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Division of Disease Control

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Summary

- At the time of the 2000 U.S. census, there were 642,200 residents of North Dakota, 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 2007, 413 cases of HIV/ AIDS were reported to the North Dakota Department of Health, 251 (61%) of which were diagnosed in North Dakota.
- Thirty-seven percent of all cases reported in North Dakota were AIDS at first diagnosis.
- There were 166 people known to be living in North Dakota with HIV/ AIDS as of Dec. 31, 2007, while 135 people with HIV/ AIDS died in North Dakota between 1984 and 2007.
- The incidence rate of HIV/ AIDS among females has been steadily increasing over the years, with 1.6 per 100,000 in 2007 compared to was 0.3 per 100,000 in 2003.
- Eighty-four percent of all HIV/ AIDS cases diagnosed in the state between 1984 and 2007 fell between the ages of 20 and 49.
- The average HIV/ AIDS incidence rate from 2003 to 2007 for blacks was 76.6 per 100,000, whereas it was 1.2 per 100,000 and 1.9 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 as a risk factor, with 33 percent of cases diagnosed in North Dakota between 2003 and 2007 identifying this risk.
- There were 2,684 HIV tests reported in North Dakota during 2007, nine of which were positive.
- The North Dakota CARES Program serves 71 (43%) of the 166 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 2,307 per 100,000 and 459.7 per 100,000, respectively.
- Racial and ethnic minorities comprise the majority of all TB disease cases in North Dakota at 68 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.
- Since 2005, there have been 1,645 cases of past or present infections of hepatitis C and 194 cases of chronic hepatitis B infections.

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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, 2007.

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, 2007. 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 30 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 about 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 also is 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; 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 the baseline year for viral hepatitis data due to the implementation of an electronic reporting system and more stringent follow-up. Current data was not de-duplicated prior to 2005.

Women of child-bearing age, 14 through 44 years, who 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 the completion of the vaccine series to ensure the child is not infected and is 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 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.

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%

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.

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.

| 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%

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.

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.

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%

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.

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, 2007, a cumulative total of 413 HIV/AIDS cases have been reported in North Dakota, including 149 AIDS cases and 264 HIV (non-AIDS) cases. Of the cumulative total HIV/AIDS cases, 166 were known to still be living in North Dakota as of Dec. 31, 2007. 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 | 264 | 63 | 106 | 64 |
| AIDS | 149 | 37 | 60 | 36 |
| Gender | | | | |
| Male | 348 | 84 | 128 | 77 |
| Female | 65 | 16 | 38 | 23 |
| Age Group at Diagnosis | | | | |
| ≤ 12 | 5 | 1 | 3 | 2 |
| 13 - 19 | 11 | 3 | 0 | 0 |
| 20 - 29 | 122 | 30 | 44 | 27 |
| 30 - 39 | 159 | 38 | 69 | 42 |
| 40 - 49 | 80 | 19 | 34 | 20 |
| 50 - 59 | 27 | 7 | 14 | 8 |
| ≥ 60 | 9 | 2 | 2 | 1 |
| Race/Ethnicity | | | | |
| American Indian | 41 | 10 | 17 | 10 |
| Black | 42 | 10 | 22 | 13 |
| Hispanic (all races) | 11 | 3 | 4 | 2 |
| Asian/Pacific Islander | 2 | 1 | 2 | 1 |
| White | 317 | 77 | 121 | 73 |
| Risk Factors | | | | |
| Hemophilia/Coagulation disorder | 11 | 3 | 1 | 1 |
| Heterosexual relations | 69 | 17 | 40 | 24 |
| Injecting drug use (IDU) | 57 | 14 | 29 | 17 |
| Male to male sexual relations (MSM) | 216 | 52 | 79 | 48 |
| MSM/IDU | 31 | 8 | 7 | 4 |
| Perinatal | 6 | 1 | 4 | 2 |
| Blood/tissue transfusion | 8 | 2 | 1 | 1 |
| No risk identified | 15 | 4 | 5 | 3 |
| Total | 413 | | 166 | |

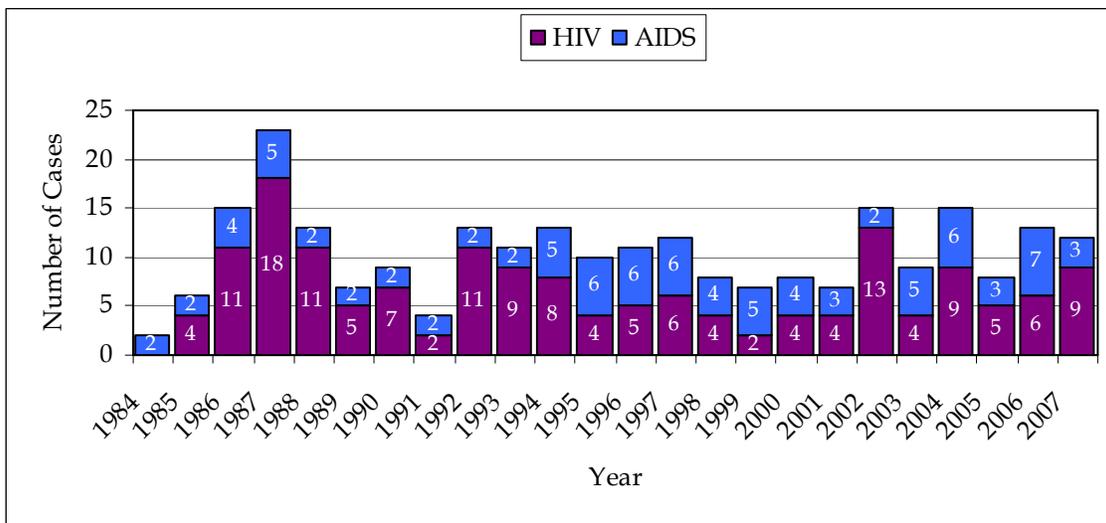
* Due to rounding, totals may not add up to 100%

Incidence of HIV/AIDS 1984 - 2007

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.

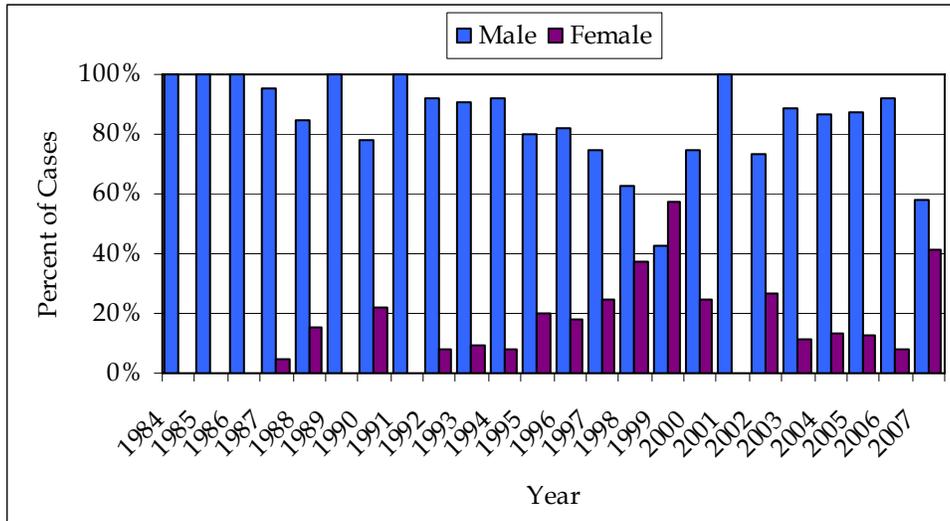
Due to North Dakota's low incidence of HIV/AIDS, trends in diagnosis and reporting are difficult to interpret. On average, there are 10 cases per year that are diagnosed in North Dakota. Thirty-six percent of the cases diagnosed in North Dakota since 1984 were classified as AIDS at the time of diagnosis. In total, 251 HIV/AIDS cases were diagnosed in the state between 1984 and 2007.

Figure 1 -- Disease Status of HIV/AIDS Cases Diagnosed 1984 - 2007



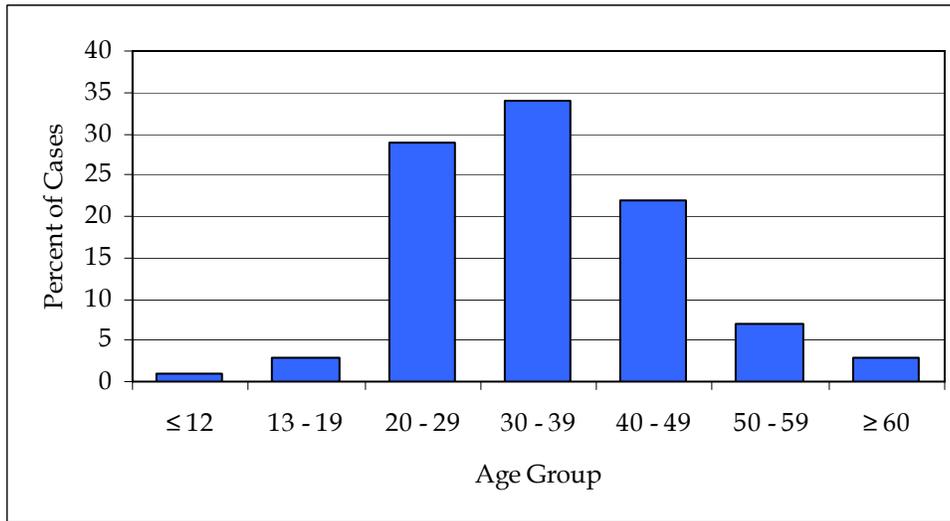
There is a clear gender disparity in the diagnosis of HIV/AIDS. Eighty-five percent of all cases diagnosed in North Dakota since 1984 are male. However, there is a trend in the last decade towards more diagnoses of HIV/AIDS in females.

Figure 2 - Gender of HIV/AIDS Cases Diagnosed 1984 - 2007



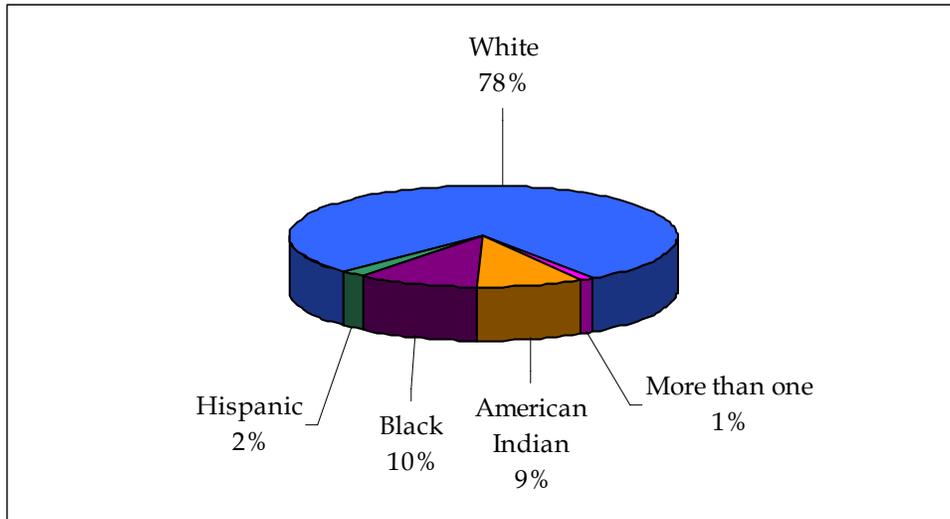
The predominant ages affected by HIV/AIDS were 30 to 39-year-olds. Eighty-four percent of all HIV/AIDS cases diagnosed in the state fall between the ages of 20 and 49.

