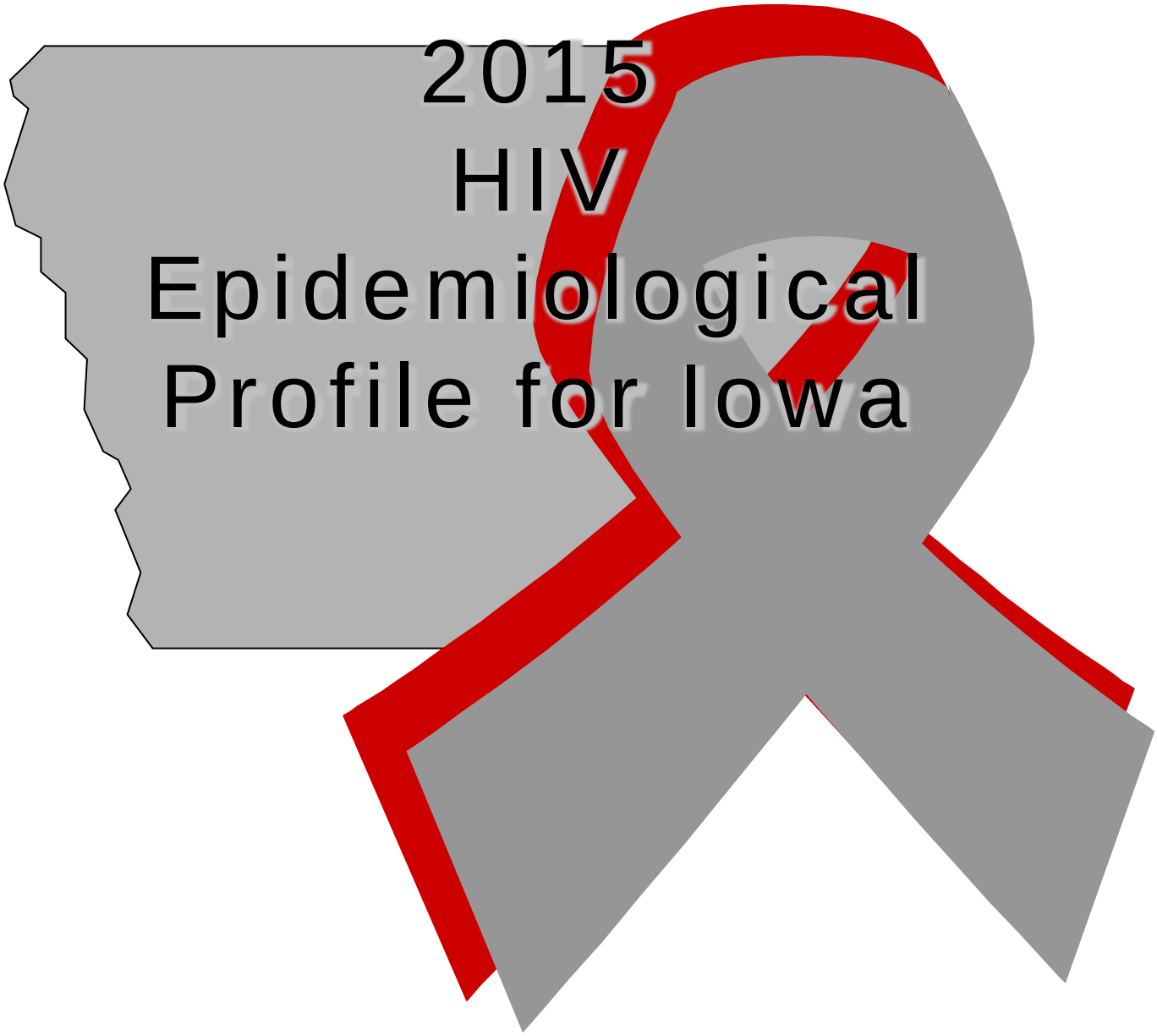

2015 HIV Epidemiological Profile for Iowa

Bureau of HIV, STD, and Hepatitis
Iowa Department of Public Health

Acknowledgments and Dedication

We dedicate this profile to Jerry Harms, who spent 27 years working as an HIV/AIDS Surveillance Coordinator in Houston, TX, and Des Moines, IA. We'll miss Jerry's attention to detail, his commitment to making a difference, and his great appreciation of all things "punny."

In Memoriam

Jerry Harms
September 24, 1943 – August 26, 2016

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TABLE OF CONTENTS

EXECUTIVE SUMMARY

EPIDEMIOLOGY OF HIV, AIDS, AND STDS IN IOWA

There were 124 HIV diagnoses in 2015, the highest since 126 in 2009. This was up 26 (27%) from 98 diagnoses in 2014 and 10 (9%) above the 5-year (2010-2014) average of 114. Since 2006, males have accounted for over 80% of HIV diagnoses and sex with another male is the reported mode of exposure to HIV for over 75% of male diagnoses. By far the greatest numbers of diagnoses occur among persons 25 to 44 years of age. Diagnoses among persons 13 through 24 years of age increased to a new peak of 33 (27%) in 2015 after increasing from a low 12 (10%) in 2007. The ten year average diagnosis among persons 13 through 24 years of age remained steady with a ten year is about 20 diagnoses annually.

Black, non-Hispanic males, black, non-Hispanic females, and Hispanic males are over-represented among persons with HIV/AIDS when their population sizes are taken into account. Black, non-Hispanic males had HIV diagnosis rates more than six times that of white, non-Hispanic males in 2015. Hispanic males had rates over two times that of white, non-Hispanic males in 2015. Black, non-Hispanic females had the highest diagnosis rate among females at more than 14 times that of white, non-Hispanic females in 2015.

Diagnoses of AIDS peaked in 1992 at 157 diagnosed cases. This period coincided with the expansion of the Centers for Disease Control and Prevention (CDC) definition of AIDS to include CD4+ cell counts less than 200 cells per microliter or less than 14% of total lymphocytes. However, the introduction of highly active antiretroviral therapy (HAART) sparked a dramatic decline in AIDS diagnoses from 1995 through 1998. After reaching a low of 60 diagnosed cases in 1998, the number of Iowa AIDS diagnoses gradually increased to an annual average of 73.2 diagnoses from 2006 through 2015.

Iowa continues to struggle to get people tested and diagnosed soon after infection. The percentage of persons that received an AIDS diagnosis within three months of initial HIV diagnosis ("late testers") reached a low of 32% among people diagnosed in 2011. However, the proportion of late testers remains high in Iowa with a 10-year (2006-2015) average of 39%. In 2015, it was 38%.

The number of deaths among people living with HIV diagnosed in Iowa continues to decrease after peaking at 103 deaths in 1995. From 2005 through 2014, death numbers have fluctuated from a low of 24 in 2008 to a high of 44 in 2014. Of the 44 deaths among Iowans with HIV disease in 2014, the last year for which death ascertainment is partially complete, 17 (39%) were caused in some part by the underlying HIV disease, 18 (41%) were determined to not be caused by underlying HIV disease, and the cause of 9 (20%) is unknown. The 44 deaths reported in 2014 are in line with the average of 31 for the 10 years, 2004 through 2013. Twenty deaths have been reported so far for 2015. Death ascertainment for 2015 is incomplete pending linkage to state and national death registries.

The most significant feature of HIV in Iowa is the continual increase in the number of persons living with HIV and AIDS. Steady diagnoses of HIV infection, combined with widespread use

of highly active, antiretroviral therapies that have decreased the number of deaths among persons with HIV disease, have increased the number of persons living with HIV to unprecedented levels and have taxed limited resources for care and treatment. In previous prevalence calculations, IDPH included only persons who were residents of Iowa at first diagnosis of HIV or AIDS regardless of where they currently lived. Although consistent with CDC methodology, this did not take into account the fact some of the cohort had moved from the state or the fact some persons diagnosed in other states had moved to Iowa. Based on outcomes of two special projects and full implementation of the re-engagement project, IDPH decided to use "current address" rather than "Iowa residence at diagnosis" to calculate HIV prevalence for 2015.

Using current address, there were 2,496 persons diagnosed and living with HIV disease (PLWH) in Iowa as of December 31, 2015, a prevalence of 80 per 100,000 persons. Iowa's prevalence is lower than the Midwest prevalence of 162 per 100,000 and the U.S. prevalence of 291.5 per 100,000. While the ten most populous counties (Black Hawk, Dallas, Dubuque, Johnson, Linn, Polk, Pottawattamie, Scott, Story, and Woodbury) account for 51% of the total population of Iowa, 73% of persons living with HIV infection in 2015 were living in these counties and 69% of persons newly diagnosed with HIV disease in 2015 were diagnosed as residents of those counties. Among counties with at least 15 persons living with HIV disease, Polk, Scott, Johnson, Linn, Pottawattamie, and Buena Vista counties have prevalence rates greater than 100 per 100,000 or 0.1%. Woodbury and Black Hawk counties have prevalence rates above the state average but less than 100 per 100,000 persons.

Iowa's HIV Continuum of Care shows that there were 2,922 people living with HIV disease and residing in Iowa on December 31, 2015. Of these, 81% had been diagnosed, leaving 529 Iowans who have yet to be diagnosed with HIV. Of the 124 diagnosed cases in 2015, 88% of people diagnosed with HIV were linked to care within one month; and 97% were linked within three months. Black, non-Hispanic persons, Hispanic persons, those with heterosexual or unidentified modes of exposure, people under the age of 24, and foreign-born people take longer to link than other populations who are diagnosed with HIV in Iowa. Of the PLWH in Iowa at the end of 2015, 83% were retained in care according to Iowa's definition of retention in care. Among Iowans diagnosed and living with HIV, 76% were virally suppressed, but among those who were retained in care, 91% had achieved viral suppression. The same groups that take longer to link are less likely to be retained in care or to achieve viral suppression.

Other points of interest include:

- Iowa has an unusually disperse distribution of PLWH compared to other states. Polk County, which is the most populous county in Iowa and includes the Des Moines metropolitan area, contains only approximately 29% of all Iowans living with HIV. Despite this, there has been a gradual trend toward a more urban distribution of HIV infection and other STDs in Iowa. Over 74% of persons diagnosed with HIV between 2006 and 2015 were residents of one of Iowa's ten most populous counties at time of initial diagnosis. These counties house 51% of Iowa's general population, but account for two-thirds of new chlamydia infections and nearly 80% of new gonorrhea infections.

- The median age of adolescents and adults (13 years of age and older) diagnosed with HIV in 2015 was 35.0 years, slightly lower than the five-year (2010-2014) median of 37.2 years. In

2015, the median age at diagnosis for adult/adolescent males was 35.0 years, the same as for adult/adolescent females. In 2015, 42% of females and 45% of males were 25 to 44 years of age at time of diagnosis. This was lower than the five-year (2010-2014) averages of 50% for females and 49% for males.

- The general population of Iowa is 87.1% white, non-Hispanic; 3.3% black, non-Hispanic; 5.6% Hispanic, all races; and 4.1% other races and ethnicities. However, only 60% of HIV diagnoses in 2015 were among white, non-Hispanic persons, highlighting a substantial disparity in diagnoses among some racial and ethnic minorities. Nineteen percent of HIV diagnoses were among black, non-Hispanic persons, 13% were Hispanic, and 8% were other races. The HIV diagnosis rate in 2015 was 22.9 diagnoses per 100,000 persons for black, non-Hispanic persons, 9.0 for Hispanics, and 2.7 for white, non-Hispanic persons in Iowa.

- Fifty-four percent of persons living with HIV or AIDS as of December 31, 2015, reported male-to-male sexual contact (MSM) as their primary risk. Heterosexual contact was the primary risk for 18% of persons living with HIV or AIDS, while 8% were injection drug users (IDU), 7% reported both IDU and MSM and 11% had no risk identified.

- Chlamydia is the most frequently reported STD in Iowa, with 12,133 cases, the highest number ever, reported in 2015. Other than a slight decrease in 2013, the incidence of chlamydia has climbed steadily with a 64% increase in the number of diagnoses in the last ten years. Similarly, the incidence of gonorrhea has increased by 38% since 2005. In contrast, the incidence of syphilis has changed dramatically in recent years. There was a 450% increase in the number of infectious syphilis cases (primary, secondary, and early latent) between 2011 and 2013. Although incidence has decreased by 18% since 2013, numbers continue to remain relatively high. Men who have sex with men are disproportionately impacted by syphilis, and account for approximately 70% of the cases among men.

- The male-to-female ratios for chlamydia and gonorrhea differ between minority populations and the white, non-Hispanic population. White, non-Hispanic *females* with gonorrhea diagnoses outnumber white, non-Hispanic males by 1.2 to 1 (male-to-female ratio of 0.83), while black, non-Hispanic *males* outnumber black, non-Hispanic females 1.4 to 1 (male-to-female ratio of 1.4). This may indicate that minority females are not being screened for asymptomatic infection at the same rate as other women in the state.

- As of March 31, 2016, the Iowa Department of Public Health had received 21,334 reports of hepatitis C infection among Iowans. Based upon this number of reports, there are likely to be 35,216 to 129,127 Iowans with hepatitis C infection, with 15,061 to 109,758 of these cases undiagnosed. Since 2000, approximately 9,000 hepatitis C tests were conducted at IDPH-supported counseling, testing, and referral sites, with an average annual positivity of 10%. HIV-HCV co-infection rates have not been determined.

