

**North Dakota**

**HIV, TB, STD  
and Hepatitis**

**Epidemiological Profile**

**2011**



**NORTH DAKOTA**  
DEPARTMENT *of* HEALTH

**North Dakota Department of Health**  
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## Summary

- At the time of the 2010 U.S. Census, North Dakota had 672,591 residents; 90 percent were white.
- At the time of the 2010 U.S. Census, 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 2010, 541 cases of HIV/ AIDS were reported to the North Dakota Department of Health, 304 (56%) of which were diagnosed in North Dakota.
- Thirty-five percent of all cases diagnosed in North Dakota were classified as AIDS at first diagnosis.
- There were 248 people known to be living in North Dakota with HIV/ AIDS as of Dec. 31, 2011, while 186 people with HIV/ AIDS died in North Dakota between 1984 and 2010.
- Eighty-four percent of all HIV/ AIDS cases diagnosed in the state between 1984 and 2011 were between the ages of 20 and 49.
- The average HIV/ AIDS incidence rate from 2007 to 2011 for blacks was 42.2 per 100,000, whereas it was 1.5 per 100,000 and 2.3 per 100,000 for whites and American Indians, 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 HIV/ AIDS contracted through heterosexual relations, with 31 percent of cases diagnosed in North Dakota between 2007 and 2011 identifying this risk.
- There were 3,721 HIV tests reported in North Dakota during 2010; 13 were positive.
- The North Dakota CARES Program serves 110 (44%) of the 248 people living with HIV/ AIDS in North Dakota; 79 percent are male.
- The rates of chlamydia and gonorrhea are highest among blacks at 3,115 per 100,000 and 434 per 100,000, respectively.
- Racial and ethnic minorities compose the majority of all tuberculosis (TB) disease cases in North Dakota at 85 percent.
- There were 48 cases of chronic hepatitis B, zero cases of acute hepatitis B, zero cases of acute hepatitis A and 543 cases of hepatitis C reported in North Dakota in 2011.
- The most common co-morbidity with HIV between 2007 and 2011 was hepatitis C, representing 40 percent of all co-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, 2011.

## **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 sociodemographic 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, 2011. 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, 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 2009. 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 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 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. 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 were not de-duplicated prior to 2005.

Women of child bearing age, 14 to 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 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 13 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 672,591, according to the 2010 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 675 to 139,918 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 2010 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 (90%), while African Americans and American Indians comprised 1.2 percent and 5.4 percent, respectively.

|  | Number  | Percentage |
|--|---------|------------|
| <b>Gender</b>                              |         |            |
| Male                                       | 337,641 | 50.2       |
| Female                                     | 334,950 | 49.8       |
| <b>Age</b>                                 |         |            |
| Median age (years)                         | 36.2    | N/A        |
| <b>Race/Ethnicity</b>                      |         |            |
| White                                      | 605,332 | 90.0       |
| Black or African American                  | 8,071   | 1.2        |
| American Indian and Alaska Native          | 36,320  | 5.4        |
| Asian                                      | 6,726   | 1.0        |
| Native Hawaiian and Other Pacific Islander | 230     | 0.0        |
| Some other race                            | 3,806   | 0.6        |
| Two or more races                          | 12,106  | 1.8        |

\* 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 (88.7%) of the population age 25 and older had graduated from high school at the time of the 2010 U.S. Census. More than half (55%) of the population older than age 15 was married. Only 2.3 percent of the population was born in a country other

than the United States. Of those who were foreign born, 21.6 percent originated from Europe and 29.5 percent originated from Asia.

| <b>Table 2 - Social Characteristics of General Population</b>      | <b>Number</b> | <b>Percentage</b> |
|--|---------------|-------------------|
| <b>Education of People Age 25 Years and Older (n=408,469)</b>      |               |                   |
| High school graduate or higher                                     | 426,176       | 88.7              |
| Bachelor's degree or higher  | 112,329       | 27.5              |
| <b>Marital Status of People Age 15 Years and Older (n=522,663)</b> |               |                   |
| Never married  | 154,708       | 29.6              |
| Now married, not separated   | 285,897       | 54.7              |
| Separated  | 4,181         | 0.8               |
| Widowed  | 35,541        | 6.8               |
| Divorced   | 42,336        | 8.1               |
| <b>Place of Birth</b>  |               |                   |
| Native born  | 657,121       | 97.7              |
| Foreign born   | 15,470        | 2.3               |
| <b>Region of Origin of Foreign Born (n=14,435)</b>                 |               |                   |
| Europe   | 3,124         | 21.6              |
| Asia   | 4,264         | 29.5              |
| Africa   | 2,077         | 14.4              |
| Oceania  | 159           | 1.1               |
| Latin America  | 1,802         | 12.5              |
| Northern America   | 3,009         | 20.8              |

\* 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 2010, 56.9 percent of the population had an income level of between \$35,000 and \$99,999. The mean earnings per household were \$58,440, and the median household income was \$45,140. More than 12 percent (12.3%) of individuals and 7.4 percent of families were below the poverty level.

| <b>Table 3 - Economic Characteristics of General Population</b> | <b>Number</b> | <b>Percentage</b> |
|---|---------------|-------------------|
| <b>Families at Income Level (n=168,636)</b>                     |               |                   |
| Less than \$10,000  | 6,317         | 3.7               |
| \$10,000 to \$14,999  | 4,903         | 2.9               |
| \$15,000 to \$24,999  | 12,301        | 7.3               |
| \$25,000 to \$34,999  | 16,468        | 9.8               |
| \$35,000 to \$49,999  | 26,416        | 15.7              |
| \$50,000 to \$74,999  | 41,705        | 24.7              |
| \$75,000 to \$99,999  | 27,819        | 16.5              |
| \$100,000 to \$149,999  | 22,404        | 13.3              |
| \$150,000 to \$199,999  | 5,327         | 3.2               |
| \$200,000 or more   | 4,976         | 3.0               |
| <b>Total Household Income</b>                                   |               |                   |
| Mean earnings (dollars)   | \$58,440      | N/A               |
| Median household income (dollars)                               | \$45,140      | N/A               |
| <b>Below Poverty Level</b>                                      |               |                   |
| Individuals   | 82,729        | 12.3              |
| Families (n=168,636)  | 12,479        | 7.4               |

\* 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, 2011, a cumulative total of 541 HIV/AIDS cases have been reported in North Dakota, including 203 AIDS cases and 338 HIV (non-AIDS) cases. Of the cumulative total of HIV/AIDS cases, 248 were known to still be living in North Dakota as of Dec. 31, 2011. Table 4 outlines the cumulative cases and those still living in North Dakota.

| Table 4 - Profile of HIV/AIDS Population | Cumulative Cases |             | Living in N. D. |             |
|--|------------------|-------------|-----------------|-------------|
|  | Number           | Percentage* | Number          | Percentage* |
| <b>Disease Status at Diagnosis</b>       |                  |             |                 |             |
| HIV                                      | 338              | 62          | 130             | 52          |
| AIDS                                     | 203              | 38          | 118             | 48          |
| <b>Gender</b>                            |                  |             |                 |             |
| Male                                     | 450              | 83          | 193             | 78          |
| Female                                   | 91               | 17          | 55              | 22          |
| <b>Age Group at Diagnosis</b>            |                  |             |                 |             |
| < 15                                     | 11               | 2           | 8               | 3           |
| 15 - 24                                  | 90               | 17          | 35              | 14          |
| 25 - 34                                  | 200              | 37          | 89              | 36          |
| 35 - 44                                  | 155              | 29          | 77              | 31          |
| 45 - 54                                  | 60               | 11          | 27              | 11          |
| 55 - 64                                  | 21               | 4           | 12              | 5           |
| ≥ 65                                     | 4                | 1           | 0               | 0           |
| <b>Race/Ethnicity</b>                    |                  |             |                 |             |
| American Indian                          | 52               | 10          | 19              | 8           |
| Black                                    | 69               | 13          | 47              | 19          |
| Hispanic ( all races)                    | 19               | 4           | 11              | 4           |
| Asian/Pacific Islander                   | 3                | 1           | 2               | 1           |
| White                                    | 397              | 73          | 167             | 67          |
| Multi-race (non-Hispanic)                | 1                | 0           | 2               | 1           |
| <b>Risk Factors</b>                      |                  |             |                 |             |
| Male to male sexual relations (MSM)      | 276              | 51          | 113             | 46          |
| Heterosexual relations                   | 113              | 23          | 86              | 35          |
| Injecting drug use (IDU)                 | 62               | 11          | 21              | 8           |
| MSM/IDU                                  | 41               | 8           | 13              | 5           |
| Perinatal transmission                   | 8                | 1           | 5               | 2           |
| Other                                    | 20               | 4           | 1               | 0           |
| No risk identified                       | 21               | 4           | 9               | 4           |
| <b>Total</b>                             | <b>541</b>       |             | <b>248</b>      |             |

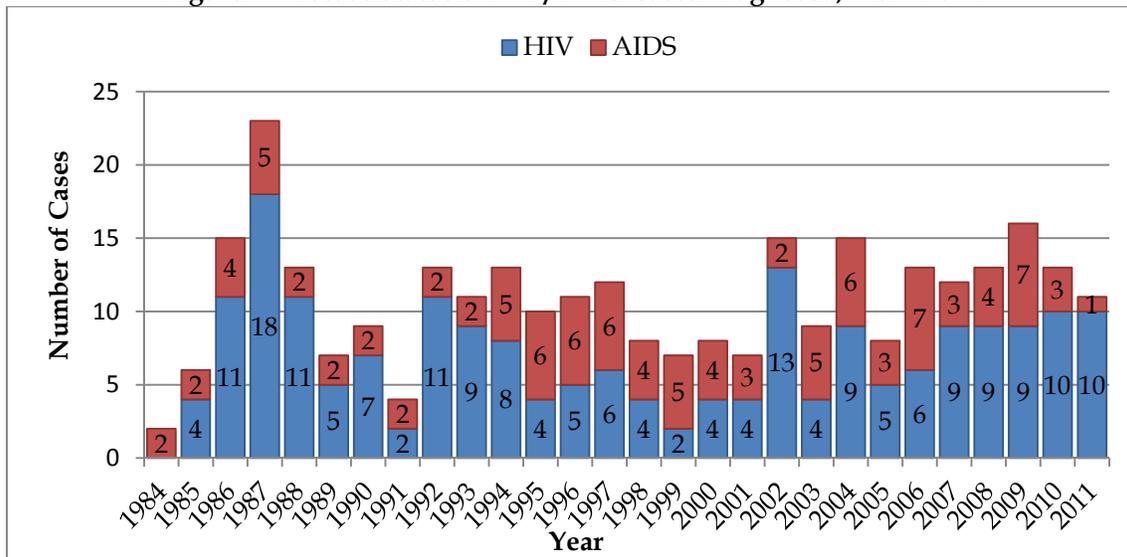
\* Due to rounding, totals may not add up to 100%.

## Incidence of HIV/AIDS 1984 - 2011

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.

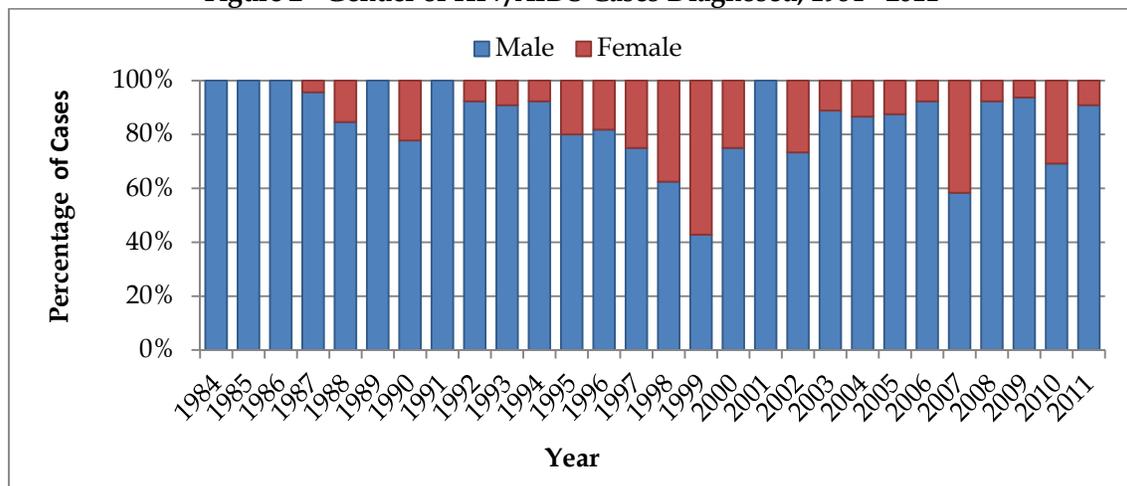
Due to North Dakota's low incidence of HIV/AIDS, trends in diagnosis and reporting are difficult to interpret. On average, there are 10 cases per year that are diagnosed in North Dakota. Thirty-five percent of the cases diagnosed in North Dakota since 1984 were classified as AIDS at the time of diagnosis. In total, 304 HIV/AIDS cases were diagnosed in the state between 1984 and 2011.

Figure 1- Disease Status of HIV/AIDS Cases Diagnosed, 1984 - 2011



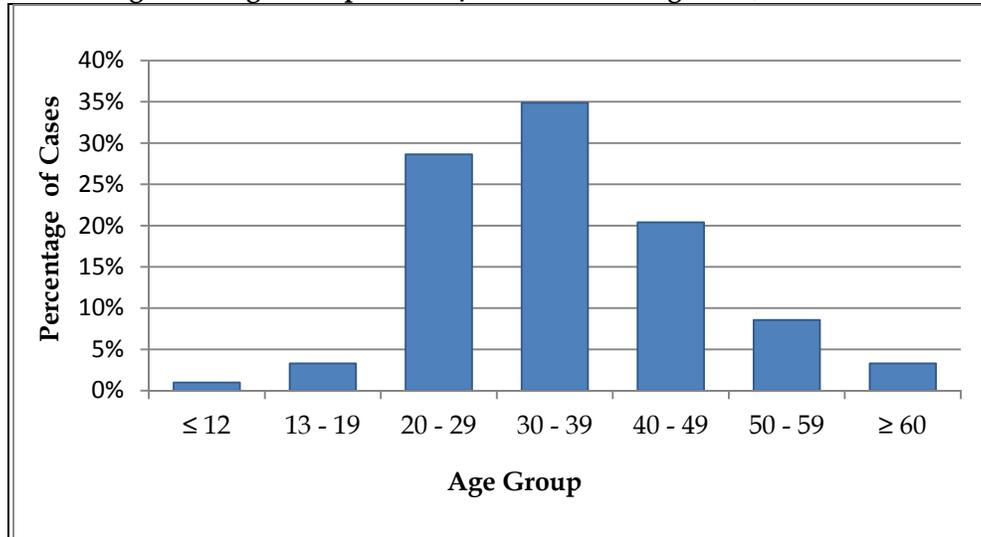
There is a clear gender disparity in the diagnosis of HIV/AIDS. Eighty-five percent of all cases diagnosed in North Dakota since 1984 are male.