Figure 3 - Age Groups of HIV/AIDS Cases Diagnosed 1984 - 2007



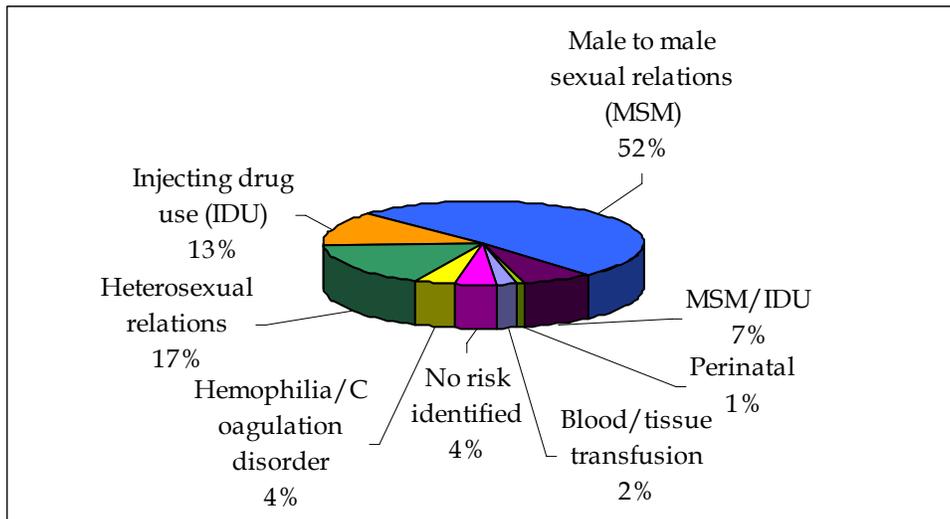
Although less than 1 percent of the population of North Dakota, blacks make up 10 percent of all HIV/AIDS cases diagnosed in the state. A similar disparity is seen with Native Americans, who make up 4.9 percent of the state population, and account for 9 percent of all HIV/AIDS diagnoses in the state.

Figure 4 - Race/Ethnicity of HIV/AIDS Cases Diagnosed 1984 - 2007



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 decade, 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 - 2007

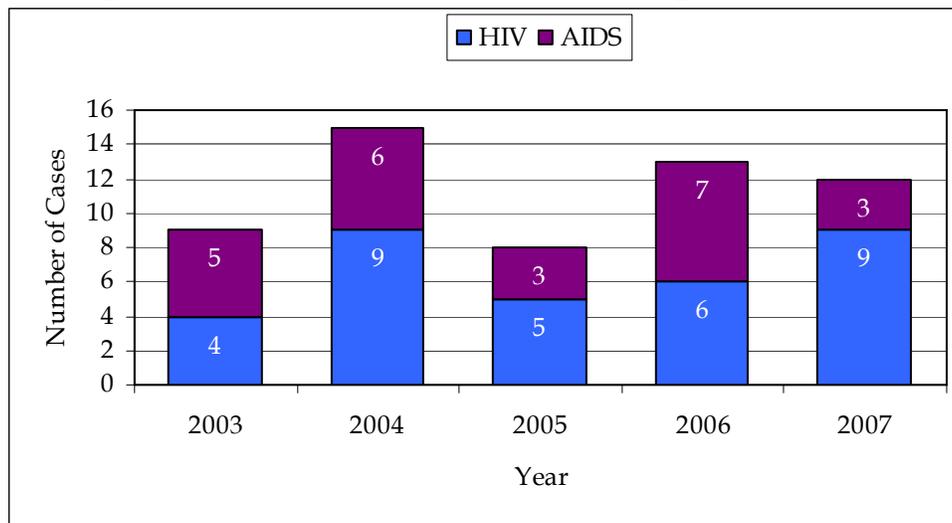


Incidence of HIV/AIDS 2003 - 2007

The following figures describe HIV/AIDS cases diagnosed in North Dakota between 2003 and 2007. These figures are intended to present an in-depth look at HIV/AIDS trends during this time period.

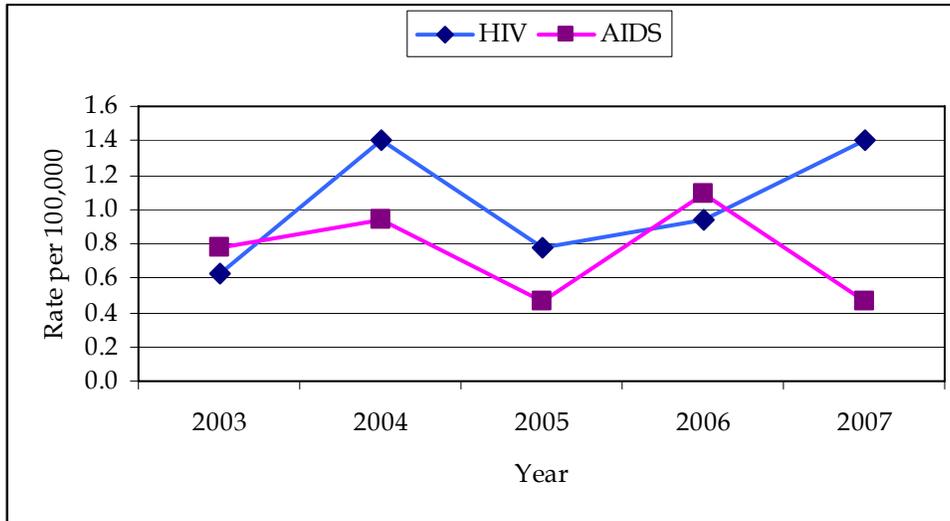
Between 2003 and 2007, 57 cases of HIV/AIDS were diagnosed in North Dakota. Of those cases, 42 percent were classified as AIDS at diagnosis.

Figure 6 - Disease Status of HIV/AIDS Cases Diagnosed 2003 - 2007



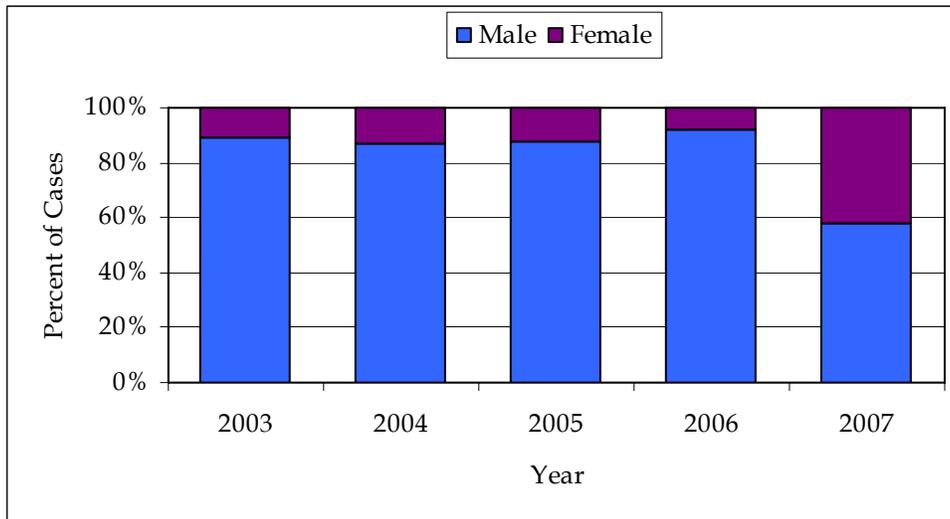
There was an average incidence rate of 1.8 per 100,000 for HIV/AIDS between 2003 and 2007. The incidence rate of HIV (non-AIDS) has been higher than that of AIDS over the last five years. The average incidence rate of HIV over this time period was 1.0 per 100,000, while for AIDS it was 0.7 per 100,000.

Figure 7 - Incidence Rate of HIV and AIDS Reported 2003 - 2007



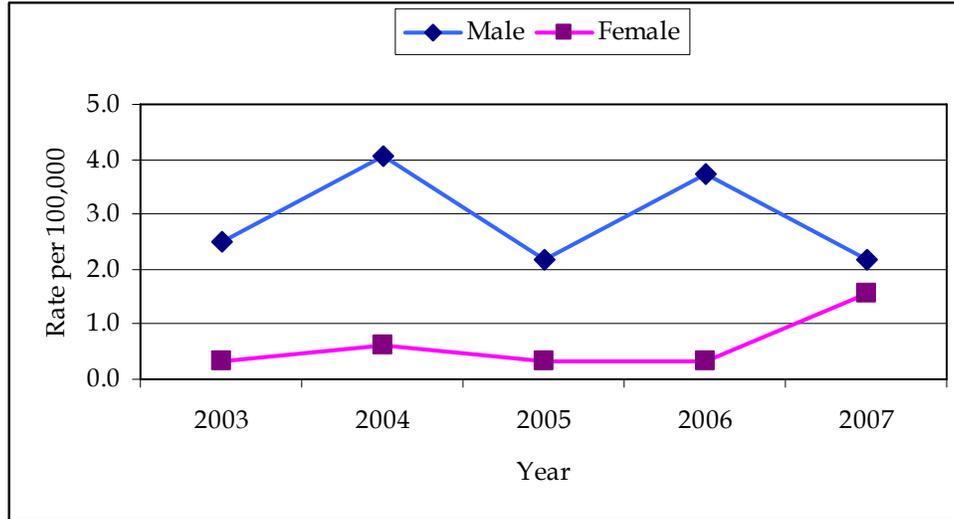
Although the majority of HIV/AIDS cases diagnosed between 2003 and 2007 were male, the percentage of cases that were female increased in recent years. Between 2003 and 2007, 18 percent of HIV/AIDS diagnoses were female, while females comprised 15 percent of all HIV/AIDS diagnoses since 1984.

Figure 8 - Gender of HIV/AIDS Cases Diagnosed 2003 - 2007



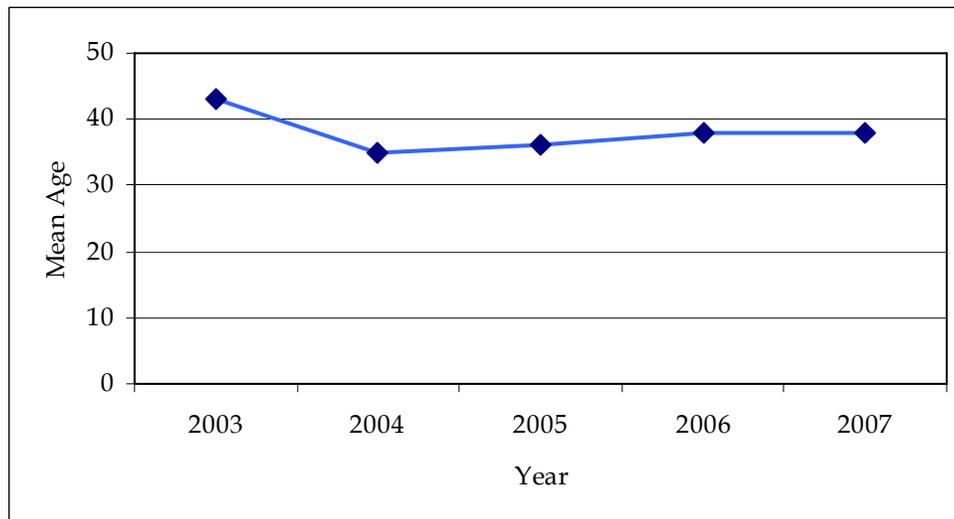
The increase in HIV/AIDS among women can be seen in the incidence rates from 2003 to 2007. The incidence rate of HIV/AIDS in females was 1.6 per 100,000 in 2007, whereas it was 0.3 per 100,000 in 2003.

Figure 9 – Incidence Rate by Gender of HIV/AIDS Cases Diagnosed 2003 - 2007



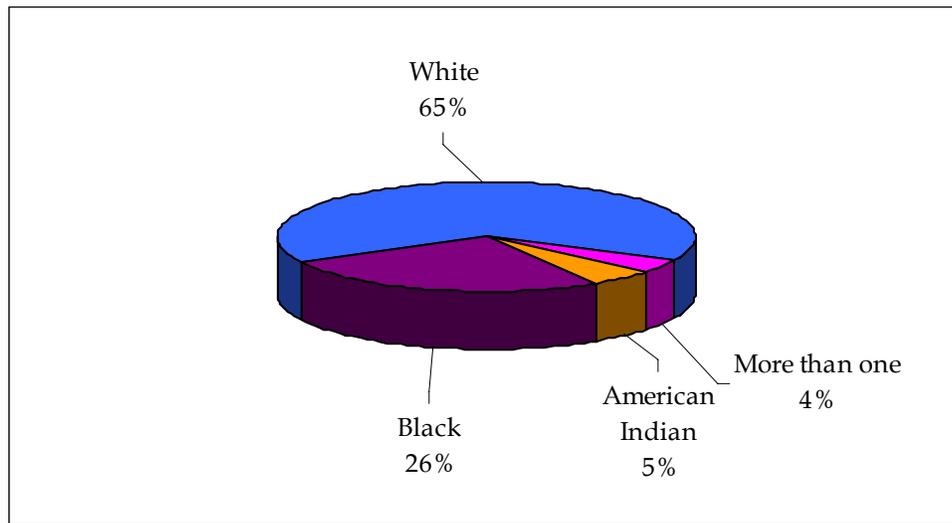
The mean age of individuals diagnosed with HIV/AIDS between the years of 2003 and 2007 was 38, with a range of 35 to 43. This is consistent with the mean age of HIV/AIDS cases diagnosed in North Dakota since 1984, which is 36.

