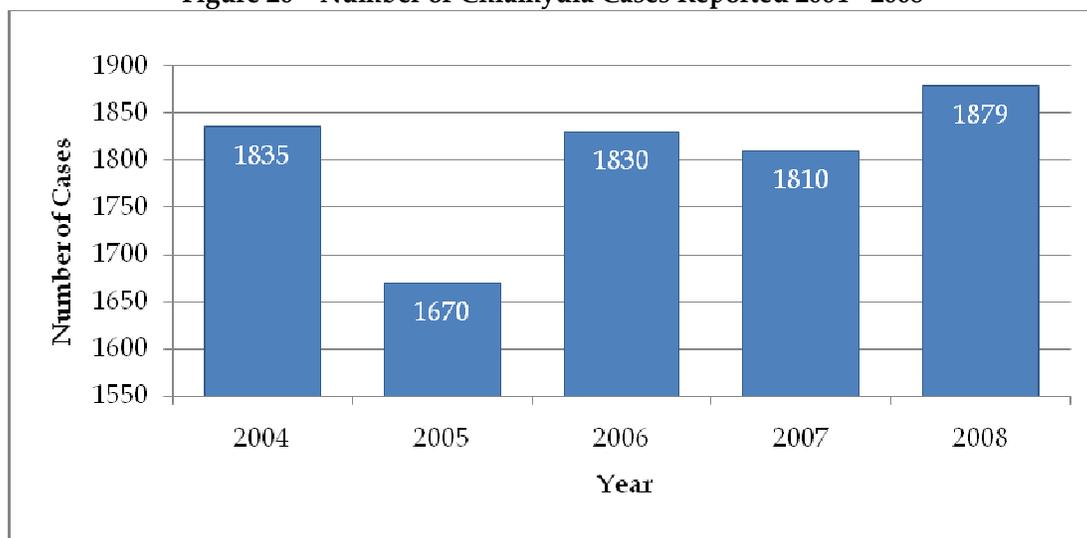
Surveillance of sexually transmitted diseases (STDs) other than HIV/AIDS is an important part of HIV/AIDS prevention. Individuals with STDs, such as chlamydia, gonorrhea, and syphilis are two to five times more likely to contract HIV from an infected individual than those without an STD. Also, an HIV-infected individual with another STD is more likely to transmit HIV to a sex partner than an individual with only HIV.

Chlamydia

Infections caused by the bacterium *Chlamydia trachomatis* occur in more than one million Americans every year. If left untreated, chlamydia can cause pelvic inflammatory disease and sterility in women.

The average annual number of chlamydia cases reported in North Dakota was 1,805 between 2004 and 2008. In 2007, the incidence rate of chlamydia in North Dakota was 281.3 per 100,000. This is lower than the national average of 370.2 per 100,000, and was the 38rd highest rate of all 50 states.