Figure 2 - Gender of HIV/AIDS Cases Diagnosed, 1984 - 2011



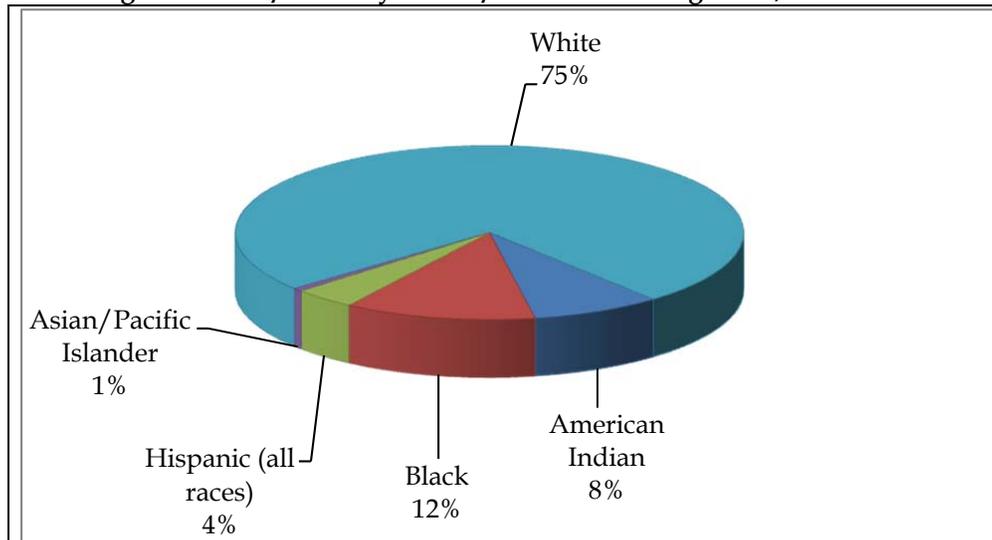
The predominant ages affected by HIV/AIDS were 30 to 39. Eighty-four percent of all HIV/AIDS cases diagnosed in the state are between the ages of 20 and 49.

**Figure 3 - Age Groups of HIV/AIDS Cases Diagnosed, 1984 - 2011**



Although they make up less than one percent of the population of North Dakota, blacks represent 12 percent of all HIV/AIDS cases diagnosed in the state. A similar disparity is seen with American Indians, who make up 5.3 percent of the state population, and account for 8 percent of all HIV/AIDS diagnoses in the state.

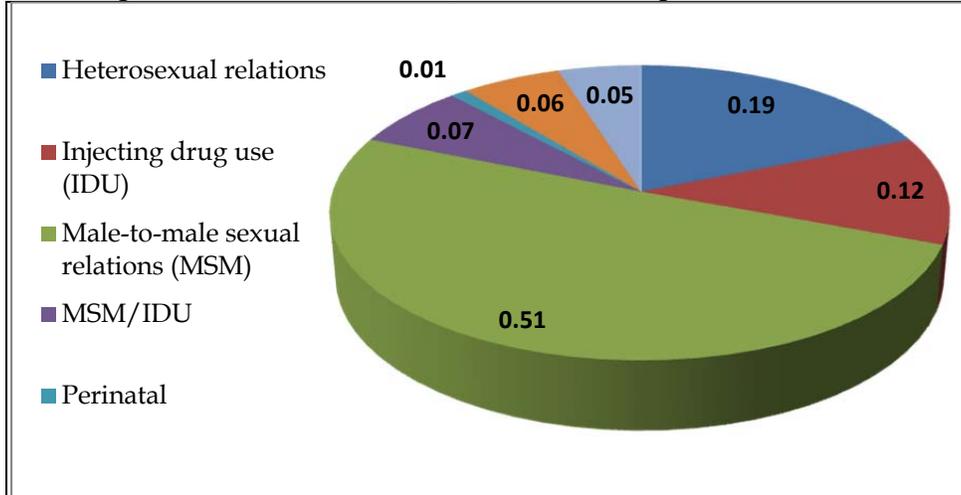
**Figure 4 - Race/Ethnicity of HIV/AIDS Cases Diagnosed, 1984 - 2011**



Male-to-male sexual relations remain the most frequently reported risk factor associated with HIV/AIDS, with heterosexual relations in a distant second place. Over 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 - 2011**

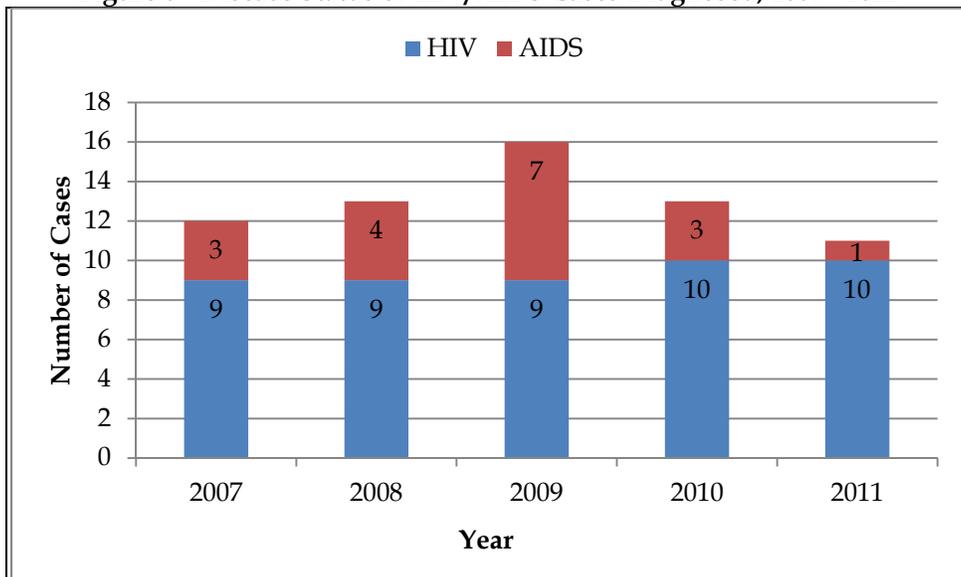


**Incidence of HIV/AIDS, 2007 - 2011**

The following figures describe HIV/AIDS cases diagnosed in North Dakota between 2007 and 2011. These figures are intended to present an in-depth look at HIV/AIDS trends during this time period.

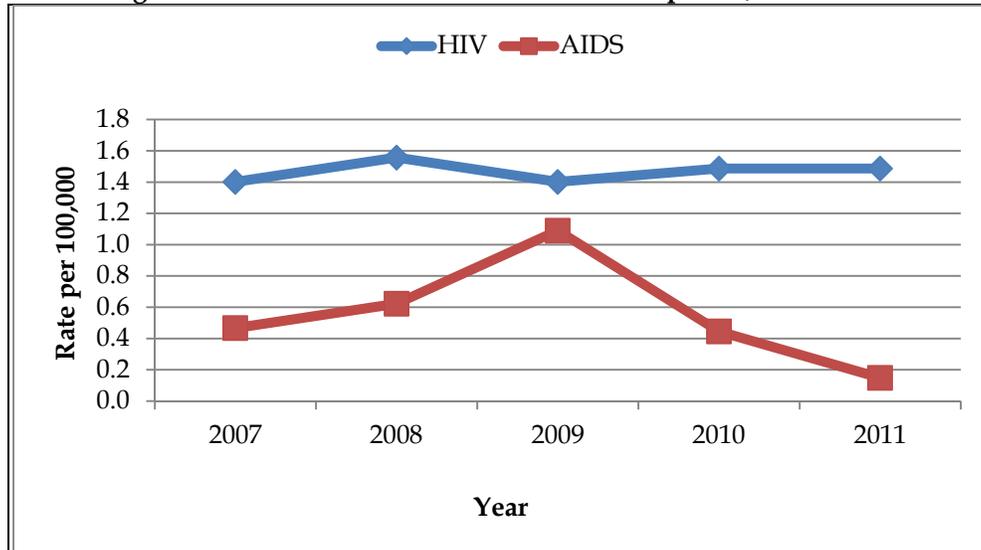
Between 2007 and 2011, 65 cases of HIV/AIDS were diagnosed in North Dakota. Of those cases, 28 percent were classified as AIDS at diagnosis.

**Figure 6 - Disease Status of HIV/AIDS Cases Diagnosed, 2007 - 2011**



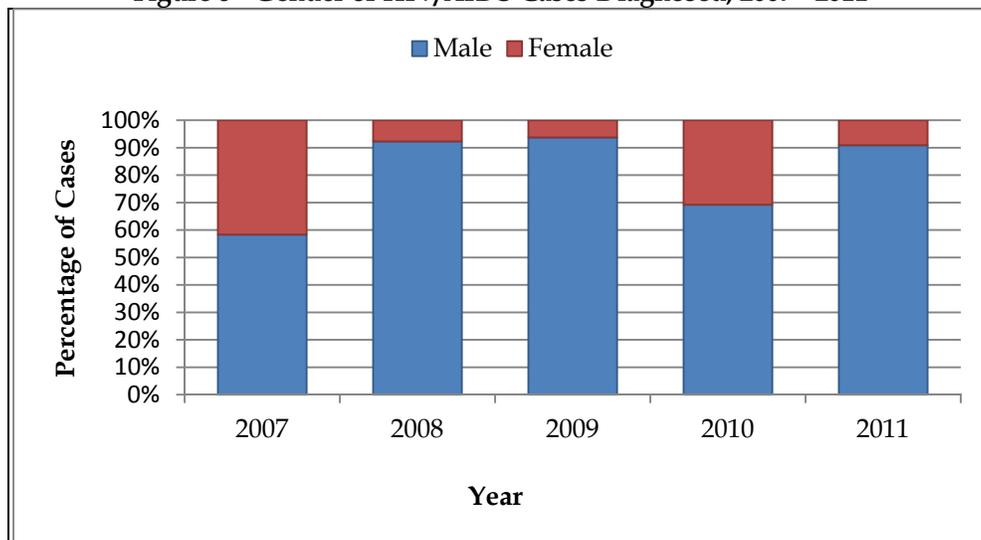
There was an average incidence rate of 2.0 per 100,000 for HIV/AIDS between 2007 and 2011. The incidence rate of HIV (non-AIDS) has been higher than that of AIDS over the last five years. The average incidence rate of HIV over this time period was 1.5 per 100,000, while for AIDS it was 0.6 per 100,000.

**Figure 7 - Incidence Rate of HIV and AIDS Reported, 2007 - 2011**



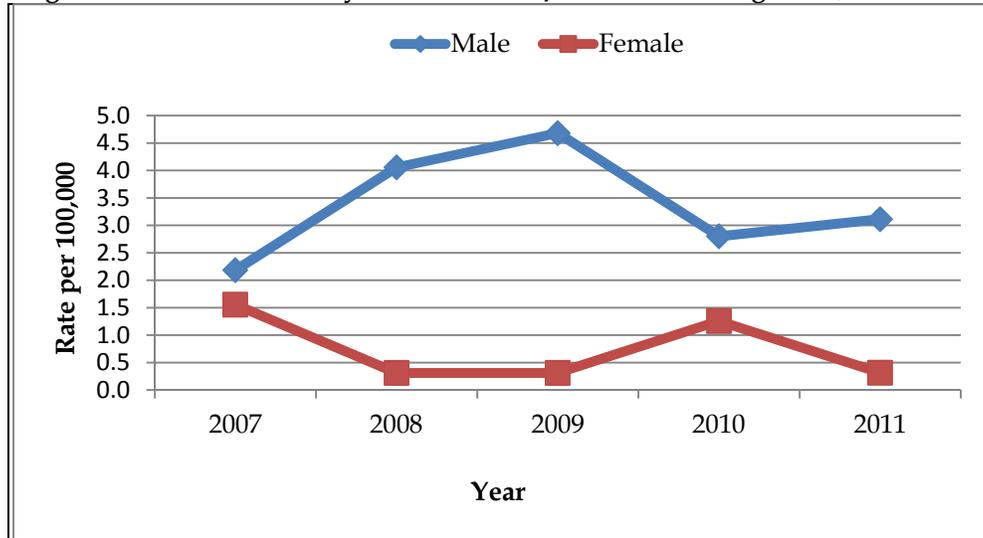
The majority (82%) of HIV/AIDS cases diagnosed between 2007 and 2011 were male.

**Figure 8 - Gender of HIV/AIDS Cases Diagnosed, 2007 - 2011**



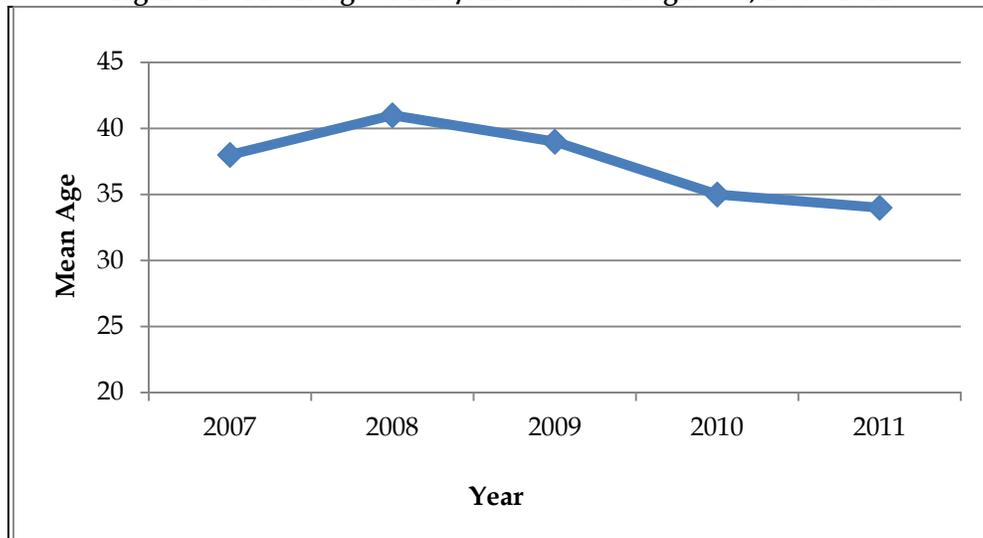
The rate of new diagnoses among men has consistently been greater than women. The incidence rate of HIV/AIDS in females was 0.3 per 100,000 in 2011.