Figure 10 – Mean Age of HIV/AIDS Cases Diagnosed 2003 - 2007



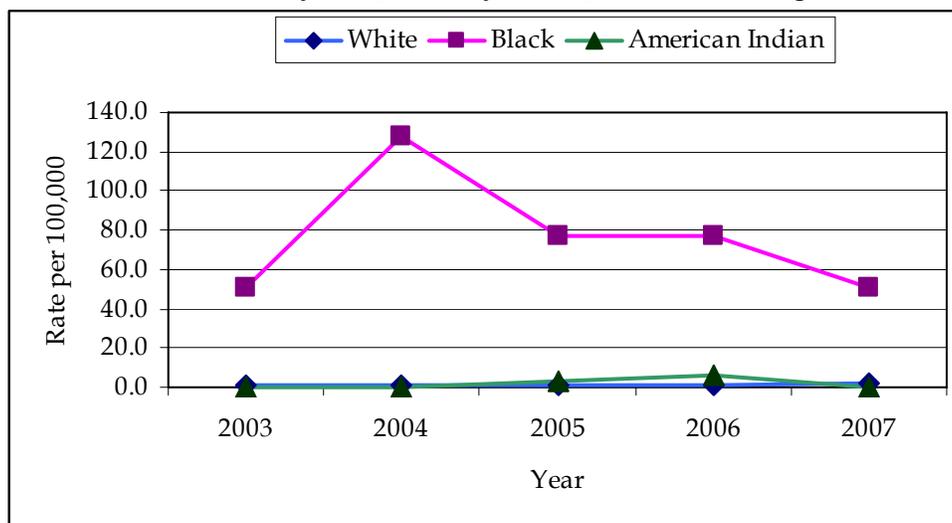
The racial disparity of HIV/AIDS seems to have increased for blacks in the last five years. Between 2003 and 2007, 26 percent of HIV/AIDS cases diagnosed in North Dakota identified themselves as black. This is markedly more than the 10 percent of the cumulative HIV/AIDS cases that were reported to be black.

Figure 11 - Race/Ethnicity of HIV/AIDS Cases Diagnosed 2003 - 2007



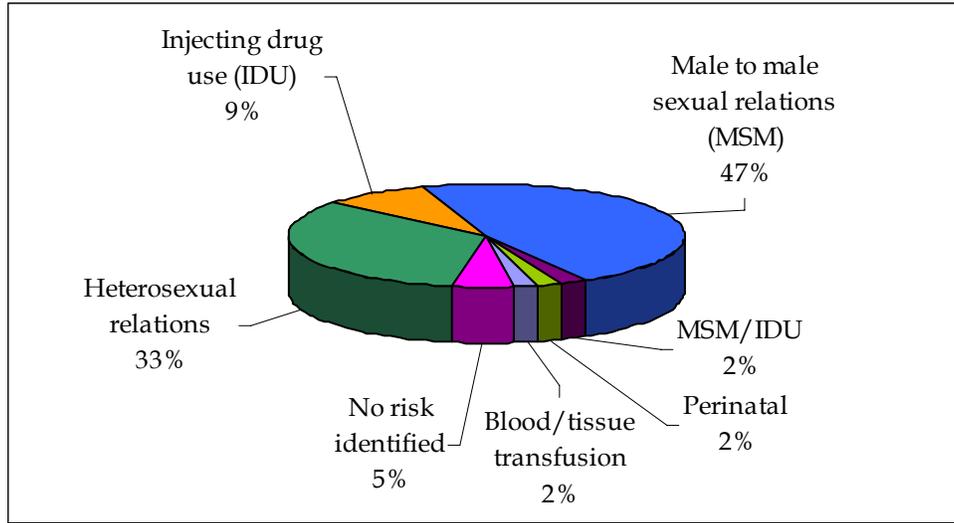
The HIV/AIDS incidence rate for blacks in North Dakota is also significantly higher than that of whites and Native Americans. The average HIV/AIDS incidence rate from 2003 to 2007 for blacks was 76.6 per 100,000, whereas it was 1.2 per 100,000 and 1.9 per 100,000 for whites and Native Americans, respectively.

Figure 12 - Incidence Rate by Race/Ethnicity of HIV/AIDS Cases Diagnosed 2003 - 2007



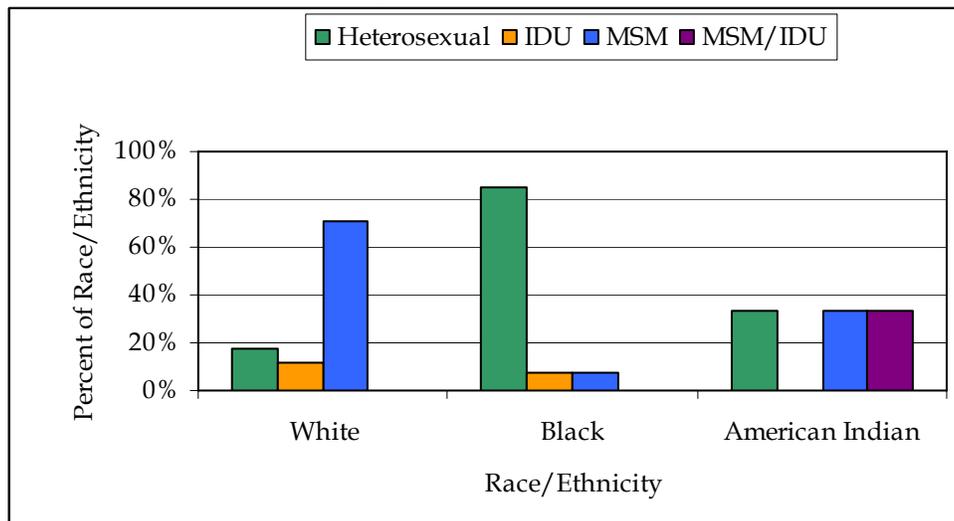
While male-to-male sexual relations remained the most frequently reported risk factor for HIV/AIDS between 2003 and 2007, heterosexual relations was also a major risk factor identified. Thirty-three percent of HIV/AIDS cases diagnosed between 2003 and 2007 reported having heterosexual relations. Only 17 percent of the cumulative HIV/AIDS cases reported having heterosexual relations.

Figure 13 - Risk Factors of HIV/AIDS Cases Diagnosed 2003 - 2007



The race/ethnicity groups reported different risky behaviors at diagnosis of HIV/AIDS between 2003 and 2007. 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 2003 - 2007 by Race/Ethnicity That Identified a Risky Behavior



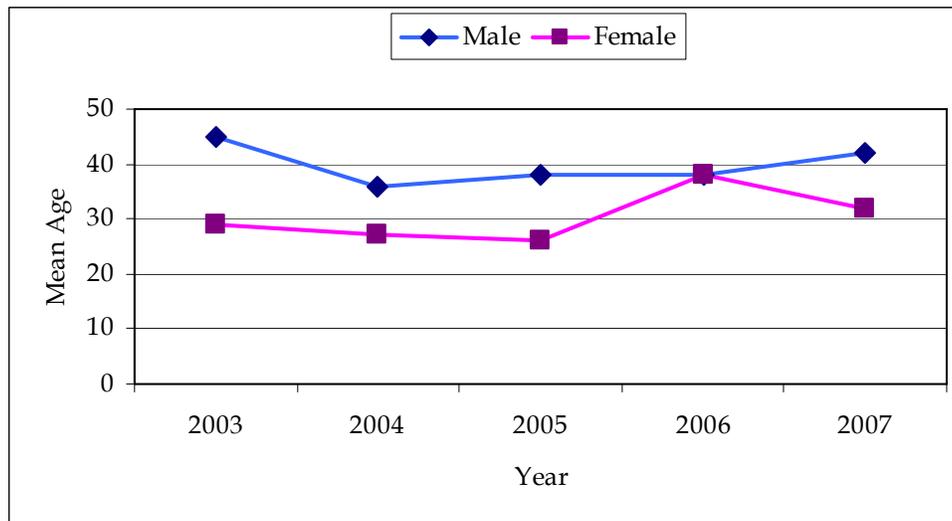
HIV/AIDS and Gender 2003 - 2007

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.

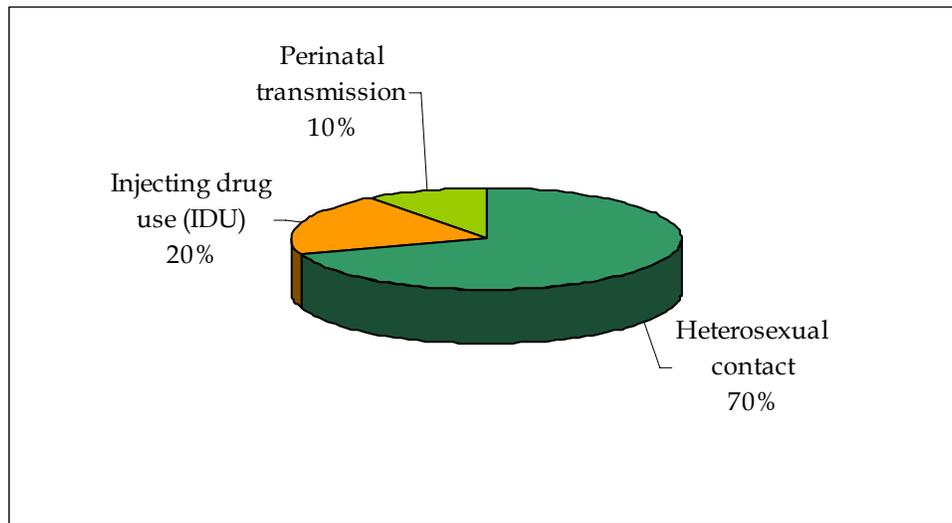
Females diagnosed with HIV/AIDS in North Dakota between 2003 and 2007 were, on average, younger than their male counterparts at the time of diagnosis. Females were diagnosed with HIV/AIDS at an average age of 30, which is 10 years younger than the average age at which males were diagnosed.

Figure 15 - Mean Age of HIV/AIDS Cases Diagnosed 2003 - 2007 by Gender



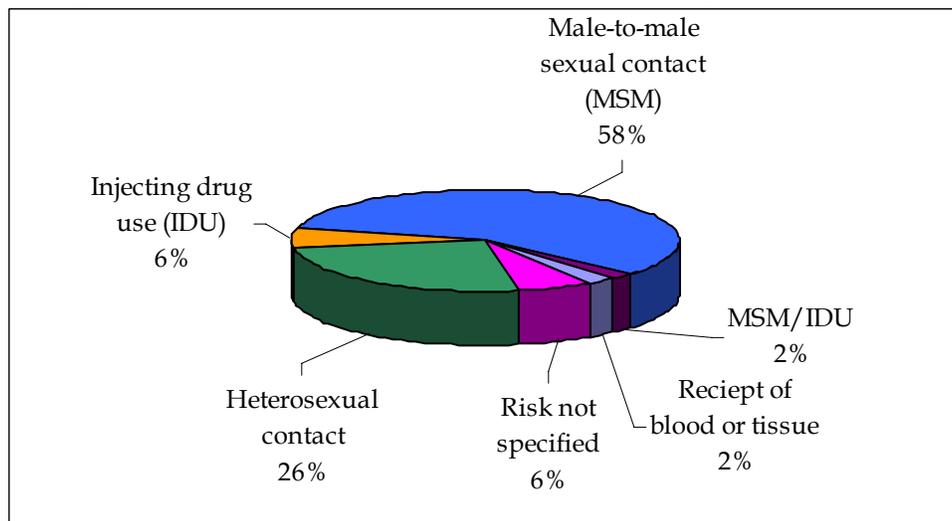
The risk factors reported by males and females at the time of their HIV/AIDS diagnosis varied greatly from 2003 to 2007. As was expected, a higher proportion of females than males reported having heterosexual relations. Unexpectedly, a higher proportion of females than males reported injecting drug use as a risk factor.