Figure 26 – Number of Chlamydia Cases Reported 2004 - 2008

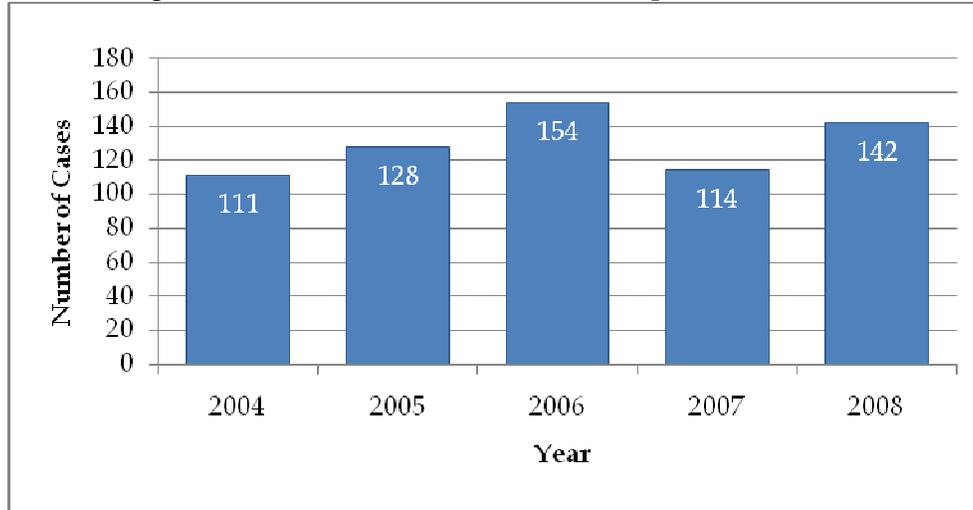


Gonorrhea

Gonorrhea is caused by the bacterium *Neisseria gonorrhoeae*, and accounts for an estimated 700,000 new infections per year in the United States. Complications of gonorrhea are similar to that of chlamydia.

There was an average of 130 cases of gonorrhea per year reported in North Dakota between 2004 and 2008. In 2007, the incidence rate was 18.2 per 100,000, which was ranked 45th in the United States.

Figure 27 - Number of Gonorrhea Cases Reported 2004 - 2008

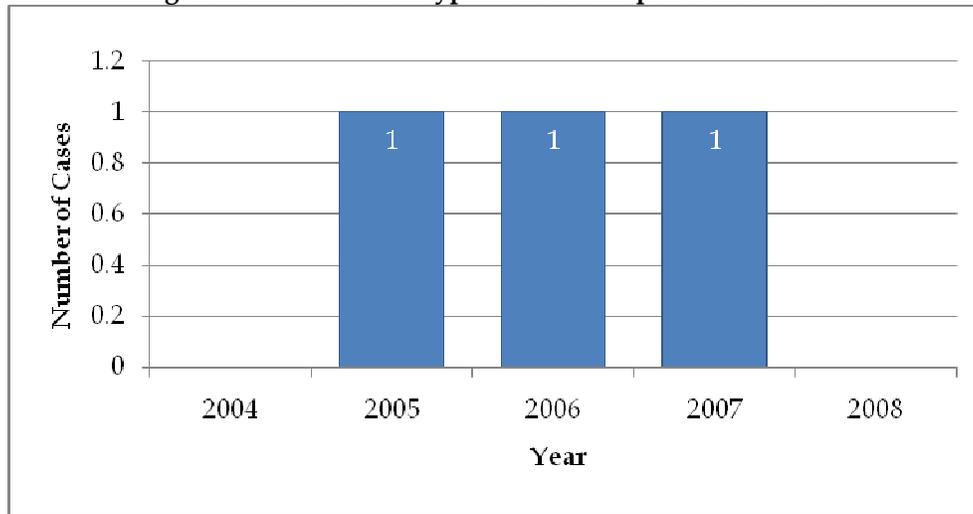


Syphilis

Syphilis, also known as the great imitator because of its indistinct signs and symptoms, is caused by the bacterium *Treponema pallidum*. In 2007, over 40,000 Americans reported having any stage of syphilis. If left untreated, syphilis can cause complications that range in severity from a rash to death.

Between 2004 and 2008, three cases of syphilis were reported in North Dakota. In 2007, North Dakota's primary and secondary syphilis incidence rate was ranked 49th in the United States with 0.2 per 100,000.

Figure 28 - Number of Syphilis Cases Reported 2004 - 2008



For both chlamydia and gonorrhea, more females than males were reported to have these infections in 2008. The majority of chlamydia and gonorrhea cases were reported in people 15- to 29- years-old. As with HIV/ AIDS, there is a clear racial disparity with chlamydia and gonorrhea. Blacks have the highest rates of these diseases, with 2,757.9 per 100,000 for chlamydia and 485.2 per 100,000 for gonorrhea.