**Figure 9 - Incidence Rate by Gender of HIV/AIDS Cases Diagnosed, 2007 - 2011**



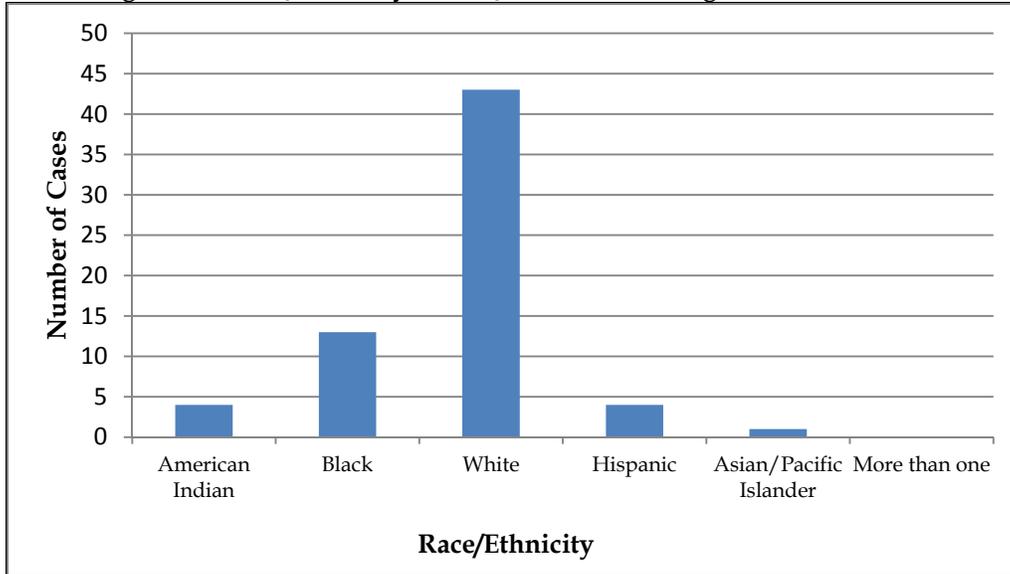
The mean age of individuals diagnosed with HIV/AIDS between the years of 2007 and 2011 is 37. This is consistent with the mean age (36) of HIV/AIDS cases diagnosed in North Dakota since 1984.

**Figure 10 - Mean Age of HIV/AIDS Cases Diagnosed, 2007 - 2011**



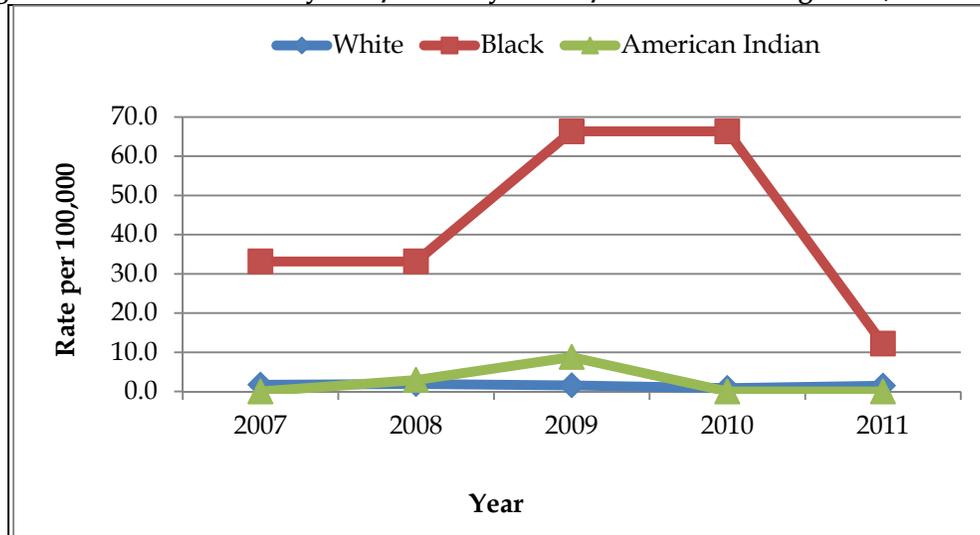
As noted with historical data, minorities are affected disproportionately by HIV/AIDS. This is also apparent by looking at five-year incidence data. Between 2007 and 2011, 20 percent of HIV/AIDS cases diagnosed in North Dakota identified themselves as black.

**Figure 11 - Race/Ethnicity of HIV/AIDS Cases Diagnosed, 2007 - 2011**



The HIV/AIDS incidence rate for blacks in North Dakota also is significantly higher than that of whites and American Indians. The average HIV/AIDS incidence rate from 2007 to 2011 for blacks was 42.2 per 100,000, whereas it was 1.5 per 100,000 and 2.3 per 100,000 for whites and American Indians, respectively.

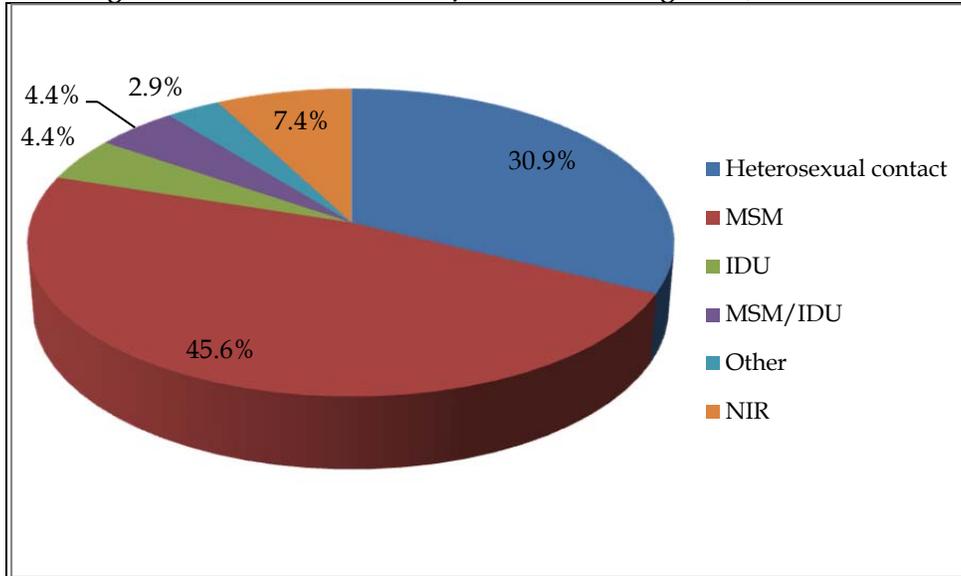
**Figure 12 - Incidence Rate by Race/Ethnicity of HIV/AIDS Cases Diagnosed, 2007 - 2011**



While male-to-male sexual relations remained the most frequently reported risk factor for HIV/AIDS between 2007 and 2011, heterosexual relations was also a major risk factor identified. Thirty-one percent of HIV/AIDS cases diagnosed between 2007 and

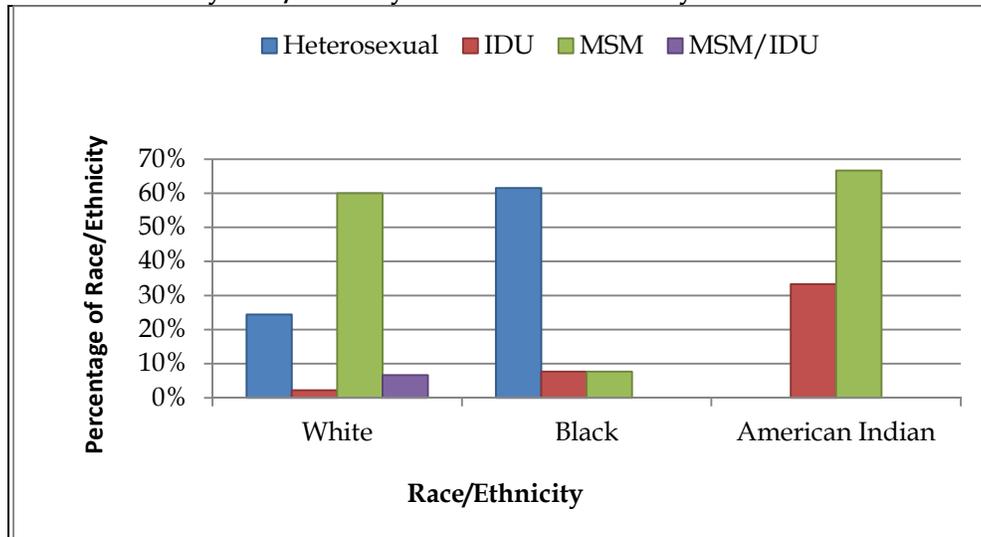
2011 reported having heterosexual relations. Only 19 percent of the cumulative HIV/AIDS cases since 1984 reported having heterosexual relations.

**Figure 13 - Risk Factors of HIV/AIDS Cases Diagnosed, 2007 - 2011**



The race/ethnicity groups reported different risky behaviors at diagnosis of HIV/AIDS between 2007 and 2011. A greater proportion of newly diagnosed white and American Indian HIV/AIDS clients reported having male-to-male sexual relations, 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, 2007 - 2011, by Race/Ethnicity That Identified a Risky Behavior**

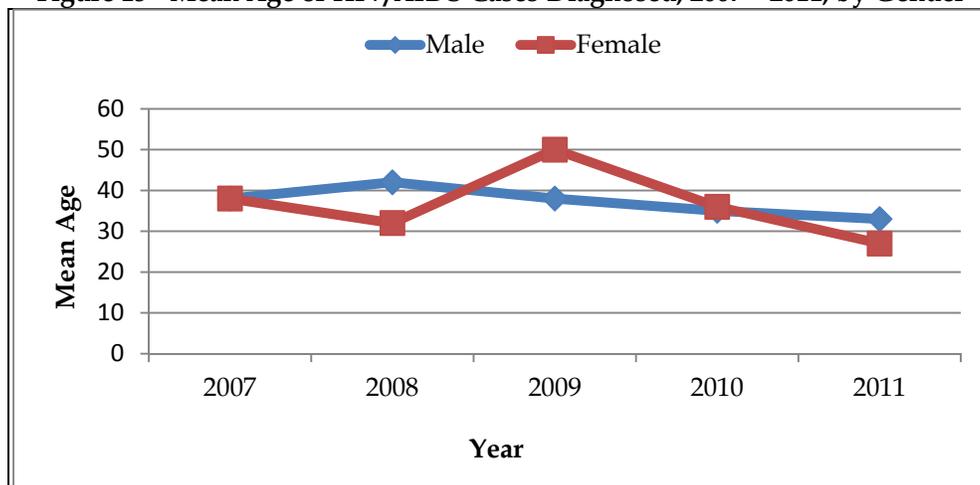


## HIV/AIDS and Gender, 2007 - 2011

Gender plays an important role in the prevention of HIV/AIDS. Generally, males have been affected 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.

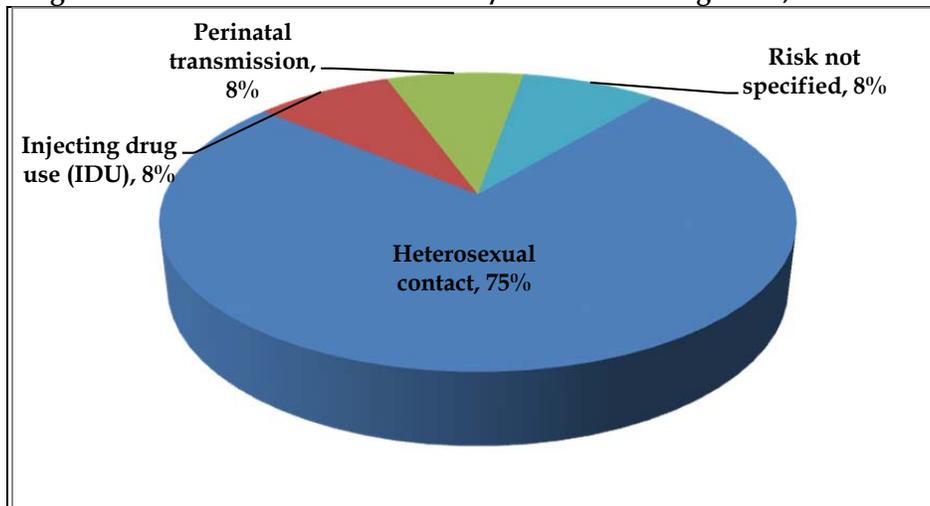
Age at diagnosis of HIV/AIDS in North Dakota between 2007 and 2011 was very similar for both males and females. Females were diagnosed with HIV/AIDS at an average age of 36.6, males at an average age of 37.2.

**Figure 15 - Mean Age of HIV/AIDS Cases Diagnosed, 2007 - 2011, by Gender**



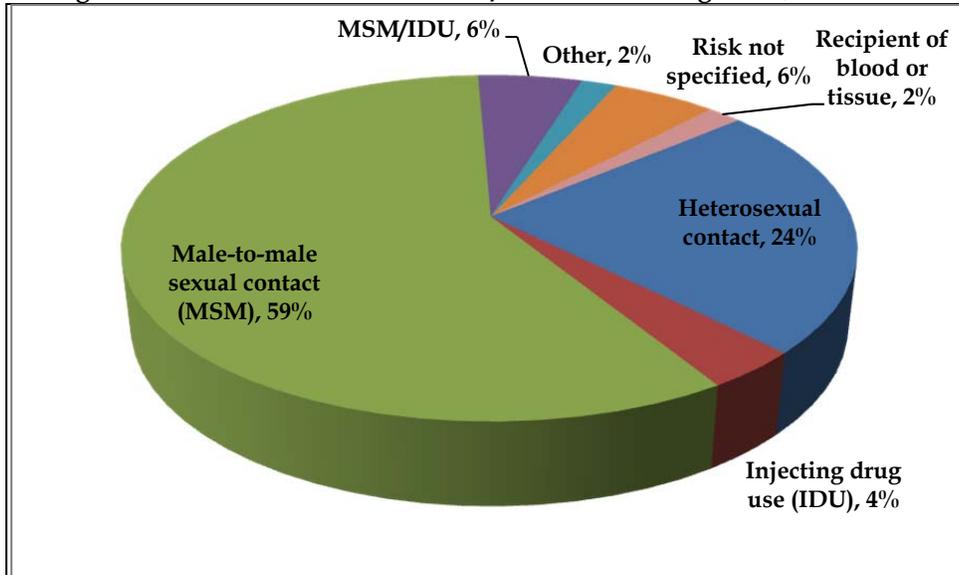
The risk factors reported by males and females at the time of their HIV/AIDS diagnosis varied greatly from 2007 to 2011. As was expected, a higher proportion of females than males reported having heterosexual relations.