INTRODUCTION

This profile describes the epidemiology of HIV infection, hepatitis C, and other reportable sexually transmitted diseases (STDs) in Iowa through 2015. The report characterizes the distribution of these diseases in terms of geography, race, gender, age, and associated causal factors. This epidemiological profile also serves as guidance for Iowa's comprehensive HIV prevention and care plan. The description of HIV disease in the state will serve to guide prevention and service efforts, to quantify unmet need for prevention and care programs, and to evaluate programs and policies in Iowa. Six key questions will be addressed:

1. What are the sociodemographic characteristics of the general population of Iowa?

2. What is the epidemiology, including the geographical distribution, of HIV disease and other sexually transmitted diseases in Iowa?

3. Who is at the greatest risk of becoming infected with HIV and other STDs in Iowa?

4. What are the patterns of utilization of HIV services throughout the state?

5. What is the overall description of the continuum of HIV care in Iowa and among selected subpopulations?

DATA SOURCES

Data were compiled from a number of sources to present the most complete picture of the epidemiologic profile of HIV and other sexually transmitted diseases. However, because few behavioral or supplemental surveillance projects are available in Iowa, core surveillance data will be utilized heavily. Each data source has strengths and limitations. A brief description of each source follows.

1. Core HIV/AIDS Surveillance

HIV Surveillance

AIDS has been a reportable disease in Iowa since February 1983. The definition of AIDS has been modified several times since the original 1982 case definition. That original definition included a list of opportunistic infections and diseases in persons with no known cause for diminished immunological functioning. At that time, no tests for HIV or for antibodies to the virus were available to confirm the diagnosis. The definition was first updated in 1985 to reflect new tests that detected either antibodies to the virus or the virus itself. The 1985 revised definition included several more medical conditions, when the conditions were accompanied by a positive serological or virological test for HIV. Another revision occurred in 1987, adding three more conditions, including wasting syndrome. The most substantial revision occurred in 1993, when immunological conditions were added to the definition. A CD4+ cell count less than 200 cells per microliter or less than 14% of total lymphocytes was included as AIDS-defining, even in the absence of specific physical symptoms. Three additional conditions, pulmonary tuberculosis, recurrent pneumonia, and invasive cervical cancer were added to the list of 23 clinical conditions that met the criteria for AIDS as well. This revision, and particularly the inclusion of CD4+ cell counts as AIDS defining criteria, substantially increased the number of people living with HIV who were diagnosed with AIDS in 1992 and reported from 1992 to 1993. Each revision may affect the number of diagnoses in that year and in subsequent years, and may make assessing trends in the numbers of new cases more difficult.

HIV became reportable by name in Iowa on July 1, 1998. Anonymous testing in Iowa ceased at that time except for those tests performed through home-collection kits. Persons older than 18 months were considered to be living with HIV if they had at least one confirmed positive test (antibody or antigen), a detectable quantity of virus or viral nucleic acid isolated (viral culture or polymerase chain reaction), or had a diagnosis of HIV infection documented by a physician. Persons diagnosed with HIV before July 1, 1998, but who have not had a viral detection test or CD4+ count completed since July 1, 1998, may not have been reported to the Iowa Department of Public Health. HIV disease diagnosis data include persons reported to have tested positive for HIV while a resident of Iowa. Also included are persons who were diagnosed with AIDS while residents of Iowa but for whom residence at time of HIV diagnosis was unknown. Only cases reported in Iowa and for whom last name, date of birth, race and ethnicity, gender, date of first HIV disease diagnosis, and vital status (living or deceased at time of report) are known are included in this report. Cumulative HIV disease includes all reported cases (HIV or AIDS), living or deceased.

Diagnosis Date and Completeness of Surveillance Data

Data will be presented by the year either HIV or AIDS was diagnosed (regardless of when it was reported). Many diagnoses reported in a given year will have been made in some previous year but not reported immediately. In 2015, all of HIV disease diagnoses were received within 6 months of diagnosis date.

Evaluations of the surveillance system indicate that 99% of diagnosed HIV cases have been reported and that reporting delay is not an issue in Iowa. Persons diagnosed before July 1998, when HIV reporting by name began in Iowa, and persons not in care are the most likely not to have been reported. For the most part, the data represent diagnosed persons well. They do not, however, include persons who have been infected but who have not been diagnosed. These reports include those diagnoses made through December 31, 2015.

All data are provisional and are subject to change as further information becomes available.

Surveillance Exposure Categories

For surveillance purposes, HIV cases are counted only once in a hierarchy of exposure categories. Persons with more than one reported mode of exposure to HIV are classified in the exposure category listed first in the hierarchy, except for men with both a history of sexual contact with other men and a history of injection drug use. They make up a separate category (Centers for Disease Control and Prevention, HIV/AIDS Surveillance Report, 2001). The modes of exposure are categorized in this report according to the following hierarchy:

- **"Men who have sex with men and inject drugs" (MSM/IDU)** includes men who inject nonprescription drugs and report sexual contact with other men or who report sexual contact with both men and women.
- **"Men who have sex with men" (MSM)** includes men who report sexual contact with other men, and men who report sexual contact with both men and women.
- **"Injection drug use" (IDU)** includes persons who inject nonprescription drugs.
- **"Hemophilia/Coagulation disorder"** includes persons who received Factor VIII (Hemophilia A), Factor IX (Hemophilia B), or other clotting factors.
- **"Heterosexual contact"** includes persons who report specific heterosexual contact with a person with documented HIV infection, or heterosexual contact with a person at increased risk for HIV infection, such as an injection drug user, person with hemophilia, transfusion recipient with documented HIV infection, or bisexual male. A person who reports heterosexual contact with partners whose specific HIV risks and HIV status are unknown is considered to have "no risk reported or identified" (NIR). Adults and adolescents born, or who had sex with someone born, in a country where heterosexual transmission was believed to be the predominant mode of HIV transmission (formerly classified as Pattern-II countries by the World Health Organization) are no longer classified as having heterosexually acquired HIV. Similar to case reports for other persons who are reported without behavioral or transfusion risks for HIV, these reports are now classified (in the absence of other risk information that would classify them in another exposure category) as "NIR" (MMWR 1994:43:155-60).

- **"Transfusion"** includes persons who received blood or blood components (other than clotting factor).
- **"Received transplant"** includes persons who received tissues, organs, or artificial insemination. These cases have been combined with "transfusion" cases in this report because of the low number of cases in Iowa in each category alone.
- **"No risk reported or identified (NIR)/other"** includes persons with no identified history of exposure to HIV through any of the routes listed in the hierarchy of exposure categories. These cases are investigated further over time to identify a risk. In addition, the category includes persons whose exposure history is incomplete because they died, declined to be interviewed, or were lost to follow-up. It also includes persons who had no risk other than working in a health-care or clinical laboratory setting. There has been one confirmed case of transmission in a health-care or clinical setting in Iowa.

2. STD Surveillance

STD Case Reporting

IDPH's STD Prevention Program conducts statewide surveillance to determine the number of reported cases of STDs, to monitor trends in the epidemics, and to offer voluntary partner counseling and notification services. Chlamydia, gonorrhea, and syphilis cases are reportable. STD surveillance data can serve as surrogate markers for higher risk sexual practices and may demonstrate changes in behavior among specific populations that increase their risks for HIV infection. Because of a shorter time from infection to symptomatic disease, STD diagnoses may better indicate recent unsafe behavior and/or changes in community norms. In addition, certain STDs can facilitate the transmission of HIV infection. The quality of the data is highly dependent on whether the provider is public or private and may be incomplete. Women may be routinely screened whereas men are more likely to be tested only if they are symptomatic. Other data limitations are discussed in the profile.

3. Hepatitis C Surveillance

Hepatitis C Case Reporting

IDPH's HIV and Hepatitis Prevention Program conducts surveillance on hepatitis C virus (HCV) infection to monitor the number of reported cases. Acute and chronic cases are reportable, as are positive antibody tests and viral tests, such as viral loads. Positive antibody tests without additional testing do not indicate whether a person is actively infected or had prior exposure and cleared the virus. Approximately 15 to 25% of people with positive antibody tests spontaneously clear the virus without treatment, and may no longer be infected with HCV despite the positive antibody test. Injection drug use and sharing of needles are common routes of acquisition of HIV and HCV. In the United States, it is estimated that 25% of people living with HIV are co-infected with hepatitis C (Centers for Disease Control and Prevention, 2015). Co-infection with HIV and HCV is particularly common (50 to 90%) among people living with HIV who inject drugs. HCV infection progresses more rapidly to liver damage in persons living with HIV. Additionally, HCV infection may impact the management of HIV infection (CDC, 2015).

4. HIV Counseling and Testing Data

Counseling and Testing System (CTS)
The Iowa Department of Public Health funds 10 free, confidential HIV testing and counseling sites in Iowa. Participants complete risk assessments as part of a testing visit or during outreach. In 2015, 4,174 HIV tests were conducted. Twenty-four persons tested positive (0.57% positivity rate). Because the counseling and testing system collects information only from persons who seek counseling and testing services, data are not representative of all persons who engage in high-risk behaviors.

5. Vital Statistics Data

Iowa Birth and Death Data
The Iowa Department of Public Health collects information on all births and deaths in Iowa. The birth certificate form includes demographic information on the newborn infant and the parents, prenatal care, maternal medical history, mode of delivery, events of labor, and abnormal conditions of the infant. Death certificates include demographics, underlying cause of death, and factors contributing to the death. The surveillance program matches data with death and birth databases annually to ascertain deaths of persons with HIV disease and births to women living with HIV.

National Death Index (NDI) Data
The surveillance submits data to the NDI office annually for linkage with NDI data. The linked data from NDI office is processed to update death information of all true matches.

6. Population Data

U.S. Census Bureau
The Census Bureau collects and provides timely information about the people and economy of the United States. The Census Bureau's Web site (http://www.census.gov) includes data on demographic characteristics (e.g., age, race, ethnicity, and sex) of the population, family structure, educational attainment, income level, housing status, and the proportion of persons who live at or below the poverty level. Summaries of the most requested information for states and counties are provided, as well as analytical reports on population changes, age, race, family structure, and apportionment. State- and county-specific data are easily accessible, and links to other Web sites with census information are included.

7. HIV Care Data

Ryan White Part B Data
Since 1993, the HIV/AIDS Program of the Iowa Department of Public Health (IDPH) has collected data on persons served by the Iowa Ryan White Part B Program. To be eligible for Part B services, a person must have HIV, be a resident of Iowa, and have an income that is equal to or less than 400% of the current year's federal poverty level. Part B services include medical case management, non-medical case management, emergency financial assistance, transportation services, outpatient medical care, oral health care, mental health services, and

substance abuse services. Throughout Iowa, Part B services may vary by location depending on the size of the agency and the number of individuals that are served.

The Ryan White Part B Program implemented the statewide deployment of CAREWare in September 2008. A central server is used to house data from all Part B providers, including the ADAP and one Part C provider. Two other Part C clinics in Iowa utilize CAREWare to maintain their client-level data. Utilization of the current version of CAREWare will ensure that all required client-level data elements will be collected by providers and reported to HRSA.

Furthermore, the "real time" nature of the networked system allows the Ryan White Part B Program to monitor specific indicators more closely (e.g., number of clients without medical insurance), instead of waiting several months until the provider is required to submit a report. Iowa is one of the first states to use the ADAP module in CAREWare, and there is great potential for measuring and improving quality through this mechanism. CAREWare allows the sharing of information between agencies, thereby improving referral times, the tracking of clients, and the tracking of quality indicators.

Information collected from the service providers includes basic demographic and risk information, eligibility verification data (current address, current income, HIV diagnosis date, Iowa Medicaid number), the type of services received, the date and quantity of services received, the cost of these services, and other pertinent information (history of substance abuse or mental health treatment, veteran status, current pregnancy status). The data indicate which Ryan White resources are being used, how often, and by whom. However, these data only reflect persons who (1) know their HIV serostatuses, (2) are currently seeking care and treatment services from Ryan White Part B-funded providers, and (3) are financially eligible to receive services. For Part B services reporting purposes, individuals that switched from one Part B service provider to another Part B service provider may be counted twice during the service year.

AIDS Drug Assistance Program (ADAP)

The AIDS Drug Assistance Program provides medication assistance (HIV-related prescription drugs) to uninsured and underinsured persons living with HIV/AIDS and who qualify. Iowa's ADAP also provides insurance assistance to qualifying insured persons living with HIV/AIDS who are unable to pay for their premiums, medication copayments, and deductibles. For this report, when "ADAP" data are presented, they represent unduplicated client-level data. However, data presented in the "medication assistance" and "insurance assistance" sections may contain information or counts on the same person if that person utilized both medication assistance and insurance assistance within the same year. An example of this would be a person previously receiving medication assistance and then later gaining employment and qualifying for insurance coverage. Information collected in the database is limited to basic demographic information on each client, eligibility verification data in regards to income and insurance coverage, and laboratory information at the time of application.