Table 7 - Chlamydia and Gonorrhea Cases Reported in 2008	Chlamydia	Gonorrhea
Number by Gender		
Male	620	50
Female	1259	92
Number by Age Group		
<15	10	0
15-19	517	35
20-24	869	57
25-29	336	24
30-34	83	11
35-39	36	5
40-44	20	3
45-54	5	7
55-64	1	0
>64	0	0
Rate by Race/Ethnicity		
Black	2757.9	485.2
American Indian	1145.9	95.8
Hispanic	423.8	25.7
White	194.12	7.4
Asian	143.5	27.7
Total	1879	142

* Due to rounding, totals may not add up to 100%

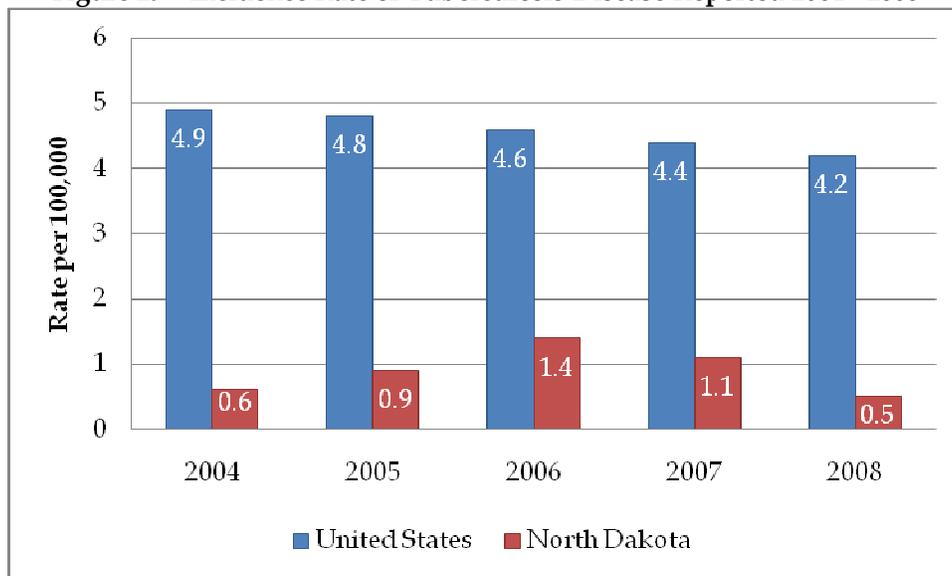
Tuberculosis

Tuberculosis (TB) is an infection caused by a group of bacteria called the *Mycobacterium tuberculosis* complex. TB can infect many parts of the human body, but it is only infectious when the bacteria are aerosolized, as in cases of disease in the lungs, larynx, or mouth. Without proper treatment, TB can be a deadly disease. The mortality rate is increased in people with HIV infection. An HIV-infected individual is 10 times more likely to develop TB disease than an HIV-negative one because of the virus's ability to weaken the immune system. Also, TB disease causes HIV to progress to AIDS more quickly than HIV-positives without TB.

HIV and TB co-infection is a worldwide problem. It is estimated that 75 percent of the people living in sub-Saharan Africa are infected with HIV. Of those HIV-infected individuals, one-third or more may develop TB disease. In America, there is an estimated 468,000 people with HIV-TB co-infection. While America may only comprise four percent of the global total of HIV-TB co-infected individuals, it is still a serious public health problem. The following figures describe the epidemiology of TB in North Dakota from 2004 to 2008.