**Figure 16 - Risk Factors of Female HIV/AIDS Cases Diagnosed, 2007 - 2011**



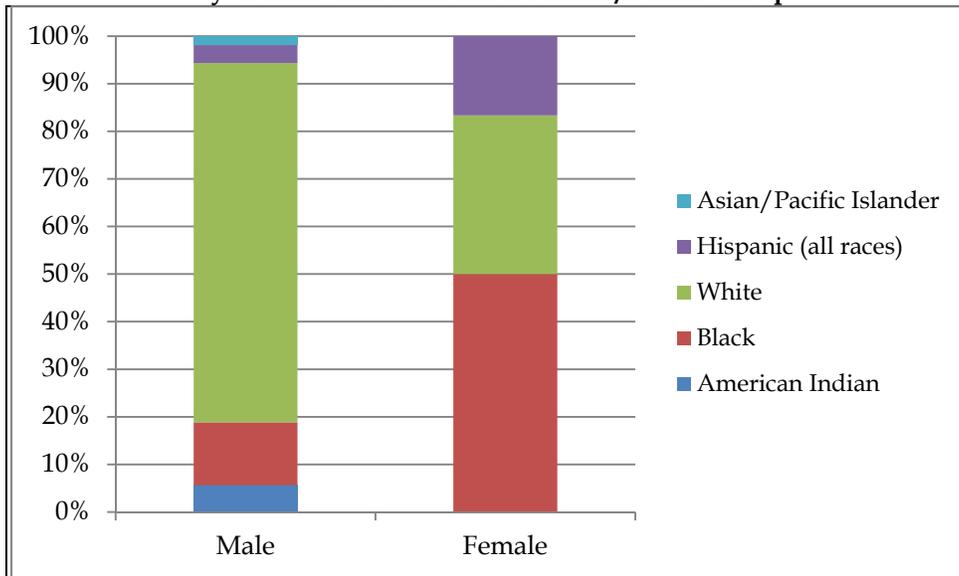
Between 2007 and 2011, 59% of males reported having male-to-male sexual contact, and 24% reported heterosexual contact as the only risk.

**Figure 17 - Risk Factors of Male HIV/AIDS Cases Diagnosed, 2007 - 2011**



A higher proportion of females than males diagnosed with HIV/AIDS between 2007 and 2011 were black. Also, no females diagnosed during this time period were American Indian.

**Figure 18 - Percentage of HIV/AIDS Cases Diagnosed, 2007 - 2011, by Gender That Identified a Racial/Ethnic Group**

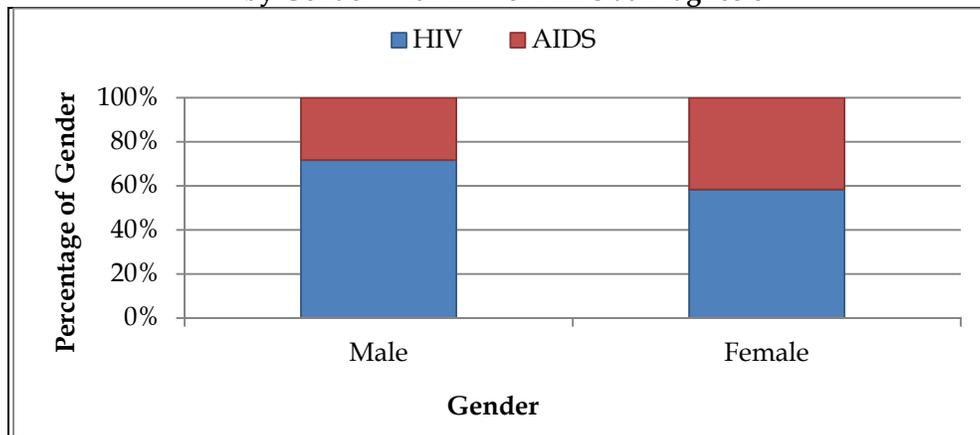


## Factors that Affect Disease Status at HIV/AIDS Diagnosis

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 2007 and 2011.

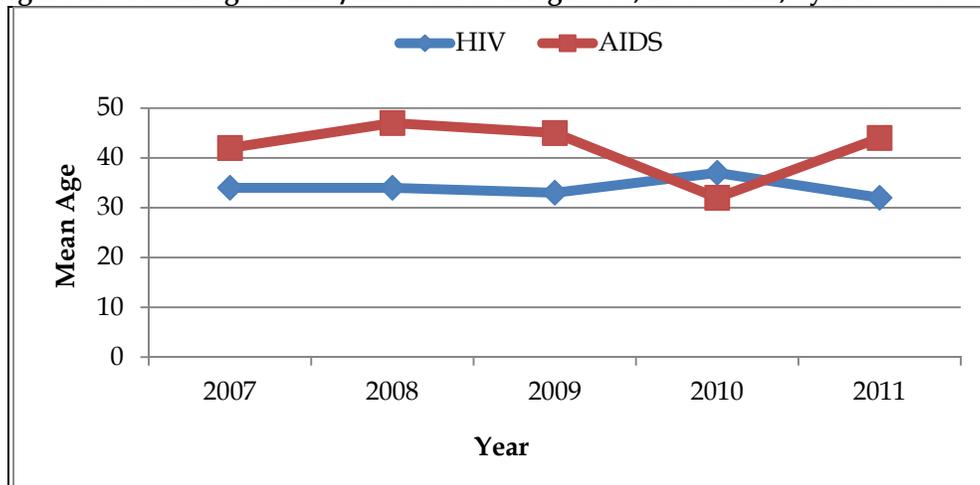
Gender is a factor that may affect disease status at diagnosis of HIV/AIDS. Between 2007 and 2011, a slightly higher proportion of females were classified as having AIDS at their initial HIV/AIDS diagnosis.

**Figure 19 - Percentage of HIV/AIDS Cases Diagnosed, 2007 - 2011, by Gender With HIV or AIDS at Diagnosis**



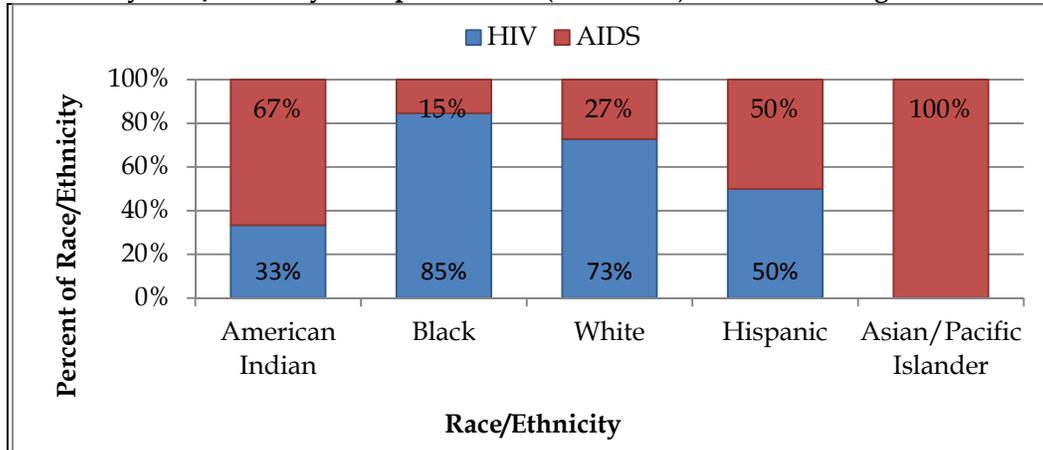
On average, individuals who were diagnosed with AIDS at their initial HIV/AIDS diagnosis between 2007 and 2011 were older than those diagnosed with HIV (non-AIDS). The average age of clients with AIDS at their initial diagnosis was eight years older than those with HIV (non-AIDS).

**Figure 20 - Mean Age of HIV/AIDS Cases Diagnosed, 2007 - 2011, by Disease Status**



Sixty-seven percent of American Indians and half of Hispanics diagnosed with HIV/AIDS in North Dakota from 2007 to 2011 were diagnosed with AIDS. Of black and white HIV/AIDS clients diagnosed during this same time period, 15 percent and 27 percent, respectively, were diagnosed with AIDS. There was one new diagnosis of HIV/AIDS among Asians/Pacific Islanders which was classified as AIDS.

**Figure 21 - Percentage of HIV/AIDS Cases Diagnosed, 2007 - 2011, by Race/Ethnicity Group With HIV (non-AIDS) or AIDS at Diagnosis**

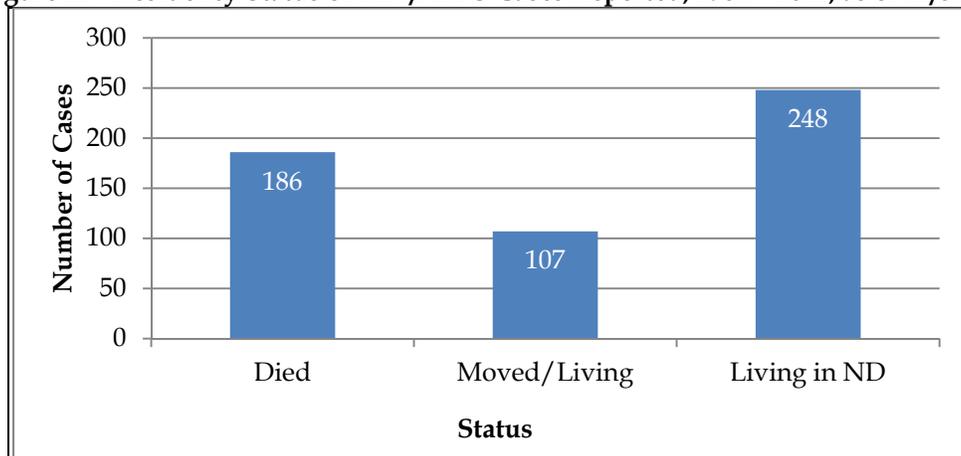


### Vital Status of HIV/AIDS Cases

Of the 541 HIV/AIDS cases reported since 1984, only 248 were known to be living in North Dakota as of Dec. 31, 2011. 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.

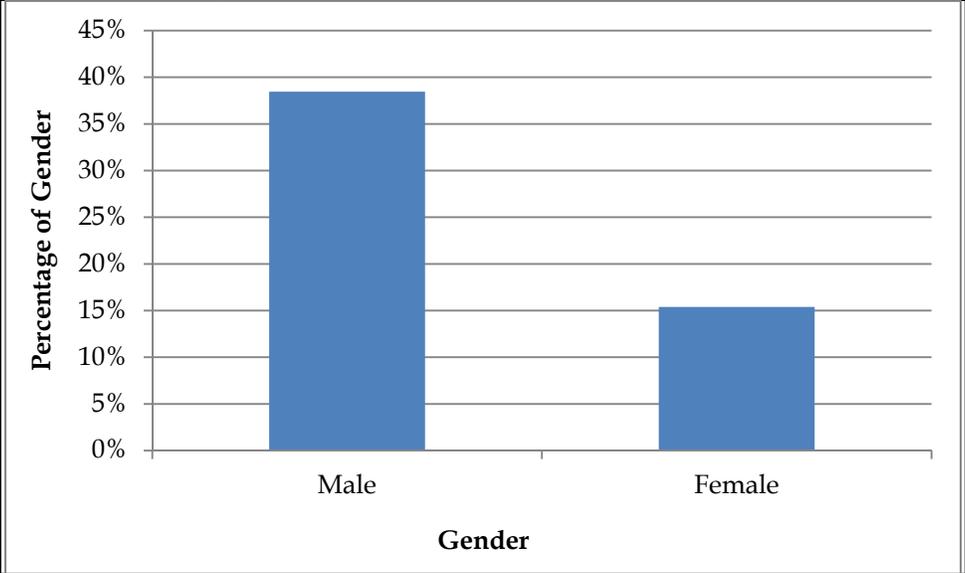
Of the 541 HIV/AIDS cases reported in North Dakota since 1984, 107 have moved out of the state and 186 have died.

**Figure 22 - Residency Status of HIV/AIDS Cases Reported, 1984 - 2011, as of 12/31/11**



Thirty-eight percent of all male HIV/AIDS cases reported in North Dakota have died, while only 15 percent of all female cases have died.

Figure 23 - Percentage of HIV/AIDS Cases by Gender That Have Died as of 12/31/11



## 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 agencies 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. Due to a technical malfunction, 2011 data are unavailable.

In 2010, 3,721 tests for HIV were performed at CTR sites in North Dakota, which is a 26 percent increase from 2009. Of those tested, there were 13 positive tests for a positivity rate of 0.5 percent. Most of the HIV testing during 2009 was performed at family planning facilities (51%). Eighteen percent of tests were performed at colleges and universities and 32 percent were performed in other types of facilities, such as community action. Males made up 50 percent of individuals tested for HIV at CTR sites in North Dakota during 2010. The majority of individuals tested at state CTR sites were white and between the ages of 19 and 34.

|                        | Total Tests  |                         | Positive Tests |                           |
|------------------------|--------------|-------------------------|----------------|---------------------------|
|                        | Number       | Percentage <sup>1</sup> | Number         | Percentage <sup>1,2</sup> |
| <b>Gender</b>          |              |                         |                |                           |
| Male                   | 1,852        | 50                      | 9              | 69                        |
| Female                 | 1,844        | 50                      | 4              | 31                        |
| <b>Race/Ethnicity</b>  |              |                         |                |                           |
| White                  | 2,936        | 79                      | 9              | 69                        |
| Black                  | 205          | 6                       | 2              | 15                        |
| Asian/Pacific Islander | 68           | 2                       | 2              | 15                        |
| American Indian        | 385          | 10                      | 0              | 0                         |
| Multiple races         | 52           | 1                       | 0              | 0                         |
| Declined               | 26           | 1                       | 0              | 0                         |
| <b>Age Group</b>       |              |                         |                |                           |
| ≤ 13                   | 4            | <1                      | 0              | 0                         |
| 13 - 18                | 238          | 6                       | 0              | 0                         |
| 19 - 24                | 1,177        | 46                      | 6              | 46                        |
| 25 - 34                | 1,202        | 32                      | 3              | 23                        |
| 35 - 44                | 336          | 9                       | 2              | 15                        |
| ≥ 45                   | 239          | 6                       | 2              | 15                        |
| <b>Total</b>           | <b>3,696</b> |                         | <b>13</b>      |                           |

<sup>1</sup> Due to rounding, totals may not add up to 100%.