Ryan White Part C Data

Ryan White Part C funding provides for ongoing medical care, medical case management, oral health care, psychosocial services, nutritional, and other care services for persons with HIV infection. Funding goes directly to providers of medical care, and patients are charged fees according to a sliding scale. There are four Part C providers in Iowa. Each has a different method of collecting and storing data. Ryan White Service Data Reports (RSR) are submitted to the Health Resources and Services Administration (HRSA) annually, and IDPH receives a copy of these summary reports. The RSR data are in aggregate form only. Clients who used more than one provider in a year may be counted more than once. In addition, Ryan White Part C data cannot be generalized to all people with HIV living in the state because they are collected only for persons who (1) know their HIV statuses and (2) are currently seeking care and treatment services from Part C-funded providers.

GUIDELINES TO FACILITATE INTERPRETATION OF THE DATA

Decisions about how to allocate limited resources for prevention and care services depend, in part, on appropriate interpretation of epidemiological data. The following guidelines are intended to facilitate proper interpretation of the tables and figures presented in this profile.

1. **Carefully examine the entire table or graph.** Read the title of the table or figure and look closely at the type of information presented on the vertical and horizontal axes. Are the data showing the number of cases or a percentage of the total cases? Pie graphs and stacked bar graphs can show total numbers or percentages. Examine how the graphs are scaled. Does the number of cases increase by 5, 10, 100, or some other factor? What is the time period covered? Have any data been excluded from total counts?

2. **These data have certain limitations.** The first AIDS case reported in Iowa was diagnosed in 1983. At that time, only AIDS diagnoses were reportable. Reporting of HIV diagnoses (including the name of the person diagnosed) began July 1, 1998. Reporting of viral loads and CD4+ cell counts began in 2005. HIV surveillance reports may not be representative of all persons with HIV disease because as many as 20% of Iowans living with HIV may be undiagnosed, according to estimates from CDC. The tables and figures in this profile do not account for reporting delays, although electronic laboratory reporting has greatly decreased potential delays in reporting. HIV disease diagnosis data are from the entire state of Iowa, but represent those individuals living in Iowa at the time of diagnosis. State and county of initial diagnosis do not change even if a person later changes counties or moves out of state. HIV prevalence data represent all persons living with HIV disease (PLWH) in Iowa at the end of 2015 regardless of where they were originally diagnosed with HIV disease. Individuals who are diagnosed and reported while residing in another state and who subsequently move to or receive care in Iowa are included in this profile.

3. **Be careful not to over-interpret** small changes or differences from year to year. Comparing one year with another year may be misleading, particularly given the low numbers of cases reported in Iowa annually. Significant changes over time will be highlighted in the narrative of this document.

4. **Look for consistencies with other information sources.** Different findings should be examined carefully. All data sources are not equivalent in their generalizability to the population of Iowa. In particular, scientific studies should be examined for their purposes and for the population studied. Where scientific studies are presented, their limitations will be included in the discussion.

5. **Diagnosis rates** have been calculated for 12-month periods per 100,000 population. The denominator, unless otherwise noted, for calculating rates is based on 2015 population estimates from the U.S. Bureau of Census. The numerator is the number of diagnoses reported during the 12-month period. This number is divided by the population estimate and multiplied by 100,000. Race-specific rates are the number of diagnoses reported for a particular racial/ethnic group during the preceding 12-month period divided by the estimated population for that race/ethnicity, multiplied by 100,000.

ORGANIZATION OF THE PROFILE

The epidemiological profile is organized into three main sections, within which eight key questions are addressed.

Section 1: Core Epidemiological Questions

This section provides the reader with an understanding of the characteristics of the general population of Iowa, the distribution of HIV disease in the state, and a detailed look at who is most at risk for infection. The section is organized around three key questions:

Question 1: What are the sociodemographic characteristics of Iowa's population? Orients the reader to the overall demographic and socioeconomic characteristics of the general population in Iowa. May be used to establish a baseline for comparison to other states and other populations.

Question 2: What is the epidemiology, including the geographical distribution, of HIV disease in Iowa?
Examines the magnitude and distribution of the disease in the state by sex, age, race/ethnicity, and associated risk factors. Changes over time will be highlighted. Intended to be used by prevention providers to plan and evaluate their work.

Question 3: Who is at the greatest risk of becoming infected with HIV and other STDs in Iowa?
Provides a detailed look at high-risk populations using direct and indirect measures of high-risk behavior. Counseling and testing data, STD data, viral hepatitis data, and other survey data will be used to examine this question.

Section 2: Ryan White CARE Act Special Questions and Considerations

This section focuses on questions pertinent to care planning. It describes access and use of medical care services by persons with HIV infection in Iowa. It is organized around three key questions:

Question 1: What are the characteristics of persons living with HIV disease who receive HIV services in Iowa?
Describes Ryan White Part B and Part C care services and examines the characteristics of persons who accessed these services.

Question 2: What are the patterns of utilization of HIV services by persons with HIV disease in Iowa?
Characterizes the patterns of use of HIV primary medical care and support services by persons with HIV/AIDS.

Section 3: HIV Care Continuum Key Question and Concepts

This section focuses on Iowa's HIV Continuum of Care. It analyzes diagnoses, linkage to care, retention in care, and viral suppression. It is organized around one key question:

Question 1: What does Iowa's HIV Continuum of Care look like and how does it vary by population?
Describes Iowa's overall continuum of care and issues related to diagnoses, linkage, engagement in care, and viral suppression, and describes how specific populations vary in their progress through the continuum of care.

Section

1

CORE EPIDEMIOLOGICAL QUESTIONS

Question 1: What are the sociodemographic characteristics of Iowa's population?

Question 2: What is the epidemiology, including geographical distribution, of HIV and AIDS in Iowa?

Question 3: Who is at the greatest risk of becoming infected with HIV and other STDs in Iowa?

Question 1

What are the sociodemographic characteristics of Iowa's population?

This section provides background information about Iowa's population. The purpose is to provide a context for assessing the potential impact of HIV, AIDS, and other sexually transmitted diseases in Iowa.

Section Highlights

- The 2015 population estimates from the U.S. Census Bureau indicate that there are 3,123,899 persons residing in Iowa, ranking it thirtieth in the nation in population. Just over 87% of the general population is white, non-Hispanic persons and approximately 13% are members of racial or ethnic minority groups. The Hispanic population is growing the fastest and accounts for 5.7% of the general population. Hispanics comprise the largest minority population in the state.

- The ten most populous counties of Black Hawk, Dallas, Dubuque, Johnson, Linn, Polk, Pottawattamie, Scott, Story and Woodbury account for 51% of the total population of Iowa. These counties also report higher rates of poverty, unemployment, uninsured persons, and crime than other counties.

- Approximately 7.9% of Iowa's population lives below the poverty level, over 14% of youth 16 years or younger live in poverty. Those 25 to 34 years of age were least likely to have health insurance.

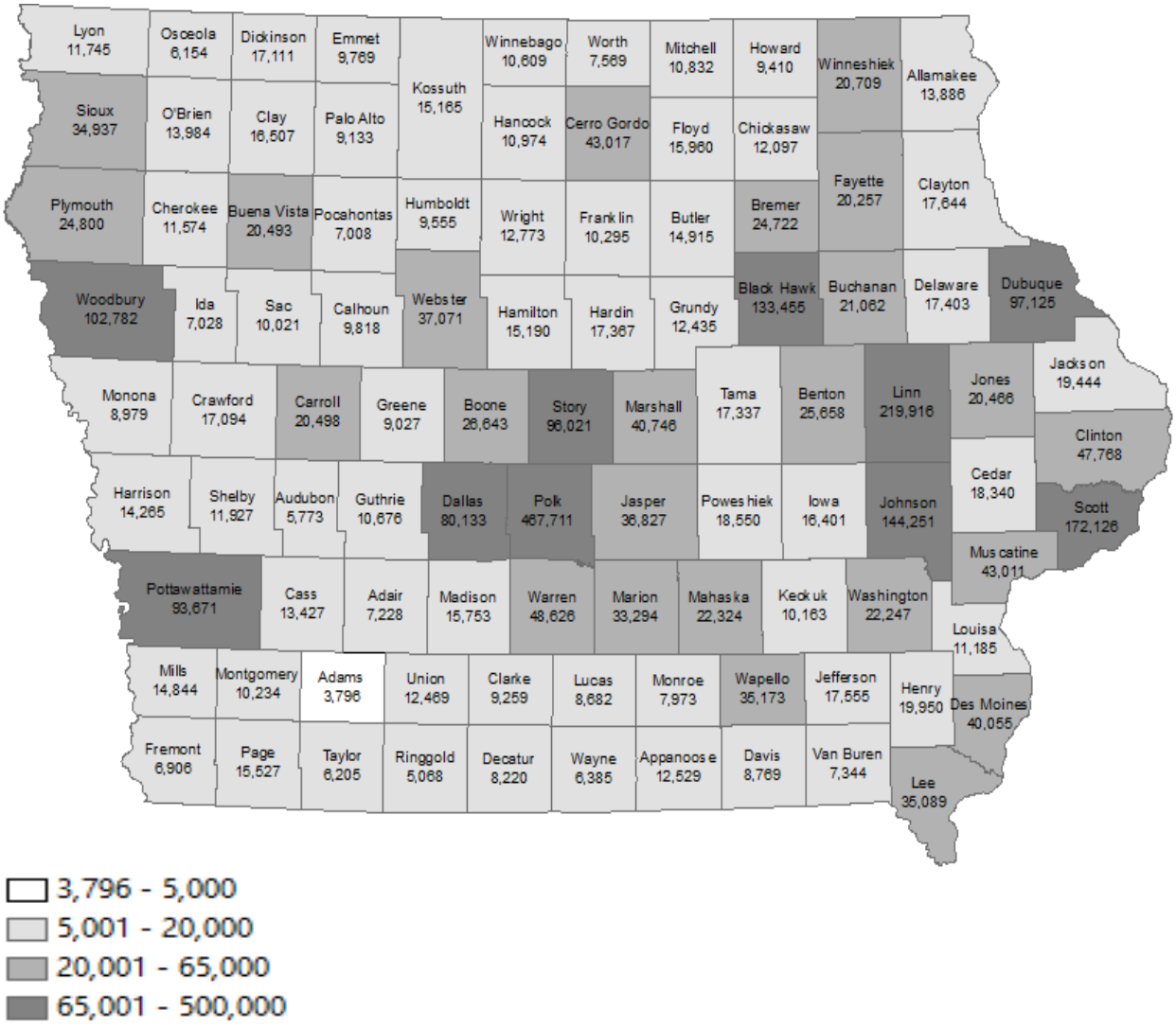
- Iowa's population is aging. The median age of the population is 38 years, up from 34 years in 1990. By 2030, the median age is expected to climb to 40 years. With 15.5% of its population 65 years or older, Iowa ranks fourth in the nation in the percentage of elderly persons residing in the state. The percentage of the population over age 65 is expected to increase to 22% by 2030 (U.S. Census Bureau). The percentage of persons under the age of 18 is expected to decrease from 25% in 2000 to 22% by 2030.

DESCRIPTION OF IOWA'S POPULATION

Iowa is primarily an agricultural state, with a land area of 55,857.1 square miles. Iowa comprises 99 counties (Figure 1) with an estimated 2015 population of 3,123,899 persons. The state ranks thirtieth in the nation in population. Five counties (Dallas, Dubuque, Pottawattamie, Story and Woodbury) have between 50,000 and 120,000 people, and five counties (Black Hawk, Linn, Johnson, Polk and Scott) have more than 120,000 people. In 2000, Clinton County was the tenth most populous county, with just over 50,000 persons. Since then, the population is estimated to have declined to fewer than 50,000. In 2005, Dallas County surpassed Clinton County to become the tenth most populous county in the state.

Iowa's population has shifted over the past ten years from rural to urban centers with the most significant growth occurring in and around the capital of Des Moines and in the Interstate 380 corridor between Iowa City and Cedar Rapids. In 2008, the state population estimate exceeded 3 million for the first time.

Figure 1
Iowa's Population by County, 2015

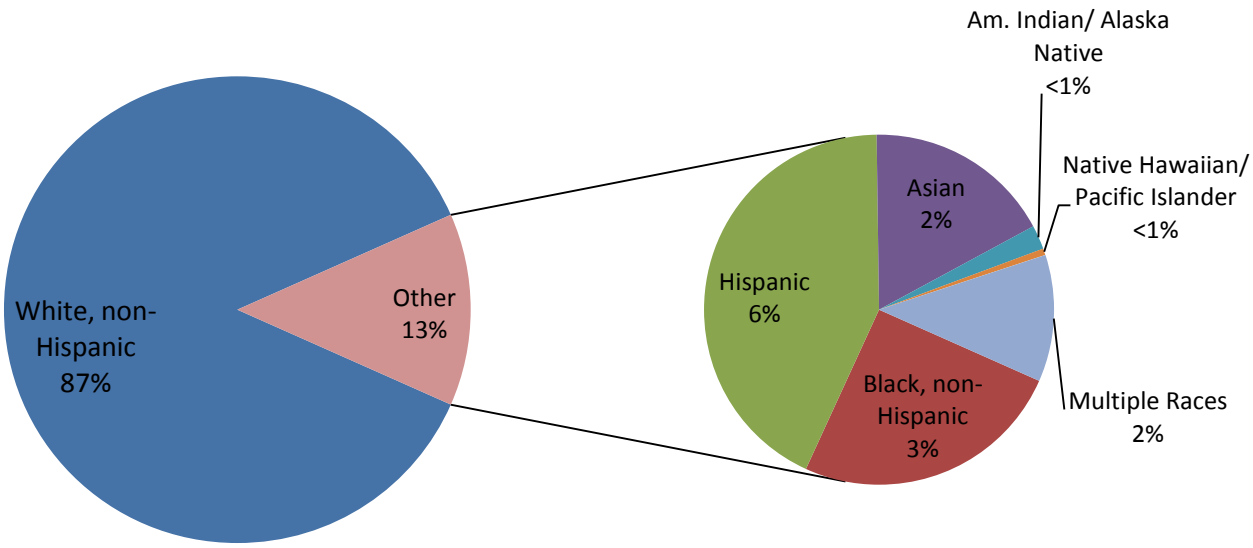


Racial and Ethnic Distribution

About 87% of Iowa's population is white and non-Hispanic (Figure 2, Table 1). Hispanic residents have become the largest minority population in Iowa and are now estimated to account for 5.7% of the population. The 2015 population estimate shows that more than one-half (53.9%) of the state's Hispanic residents lived in Pottawattamie, Johnson, Marshall, Muscatine, Polk, Scott, and Woodbury counties.