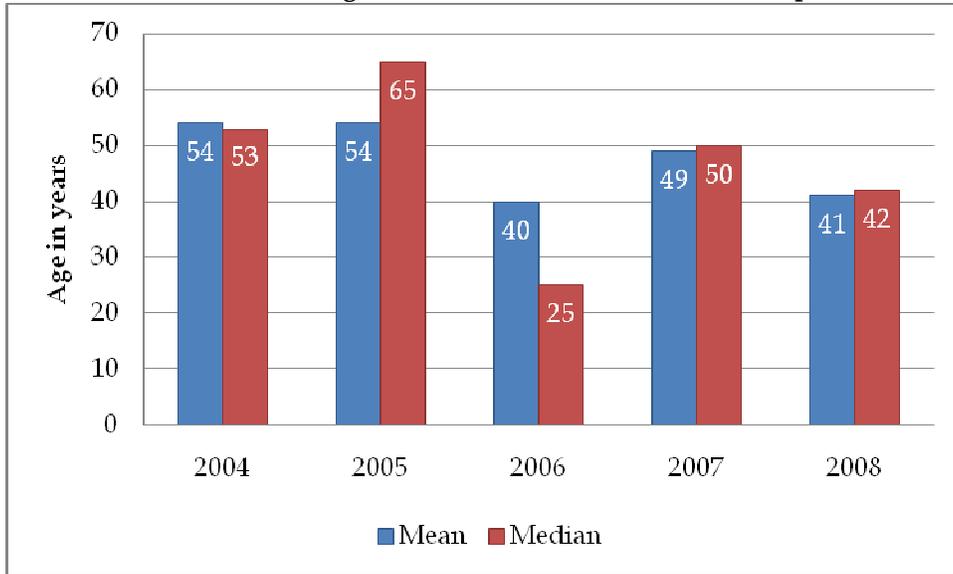
Between 2004 and 2008, there were 30 cases of TB disease reported in North Dakota. The number of annual TB cases ranged from three to ten, resulting in incidence rates between 0.5 and 1.4 per 100,000. This is well below the national average of 4.2 to 4.9 per 100,000.

Figure 29 - Incidence Rate of Tuberculosis Disease Reported 2004 - 2008



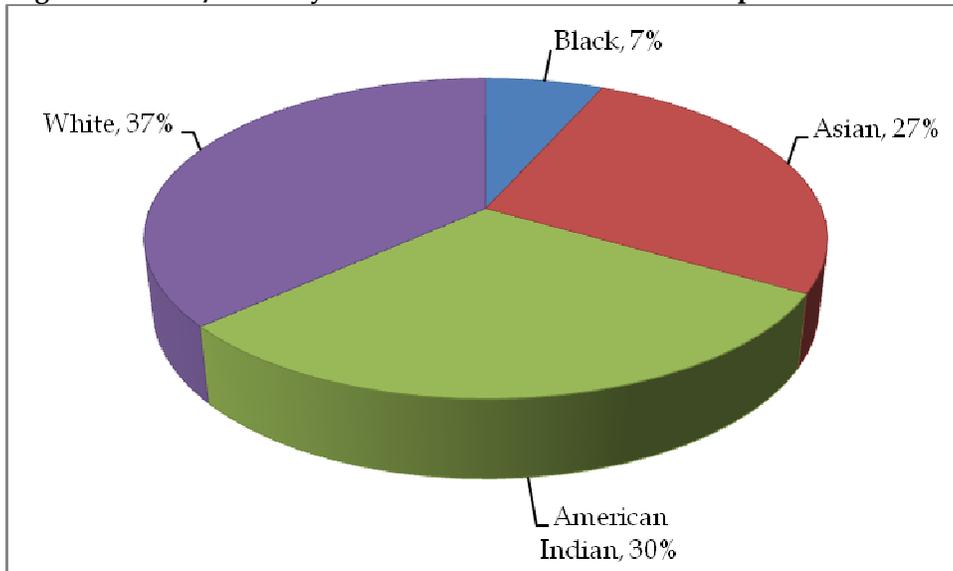
The mean and median ages of TB disease cases remained consistent between 2004 and 2008. The overall mean and median ages for this time period were 48 and 47.

Figure 30 - Mean and Median Ages of Tuberculosis Disease Cases Reported 2004 - 2008



There is a distinct racial disparity among cases of TB disease, with the majority of them being of a racial or ethnic minority. From 2004 to 2008, 37 percent of the cases were white, while the other 63 percent were Native Americans, Asian and black.