<sup>2</sup> In this case, percentage refers to percentage of total positive tests.

\*\*Due to missing case information, sum of columns may not equal "Total."

The most common risk behaviors reported by individuals receiving HIV testing at state CTR sites during 2010 were sex without a condom (42%), sex with a male (26%), sex with a female (20%) and sex while using drugs or alcohol (4%).

| Table 6 - Risk Factors of Individuals Tested<br>for HIV in North Dakota during 2010 | Responses    |                         |
|---|--------------|-------------------------|
|   | Number       | Percentage <sup>1</sup> |
| <b>Risk Factors</b>   |              |                         |
| Sex with male   | 1,313        | 26                      |
| Sex with female   | 977          | 20                      |
| Sex without condom  | 2,076        | 42                      |
| Sex with an IDU   | 161          | 3                       |
| Sex with HIV-positive   | 18           | <1                      |
| IDU   | 83           | <1                      |
| Sex with anonymous partner  | 96           | <1                      |
| Sex while using drugs/alcohol   | 221          | 4                       |
| No indicated risk   | 35           | <1                      |
| <b>Total</b>  | <b>4,980</b> |                         |

<sup>1</sup> 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 gross income of less than 300 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.

As of December 31, 2011, the North Dakota CARES Program serves 110 (44%) of the 248 people living with HIV/AIDS in North Dakota. The majority of clients are male (79%), which can be compared with the 78 percent of males living in North Dakota with HIV/AIDS. The highest risk factors for clients include 36 percent heterosexual contact and 46 percent MSM. Following behind was IDU with 9 percent, MSM/IDU with 8 percent and 1 percent were unknown or unidentified. Forty-one percent of the clients have been diagnosed with AIDS, while 59 percent have not yet met the criteria for AIDS diagnosis. Forty-nine percent of the clients fall between the ages of 25 and 44 and 45 percent between 45 and 64.

## Sexually Transmitted Diseases Other Than HIV/AIDS

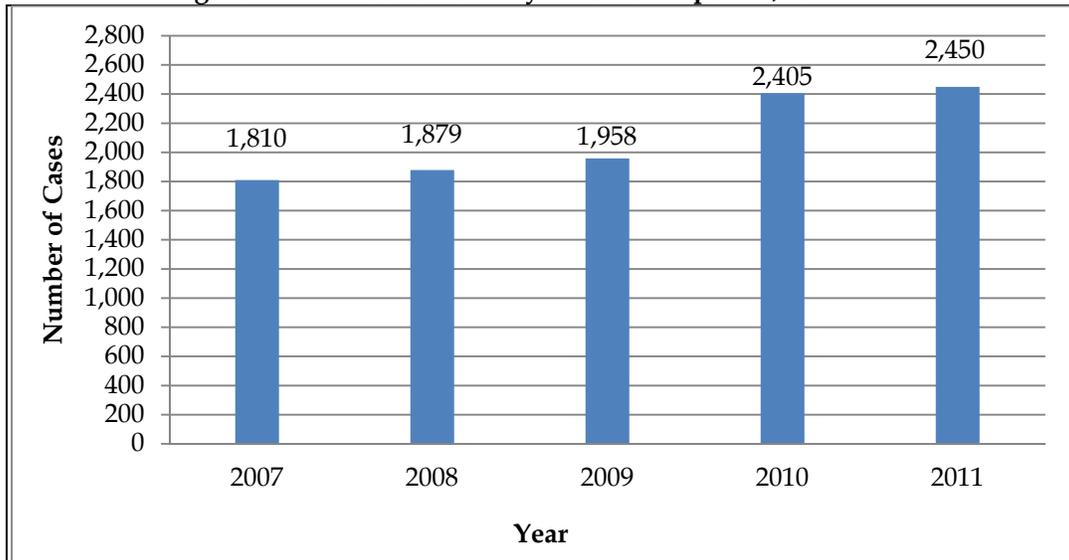
Surveillance of sexually transmitted diseases (STDs) other than HIV/AIDS is an important part of HIV/AIDS prevention. Individuals with STDs, such as chlamydia, gonorrhea and syphilis, are two to five times more likely to contract HIV from an infected individual than those without an STD. Also, an HIV-infected 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 2,100 between 2007 and 2011. In 2011, the incidence rate of chlamydia in North Dakota was 381.5 per 100,000. This is lower than the national average of 422.6 per 100,000 reported in 2010 when North Dakota was ranked the 31st highest rate of all 50 states.

Figure 24 - Number of Chlamydia Cases Reported, 2007 - 2011



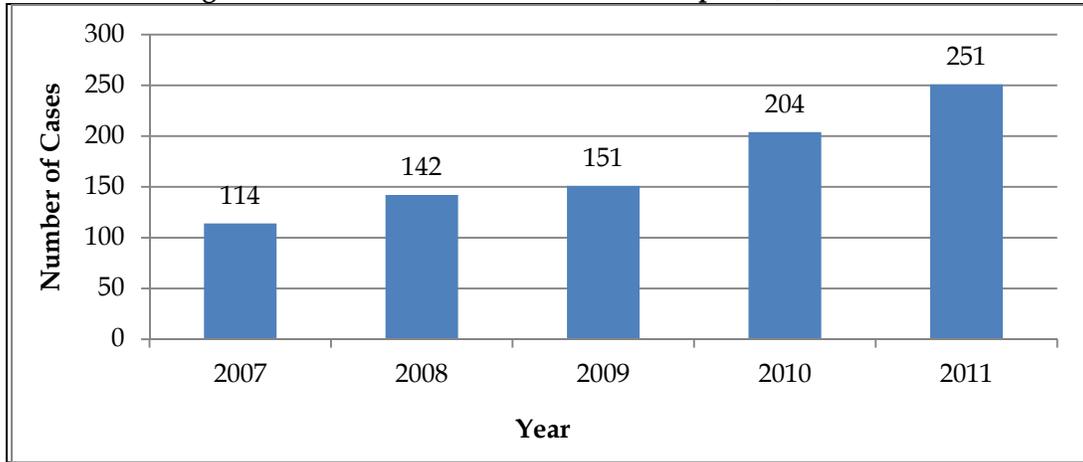
### Gonorrhea

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 172 cases of gonorrhea per year reported in North Dakota between 2007 and 2011. In 2011, the incidence rate was 39.1 per 100,000. This is lower

than the national average of 100.8 per 100,000 reported in 2010 when North Dakota was ranked the 41st highest rate of all 50 states.

**Figure 25 - Number of Gonorrhea Cases Reported, 2007 - 2011**

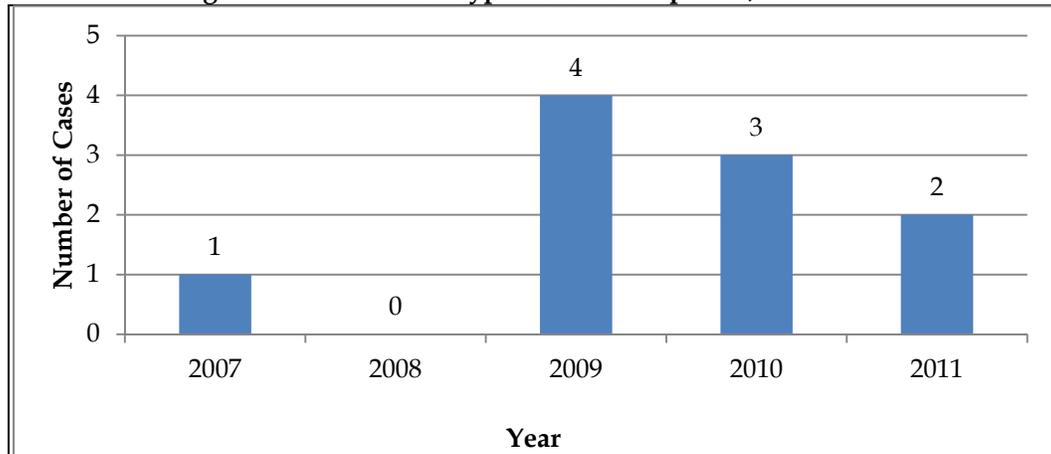


## Syphilis

Syphilis, also known as the great imitator because of its indistinct signs and symptoms, is caused by the bacterium *Treponema pallidum*. In 2010, over 45,800 Americans reported having any stage of syphilis. If left untreated, syphilis can cause complications that may include paralysis, numbness, gradual blindness and dementia. This damage may be serious enough to cause death.

Between 2007 and 2011, 10 cases of syphilis were reported in North Dakota. In 2010, North Dakota's primary and secondary syphilis incidence rate was ranked 45<sup>th</sup> in the United States with 0.5 per 100,000.

**Figure 26 - Number of Syphilis Cases Reported, 2007 - 2011**



For both chlamydia and gonorrhea, more females than males were reported to have these infections in 2011. The majority of chlamydia and gonorrhea cases were reported

in people age 15 to 29. As with HIV/AIDS, there is a clear racial disparity with chlamydia and gonorrhea. Blacks have the highest rates of these diseases, with 3,114.6 per 100,000 for chlamydia and 434.0 per 100,000 for gonorrhea, followed by American Indians with 1,302.3 per 100,000 for chlamydia and 264.9 per 100,000 for gonorrhea.

| <b>Table 7 - Chlamydia and Gonorrhea Cases Reported in 2011</b> | <b>Chlamydia</b> | <b>Gonorrhea</b> |
|---|------------------|------------------|
| <b>Number by Gender</b>   |                  |                  |
| Male  | 844              | 101              |
| Female  | 1,605            | 149              |
| <b>Number by Age Group</b>                                      |                  |                  |
| 10-14   | 14               | 2                |
| 15-19   | 656              | 60               |
| 20-24   | 1,149            | 86               |
| 25-29   | 388              | 52               |
| 30-34   | 154              | 27               |
| 35-39   | 48               | 8                |
| 40-44   | 25               | 9                |
| 45-54   | 11               | 7                |
| 55-64   | 0                | 0                |
| >64   | 2                | 0                |
| <b>Total*</b>   | <b>2,450</b>     | <b>251</b>       |
| <b>Rate by Race/Ethnicity</b>                                   |                  |                  |
| Black   | 3,114.6          | 434.0            |
| American Indian   | 1,302.3          | 264.9            |
| Hispanic  | 333.9            | 64.2             |
| White   | 186.6            | 12.3             |
| Asian   | 332.7            | 0.0              |
| <b>Total Rate for North Dakota</b>                              | <b>381.5</b>     | <b>39.1</b>      |

\*Due to missing case information, sum of columns may not equal "Total."

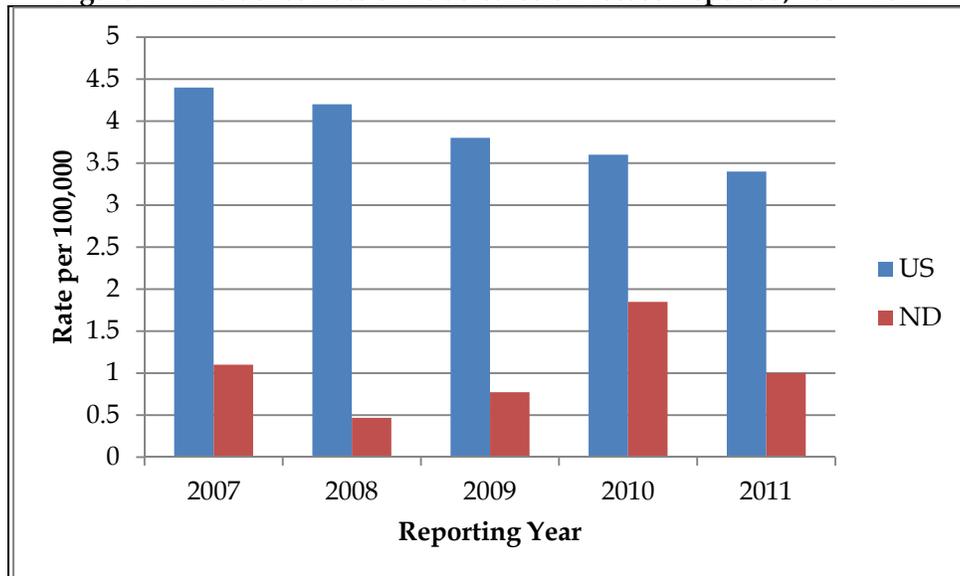
## Tuberculosis

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 20 to 37 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. In 2009, there were an estimated 1.1 million HIV-positive TB patients worldwide. It is estimated that 80 percent of these co-infected people live in sub-Saharan Africa. Of those HIV-infected individuals, one-third or more will develop TB disease. While America may comprise only 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 2007 to 2011.

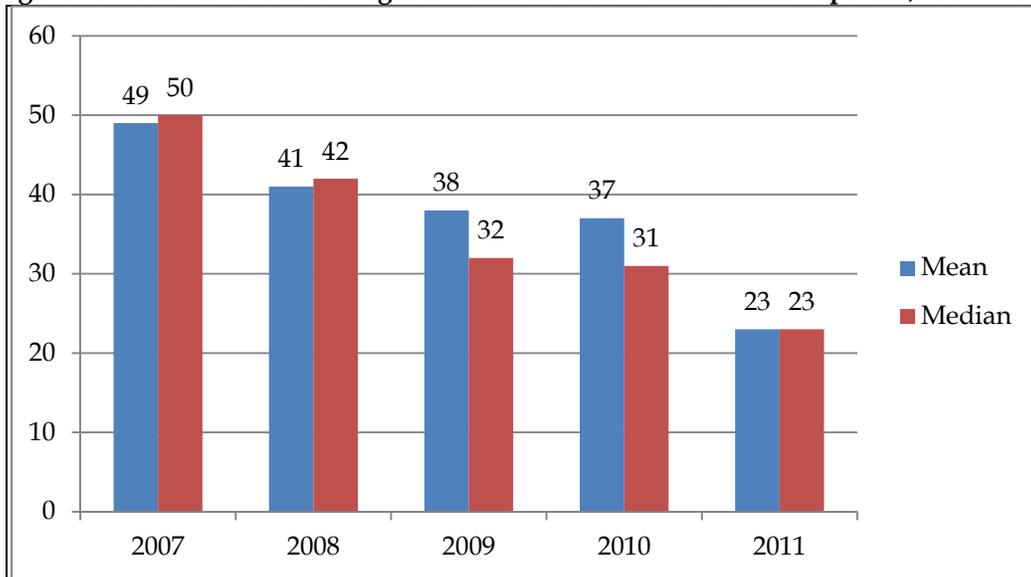
Between 2007 and 2011, there were 34 cases of TB disease reported in North Dakota. The number of annual TB cases ranged from three to 12, resulting in incidence rates between 0.5 and 1.8 per 100,000. This is below the national average of 3.4 to 4.4 per 100,000 during the same time period.