The next largest minority group is black, non-Hispanic residents, accounting for an estimated 3.4% of the population and reflecting a slight increase from 2.1% in the 2000 census. Black Hawk, Johnson, Linn, Polk, and Scott counties account for over 70% of the state's black, non-Hispanic residents. The number of black residents is projected to double by the year 2040.

Figure 2
Iowa's Population by Race and Ethnicity
2015



Iowa's Asian population increased from 1.7% in 2010 to 2.3% in 2015. Approximately 50% of the state's Asian population lived in Johnson, Polk, or Story counties in 2015. Native Hawaiian/Pacific Islanders constitute the smallest ethnic population in Iowa, making up 0.1% of the total population. In 2015, the largest numbers of this ethnic group lived in Dubuque, Black Hawk, and Polk counties.

Net domestic *migration* (i.e., net movement of people living in the U.S. into or out of Iowa) was a negative 0.2% of the population base from 2010 to 2014. In other words, more people moved out of Iowa than moved into the state from elsewhere in the U.S. Migration into Iowa was largely the result of migration from other countries. From 2010 to 2014, 21,447 foreign migrants entered the state while 4,575 persons left the state to immigrate domestically producing a net

migration amount of 16,872. This means that the increasing diversity in Iowa's population is mainly the result of persons moving into Iowa from other countries rather than an influx of minorities from elsewhere in the U.S. (US Census Bureau, 2014).

Table 1
Iowa's Population by Race, Ethnicity, and Gender
2015

Race and Ethnicity	Females		Males		Total	
	#	(%)	#	(%)	#	(%)
White, non-Hispanic	1,371,067	(87)	1,336,570	(86)	2,707,637	(87)
Black, non-Hispanic	49,405	(3)	55,487	(4)	104,892	(3)
Hispanic	85,463	(5)	93,157	(6)	178,620	(6)
Asian	35,892	(2)	36,291	(2)	72,183	(2)
Am. Indian/ Alaska Native	4,672	--	4,550	--	9,222	--
Native Hawaiian/ Pacific Islander	1,194	--	1,340	--	2,534	--
Multiple Races	24,180	(2)	24,631	(2)	48,811	(2)
Total	**1,571,873**		**1,552,026**		**3,123,899**	

Source: U.S. Census Bureau

Age Distribution

Iowa's population is aging. The median age of the population is 38 years, up from 34 years in 1990. By 2030, the median age is expected to climb to about 40 years. With 16.1% of its population 65 years or older, Iowa ranks fourth in the nation in the percentage of elderly persons residing in the state. The percentage of the population over age 65 is expected to increase to 22.4% by 2030 (U.S. Census Bureau). The percentage of youths (under the age of 18) is 23.3%, and is expected to decrease to 22% by 2030. The 2015 population by gender and selected age groupings are displayed in Table 2.

Table 2
Iowa's Population by Age and Gender
2015

Age Group (years)	Females	Males	Total	
	#	#	#	(%)
Less than 5	96,029	100,752	196,781	(6)
5-14	199,863	208,880	408,743	(13)
15-24	216,585	228,866	445,451	(14)
25-44	371,799	386,106	757,905	(24)
45-64	406,851	405,291	812,142	(26)
65 and older	280,746	222,131	502,877	(16)
Total	**1,571,873**	**1,552,026**	**3,123,899**	

Source: U.S. Census Bureau

Poverty, Health Insurance, and Employment

According to 2010-2014 American Community Survey 5-year estimates, 12.6% of Iowans were living below the poverty level, compared to the national average of 15.6%. However, 16.1% of Iowa's youth under the age of 18 live in poverty, up from 13.1% in 2005.

The passage and implementation of the Affordable Care Act (ACA) has significantly reduced the number of adult Iowans without health insurance from 14.1% in 2011 to 6.3% in 2015. Those within the age group of 25 to 34 years were least likely of all age groups in Iowa to have health insurance. Males have benefited most from changes in the availability of health insurance. In 2005, 30% of males and 19% of females 18 to 24 years of age were without health insurance. In 2015, less than 7% of those between the ages of 18 and 24 were without insurance, and only 2.5% of males in this age group (Table 3).

Table 3
Percent Uninsured by Age
2015

Age group (years)	% Uninsured		
	Females	Males	Total
18-24	11.1	2.5	6.9
25-34	11.3	8.9	10.1
35-44	11.6	7.0	9.3
45-54	8.6	7.0	7.8
55-64	5.8	4.2	5.0
65-74	2.4	0.5	1.4
75 and over	0.2	0.8	0.6
Total adults	**8.0**	**4.7**	**6.3**

Source: 2015 BRFSS, Iowa Department of Public Health, Division of Behavioral Health

Iowans who report lower household incomes are more likely not to have health insurance. Of people who reported an annual income of less than $15,000, 16.6% reported having no health insurance coverage in 2015. Among those who earned between $15,000 and $24,999, even more (17.3%) were without health insurance. Only 1.1% of people who reported an annual income of $75,000 or more did not have health insurance coverage (IDPH Behavioral Risk Factor Surveillance System, 2015).

Iowa's unemployment rate was reported at 3.9% for 2015, compared to 5.4% nationally (2015 Factbook, Legislative Fiscal Bureau, State of Iowa). In Iowa, men experience a higher rate of unemployment than women. The lower unemployment rate for women is due, in part, to women accepting part-time employment, temporary employment, and working out of their homes more often than men (Kahn, Iowa Workforce Development). Minority workers also experience a higher unemployment rate. In 2014, the total minority unemployment rate for Iowa was 7.5%, which is higher than the rate of 4.4% for the total labor force.

Corrections

Iowa has nine state correctional facilities and a community-based correctional system. The prison inmate population at the nine correctional facilities increased by 202% from 1988 through 2007, and then peaked at 9,009 in April 2011. As of July 1, 2015, there were 8,221 state inmates, a decrease of 778 inmates from that peak. There were 5,266 admissions and 5,166 releases in FY2015. The Criminal and Juvenile Justice Planning Division predicted that if criminal/incarceration practices remain the same, the prison population will reach 11,317 inmates by FY 2024. The population of prisoners was 113% of design capacity at the end of FY2015 (Department of Corrections; Iowa Legislative Factbook 2015). Nearly half (47%) of offenders in the prison system were serving time related to violent crimes. The remaining offenders were serving for offenses related to drugs (20%), property (17%), public order (7%), or other crimes (9%).

The Community-based Correctional (CBC) system includes both field-based services and residential facilities. In FY2015, 30,860 offenders were served in this system. Most offenses in the CBC were related to drug use (27%), public order (27%), and property crimes (24%).

A 2007 report by the Sentencing Project called *Uneven Justice: State Rates of Incarceration by Race and Ethnicity* reviewed rates of incarceration by race in all 50 states. Iowa was reported to have the most disproportionate rates of incarceration (per 100,000 population) between white and black persons of any state. The rate of incarceration per 100,000 population was nearly 14 times higher among blacks in Iowa than among whites. Only the District of Columbia had more disproportionate rates (19.0). Iowa ranked 11th among states for disproportionate rates of incarceration among Hispanic persons. A 2016 update of the report entitled *The Color of Justice: Racial and Ethnic Disparity in State Prisons*, found that Iowa had reduced the differential to 11.1, and its rank had fallen to number 3 – eclipsed by New Jersey (12.2) and Wisconsin (11.5).

The Iowa Department of Corrections tests all incoming offenders for HIV. On December 31, 2015, there were 31 offenders in who were living with HIV in state prisons. Data on the number of HIV-positive offenders released from prison in a given year are not available.

Substance Abuse

Drug-related prison admissions are one indicator of drug abuse levels in the state. From 2005 through 2009, drug-related admission fell, driven largely by a decrease in admissions related to methamphetamine (meth) use. This decrease occurred in response to the passage of Iowa's Pseudoephedrine Control Act in May 2005. After 2009, admissions began to increase again, as importation of meth increased. From 2009 to 2012, admissions for drug-related offenses (excluding alcohol-related offenses) increased by 36%, from 693 in 2004 to 981 in 2012. Drug-related admissions have fallen slowly since then, although admissions related to meth have remained level. In 2015, there were 827 drug-related admissions; 427 (58%) related to meth, 216 (26%) to marijuana, and 71 (9%) to cocaine/crack[1].

[1] Iowa Drug Control Strategy 2016, Governor's Office of Drug Control Strategy, 2016

Data from substance abuse treatment facilities in Iowa show that the proportion of persons in treatment for methamphetamine abuse increased steadily from 10% in fiscal year (FY) 2011 to 16% in FY 2015 (Table 4).

In FY2015, 972 (2%) of the 48,098 persons receiving treatment at a substance abuse treatment facility in Iowa reported injecting drugs at least once in the previous month. The majority of the injectors, 95.9%, were white, 0.8% were Hispanic, 1.9% were black, and 1.4% were American Indian or Alaskan Native. In FY2014, Polk County was the residence reported for 26% of the injection drug users admitted, followed by Linn County at 8%, Scott County at 7%, Black Hawk County at 6%, and Dubuque County at 5%.

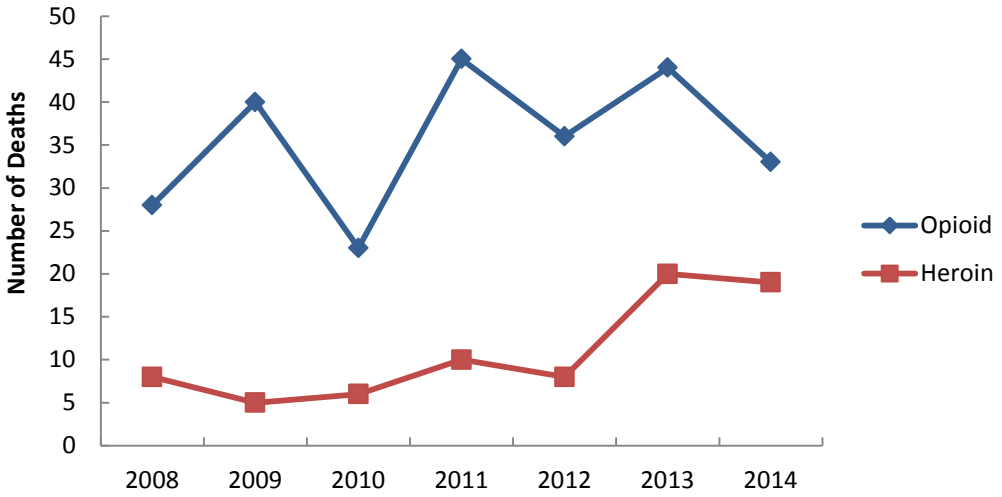
Table 4
Primary Substance of Abuse for Adult and Juvenile Clients in Treatment Programs
Iowa, FY 2005 – FY2015

Fiscal Year	Primary Problem – Type of Drug						Total Clients*
	Alcohol	Marijuana	Methamphetamine	Crack	Heroin	Other	
2005	56%	22%	14%	5%	0.6%	2%	43,692
2006	56%	23%	14%	5%	0.5%	2%	44,863
2007	58%	23%	11%	5%	0.4%	3%	47,252
2008	62%	23%	8%	5%	0.4%	3%	44,528
2009	61%	23%	8%	4%	0.5%	3%	44,849
2010	59%	25%	9%	3%	0.7%	4%	44,904
2011	55%	26%	10%	2%	0.9%	7%	47,974
2012	50%	26%	11%	2%	0.9%	10%	50,870
2013	51%	27%	13%	2%	1.2%	6%	51,045
2014	50%	26%	15%	2%	1.6%	6%	48,621
2015	49%	26%	16%	2%	2.0%	5%	48,098

*Persons may be counted more than once if a client is later admitted for a different substance.
Source: SFY, Iowa Department of Public Health, Division of Behavioral Health

Injection of heroin and opioids is a public health crisis that is associated with increasing numbers of accidental overdose deaths, exposure to and transmission of HIV, viral hepatitis, and other infection diseases, and a range of other health and social problems. Similar to the national trend, Iowa has experienced an increase in heroin- and opioid-related hospitalizations, emergency department visits, and overdoses. From 2008 to 2014, the number of heroin overdose deaths increased from 8 to 19, and the number of deaths from other opioids increased from 28 to 44 in 2013, then decreased slightly to 36 in 2014 (Figure 3).