Figure 31 - Race/Ethnicity of Tuberculosis Disease Cases Reported 2004 - 2008



Viral Hepatitis

Hepatitis is inflammation of the liver, and it can be caused by many factors, including viruses. Two of the viruses that cause hepatitis, hepatitis B (HBV) and hepatitis C (HCV), frequently infect individuals with HIV/AIDS. Co-infection occurs frequently because the risk factors for infection are very similar between HBV, HCV and HIV. HBV is most commonly acquired through high-risk sexual activities, and HCV is most commonly transmitted through needle-sharing. HIV and HBV co-infection increases the likelihood of chronic HBV infection and serious liver complications. HIV and HCV co-infection can cause liver damage to occur more rapidly than HCV alone.

Hepatitis B

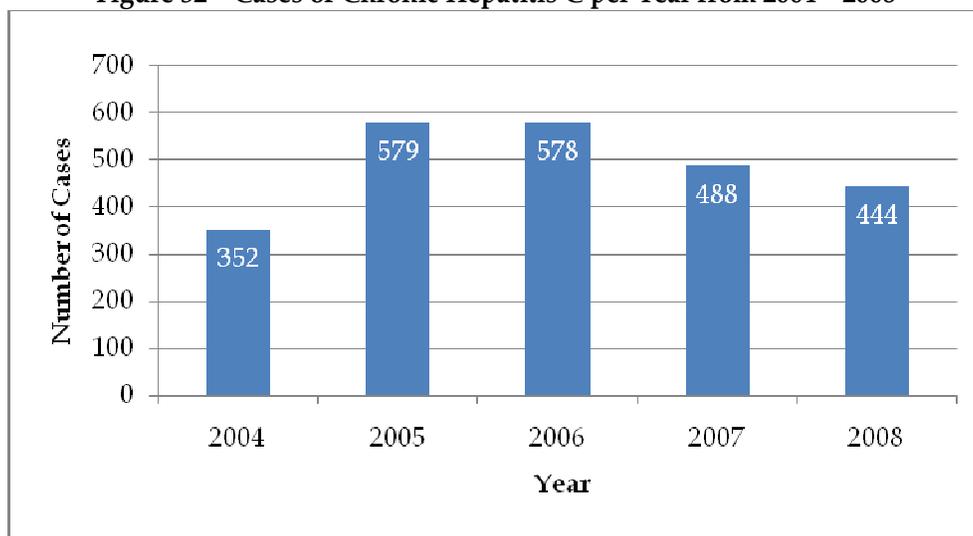
Since the introduction of the HBV vaccine, there has been a dramatic drop in new hepatitis B infections in the United States, with 208,000 in 1980 and 46,000 in 2006. It is estimated that 1.25 million people in the United States have chronic hepatitis B infection. In North Dakota, 58 cases of chronic hepatitis B were reported in 2008.

Hepatitis C

An estimated 3.2 million people in the United States are chronically infected with HCV, making it the most common chronic bloodborne infection. Among individuals who are infected with HIV, 25 percent are also infected with HCV.

There was an average of 488 cases of chronic hepatitis C reported each year in North Dakota between 2004 and 2008.