Figure 27 - Incidence Rate of Tuberculosis Disease Reported, 2007 - 2011



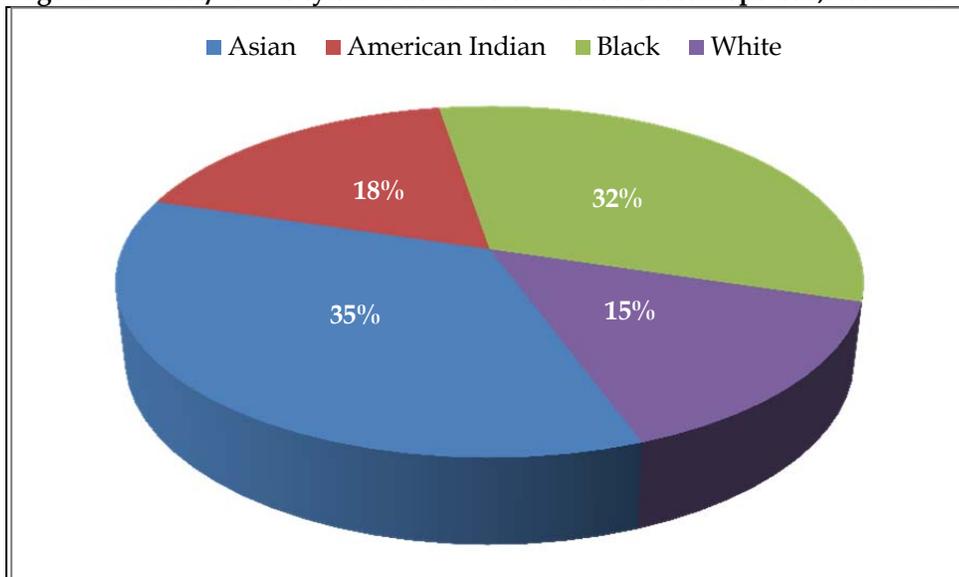
The mean and median ages of TB disease cases decline from 2007 to 2011. The overall mean and median ages for this time period were 37 and 32.

**Figure 28 - Mean and Median Ages of Tuberculosis Disease Cases Reported, 2007 - 2011**



There is a distinct racial disparity among cases of TB disease, with the majority of them being of a racial or ethnic minority. From 2007 to 2011, 15 percent of the cases were white, while the other 85 percent were American Indians, Asian and black.

**Figure 29 - Race/Ethnicity of Tuberculosis Disease Cases Reported, 2007 - 2011**



## Viral Hepatitis

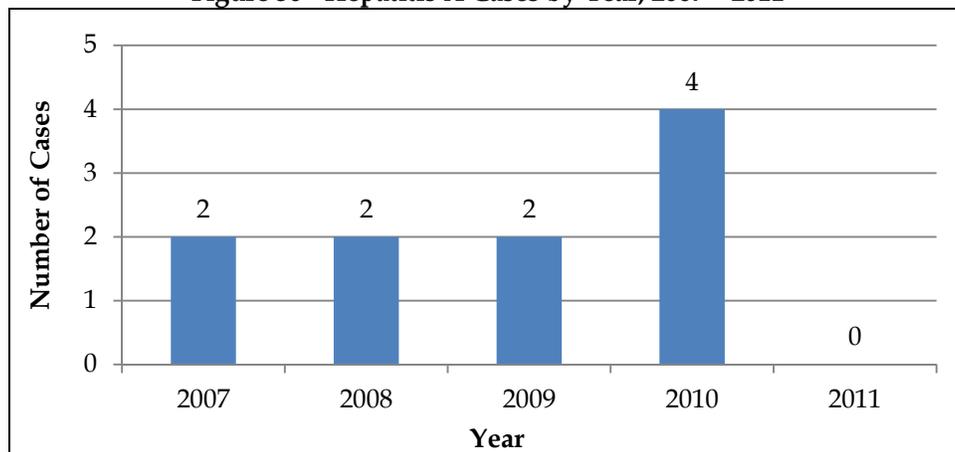
Hepatitis is the general term that means “inflammation of the liver.” Many factors can cause hepatitis, including toxins, drugs, viruses and parasites, and other factors. Six viruses have been identified to cause viral hepatitis: hepatitis A virus (HAV), hepatitis B virus (HBV), hepatitis C virus (HCV), hepatitis D virus (HDV), hepatitis E virus (HEV) and hepatitis G virus (HGV). 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, include 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.

In 2011, North Dakota had zero cases of acute hepatitis A (Figure 30). The most recent national hepatitis surveillance data were published in 2010. In 2010, the incidence of hepatitis A in the United States was 0.5 per 100,000 and 1,670 cases of acute hepatitis A were reported in the United States. An estimated 17,000 new infections, including those that are asymptomatic and not reported, occurred in 2010 in the United States. Since the introduction of hepatitis A vaccinations, cyclical epidemics of this disease, once common in North Dakota, haven't been reported.

Figure 30 - Hepatitis A Cases by Year, 2007 - 2011

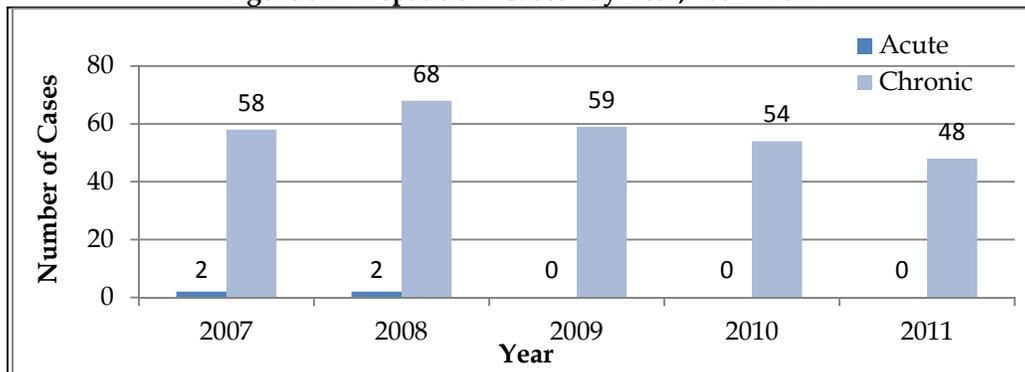


## Hepatitis B

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 B 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 35,000 in 2010 (2010 is most current year of published national viral hepatitis surveillance data). In North Dakota, an average of 57 chronic hepatitis B cases and one acute hepatitis B case was reported each year in 2007 through 2011.

In North Dakota, there were 48 cases of chronic hepatitis B and zero cases of acute hepatitis B reported in 2011 (Figure 31). The incidence of chronic hepatitis B in North Dakota for 2011 was 7.14 per 100,000. In 2011, there were zero cases of acute hepatitis B reported in North Dakota as compared to 3,374 acute hepatitis B cases reported in the U.S. in 2010. The estimated incidence rate of acute hepatitis B is 1.1 per 100,000 for the United States.

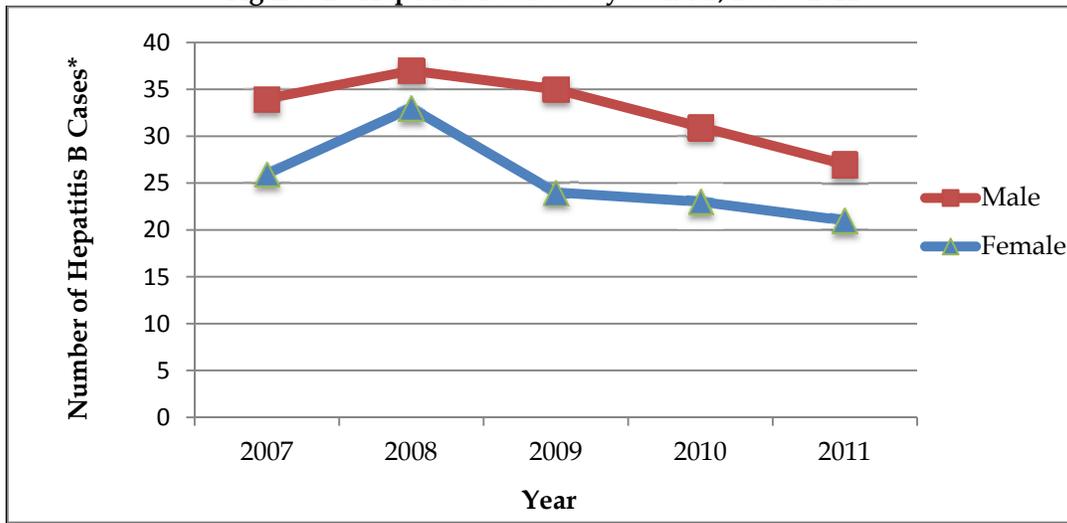
Figure 31 - Hepatitis B Cases\* by Year, 2007 - 2011



\*Includes acute and chronic infections

The median percentage of chronic and acute hepatitis B cases occurring in males from 2007 to 2011 in North Dakota is 57 percent (Figure 32). In 2011, the percentage of reported chronic and acute hepatitis B cases in males was consistent with the five-year median.

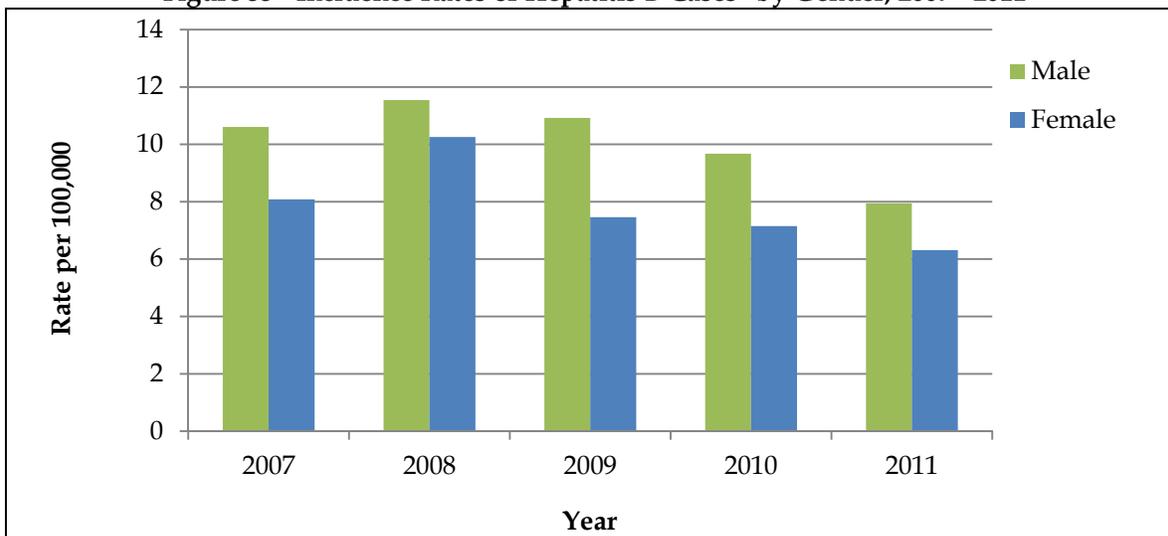
**Figure 32 - Hepatitis B Cases\* by Gender, 2007 - 2011**



\*Based on positive lab results, includes acute and chronic

In North Dakota, the 2011 incidence rate of acute and chronic hepatitis B cases is higher among males (7.94 per 100,000) compared to females (6.31 per 100,000) (Figure 33). The five-year median of acute and chronic hepatitis B cases reported among males and females is 10.6 and 7.46 per 100,000, respectively. Historically, the rate of acute and chronic hepatitis B has been higher in males than females.

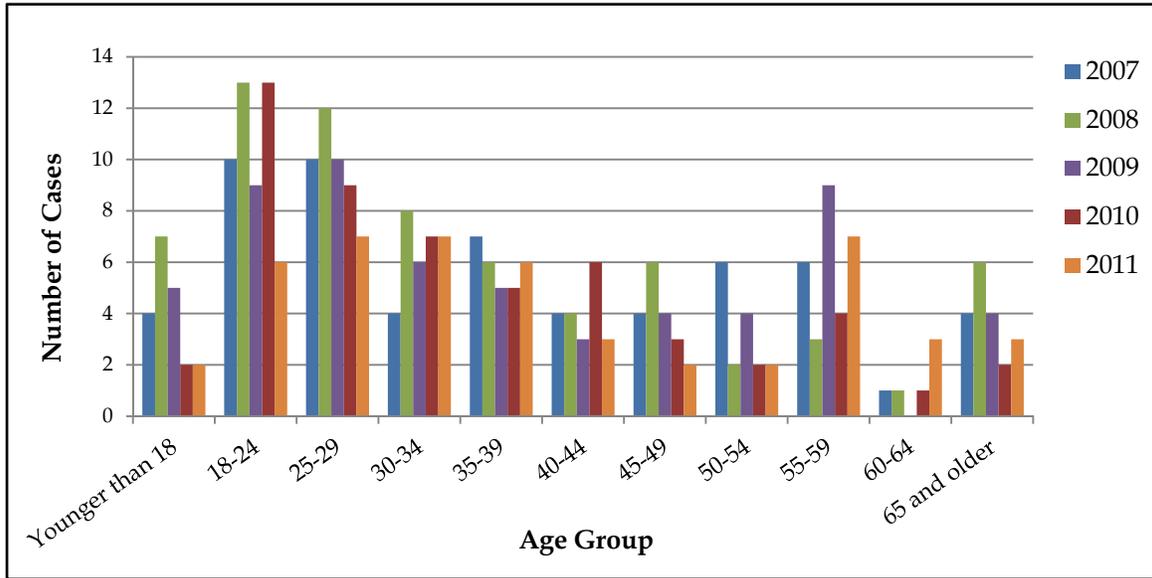
**Figure 33 - Incidence Rates of Hepatitis B Cases\* by Gender, 2007 - 2011**



\*Based on reported positive lab results, includes acute and chronic infections

In North Dakota, the most frequently reported age groups of chronic and acute hepatitis B cases in 2011 were age 25 to 29, 30 to 34 and 55 to 59 with seven cases in each age group (Figure 34). Fifty-four percent of cases reported in 2011 were age 18 to 39. From 2007 to 2011, the most frequently reported age groups included 18 to 24 and 25 to 29.