Figure 3
Number of Heroin and Opioid Deaths in Iowa, 2008-2014



Mental Health

Statistics on the number of Iowans with disabilities vary, depending on definitions and methods used to produce them. The 2014 U.S. Census Bureau's American Community Survey found that in Iowa, an estimated 353,430 individuals have functional limitations. Most never access the public service system, and data on the use of private pay services are lacking. Approximately 50,000 Iowans have intellectual or developmental disabilities. The same number is estimated to have brain injury. Data on the number of people with other types of disabilities are scant, for a variety of reasons. Access to services varies greatly, depending on the type of disability. [2]

It is estimated that 2.4 million adult Iowans have a several mental illness, including 26,000 with schizophrenia and 53,000 with severe bipolar disorder[3]. Additionally, slightly over 18% of adult Iowans are estimated to suffer from any mental illness. In 2012-2013, 4.2% of adults reported serious thoughts of suicide, slightly higher than the national average of 3.9%[4].

During the 2015 Behavioral Risk Factor Surveillance System (BRFSS) survey, Iowans were assessed on mental health through the use of three measures: how many days during the past 30 days their mental health was not good; whether they had ever been told by a provider that they had a depressive disorder; and a single mental illness measure resulting from six questions, called the K-6 scale. Slightly under 10% of Iowans reported poor mental health for fourteen or more days during the past 30 days, which is referred to as frequent mental distress (FMD). Females (11.2%), people ages 18-24 (13.1%), people with less than high school education (16.2%), and people with incomes below $15,000 (22.8%) were more likely to report FMD.

[2] A Life in the Community for Everyone - The Department of Human Services Olmstead Plan for Mental Health and Disability Services: 2011 – 2015.
[3] Estimated Prevalence of Several Mental Illness in Iowa, Treatment Advocacy Center, 2015
[4] National Survey on Drug Use and Health, Substance Abuse and Mental Health Services Agency (SAMHSA), Center for Behavioral Health Statistics and Quality, 2012 - 2013

Additionally, 19% of Iowa adults in 2015 reported that they had ever been told by a provider that they had a depressive disorder. The prevalence of depression was greater among females, people with lower education levels, and people with lower incomes (Table 5).

Table 5
Prevalence of Reported Depression in Iowa, 2015

Demographic Group	% Reporting Depressive Disorder
TOTAL	19
SEX	
Male	14
Female	24
AGE	
18-24	20
25-34	22
35-44	23
45-54	22
55-64	17
65-74	15
75+	10
EDUCATION	
Less than H.S.	26
H.S. or G.E.D.	16
Some post-H.S.	21
College graduate	18
HOUSEHOLD INCOME	
Less than $15,000	31
$15,000-24,999	28
$25,000-34,999	18
$35,000-49,999	18
$50,000-74,999	19
$75,000+	13

Source: 2015 BRFSS, Iowa Department of Public Health, Division of Behavioral Health

The questions in the K-6 scale on the BRFSS, which are summed to obtain a single score, ask how often the respondent felt a certain way. The value of the scores can indicate levels of mental illness. A score of greater than 12 indicates serious mental illness. In 2015, according to the K-6, 3.2% of adult Iowans reported experiencing serious mental illness. Serious mental illness was more frequent among females, younger people, and people with an income less than $15,000.

Table 6
Serious Mental Illness in Iowans as Measured by the K-6 Scale, 2015

Demographic Group	% Serious Mental Illness
TOTAL	3.2
SEX	
Male	2.4
Female	3.9
RACE/ETHNICITY	
White, non-Hispanic	3.3
Non-white or Hispanic	1.2
AGE	
18-24	8.7
25-34	3.1
35-44	1.7
45-54	4.1
55-64	2.2
65-74	0.8
75+	1.6
EDUCATION	
Less than H.S.	2.9
H.S. or G.E.D.	3.6
Some post-H.S.	3.9
College graduate	1.6
HOUSEHOLD INCOME	
Less than $15,000	10.2
$15,000-24,999	7.9
$25,000-34,999	2.6
$35,000-49,999	3.7
$50,000-74,999	1.6
$75,000+	0.4

Source: 2015 BRFSS, Iowa Department of Public Health, Division of Behavioral Health

Access to mental health treatment is a concern in Iowa. In 2012-2013, 43.3% of adults in Iowa with a mental illness did not receive treatment. Additionally, 42.5% of youth with major depression did not receive any mental health treatment.[5] A lack of providers is one potential barrier to treatment. In 2014, the ratio of individuals to mental health professionals in Iowa was 904:1. This is significantly worse than the national average of 566 individuals for every one mental health provider.[6] Also, there is a lack of facilities to treat patients with severe mental

[5] National Survey on Drug Use and Health, Substance Abuse and Mental Health Services Agency (SAMHSA), Center for Behavioral Health Statistics and Quality, 2012 - 2013
[6] County Health Rankings, Robert Wood Johnson Foundation, 2014

health concerns. In 2015, Iowa closed two of the four state mental health facilities. This reduced the number of available state mental health hospital beds from 239 (2005) to 149 (2010) to 64 (2016). This reduction equates to 2 beds per 100,000 population. This is significantly lower than the national average of 11.7 beds per 100,000 population, and means that Iowa has the fewest beds per population of any state in the U.S.[7]

[7] Going, Going, Gone: Trends and Consequences of Eliminating State Psychiatric Beds, Treatment Advocacy Center, 2016

Question 2

What is the epidemiology, including the geographical distribution, of HIV and AIDS in Iowa?

This section will present data on persons living with HIV disease (PLWH), how they became infected, where HIV diagnoses are occurring, and how this may be changing over time. Data will be presented by year of diagnosis, regardless of year of report (see Core HIV Surveillance under Data Sources at the beginning of this chapter). Unless otherwise noted, all data have been collected by the HIV Surveillance Program of the Iowa Department of Public Health. To allow for reporting delays, data were collected through February 24, 2016.

Section Highlights

- There were 124 HIV diagnoses in 2015, the highest since 126 in 2009. This was up 26 (27%) from 98 diagnoses in 2014 and 10 (9%) above the 5-year (2010-2014) average of 114. U.S.-born, white, non-Hispanic males have accounted for the largest proportion of HIV diagnoses in Iowa despite population-based racial and ethnic disparities. HIV diagnoses among foreign born persons accounted for 23% of HIV diagnoses in 2015, higher than the 5-year (2010-2014) average of 19%. Hispanics accounted for 41% of the diagnoses among foreign-born persons in 2015.

- There were 80 persons living with HIV disease per 100,000 people in Iowa in 2015. The number of persons living with HIV disease in Iowa continues to grow due to a combination of new diagnoses, migration of people living with HIV into the state, and a decline in deaths among persons with HIV disease.

- Diagnoses of HIV disease are most frequent among men and among persons 25 to 44 years of age. Of note, diagnoses among persons 13 to 24 years of age have more than doubled in ten years, increasing from 13 in 2006 to 33 in 2015.

- Median age at diagnosis of HIV has not changed substantially in the last 10 years. In 2015, the median age for adults and adolescents was 35.0 years. Males (median = 35.0 years) is the same as that of females (median = 35.0 years).

- Black, non-Hispanic persons and Hispanic persons are over-represented among HIV diagnoses when their numbers in the general population are taken into account. In 2015, black, non-Hispanic persons had HIV diagnosis rates more than 8 times higher than those of white, non-Hispanic persons. Hispanic persons had HIV diagnosis rates more than 3 times those of white, non-Hispanic persons.

- Men who have sex with men (MSM) remains the predominant mode of exposure to HIV disease in Iowa. In 2015, 82% of all males diagnosed with HIV disease reported having sex with other males.

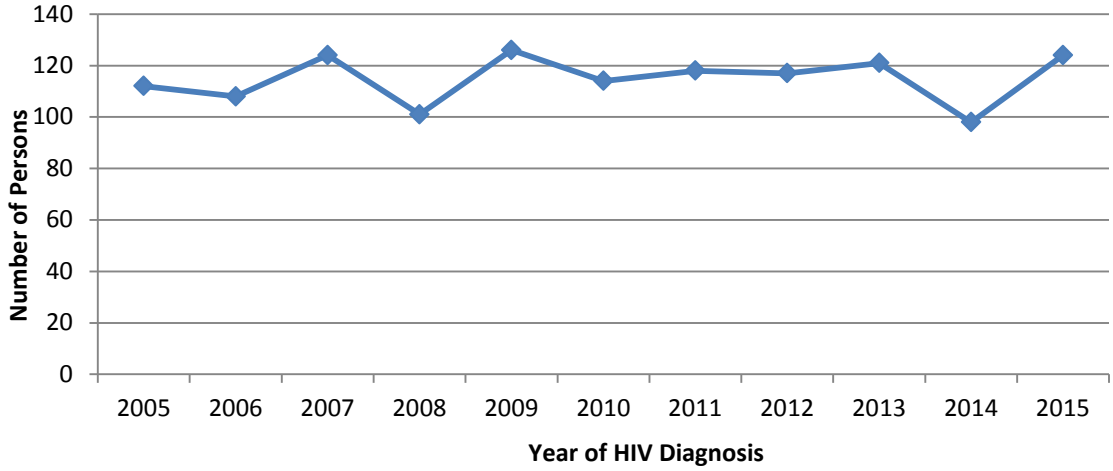
DIAGNOSES OF HIV AND AIDS

Diagnoses of HIV Disease

Figure 4 shows the number of HIV diagnoses in Iowa since 2005. Graphical presentations of HIV diagnoses over time show the year of the first positive HIV test reported for persons residing in Iowa at the time of diagnosis, regardless of stage of disease (HIV or AIDS).

HIV diagnosis date has been collected for all persons reported with AIDS since 1992, and for persons reported with HIV infection since July 1, 1998. Evaluations of the surveillance system indicate that case reporting is over 99% complete. Figure 4 indicates that diagnoses of HIV infection in Iowa have been fairly steady over the past 10 years, averaging approximately 114 persons each year. While the 124 HIV diagnoses in 2015 is within a 10-year variability, they were 9% greater than the 5-year (2010 through 2014) average of 114.

Figure 4
HIV Diagnoses[1] 2005 through 2016



[1] HIV diagnoses reflect all persons diagnosed with HIV infection for the first time, regardless of AIDS status, who were residents of Iowa at diagnosis.

Two years, 2008 and 2014, show marked decreases in diagnoses. These are followed by a marked increase in the subsequent year. In 2008, the Cedar Rapids/Iowa City metropolitan area experienced a flood. Diagnoses from this part of the state decreased substantially during the year and accounted for the overall decrease in diagnoses in the state. The changes in 2014 and 2015 seem to be more related to a substantial increase in diagnoses in 2015 in areas outside of the Des Moines and the Cedar Rapids/Iowa City metropolitan areas. It may indicate increased access to health care and/or HIV testing in less urban areas of the state, perhaps related to the implementation of the Affordable Care Act and/or Medicaid expansion.

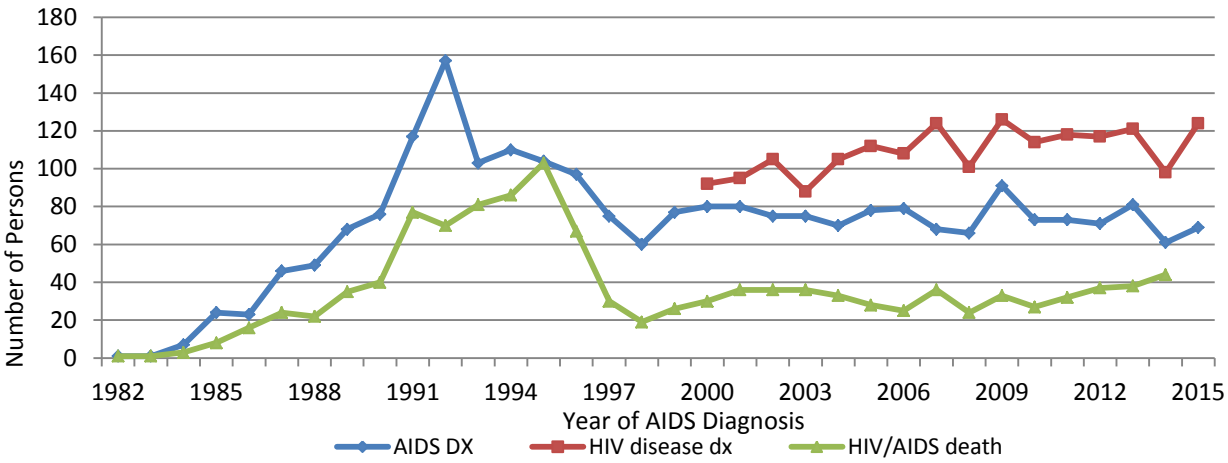
AIDS diagnoses (i.e., the late stages of HIV disease) peaked in 1992 (Figure 5) in Iowa. Changes in the definition of AIDS occurred in 1985, 1987, 1992, 2008, and 2014 (see Core HIV/AIDS Surveillance under Data Sources at the beginning of this chapter). Each change in

definition through 1992 increased the number of diagnoses that year. The major increase in diagnoses in 1992 is largely explained by the inclusion of CD4+ cell counts below 200 cells per microliter of blood (or less than 14% of total lymphocytes) as AIDS-defining conditions, but it also represents a peak in the epidemic. This is indicated by a continuous decrease in the number of cases diagnosed through 1998, and a relatively stable trend thereafter.