Figure 32 - Cases of Chronic Hepatitis C per Year from 2004 - 2008

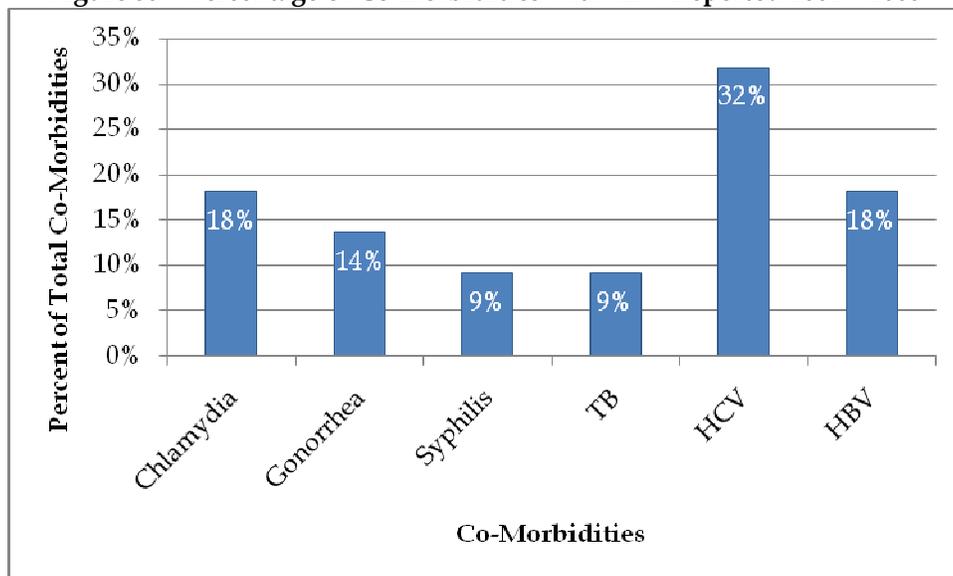


HIV/AIDS Co-infection

Co-infection with other diseases of public health importance is a common occurrence among HIV/AIDS patients because of the nature of the disease and the risky behavior associated with it. The devastating effects of HIV to the immune system make people more susceptible to certain diseases, such as TB. High risk sexual behaviors not only put people at risk for HIV but also chlamydia, gonorrhea, syphilis and HBV. Finally, injection drug users are at risk for acquiring HIV and HCV. Co-infection with HIV is a complicated and dangerous condition.

Between 2004 and 2008, 117 cases of HIV/AIDS were reported to the NDDoH, 17 percent of which reported co-infection with one or more of the following diseases during the same time period: chlamydia, gonorrhea, syphilis, TB, HCV and HBV. The most common co-infection was HCV, with 32 percent of all the co-morbidity reports.

Figure 33 - Percentage of Co-morbidities with HIV Reported 2004 - 2008



Certain risk behaviors were more frequently associated with specific HIV co-infections. Heterosexual contact was most frequently associated with HIV and chlamydia co-morbidity. The most common risk factor associated with HIV and gonorrhea co-morbidity and HIV and syphilis co-morbidity is male-to-male sexual contact. HCV and HIV co-infection was associated with male-to-male sexual contact, injecting drug use and hemophilia/coagulation disorder.

Table 8 – Risk Factors of HIV/AIDS Cases with Co-Morbidities 2004 - 2008

	Co-Morbidities					
	Chlamydia	Gonorrhea	Syphilis	TB	HCV	HBV
Risk Factors						
Male-to-male sexual contact (MSM)	0	2	2	0	2	0
Injecting drug use (IDU)	1	0	0	0	0	0
MSM/IDU	0	0	0	0	2	1
Heterosexual contact	3	1	0	2	0	2
Hemophilia/coagulation disorder	0	0	0	0	1	0
Risk not specified	0	0	0	0	2	1

Technical Notes

Case Definition Changes

The CDC AIDS case definition has changed over time based on knowledge of HIV disease and physician practice patterns. The original definition was modified in 1985. In 1987, definition revisions incorporated a broader range of AIDS opportunistic infections and conditions and used HIV diagnostic tests to improve the sensitivity and specificity of the definition. In 1993, the definition expanded to include HIV-infected individuals with pulmonary tuberculosis, recurrent pneumonia, invasive cervical cancer, or CD4 T-lymphocyte counts of less than 200 cells per ml or a CD4+ percentage of less than 14. As a result of the 1993 definition expansion, HIV-infected persons were classified as AIDS earlier in their course of disease than under the previous definition. Regardless of the year, AIDS data are tabulated in this report by the date of the first AIDS defining condition in an individual under the 1993 case definition.

The case definition for HIV infection was revised in 1999 to include positive results or reports of detectable quantities of HIV virologic (non-antibody) tests. The revisions to the 1993 surveillance definition of HIV include additional laboratory evidence, specifically detectable quantities from virologic tests.

The perinatal case definition for infection and remission of symptoms among children younger than 18 months who are perinatally-exposed to HIV was changed to incorporate the recent clinical guidelines and the sensitivity and specificity of current HIV diagnostic tests in order to more efficiently classify HIV-exposed children as infected or not infected.

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