Figure 16 - Risk Factors of Female HIV/AIDS Cases Diagnosed 2003 - 2007



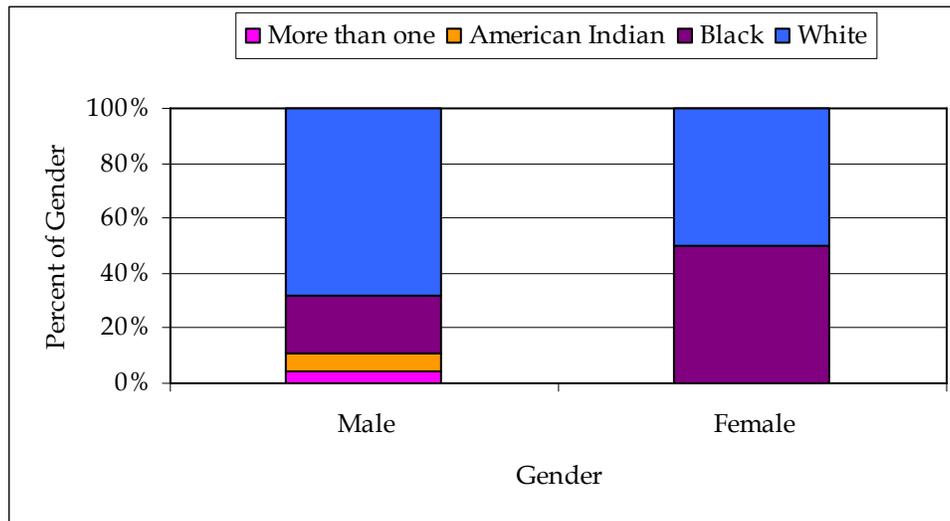
Between 2003 and 2007, a higher proportion of males reported having heterosexual relations, and a lower proportion reported injecting drug use than the cumulative HIV/AIDS cases.

Figure 17 - Risk Factors of Male HIV/AIDS Cases Diagnosed 2003 - 2007



A higher proportion of females than males diagnosed with HIV/AIDS between 2003 and 2007 were black. Also, no females diagnosed during this time period were Native American.

Figure 18 - Percent of HIV/AIDS Cases Diagnosed 2003 - 2007 by Gender That Identified a Racial/Ethnic Group

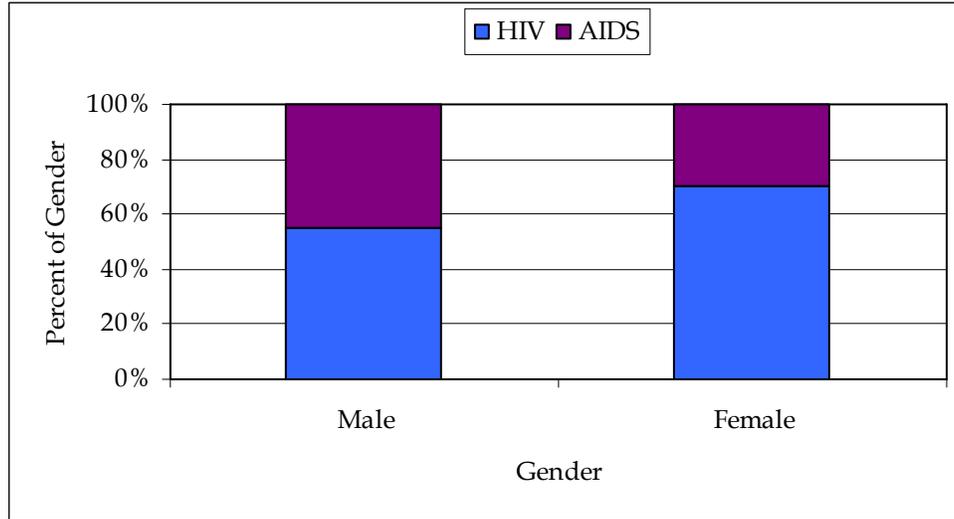


Factors that Affect Disease Status at HIV/AIDS Diagnosis

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 2003 and 2007.

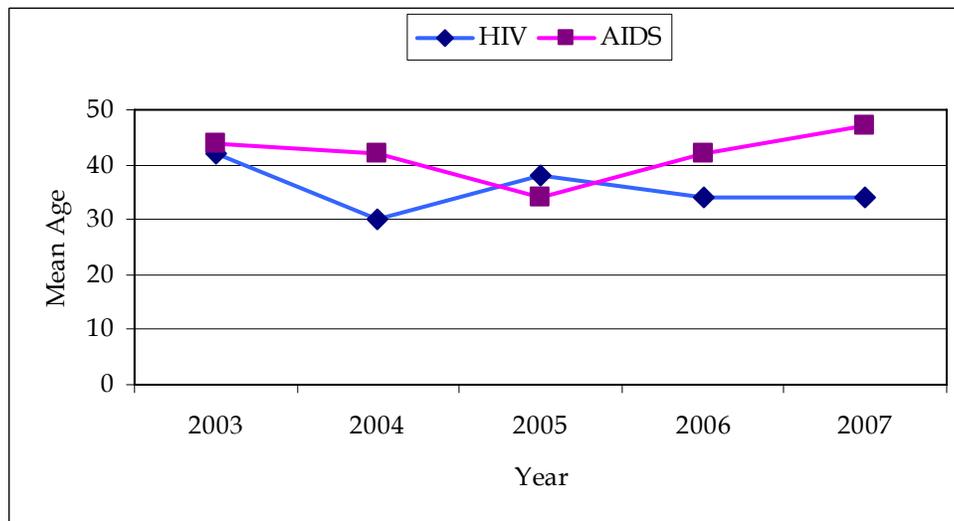
Gender is a factor that may affect disease status at diagnosis of HIV/ AIDS. Between 2003 and 2007, a higher proportion of males were classified as having AIDS at their initial HIV/ AIDS diagnosis.

Figure 19 – Percent of HIV/AIDS Cases Diagnosed 2003 - 2007 by Gender With HIV or AIDS at Diagnosis



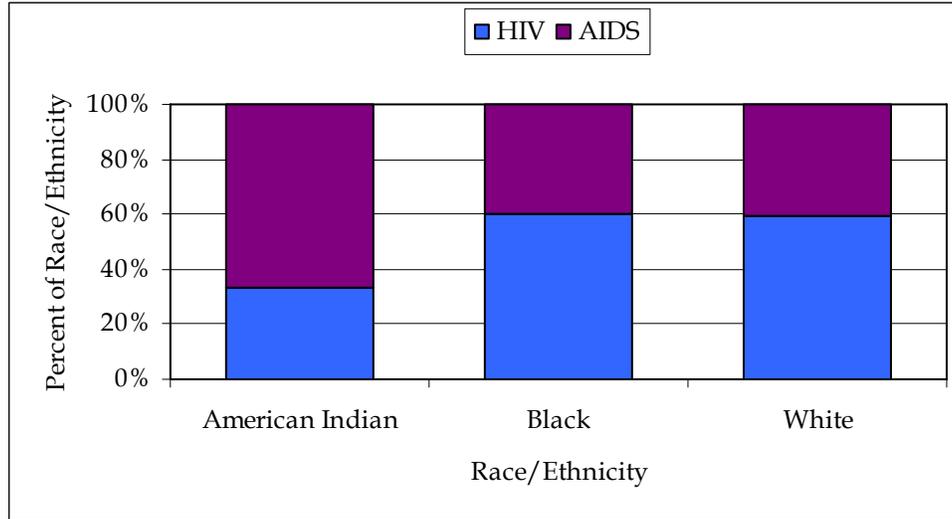
On average, individuals who were diagnosed with AIDS at their initial HIV/AIDS diagnosis between 2003 and 2007 were older than those diagnosed with HIV (non-AIDS). The average age of HIV/AIDS clients with AIDS at their initial diagnosis was six years older than those with HIV (non-AIDS).

Figure 20 – Mean Age of HIV/AIDS Cases Diagnosed 2003 - 2007 by Disease Status



Sixty-seven percent of Native Americans diagnosed with HIV/AIDS in North Dakota from 2003 to 2007 were diagnosed with AIDS. Of black and white HIV/AIDS clients diagnosed during this same time period, 40 percent and 41 percent, respectively, were diagnosed with AIDS.

Figure 21 - Percentage of HIV/AIDS Cases Diagnosed 2003 - 2007 by Race/Ethnicity Group With HIV (non-AIDS) or AIDS at Diagnosis

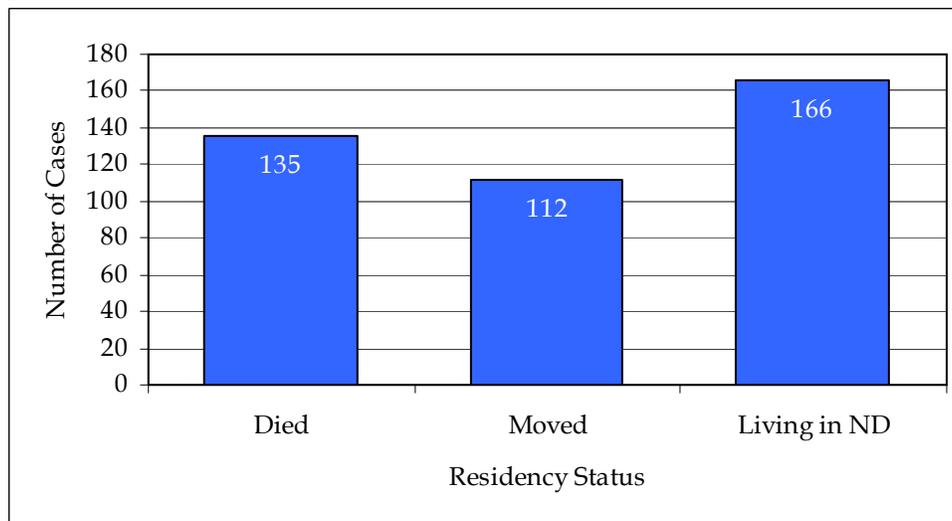


Vital Status of HIV/AIDS Cases

Of the 413 HIV/AIDS cases reported since 1984, only 166 were known to be living in North Dakota as of Dec. 31, 2007. 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.

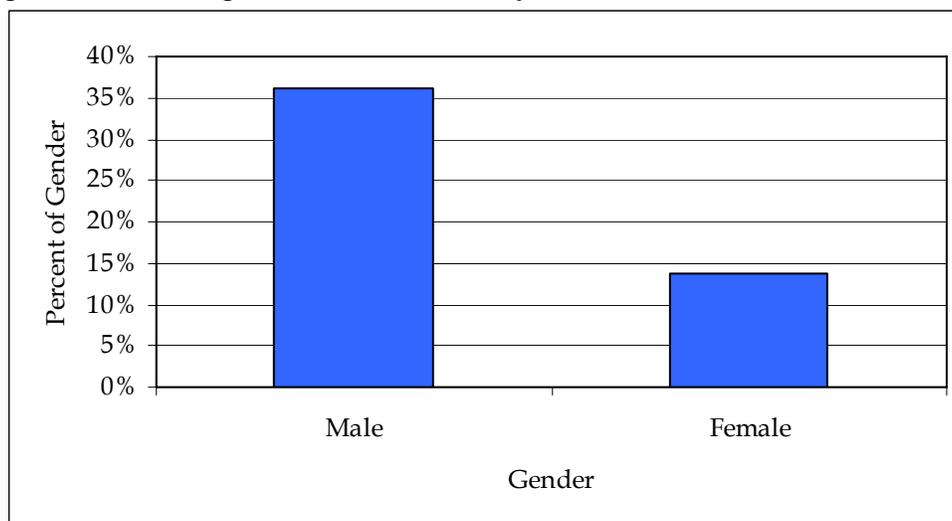
Of the 413 HIV/AIDS cases reported in North Dakota since 1984, 112 have moved out of the state and 135 have died.

Figure 22 - Residency Status of HIV/AIDS Cases Reported 1984 - 2007 as of 12/31/07



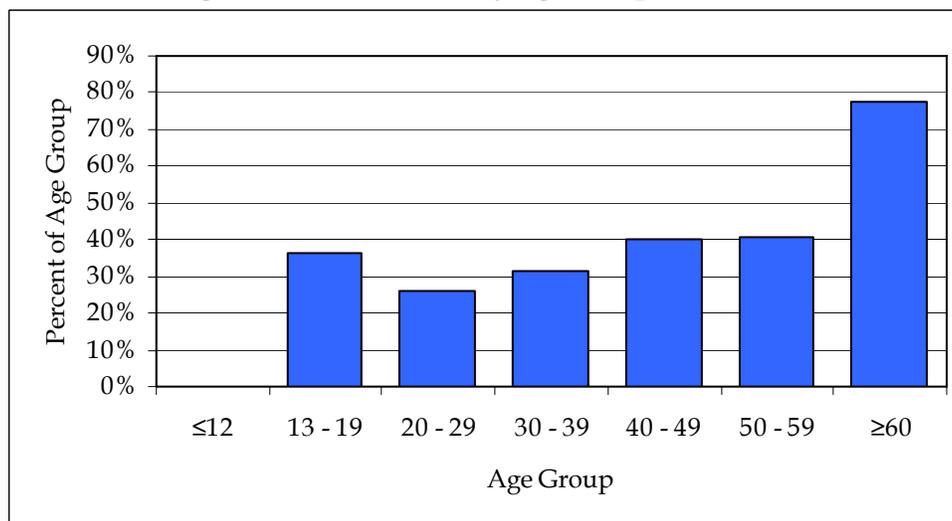
Thirty-six percent of all male HIV/AIDS cases reported in North Dakota have died, while only 14 percent of all female cases have died.