The decrease through 1998 probably represents an actual decline in the number of AIDS diagnoses rather than an artifact of reporting. A factor contributing to the decline in diagnoses was the inception of combination antiretroviral therapy to slow HIV disease progression to AIDS. The decrease in AIDS diagnoses did not correlate with a significant decrease in new HIV disease diagnoses, and therefore is due almost entirely to treatment advances rather than to a decrease in new infections of HIV.

The number of Iowa's AIDS diagnoses featuring early years of the epidemic, based on residence in Iowa as of the date the person first met the CDC surveillance case definition for AIDS are presented in Figure 5 and Table 7.

Figure 5
Iowa HIV Disease Diagnoses[1], AIDS Diagnoses[2], and Deaths among Persons with HIV Disease[3] 1982 through 2015



[1] Includes all persons newly diagnosed with an infection of HIV while residing in Iowa, regardless of stage.
[2] Includes all persons newly diagnosed with a condition of AIDS while residing in Iowa
[3] Reported deaths of persons with HIV/AIDS were not necessarily related to HIV infection. Deaths from 2015 are not included because the data were not yet available.

Since 1998, the number of AIDS diagnoses has been relatively stable. In 2015, there were 69 new diagnoses of AIDS, lower than the 5-year (2010-2014) and 10-year (2005-2014) averages of 72 and 74 cases respectively. When compared to the higher numbers of diagnoses in earlier years, the 10-year average may indicate that persons diagnosed with HIV were engaged in primary medical care and had received highly active antiretroviral therapy (HAART). While acknowledging the impact of HAART, another interpretation might be that the 10-year average could have been much lower were it not for a high percentage (more than 40%) of late testers, persons whose HIV disease was not diagnosed until their immune systems had been

compromised to the point where HIV and AIDS were either diagnosed concurrently or within a year of each other.

Table 7
Iowa AIDS Diagnoses and Deaths of Persons with AIDS[1] by Year of Diagnosis or Death

Year	AIDS Diagnoses	Deaths
1982	1	1
1983	1	1
1984	7	3
1985	24	8
1986	23	16
1987	46	24
1988	49	22
1989	68	35
1990	76	40
1991	117	77
1992	157	70
1993	103	81
1994	110	86
1995	104	103
1996	97	67
1997	75	30
1998	60	19
1999	77	26
2000	80	30
2001	80	36
2002	75	36
2003	75	36
2004	70	33
2005	78	28
2006	79	25
2007	68	36
2008	66	24
2009	91	33
2010	73	27
2011	71	37
2012	73	32
2013	81	38
2014	61	44
2015*	69	20*
Total	**2,385**	**1,224**

[1] Reported deaths of persons with AIDS were not necessarily related to HIV infection. Deaths of persons with HIV (not AIDS) are included. Deaths may be reported on persons who may or may not have been diagnosed in Iowa.
*Data for most recent year (2015) are incomplete until matching with NDI and State Death registry is completed

The sharp decline in deaths of persons with AIDS after 1995 (Figure 5) indicates the success of HAART. Deaths declined until 1999, when 19 deaths were reported. Deaths rebounded somewhat after 1998 reaching a new peak of 44 deaths in 2014. The rebound that occurred between 1999 and 2002 may indicate that while HAART therapy was initially effective for some

people, it may have only delayed death for a period of time for those who were late in the course of the disease.

Factors Affecting the Number of Diagnoses

Although HIV diagnoses are one indication of HIV infection rates, they do not present the complete picture. Numerous factors can affect when or *if* a person gets tested for and diagnosed with HIV infection. Service providers note the following barriers to HIV testing:

- A general lack of knowledge about how HIV is transmitted;
- An individual's belief that he/she is not at risk for contracting HIV (perceived risk);
- Logistical barriers such as proximity to testing sites, transportation, and limited hours of operation;
- Language barriers; and
- Pervasive stigma associated with HIV.

The impact of testing barriers on the state's capacity to identify cases of HIV in Iowa may be significant. Individuals who are infected and do not know they are infected may not seek testing unless they have the means, the knowledge, or a significant catalyst (e.g., symptoms). Considering these possible limitations, studying a broad sample of directed testing efforts is, to some degree, an examination of the potential prevalence of the disease.

IDPH uses federal funds from the Centers for Disease Control and Prevention (CDC) to provide free, confidential HIV counseling, testing, and referral (CTR) at sites across the state. In 2012, there were 12 sites. After a competitive bid, two were eliminated in 2013, leaving 10 sites.

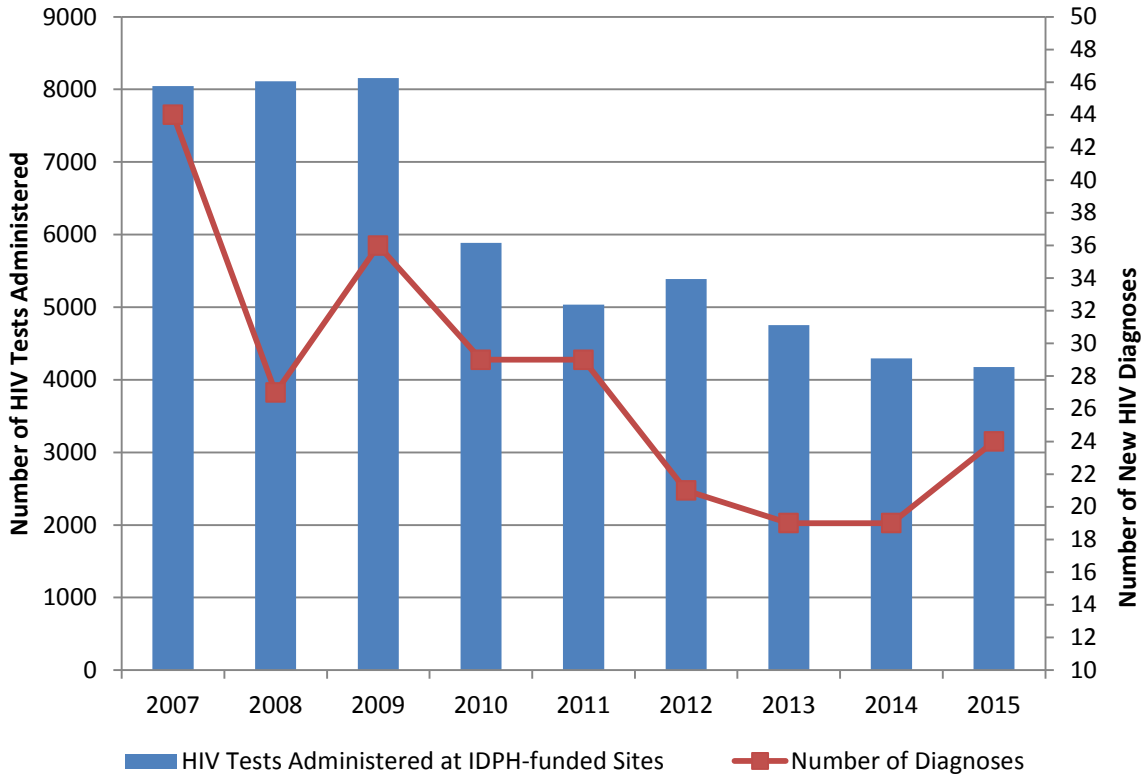
In 2011, the CDC began directly funding an agency in Iowa to focus on HIV testing for men who have sex with men (MSM). Under this project, two existing CTR sites received additional funding for the testing of MSM. These efforts improved overall HIV prevention services for MSM in Iowa; however, these testing data were subsequently directed out of the state's dataset and into the CDC directly funded dataset. Data from CTR sites presented in this profile include only testing under IDPH funding.

Participants at all CTR sites completed risk assessments during their visits to testing sites or during outreach events. These data, indicating general demographic characteristics of individuals being tested, as well as specific risk behaviors, were then entered into a web-based data reporting system, EvaluationWeb. Findings, according to data pulled from EvaluationWeb, are presented below.

Number of HIV Tests Performed by IDPH-Funded Agencies

The number of HIV tests administered by IDPH-funded agencies has decreased significantly since 2009. The most tests were administered in 2009 (8,047), while the fewest tests were administered in 2015 (4,174). In 2012, 5,389 HIV tests were administered at IDPH-funded agencies and clinics. Among those tested, 21 clients tested positive for HIV infection (0.39% positivity rate). In 2013, IDPH eliminated two testing sites and increased the performance expectation for the CTR contractors to test high-risk or disproportionately impacted populations from 80% of total tests administered to 90%. In response, there was a gradual decrease in testing (Figure 6). In 2013, 19 individuals tested positive for HIV, yielding a positivity rate of 0.40%. The percentage of tests administered to high-risk and disproportionately impacted populations was 94%. In 2014, contractors completed 4,296 HIV tests, with 19 individuals testing positive (.44%). In 2015, contractors administered 4,174 HIV tests, with 24 individuals testing positive (.57%).

Figure 6
Total HIV Tests Administered at IDPH-Funded Sites vs. Number of New HIV Diagnoses, 2007 through 2015

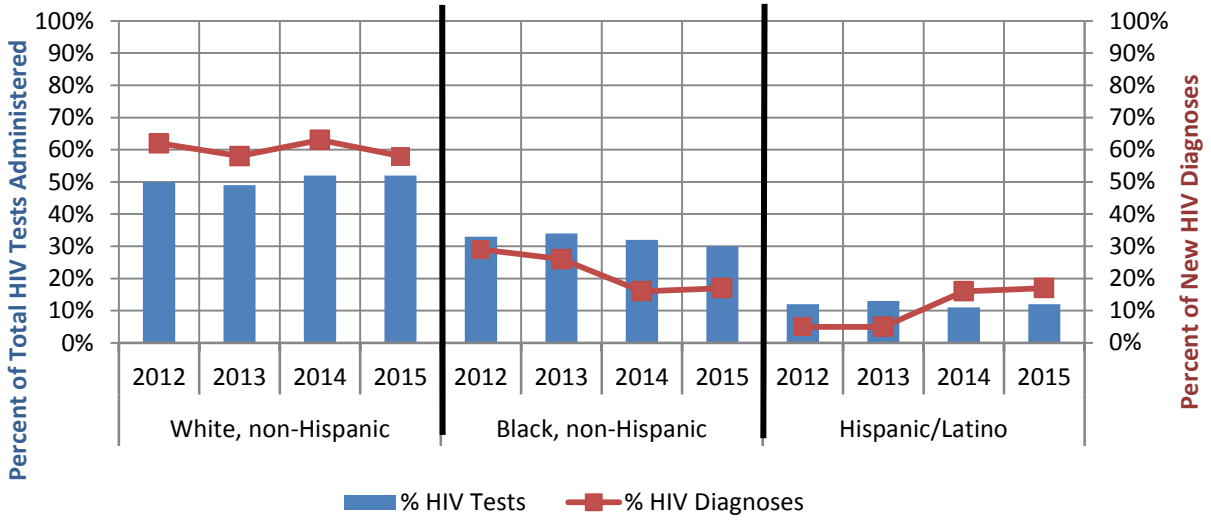


Race and Ethnicity of Individuals Receiving HIV tests from IDPH-Funded Agencies

In 2006, after studying statewide epidemiological data, Iowa's Community Planning Group (CPG) prioritized disproportionately impacted populations — racial or ethnic groups that were over-represented among people with new diagnoses (Black/African-Americans and Hispanic/Latinos). The CPG continued to prioritize efforts to reach individuals participating in high-risk behaviors (e.g., men who have sex with men).

Although overall testing at CTR sites decreased from 2012 to 2015, testing among prioritized racial or ethnic populations has remained a large percentage of testing. In 2012, non-Hispanic, Black/African-Americans represented 33% of total HIV tests administered by contracted agencies (Figure 7). This number remained steady at 32% in 2014, and dropped slightly to 30% in 2015. Testing of Hispanic/Latino clients has also remained fairly consistent, ranging from 11% to 13%. The percent of diagnoses among Hispanic/Latino clients increased from 5% in 2012 to 17% in 2015. The percent of diagnoses among Black/African Americans decreased from 29% in 2012 to 17% in 2015.

Figure 7
Race and Ethnicity of Individuals Receiving HIV Tests from State-funded CTR Agencies
2012 through 2015



Staff at many CTR sites reported that language barriers contributed to low Hispanic/Latino testing numbers. Additionally, providers identified stigma — negative perceptions of homosexuality and the misconception that HIV is an exclusively "gay disease" — as a significant reason many individuals from Black/African-American and Hispanic/Latino communities did not access prevention services. Building trust and rapport with disproportionately impacted populations has been cited as vital to prevention and testing efforts. Several agencies have initiated specific strategies for engaging these populations in CTR

services, including the identification of community "gatekeepers," outreach testing, employing staff and volunteers who match the demographics of the community, and marketing in businesses who predominantly serve the disproportionately impacted populations.