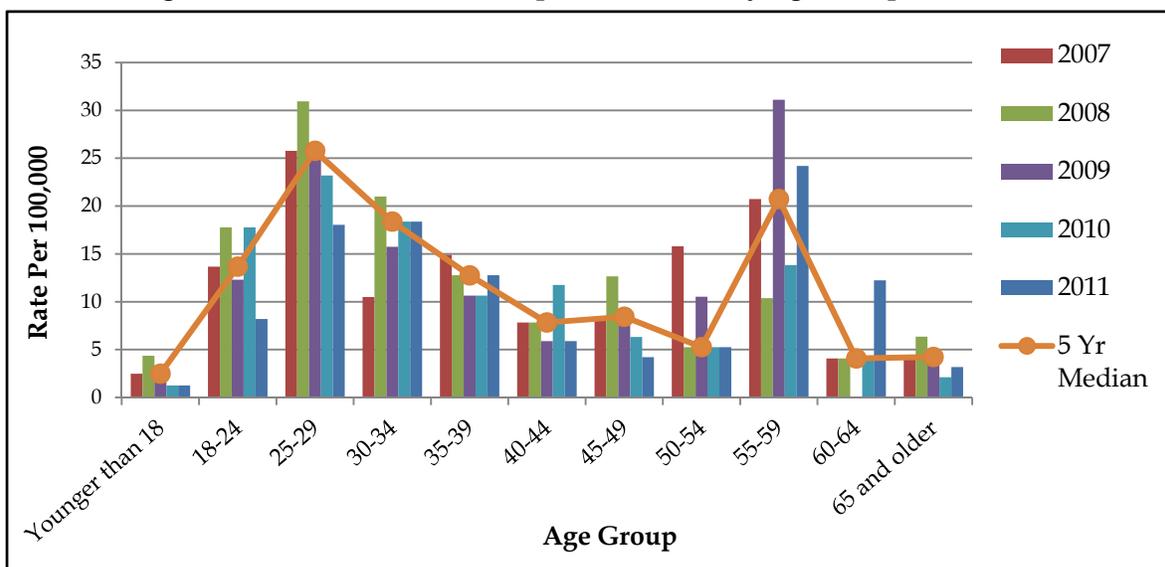
**Figure 34 - Hepatitis B Cases\* by Age Group, 2007 - 2011**



\*Based on reported positive lab results, includes acute and chronic

In 2011, the age group with the highest incidence rate, 17.1 per 100,000, was age 30 to 34 (Figure 35). Between 2007 and 2011, the five-year median incidence rate was highest among age 25 to 29 at 25.8 per 100,000.

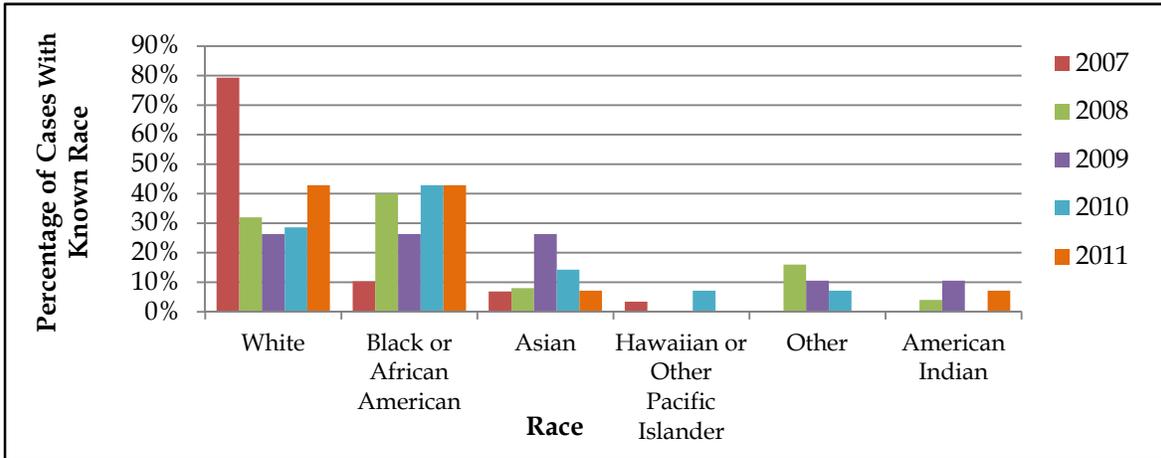
**Figure 35 - Incidence Rates of Hepatitis B Cases\* by Age Group, 2007 - 2011**



\*Based on reported positive lab results, includes acute and chronic

In North Dakota, the percentage of hepatitis B cases of unknown race has increased from 52 percent in 2007 to 71 percent in 2011. No case follow-up is conducted on chronic hepatitis B infections. From 2007 to 2011, the highest percentage of hepatitis B cases with known race was reported to be black or African American (Figure 36).

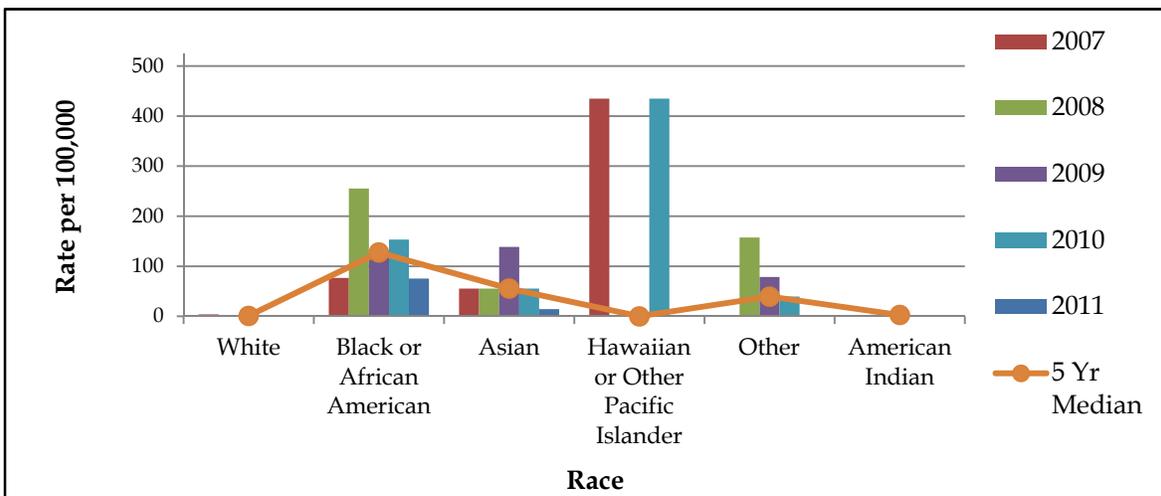
**Figure 36 - Hepatitis B\* Cases by Race, 2007 - 2011**



\*Based on reported positive lab results, includes acute and chronic

In 2011, the incidence rate of hepatitis B infections, acute and chronic, among the black or African American population was 41 percent less than the five-year median (Figure 37). The incidence rate of hepatitis B cases was highest among black or African Americans in 2011 and was 127.7 per 100,000. The incidence rate of hepatitis B cases among Asians was 14.5, American Indians was 2.73 and whites was 0.99 per 100,000.

**Figure 37 - Incidence Rates of Hepatitis B Cases\* by Race, 2007 - 2011**



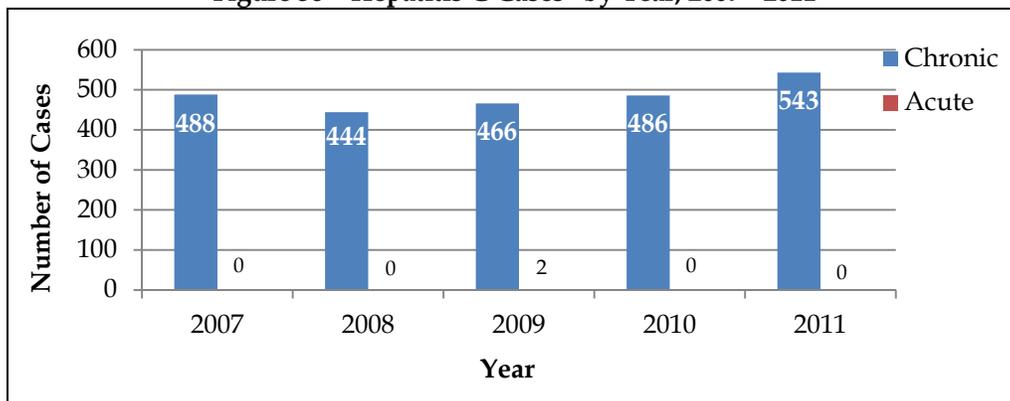
\*Based on reported positive lab results, includes acute and chronic

## 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.

Data for North Dakota are incomplete and interpretation of this data is difficult because the findings are based primarily on laboratory data. There was an average of one acute and 485 past or present infections of hepatitis C each year between 2007 and 2011 in North Dakota. In 2011, there were zero cases of acute hepatitis C in North Dakota and 543 past or present hepatitis C infections (Figure 38). In the United States, there were 853 cases of acute hepatitis C in 2010. The number of acute cases is estimated to be 17,000 after adjusting for asymptomatic infection and underreporting.

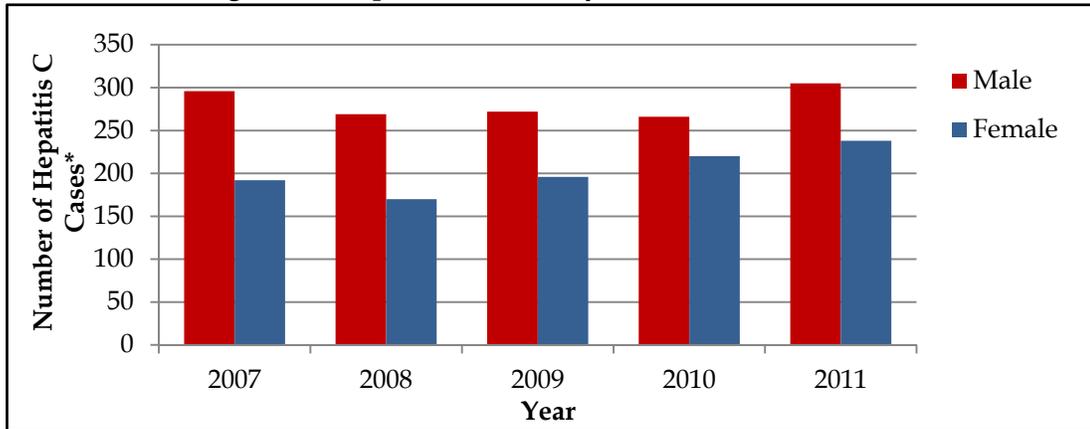
Figure 38 - Hepatitis C Cases\* by Year, 2007 - 2011



\*Based on reported positive lab results, includes acute, past and present infections

In 2011, 56 percent of hepatitis C cases were reported to be male (Figure 39). The five-year median of hepatitis C cases reporting to be males is 58 percent.

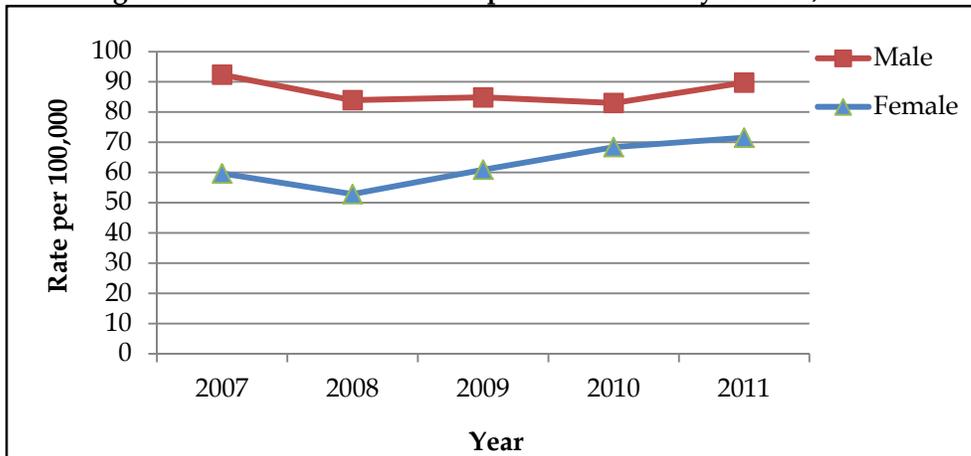
**Figure 39 - Hepatitis C Cases\* by Gender, 2007 - 2011**



\*Based on reported positive lab results, includes acute, past and present infections

In 2011, the incidence of hepatitis C cases, acute and past or present infections, in males and females was 89.7 and 71.5 per 100,000, respectively (Figure 40). The five-year median of hepatitis C cases reported among males and females is 84.9 and 60.9 per 100,000, respectively.