Figure 23 – Percentage of HIV/AIDS Cases by Gender Who Have Died as of 12/31/07



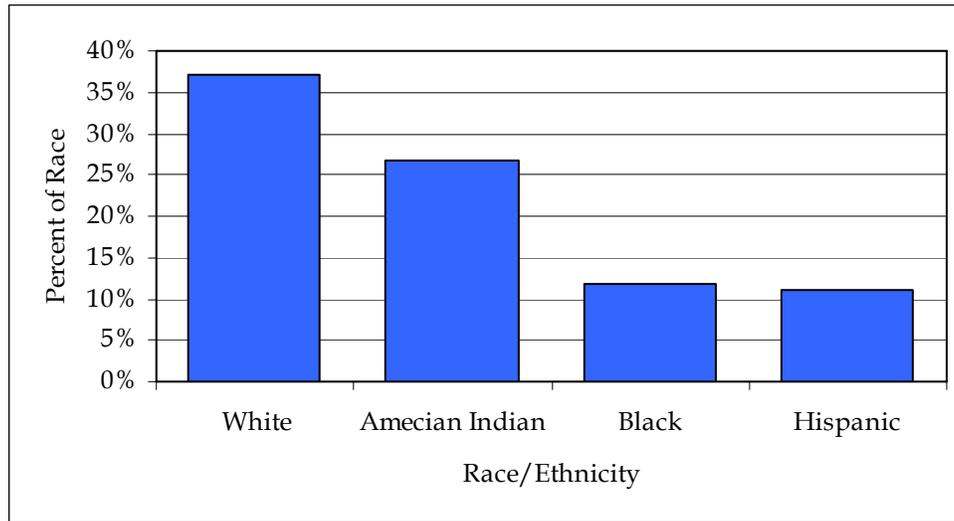
On average, 35 percent of all HIV/ AIDS cases reported in North Dakota who were between the ages of 13 and 59 at diagnosis have died. None of the cases who were 12 years old and younger have died. Seventy-eight percent of the cases who were 60 and older at diagnosis have died.

Figure 24 – Percentage of HIV/AIDS Cases by Age Group Who Have Died as of 12/31/07



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 27 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 12/31/2007



HIV Counseling and Testing

There are 30 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 2007, 2,684 people were tested for HIV in North Dakota. Of those tested, there were nine positive tests for a positivity rate of 0.34 percent. Fifty-two percent of the individuals tested had no previous HIV tests, while 47 percent had previously tested negative. Most of the HIV testing during 2007 was performed at the state CTR sites (31%), at family planning clinics (24%), and in jails or prisons (23%).

While females and males made up a similar proportion of the individuals who were tested for HIV in the state during 2007, males (77.8%) made up the majority of positive test results. The majority of individuals tested in the state were white, between the ages of 20 and 29, and claimed heterosexual relations as a risk factor. These characteristics also describe the majority of positive tests reported from these sites. While the majority of individuals with positive tests reported heterosexual relations (55.6%) as a risk factor during testing and counseling, male-to-male sexual relations (52%) was the most common risk factor reported during HIV/AIDS case investigations since 1984.

Table 5 – Characteristics of Individuals Tested for HIV in North Dakota during 2007

| | Total Tests | | Positive Tests | |
|---------------------------------------|--------------|-------------------------|----------------|---------------------------|
| | Number | Percentage ¹ | Number | Percentage ^{1,2} |
| Gender | | | | |
| Male | 1,545 | 57.6 | 7 | 77.8 |
| Female | 1,137 | 42.4 | 2 | 22.2 |
| Not Specified | 2 | 0.1 | 0 | 0.0 |
| Race/Ethnicity | | | | |
| White | 2,162 | 80.6 | 7 | 77.8 |
| Black | 138 | 5.1 | 0 | 0.0 |
| Hispanic | 73 | 2.7 | 1 | 11.1 |
| Asian/Pacific Islander | 34 | 1.3 | 0 | 0.0 |
| American Indian | 247 | 9.2 | 1 | 11.1 |
| Other | 30 | 1.1 | 0 | 0.0 |
| Age Group | | | | |
| ≤ 12 | 3 | 0.1 | 0 | 0.0 |
| 13 – 19 | 461 | 17.2 | 1 | 11.1 |
| 20 – 29 | 1,501 | 55.9 | 5 | 55.6 |
| 30 – 39 | 391 | 14.6 | 1 | 11.1 |
| 40 – 49 | 226 | 8.4 | 1 | 11.1 |
| ≥ 50 | 94 | 3.5 | 1 | 11.1 |
| Not Specified | 8 | 0.3 | 0 | 0.0 |
| Risk Factors | | | | |
| MSM/IDU | 14 | 0.5 | 1 | 11.1 |
| MSM | 153 | 5.7 | 0 | 0.0 |
| IDU | 198 | 7.4 | 1 | 11.1 |
| Sex Partner at Risk | 193 | 7.2 | 0 | 0.0 |
| Child of HIV+ Woman | 0 | 0.0 | 0 | 0.0 |
| STD Diagnosis | 85 | 3.2 | 0 | 0.0 |
| Sex for Drugs/money | 3 | 0.1 | 0 | 0.0 |
| Sex while Using Drugs | 118 | 4.4 | 1 | 11.1 |
| Transfusion/Receipt of Blood Products | 5 | 0.2 | 0 | 0.0 |
| Sexual Assault Victim | 36 | 1.3 | 0 | 0.0 |
| Healthcare Exposure | 20 | 0.7 | 0 | 0.0 |
| Heterosexual relations | 1,465 | 54.6 | 5 | 55.6 |
| No Indicated Risk | 394 | 14.7 | 1 | 11.1 |
| Total | 2,684 | | 9 | |

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

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

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 71 (43%) of the 166 people living with HIV/AIDS in North Dakota. The majority of clients are male (78%), which can be compared with the 77 percent of males living in North Dakota with HIV/AIDS. The highest risk factors for clients include 45 percent MSM and 34 percent heterosexual contact. Following behind was injecting drug use with 7 percent, perinatal transmission with 3 percent, 3 percent had hemophilia, and the last 8 percent were unknown or undecided. Fifty-one percent of the clients have been diagnosed with AIDS, while 49 percent have not yet met the criteria for AIDS diagnosis.

Sexually Transmitted Diseases Other Than HIV/AIDS

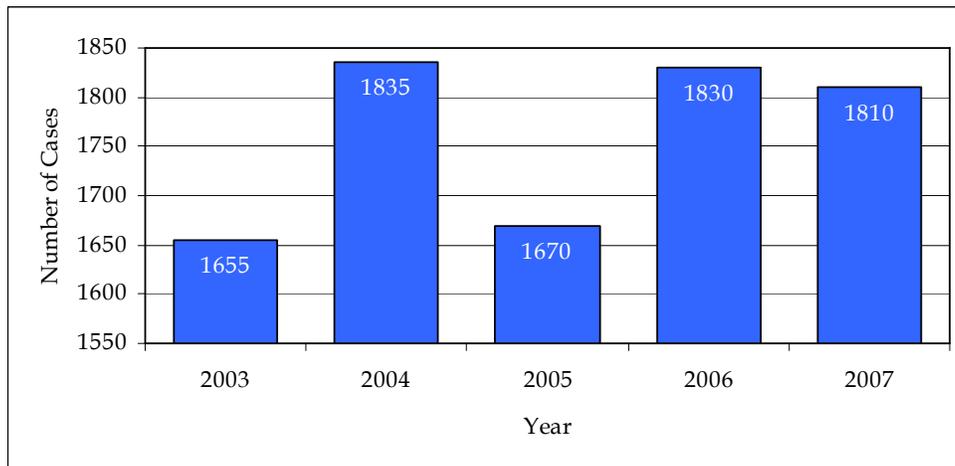
Surveillance of sexually transmitted diseases (STDs) other than HIV/AIDS is an important part of HIV/AIDS prevention. Individuals with STDs, such as chlamydia, gonorrhea, and syphilis are two to five times more likely to contract HIV from an infected individual than those without an STD. Also, an HIV-infected 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 1,760 between 2003 and 2007. In 2006, the incidence rate of chlamydia in North Dakota was 285.9 per 100,000. This is lower than the national average of 347.8 per 100,000, and was the 33rd highest rate of all 50 states.

Figure 26 – Number of Chlamydia Cases Reported 2003 - 2007

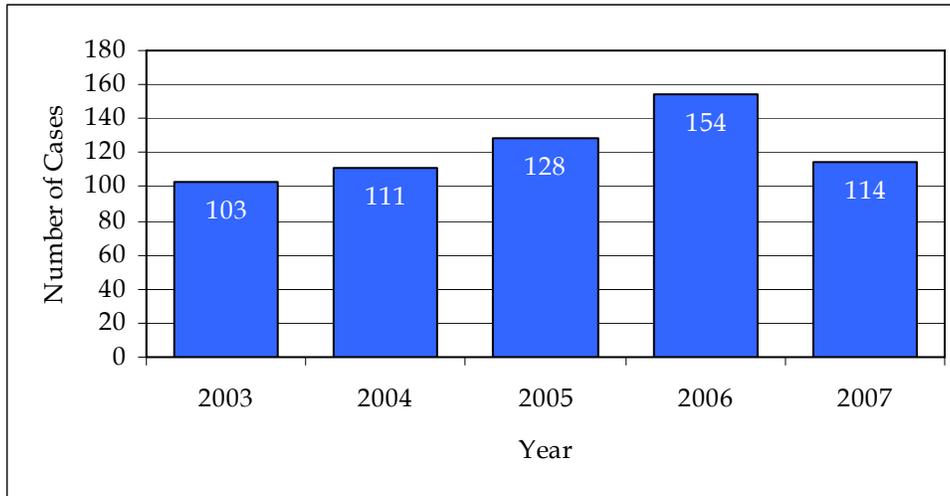


Gonorrhea

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

There was an average of 122 cases of gonorrhea per year reported in North Dakota between 2003 and 2007. In 2006, the incidence rate was 24.0 per 100,000, which was ranked 44th in the United States.

Figure 27 - Number of Gonorrhea Cases Reported 2003 - 2007

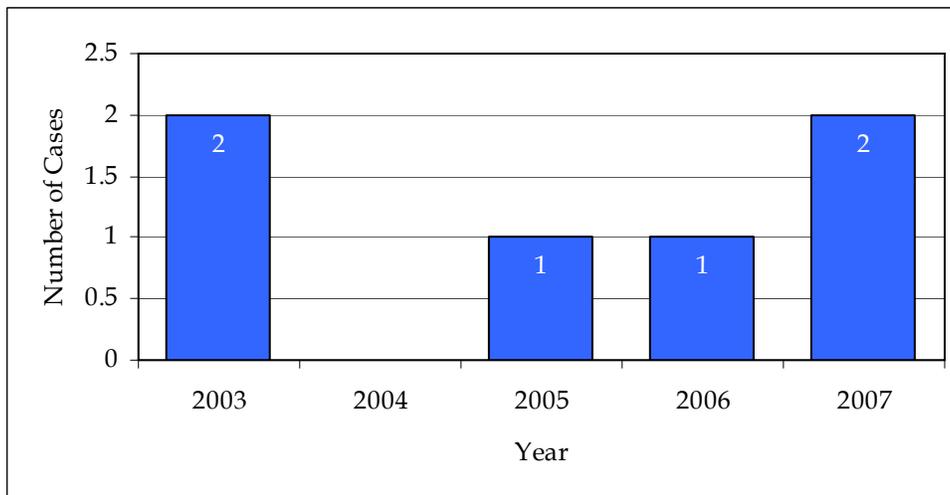


Syphilis

Syphilis, also known as the great imitator because of its indistinct signs and symptoms, is caused by the bacterium *Treponema pallidum*. In 2006, an estimated 36,000 Americans reported having syphilis. If left untreated, syphilis can cause complications that range in severity from a rash to death.

Between 2003 and 2007, seven cases of syphilis were reported in North Dakota. In 2006, North Dakota's syphilis incidence rate was ranked 48th in the United States with 0.2 per 100,000.