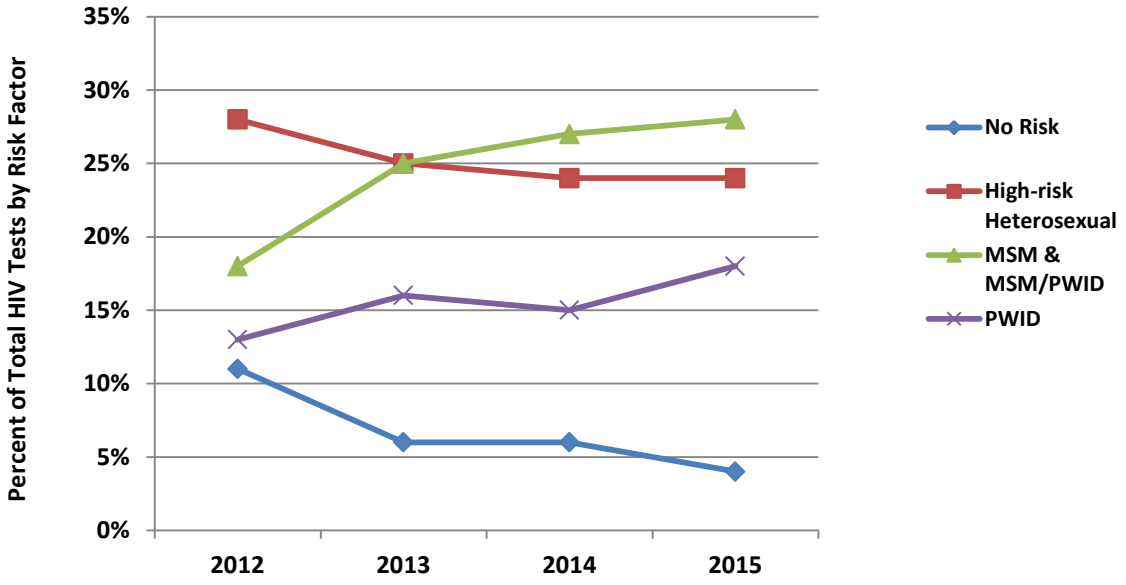
Each year, low numbers of American Indian/Native Alaskans, Asians, and Native Hawaiian/Pacific Islanders have been served at CTR sites. No group has exceeded 2% of total clients served during any year. This may be indicative of the low number of individuals from these particular groups in Iowa; and/or it may reflect one or more barriers listed earlier.

Risk Behaviors of Individuals Receiving HIV tests at IDPH-Funded Clinics

Behavioral trends of individuals receiving HIV tests at IDPH-contracted sites are discussed in this section. As indicated earlier, the CPG prioritized certain high-risk groups, including: men who have sex with men (MSM), people who use injection drugs (PWID/IDU), men who have sex with men and use injection drugs (MSM/IDU), and high risk heterosexuals (HRH; for example, heterosexuals who have been diagnosed with a sexually transmitted disease within the past year or who have had sex with someone who is HIV-positive). Any client who did not qualify through one of these risk categories was identified as *General Population*. It is important to note that, for many reasons, some clients did not disclose all risk behaviors.

IDPH-funded CTR sites saw a significant increase in the percentage of MSM tested from 2012 through 2015, from 18% of all HIV tests at the lowest in 2012 to 28% of all HIV tests in 2015 (Figure 8). However, to what degree MSM contributed to new HIV diagnoses varied somewhat. In 2012, MSM constituted 67% of all HIV-positive diagnoses at IDPH-funded sites. In 2013 and 2014, the percentage of new HIV diagnoses at IDPH-funded test sites among MSM increased to 79%, but then dropped to 58% in 2015.

Figure 8
Percentage of Total HIV Tests at CTR Sites by Primary Risk Behavior Categories
2012 through 2015



Staff at CTR sites reported barriers to reaching higher numbers of MSM. The most frequently cited barriers included client boredom with the HIV message, the perception that HIV is no longer a "life-sentence" disease, and an increase in the number of men who do not openly disclose MSM behavior and/or do not identify as MSM.

Staff also reported barriers to reaching higher numbers of people who use injection drugs. The predominant barrier reported for this group is stigma associated with reporting injection drug use.

The number of high-risk heterosexuals receiving HIV tests has remained somewhat steady. High-risk heterosexuals accounted for approximately 28% of all testing at IDPH-funded sites in 2012. This decreased slightly to 25% in 2013 and to 24% in 2014 and 2015. Testing of clients with no identified risk has decreased significantly as IDPH-funded testing sites have focused testing efforts on high-risk and disproportionately impacted populations.

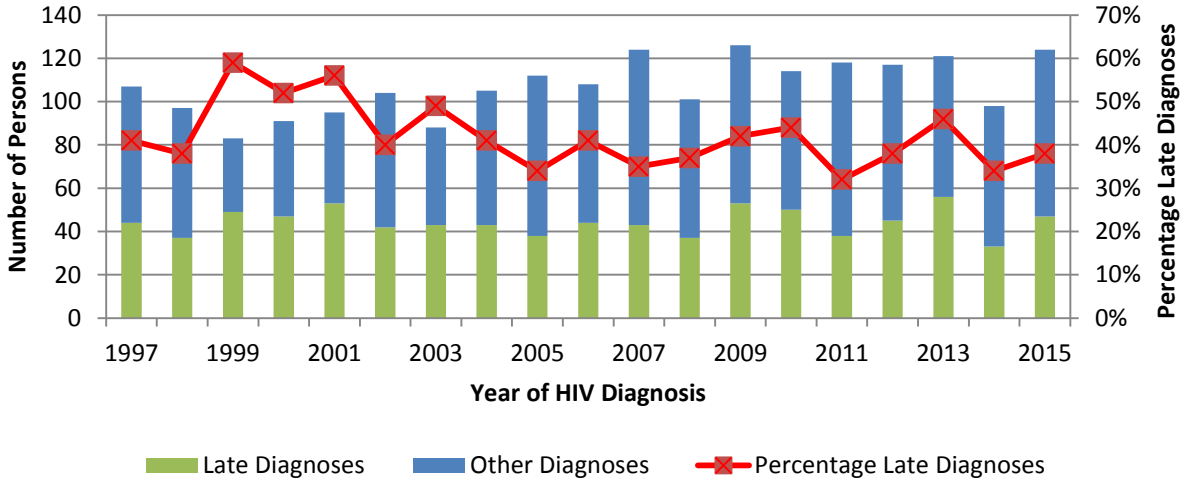
Late Diagnoses

Although time of infection is generally not known, the length of time between HIV diagnosis and AIDS diagnosis can be used to give a general idea of how far along in the course of the disease a person at the time of initial HIV diagnosis. A short period of time between HIV diagnosis and AIDS diagnosis suggests that a person may have been infected for quite some time. People with early HIV diagnoses (i.e., soon after infection) generally have longer time spans between HIV diagnosis and AIDS diagnosis. In general, if an individual is diagnosed with HIV disease early in the course of the disease, gets into treatment quickly, responds well to therapy, and adheres to treatment regimens, they may never be diagnosed with AIDS, or would at least have a longer time from HIV diagnosis to AIDS diagnosis.

Figure 9 shows the number and proportion of late diagnoses among persons diagnosed with HIV from 2005 through 2014. "Late diagnosis" is defined as a diagnosis of AIDS within 3 months of initial HIV diagnosis. Such persons are often referred to as "late testers." The proportion of late testers has remained below 50% since 2001, when it was 56% of total diagnoses. Nonetheless, the proportion of late testers has remained high in Iowa with a 10-year (2006-2015) average of 39%.

In the *State HIV Prevention Progress Report, 2014*, CDC looked across states at the proportion of late testers, and compared them to the *Healthy People 2020* goal that by 2015, only 19% of diagnoses should be "late" diagnoses. Using 2011 data in the report, only 2 states had met that goal. Overall, the national average in 2011 was 25%. The comparatively high proportions of late diagnoses in Iowa may be due to a failure of prevention (e.g., not reaching the right people at the testing sites and/or lack of routine screening by primary care providers in the state).

Figure 9
Total HIV Diagnoses[1], Late HIV Diagnoses[2], and Percentage Late Diagnoses
2005 through 2015



[1] Includes all persons reported to have tested positive for HIV for the first time while a resident of Iowa, regardless of current diagnosis (HIV or AIDS).

[2] Includes all persons reported to have tested positive for HIV for the first time while a resident in Iowa who were also diagnosed with AIDS with 3 months of their initial HIV diagnosis.

The amount of time from initial infection with HIV to meeting a definition of AIDS is 9 to 10 years, on average, when the infection is untreated. According to a CDC study, late testers are more likely to be heterosexual, have lower education levels, be older than age 55, and be members of racial and ethnic minorities.[1,2] Late testing is associated with poorer health outcomes and earlier deaths. Late testers benefit less from antiretroviral therapy, and have more opportunities to transmit HIV to others.

Iowa sees very different trends in late diagnoses than what is seen nationally. Although we see few statistically significant differences among groups (most likely due to the small numbers), males tend to be more likely to have a late diagnosis in Iowa, as are white, non-Hispanic people, and MSM (Table 8). In addition, U.S.-born people are more likely to have a late diagnosis than are foreign-born people in Iowa. Finally, people from rural areas are more likely to have late diagnoses than are people from urban areas, perhaps the only group where we might have expected the trend to be in this direction.

[1] Late Versus Early Testing of HIV – 16 Sites, United States, 2000-2003. CDC. MMWR 2003;52(25);581-586.

[2] Time from Infection with the Human Immunodeficiency Virus to Diagnosis, United States, Hall, I., et al. J Acquir Immune Defic Syndr. 2015 Jun 1;69(2):248-51.

Table 8
Characteristics of Persons Diagnosed with HIV Disease in Iowa and Classified as Late Testers, 2011 through 2015

Characteristic	All Diagnoses Total = 578 (100%)		Late Total = 219 (37.9%)		Not Late Total = 338 (56.5%)		Odds Ratio	p-value	95% Confidence Interval
	No.	(Row %)	No.	(Row %)	No.	(Row %)			
Sex at Birth									
Male	458	(100)	176	(38.4)	282	(61.6)			
Female	120	(100)	43	(35.8)	77	(64.2)	1.12	0.6023	0.73, 1.70
Race/Ethnicity								0.2592*	
White, Non-Hispanic	360	(100)	147	(40.8)	213	(59.2)			
Black, Non-Hispanic	110	(100)	32	(29.1)	78	(70.9)	1.65	0.0266	1.06, 2.67
Hispanic	59	(100)	23	(39.0)	36	(61.0)	1.08	0.7887	0.61, 1.90
Asian	25	(100)	8	(32.0)	17	(68.0)	1.47	0.3845	0.62, 3.49
other	24	(100)	9	(37.5)	15	(62.5)	1.15	0.7478	0.49, 2.70
Mode of Exposure								0.3681*	
MSM	345	(100)	135	(39.1)	210	(60.9)			
IDU	39	(100)	15	(38.5)	24	(61.5)	1.03	0.9354	0.52, 2.03
MSM/IDU	28	(100)	5	(17.9)	23	(82.1)	2.96	0.0256	1.10, 7.97
Heterosexual	129	(100)	48	(37.2)	81	(62.8)	1.09	0.7025	0.71, 1.65
NIR/Other	37	(100)	16	(43.2)	21	(56.8)	0.84	0.6272	0.43, 1.67
Birth Country									
U.S.	460	(100)	177	(38.5)	283	(61.5)			
Foreign Born	118	(100)	42	(35.6)	76	(64.4)	1.13	0.5647	0.74, 1.72
County of Residence									
Urban	451	(100)	165	(36.6)	286	(63.4)			
Rural	127	(100)	54	(42.5)	73	(57.5)	0.78	0.2242	0.52, 1.64