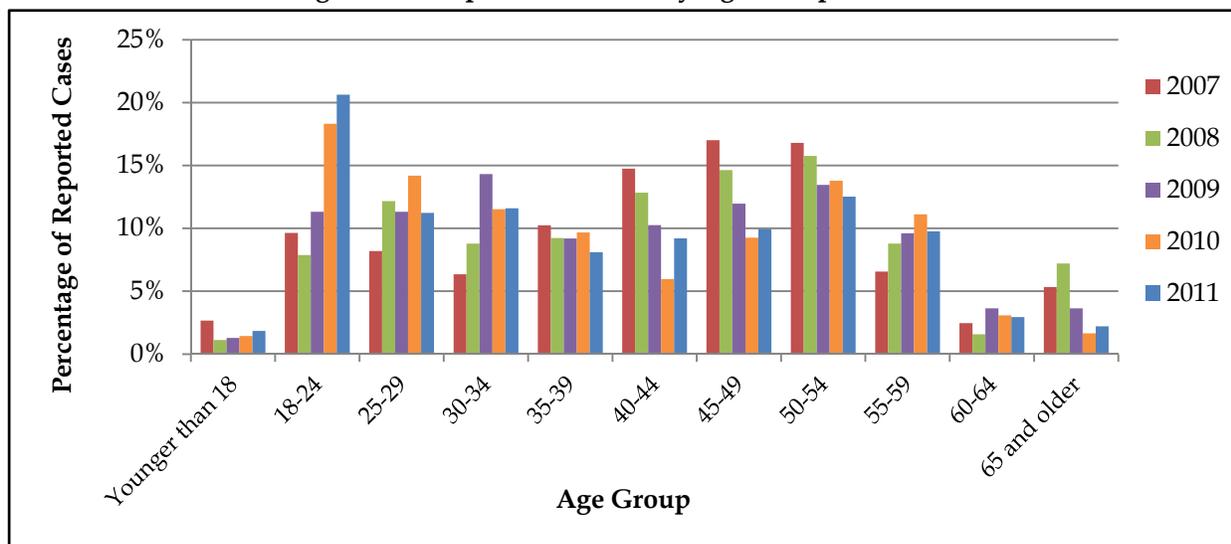
**Figure 40 - Incidence Rates of Hepatitis C Cases\* by Gender, 2007 - 2011**



\*Based on reported positive lab results, includes acute, past and present infections

Since 2007, more than 53 percent of reported hepatitis C cases occurred in those 40 years and older (Figure 41). The percentage of cases being reported from age 18 to 24 has been increasing since 2009. In this age group, 112 (21%) hepatitis C cases were reported in 2011. Identifying individuals who are chronically infected with hepatitis C at a younger age is important in reducing serious liver damage including cirrhosis and cancer and mortality resulting from hepatitis C infections.

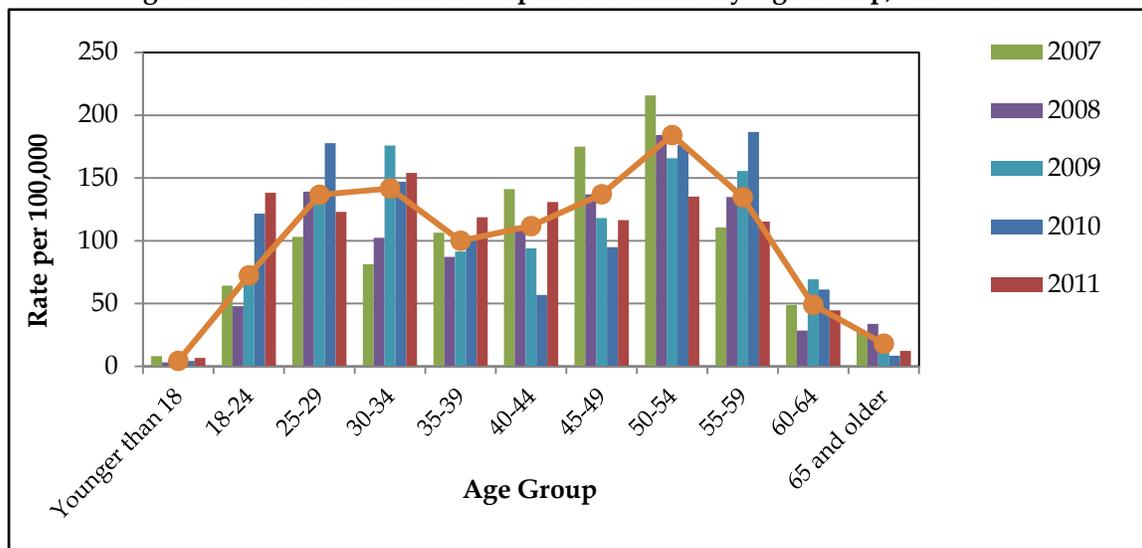
**Figure 41 - Hepatitis C Cases\* by Age Group, 2007 - 2011**



\*Based on reported positive lab results, includes acute, past and present infections

In 2011, the highest incidence occurred in the age group 30 to 34 compared to age 55 to 59 in 2010, age 30 to 34 in 2009 and 50 to 54 in 2007 to 2008 (Figure 42). Since 2008, the incidence rate of hepatitis C cases had been increasing among those age 18 to 24. The highest percentage (21 percent) of hepatitis C cases were reported from the 18 to 24 age group.

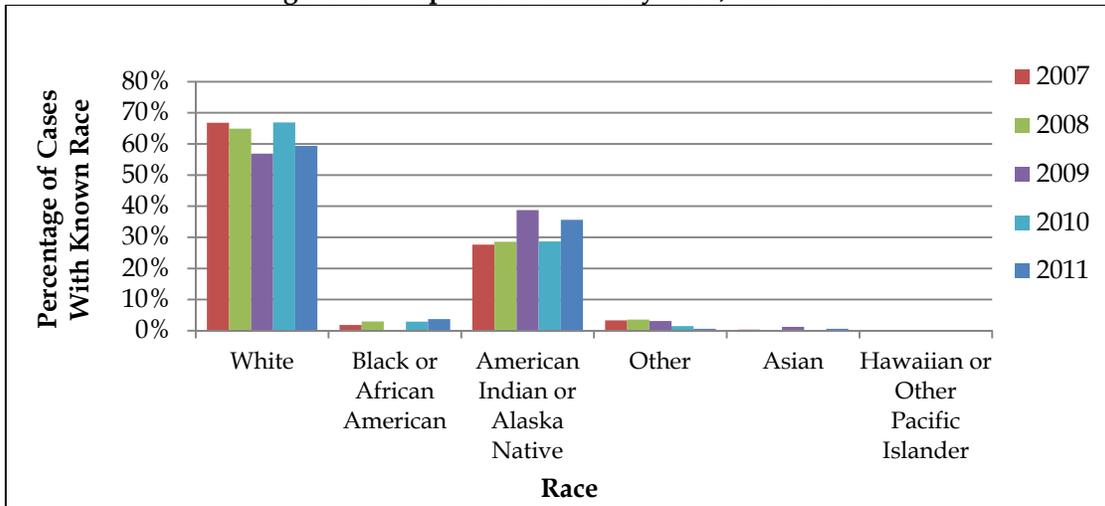
**Figure 42 - Incidence Rates of Hepatitis C Cases\* by Age Group, 2007 - 2011**



\*Based on reported positive lab results, includes acute, past and present infections

In North Dakota, whites are the highest percentage of reported hepatitis C cases with known race since 2007. However, since 71 percent of cases are reported to the Department of Health with unknown race, interpretation of these data should be made with caution. In 2011, of those with known race, 60 percent of hepatitis C cases were white, followed by American Indian or Alaska Native at 36 percent (Figure 43).

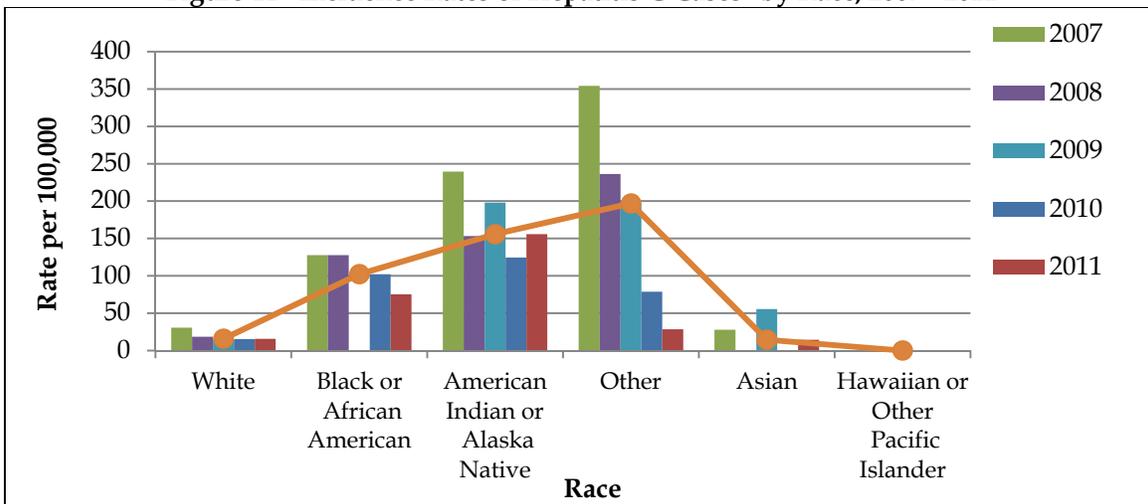
**Figure 43 - Hepatitis C Cases\* by Race, 2007 - 2011**



\*Based on reported positive lab results, includes acute, past and present infections

The racial disparity of hepatitis C infections is greatest among the American Indian/Alaska Native population. The five-year median incidence rate among the American Indian/Alaska Native population is 155.8 per 100,000, compared to 15.7 per 100,000 for the white population (Figure 44).

**Figure 44 - Incidence Rates of Hepatitis C Cases\* by Race, 2007 - 2011**

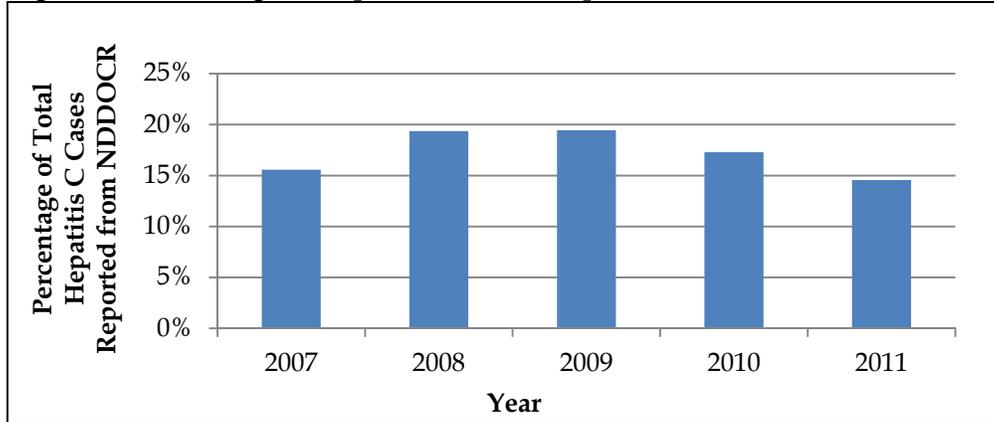


\*Based on reported positive lab results, includes acute, past and present infections

The North Dakota Department of Corrections and Rehabilitation (NDDOCR) screens all inmates for hepatitis C upon intake. The facilities included in the NDDOCR are the North Dakota State Penitentiary, James River Correctional Center, Missouri River Correctional Center and the Dakota Women’s Correctional and Rehabilitation Center. In 2011, 15 percent of past or present hepatitis C cases reported were from the NDDOCR (Figure 45). In 2011, 1,153 inmates were screened for hepatitis C at NDDOCR and 195 (16.9 percent) were positive, compared to 1,098 inmates screened and 162 (14.8

percent) positive in 2010. Of those that tested positive at the NDDOCR in 2011, 62 percent had tested positive in previous years and were not counted as new morbidity in 2011.

**Figure 45 - Percentage of Hepatitis C Cases\* Reported from NDDOCR, 2007 - 2011**



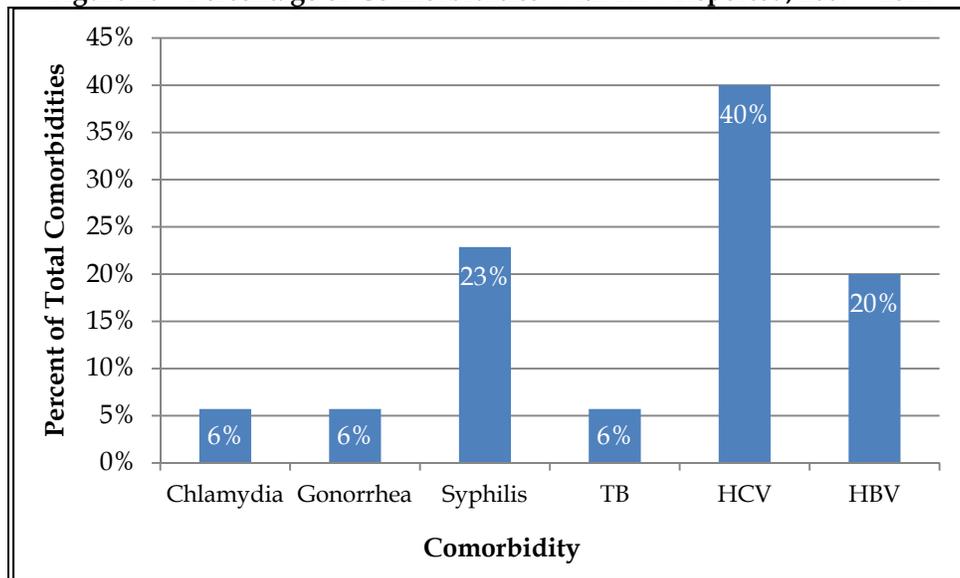
\*Based on reported positive lab results, includes acute, past and present infections

## 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. 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.

Between 2007 and 2011, 154 cases of HIV/AIDS were reported to the North Dakota Department of Health, 23 percent (35 cases) 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 40 percent of all the co-morbidity cases.

Figure 46 - Percentage of Co-morbidities With HIV Reported, 2007 - 2011



Certain risk behaviors were more frequently associated with specific HIV co-infections. HIV and chlamydia co-morbidity was most frequently associated with heterosexual contact. The most common risk factor associated with HIV and gonorrhea co-morbidity was male-to-male sexual contact. The same was true with syphilis.

**Table 8 - Risk Factors of HIV/AIDS Cases with Co-Morbidities, 2007 - 2011**

|                                   | Co-Morbidities |           |          |    |     |     |
|-----------------------------------|----------------|-----------|----------|----|-----|-----|
|                                   | Chlamydia      | Gonorrhea | Syphilis | TB | HCV | HBV |
| Risk Factors                      |                |           |          |    |     |     |
| Male-to-male sexual contact (MSM) | 0              | 2         | 5        | 1  | 3   | 3   |
| Injecting drug use (IDU)          | 0              | 0         | 0        | 0  | 2   | 0   |
| MSM/IDU                           | 0              | 0         | 2        | 0  | 3   | 1   |
| Heterosexual contact              | 2              | 0         | 1        | 1  | 5   | 2   |
| Other                             | 0              | 0         | 0        | 0  | 1   | 0   |
| Risk not specified                | 0              | 0         | 0        | 0  | 0   | 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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