Figure 28 - Number of Syphilis Cases Reported 2003 - 2007



For both chlamydia and gonorrhea, more females than males were reported to have these infections in 2007. 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 2,307 per 100,000 for chlamydia and 459.7 per 100,000 for gonorrhea. Native Americans and Hispanics also have higher rates of chlamydia and gonorrhea than whites.

Table 5 - Chlamydia and Gonorrhea Cases Reported in 2007

| | Chlamydia | Gonorrhea |
|---|------------------|------------------|
| Number by Gender | | |
| Male | 600 | 49 |
| Female | 1,209 | 65 |
| Number by Age Group | | |
| <15 | 13 | 0 |
| 15-19 | 493 | 17 |
| 20-24 | 832 | 40 |
| 25-29 | 315 | 32 |
| 30-34 | 92 | 11 |
| 35-39 | 31 | 5 |
| 40-44 | 20 | 1 |
| 45-54 | 6 | 5 |
| 55-64 | 3 | 2 |
| >64 | 0 | 1 |
| Rate per 100,000 by Race/Ethnicity | | |
| Black | 2,307.0 | 459.7 |
| American Indian | 1,051.0 | 76.6 |
| Hispanic | 717.9 | 115.6 |
| White | 188.5 | 8.4 |
| Asian | 221.9 | 0.0 |
| Total Number | 1,801.0 | 114.0 |

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

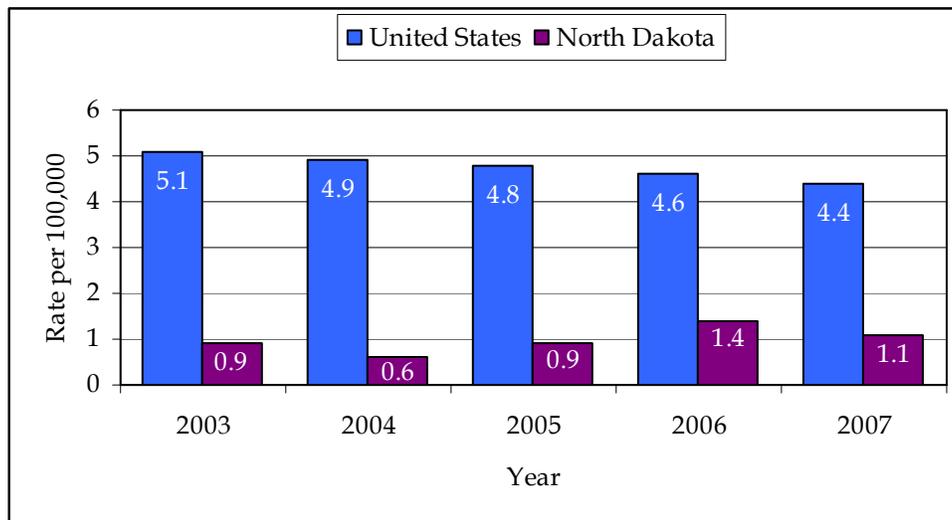
Tuberculosis

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 2003 to 2007.

Between 2003 and 2007, there were 32 cases of TB disease reported in North Dakota. The number of annual TB cases ranged from four to nine, resulting in incidence rates between 0.6 and 1.4 per 100,000. This is well below the national average of 4.4 to 5.1 per 100,000.

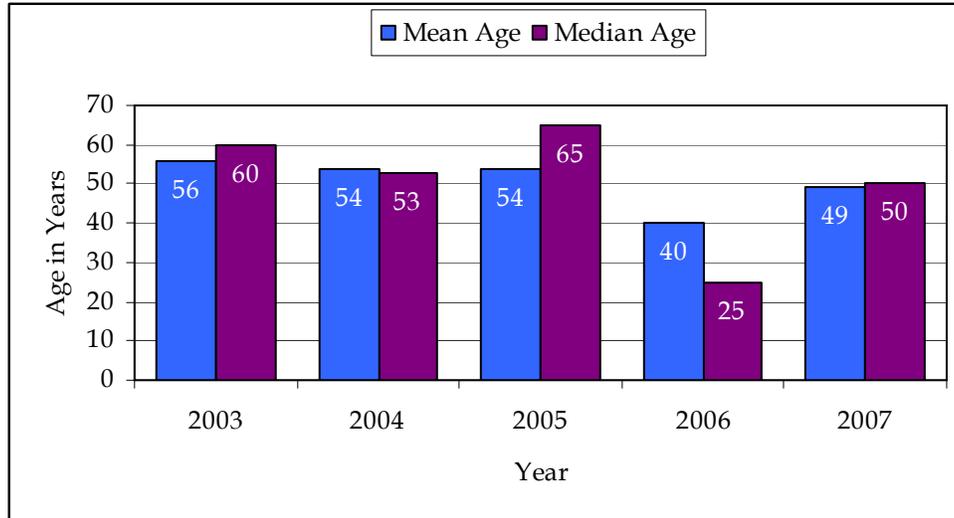
Figure 29 - Incidence Rate of Tuberculosis Disease Reported 2003 - 2007



The mean and median ages of TB disease cases remained consistent between 2003 and 2007 with the exception of 2006. In 2006, the cases were generally

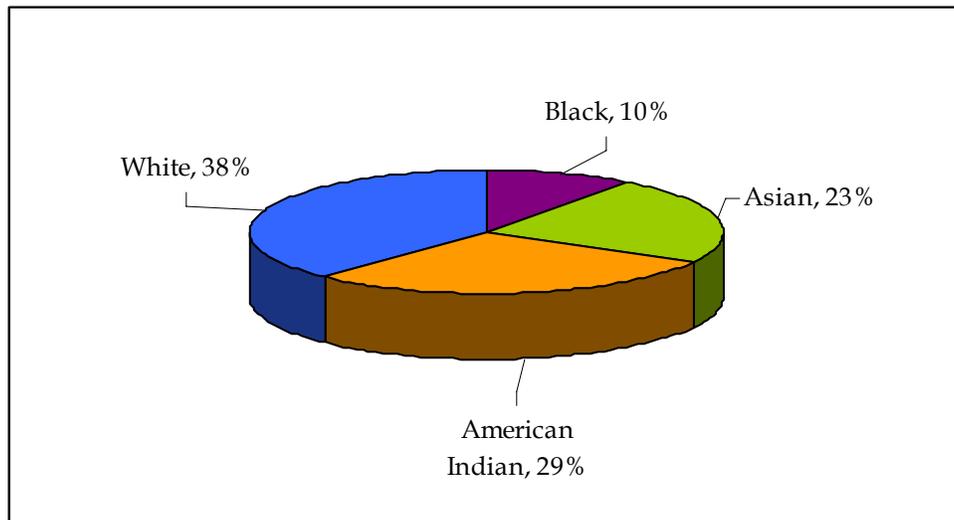
younger than average. The overall mean and median ages for this time period were 51 and 51.

Figure 30 - Mean and Median Ages of Tuberculosis Disease Cases Reported 2003 - 2007



There is a distinct racial disparity among cases of TB disease, with the majority of them being of a racial or ethnic minority. From 2003 to 2007, 38 percent of the cases were white, while the other 68 percent were Native Americans, Asian and black.

Figure 31 - Race/Ethnicity of Tuberculosis Disease Cases Reported 2003 - 2007



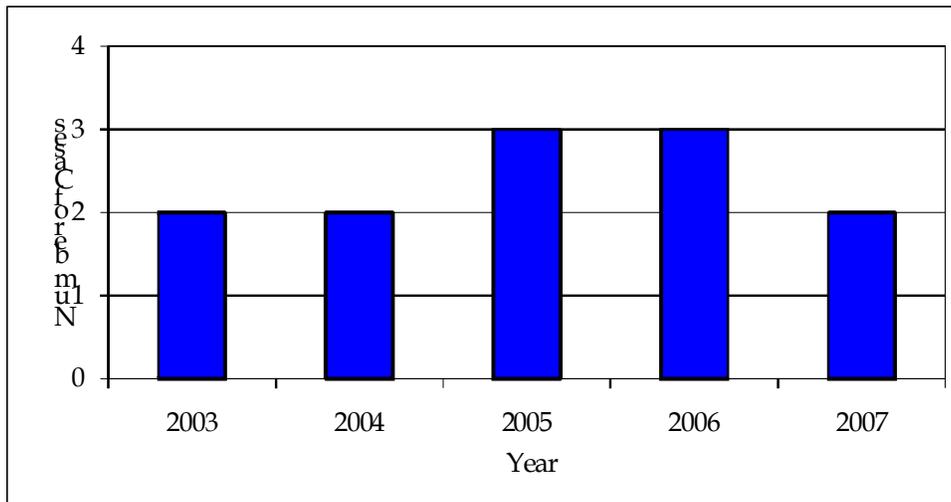
Viral Hepatitis

Hepatitis is the general term that means “inflammation of the liver.” Many factors can cause hepatitis, including toxins, drugs, viruses and parasites, and other factors. Five viruses have been identified to cause viral hepatitis: hepatitis A virus (HAV), hepatitis B virus (HBV), hepatitis C virus (HCV), hepatitis D virus (HDV) and hepatitis E virus (HEV). In the United States and in North Dakota, HAV, HBV and HCV are the most common types of viral hepatitis.

Hepatitis A

Hepatitis A is a liver disease caused by HAV. HAV is spread through contact with objects, food or drinks contaminated by the feces of an infected person. Those at highest risk for developing hepatitis A include people with travel to or who live in countries where hepatitis A is common, men who have sex with men, people who use illegal drugs, people who live with someone who has hepatitis A, and those who have sexual contact with someone who has hepatitis A. Some people who have hepatitis A do not have symptoms. Possible symptoms, usually appearing two to six weeks after exposure and lasting two to six months, that one may experience are fever, fatigue, loss of appetite, nausea, vomiting, dark urine and jaundice. Rates of hepatitis A in the United States are currently at the lowest they have been in 40 years. The hepatitis A vaccine was introduced in 1995, and, currently, all children are routinely recommended to be vaccinated.

Figure 32 - Hepatitis A Cases by Year, 2003-2007



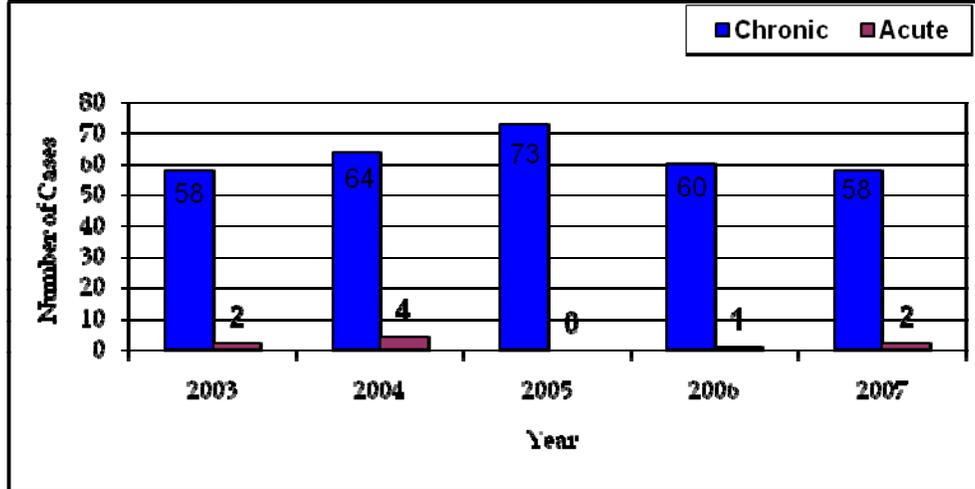
In 2007, the North Dakota had two cases of acute hepatitis A, an incidence of 0.31 per 100,000. In 2007, the incidence of hepatitis A in the United States was 1.0 per 100,000, and 2,979 acute symptomatic cases of acute hepatitis A were reported in the United States. An estimated 25,000 new infections, including those that are

asymptomatic and not reported, occurred in 2007 in the United States. Since the introduction of hepatitis A vaccinations, cyclical epidemics of this disease, once common in North Dakota, have not been reported.

Hepatitis B

Hepatitis B is a liver disease caused by HBV. HBV can be spread through blood, semen or other body fluids infected with HBV. Those at a greater risk for becoming infected with hepatitis B include sexual contacts of infected individuals, men who have sex with men, household contacts of chronically infected people, injection drug users, infants born to infected mothers and people who have contact with infected blood. Hepatitis B can be either acute or chronic. Acute hepatitis B infections are short-term illnesses that occur within the first six months of exposure to HBV. Acute infection can but does not always lead to chronic infection. Chronic hepatitis B is a long-term illness that occurs when HBV remains in a person's body. Hepatitis B infections can lead to chronic disease and can cause serious liver damage including cirrhosis of the liver or liver cancer. A majority of those infected, especially older children and adults with HBV, do not experience symptoms. Acute hepatitis B symptoms, appearing usually three months after exposure and lasting a few weeks to six months, include fever, fatigue, loss of appetite, nausea, vomiting, dark urine and jaundice. Those with chronic hepatitis may experience similar symptoms to acute hepatitis B, but most individuals will remain symptom free for as long as 20 or 30 years. Between 800,000 and 1.4 million people in the United States have chronic hepatitis B infection. An estimated 5,000 to 8,000 people become chronically infected each year in the United States. Since the introduction of the hepatitis B vaccine, there has been a dramatic decrease in new hepatitis B infections in the United States, with 208,000 in 1980 and 43,000 in 2007. In North Dakota, an average of 63 chronic hepatitis B cases and two acute hepatitis B cases were reported each year in 2003 through 2007.

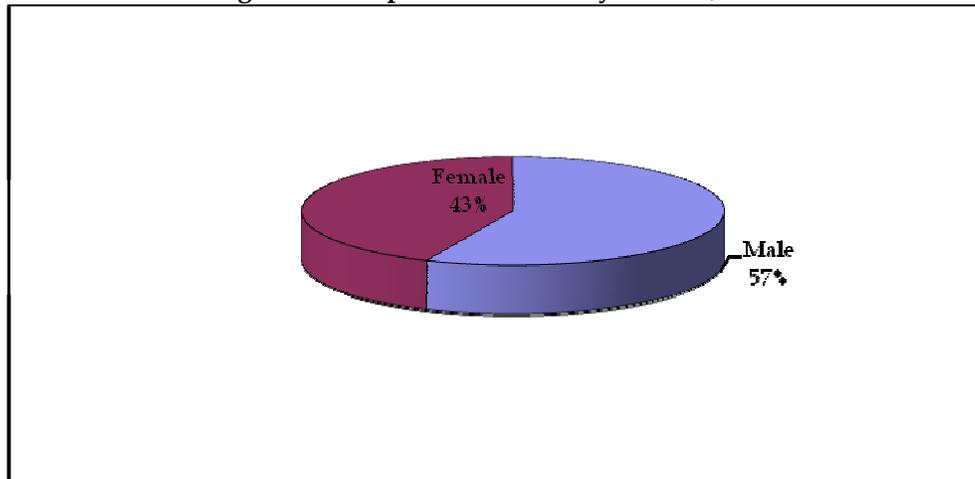
Figure 33 - Hepatitis B Cases* by Year, 2003-2007



*Includes acute and chronic infections

In North Dakota, there were 58 cases of chronic hepatitis B and two cases of acute hepatitis B reported in 2007. The incidence of chronic hepatitis B in North Dakota for 2007 was 9.03 per 100,000. In 2007, there were two cases of acute hepatitis B, incidence rate of 0.31 per 100,000, reported in North Dakota as compared to the estimated incidence rate of 1.5 per 100,000 for the United States in 2007.

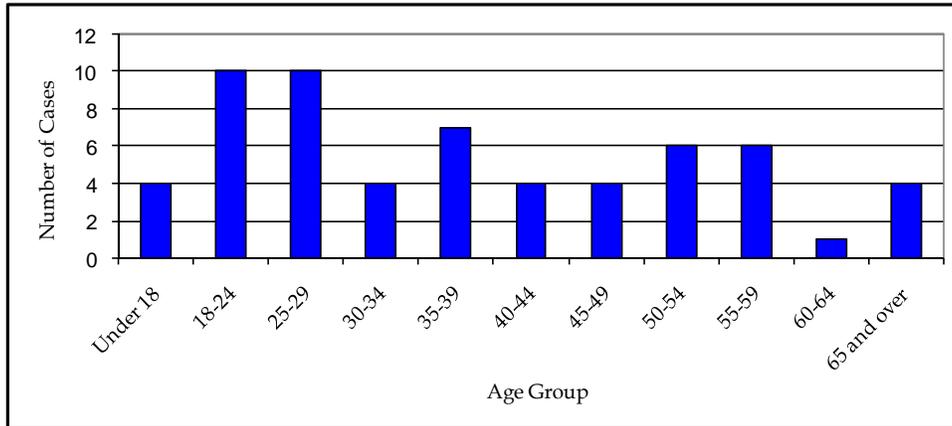
Figure 34 - Hepatitis B Cases* by Gender, 2007



*Based on positive lab result

In 2007, 57 percent of reported hepatitis B cases were male. In North Dakota, the incidence rate among males is 10.6 per 100,000, which is higher than 8.1 per 100,000 for females infected with hepatitis B in 2007.

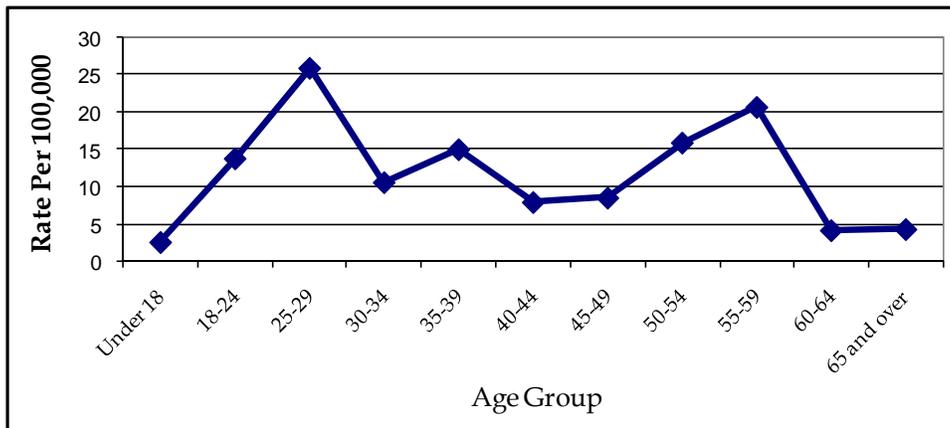
Figure - 35 Hepatitis B Cases* by Age Group, 2007



*Based on reported positive lab result

In North Dakota, 10 cases of hepatitis B were reported in the age groups of 18 to 24 and 25 to 29 in 2007. These were the most frequently reported age groups. The age group 35 to 39 was the third most frequently reported age group, with seven cases.

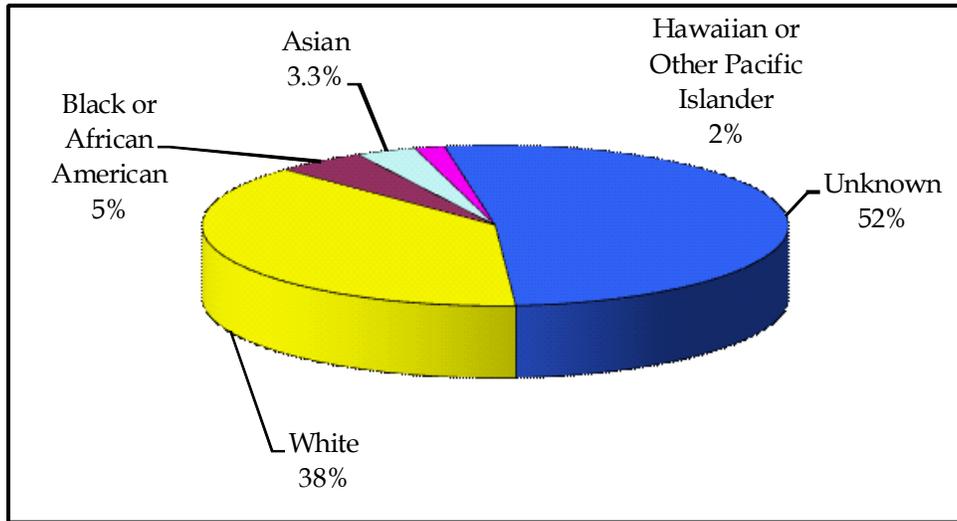
Figure -36 Incidence Rates of Hepatitis B Cases* by Age Group, 2007



*Based on reported positive lab result

The age groups with the highest incidence rates compared to any other age group in North Dakota were not necessarily the age group with the greatest percentage of cases reported. The incidence rates of age groups 25 to 29 and 55 to 59 were 25.8 and 20.7 per 100,000, respectively.

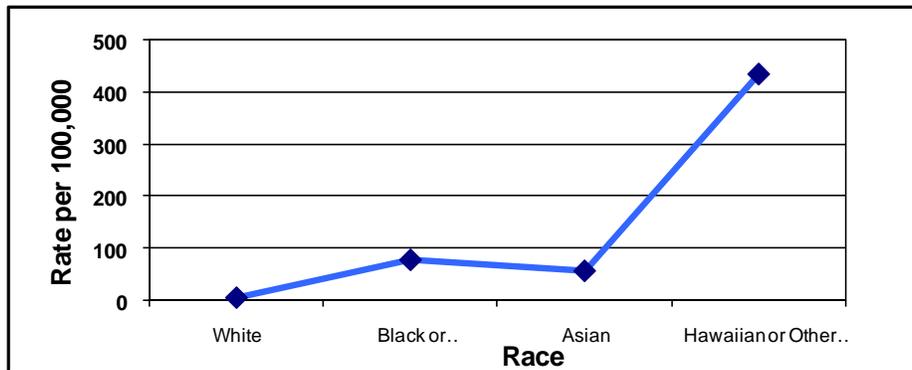
Figure - 37 Hepatitis B* Cases by Race, 2007



*Based on reported positive lab result

In North Dakota, the highest percentage of Hepatitis B cases occurred in the white population in 2007. Thirty-eight percent of all hepatitis B cases were white and the second largest percentage of hepatitis B cases was five percent among blacks or African Americans.

Figure - 38 Incidence Rates of Hepatitis B Cases* by Race, 2007



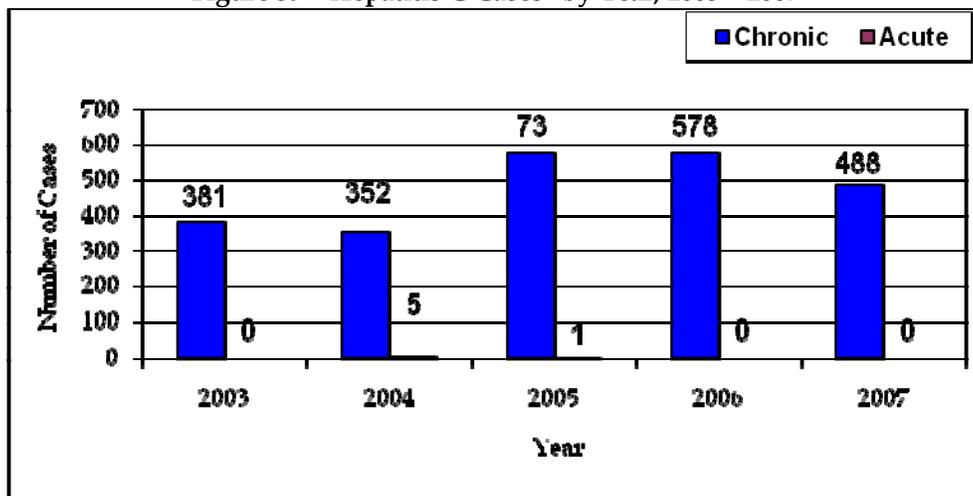
*Based on reported positive lab result

In 2007, the greatest percentage of hepatitis B cases in North Dakota was among whites (incidence rate was 3.9 per 100,000). The racial disparity of hepatitis B infections in North Dakota is greatest among Hawaiian or Other Pacific Islander and blacks or African American populations. The incidence rate for the black or African American population for hepatitis B cases in 2007 was 76.6 per 100,000. The highest incidence rate (434.8 per 100,000) occurred among the Hawaiian or Other Pacific Islander race. The Asian incidence rate of hepatitis B in 2007 was 55.5 per 100,000.

Hepatitis C

Hepatitis C is a liver disease caused by HCV. HCV is spread when blood from an infected person enters the body of someone who is not infected. Those at a greater risk for becoming infected with hepatitis C include current and past injection drug users, HIV-infected individuals, children born to mothers infected with HCV, people who received body piercing or tattoos done with nonsterile instruments, people who received a blood product for clotting problems made before 1987 and recipients of donated blood, blood products and organs prior to 1992. Before 1992, when widespread screening of the blood supply began in the United States, hepatitis C was commonly spread through blood transfusions and organ transplants. Hepatitis C can be either acute or chronic. Acute hepatitis C infections are short-term illnesses that occur within the first six months of exposure to HCV. Acute infection can but does not always lead to chronic infection. Acute hepatitis C symptoms, appearing two weeks to six months after exposure, include fever, fatigue, loss of appetite, nausea, vomiting, dark urine and jaundice. Chronic hepatitis C is a long-term illness that occurs when HCV remains in a person's body. Chronic hepatitis C infections can lead to serious liver damage, including cirrhosis of the liver or liver cancer, and is the leading indication for liver transplants in the United States. Most people with chronic hepatitis C do not experience symptoms until liver problems have developed. Currently, an estimated 3.2 million people in the United States have chronic hepatitis C infection. Most people infected with HCV do not know they are infected because they don't look or feel sick.

Figure 39 - Hepatitis C Cases* by Year, 2003 - 2007

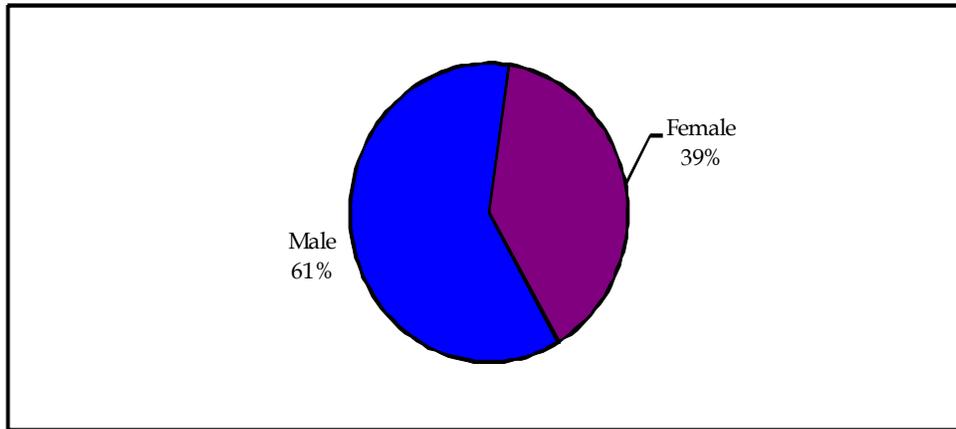


*Includes acute and "past or present" infections

Data for North Dakota is incomplete, and interpretation of these data is difficult because the findings are based primarily on laboratory data. There was an average of one acute and 476 "past or present" infections of hepatitis C each year between 2003 - 2007 in North Dakota. There were zero cases of acute hepatitis C

in North Dakota in 2007. In North Dakota, there were 488 “past or present” hepatitis C infections in 2007 (incidence rate of 76.0 per 100,000).

Figure 40 - Hepatitis C Cases* by Gender, 2007

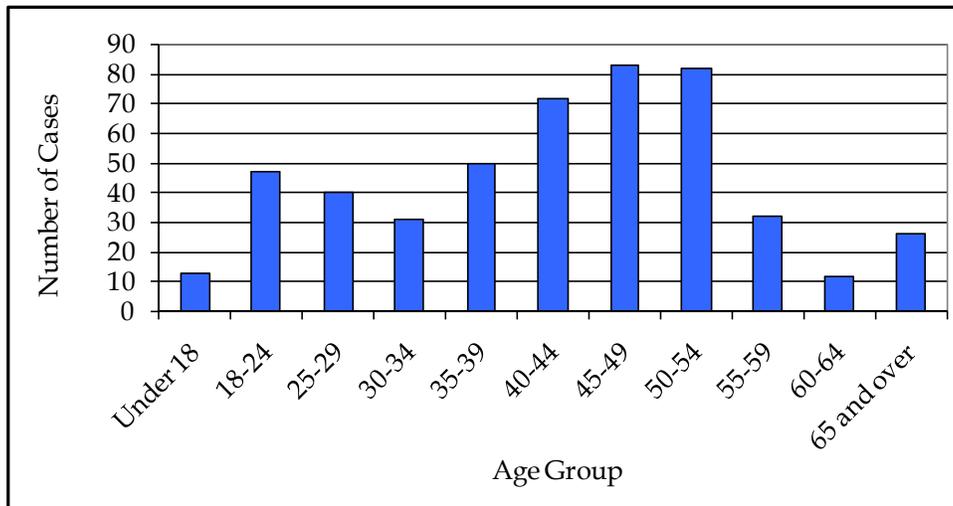


*Based on reported positive lab result

ve lab result

In 2007, 292 hepatitis C cases were male and 192 cases were female. The incidence rates of hepatitis C in 2007 among males and females are 92.4 and 59.7 per 100,000, respectively.

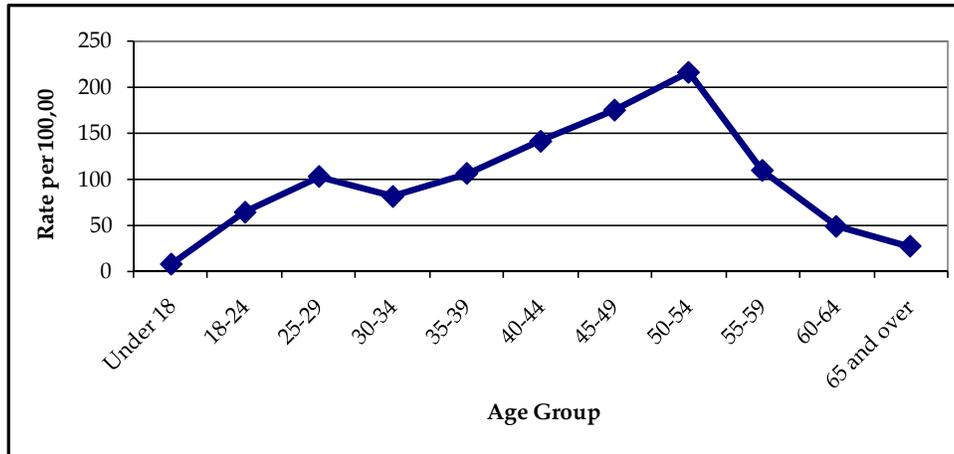
Figure 41 - Hepatitis C Cases* by Age Group, 2007



*Based on reported positive lab result

In North Dakota, more than 45 percent of reported hepatitis C cases occur in 40 to 54-year-olds.

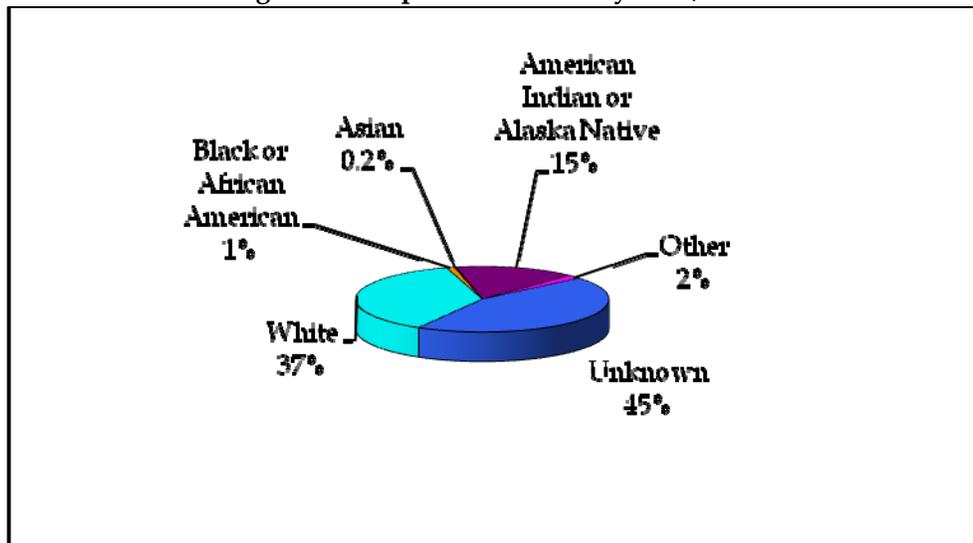
Figure - 42 Incidence Rates of Hepatitis C Cases* by Age Group, 2007



*Based on reported positive lab result

In North Dakota, the age group with the highest incidence rate of hepatitis C infection, 215.8 per 100,000, of hepatitis C infection is 50 to 54-year-olds. Since the majority of the hepatitis C infected patients do not experience any symptoms, the age at time of diagnosis can be far greater than age at time of exposure.

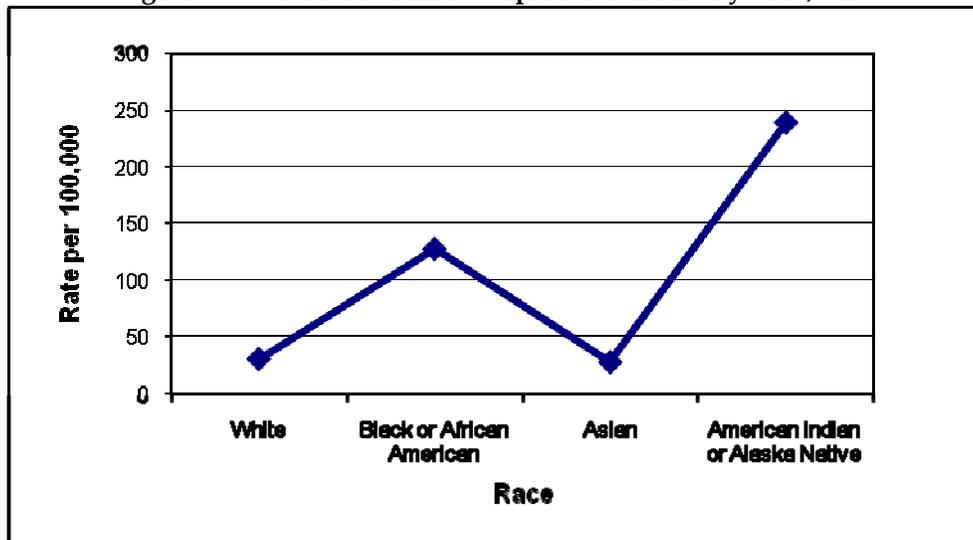
Figure 43 - Hepatitis C Cases* by Race, 2007



*Based in reported positive lab result

In North Dakota, whites are the highest percentage of reported hepatitis C cases with known race in 2007. Thirty-seven percent of hepatitis C cases were white, followed by American Indian or Alaska Native at 15 percent, the second greatest proportion of hepatitis C cases in North Dakota.

Figure 44 - Incidence Rates of Hepatitis C Cases* by Race, 2007



*Based in reported positive lab result

The racial disparity of hepatitis C infections is greatest among the American Indian or Alaska Native population. The incidence rate among the American Indian or Alaska Native population is 239.4 per 100,000, compared to 30.5 per 100,000 for the white population.

Co-Infection

An estimated one-quarter of HIV-infected people in the U.S. also are infected with HCV. HIV-infected injection drug users are commonly (50% to 90%) co-infected with HCV. HCV causes a rapid progression to liver damage in an HIV-infected person. Hepatitis B is also a common co-infection with HIV since transmission is primarily through sexual contact and injection drug use. As with HCV, people who are co-infected with HIV and HBV have an increased risk for liver-related morbidity and mortality.

An HIV infected individual who also is infected with another STD is more likely to transmit HIV through sexual contact than other HIV-infected people. Co-infection of HIV and STDs increases the concentration of HIV in genital secretions, causing increased infectiousness. If exposed to HIV infection through sexual contact, individuals who are infected with STDs are at least two to five times more likely than uninfected individuals to acquire HIV infection.

In North Dakota, HIV/AIDS patients have low rates of co-infection with STDs, hepatitis C and hepatitis B. Table 6 demonstrates the risk factors associated with HIV/AIDS and co-infections in North Dakota. Although the percentage of infected HIV/AIDS persons with co-infections is low, it is very important to know the health implications associated with co-infections.

Table 7. HIV/AIDS Diagnosis With Co-Infections

| Risk | North Dakota, 2003-2007 (n=111 HIV/AIDS cases) | | | | |
|---------------------------------------|--|---------------|---------------|---------------|---------------|
| | Chlamydia | Gonorehea | Syphilis | Hepatitis C | Hepatitis B |
| Heterosexual contact | 2 | 2 | | | 2 |
| Injecting drug use (IDU) | | | | 2 | 1 |
| Male-to-male sexual contact (MSM) | | | 1 | 1 | 1 |
| MSM/IDU | | | | | |
| Perinatal transmission | | | | | |
| Adult hemophilia/coagulation disorder | | | | | |
| Receipt of blood or tissue | | | | | |
| Risk not specified | | | | 2 | |
| Total | 2 (2%) | 2 (2%) | 1 (1%) | 5 (5%) | 4 (4%) |

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 less than 18 months of age 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 non-infected.

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