Diagnoses of HIV Infection among Foreign-Born People in Iowa

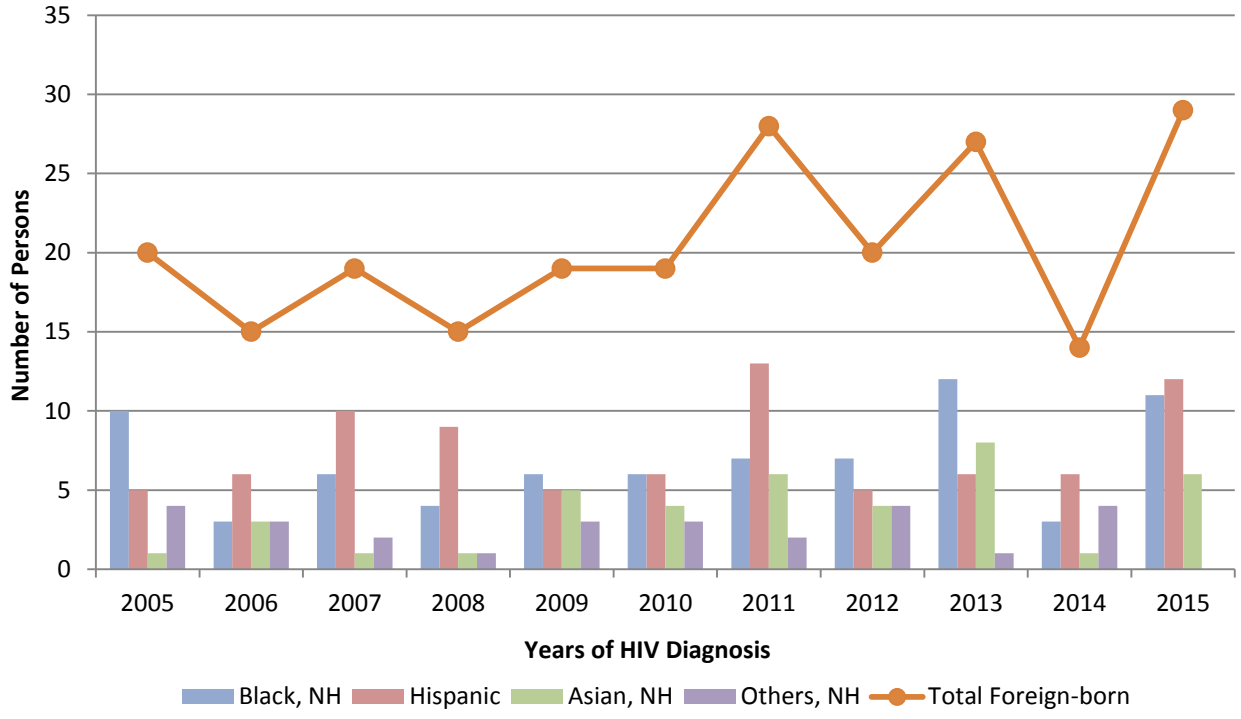
Immigration of HIV-positive persons to the United States may have a substantial impact on data trends and interpretation of those trends. According to CDC guidelines, diagnoses of HIV infection that occur outside of the United States or its territories are not recognized by CDC's national HIV surveillance system (NHSS). Thus, immigrants with previously documented diagnoses are counted by the place of residence at time of first HIV test or treatment *within the United States*. Therefore, such persons when first tested or treated as residents of Iowa are counted among Iowa's new HIV diagnoses. Since immigration status is not collected on case report forms or in interviews, undocumented immigrants may also be diagnosed as residents of Iowa.

Section 212(a)(1)(A)(i) of the Immigration and Nationality Act (the Act), bars the admission to the United States of any foreign national who has been diagnosed with certain specific illnesses. The Department of Health and Human Services (HHS), on November 2, 2009, published a final rule in the Federal Register, removing HIV infection from the list of illnesses that make a foreign national inadmissible. This rule took effect on January 4, 2010.

Prior to January 4, 2010, the Act rendered inadmissible any applicant for a visa or admission to the United States who had HIV. However, a number of waivers of inadmissibility were available for humanitarian and family unit concerns. Persons with HIV disease admitted on such waivers were counted as new Iowa diagnoses if, after entering the U.S., they resettled in Iowa and first received testing or treatment here.

Figure 10 shows the number of diagnoses of HIV disease for persons in Iowa who were born in foreign countries. Country of origin is collected on the confidential case report form and can be used as an imperfect predictor of who is an immigrant. After peaking at 32 in 2002, the number of diagnoses among foreign-born persons in Iowa stabilized below 20 diagnoses annually. However, the number of diagnoses among the foreign born jumped from 19 in 2010 to 29 in 2015 (23% of all diagnoses). On average over the last 10 years, 18% of diagnoses are among foreign-born Iowans. In 2015, there were increases in diagnoses among blacks, Hispanics, and Asian foreign-born persons.

Figure 10
Diagnoses of HIV Disease in Foreign-born Persons in Iowa[1] by Race and Ethnicity
2005 through 2015



[1] HIV diagnoses reflect all foreign-born persons whose first diagnosis of HIV (regardless of AIDS status) in the U.S. came as a resident of Iowa.

Other than HIV-positive refugees, it is not clear how many foreign-born persons immigrated with HIV or how many may have become infected while in the United States. If one assumes

that foreign-born persons would be more likely to interact with persons from their country of origin than would a U.S-born person, immigrant populations from areas in the world where HIV is more prevalent may also have higher rates of infection within the United States. Under that assumption, prevalence of HIV in immigrant populations may reflect that of their home countries.

The region of origin for foreign-born persons diagnosed with HIV between 2006 and 2015 is shown in Table 9. Thirty-eight percent were of Hispanic origin, 32% were African, and 23% were Asian. Over 48% of foreign-born males were of Hispanic origin compared to 18% of foreign-born females, and 52% of foreign-born females were of African descent compared to 20% of foreign-born males.

Table 9
Region of Origin for Foreign-born Persons Diagnosed in Iowa[1]
2006 through 2015

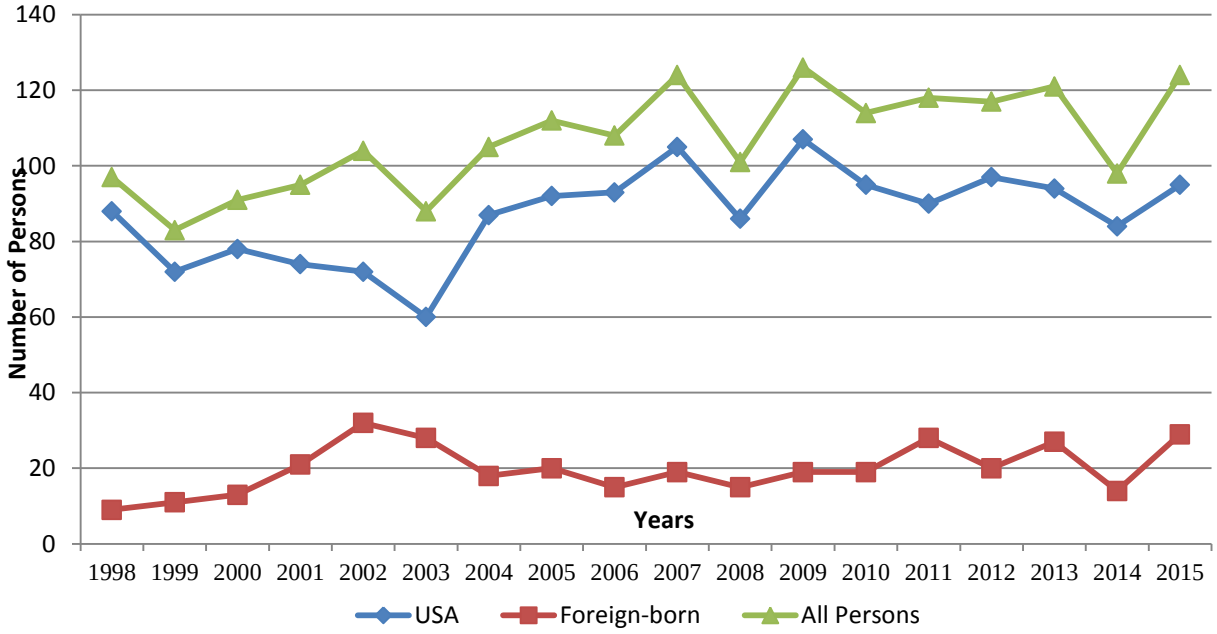
Region	Regional Totals		
	Males	Females	All
Central/South America/ Caribbean	58	13	71
Africa	27	38	65
Asia	32	16	48
Europe	6	3	9
Other	9	3	12
All regions	**132**	**73**	**205**

[1] HIV diagnoses reflect all foreign-born persons whose first diagnosis of HIV (regardless of AIDS status) in the U.S. came as a resident of Iowa.

Past increases in diagnoses among foreign-born persons have had some significant impacts on the interpretation of epidemiological data in Iowa. Failure to give separate consideration to diagnoses among the foreign born may lead to overstatement of diagnoses among U.S. born. Most obviously, the numbers of diagnoses among U.S.-born persons may be misinterpreted, particularly those of African Americans and U.S.-born Hispanics. Overlooking such a distinction may lead to missed opportunities for prevention and intervention in all impacted communities.

Figure 11 demonstrates how the diagnosis curve for Iowa differs if foreign-born persons are plotted separately from U.S.-born persons. Increases seen in the number of new diagnoses in Iowa from 1998 to 2002 were due to increases in diagnoses among foreign-born persons. Diagnoses among U.S.-born persons declined continuously throughout this period. Increases in diagnoses seen from 2004 to 2009 were driven by diagnoses among U.S.-born persons, however.

Figure 11
Diagnoses of HIV Disease[1] in Iowa by Country of Origin
1998 through 2015



[1] HIV diagnoses reflect all persons diagnosed with HIV disease for the first time, regardless of AIDS status, who were residents of Iowa at diagnosis.

If foreign-born persons diagnosed in Iowa differ substantially from U.S.-born persons in terms of sex, race and ethnicity, risk or age then they will affect trends in overall diagnoses among these strata. For that reason, this profile will examine diagnoses among foreign-born persons separately as part of the interpretation of trends.

Summary of Statewide HIV Data

- The number of newly diagnosed HIV infections increased from 108 diagnoses in 2006 to 124 diagnoses in 2015. This increase is observed among both U.S.-born and foreign-born persons.

- Diagnoses of AIDS peaked in 1992, coinciding with the change in definition of AIDS to include CD4+ cell counts less than 200 cells per microliter or less than 14% of total lymphocytes. The advent of highly active antiretroviral therapy (HAART) sparked a dramatic decline in diagnoses of AIDS from 1994 through 1998. The number of foreign-born persons diagnosed with AIDS in Iowa increased substantially between 1998 and 2003. Most of these persons were male.

- Between 1998 and 2002, the number of diagnoses among foreign-born persons in Iowa increased 129%. Since then, decreases in the number of diagnoses among the foreign-born have been observed. Since 2005, 66% of foreign-born persons with HIV emigrated from Africa or Central and South America. However, increasing numbers of Asians living with HIV have been reported since 2008.

- Thirty-eight percent of all persons diagnosed with HIV in 2015 were subsequently diagnosed with AIDS within 3 months of their HIV diagnosis, a decrease from 46% in 2013. However, this high percentage of early AIDS diagnoses among newly diagnosed HIV cases may indicate that initial diagnosis is increasingly occurring many years after infection. Males; white, non-Hispanic persons; MSM; and U.S.-born persons are more likely to have a late diagnosis in Iowa.

- The number of deaths among Iowans living with HIV has been slowly increasing since 2010.

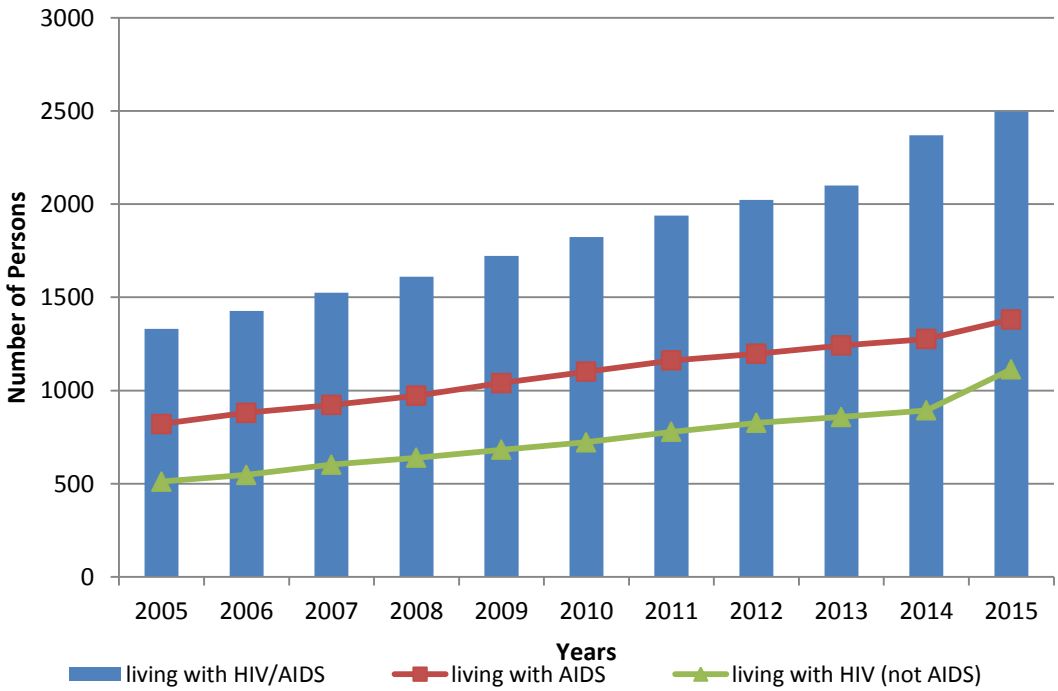
- The number of HIV tests conducted at IDPH-funded test sites has decreased consistently since 2009. In 2015, contractors administered 4,174 HIV tests, with 24 individuals testing positive (.57%), a considerable increase in positivity over the previous years.

PREVALENCE OF HIV DISEASE

The decrease in deaths of persons with HIV disease after 1996 combined with a relatively steady increase in the number of new HIV diagnoses have contributed to an increase in the number (prevalence) of persons living with HIV disease (Figure 12). In the past ten years, the number of persons living with HIV disease (persons diagnosed in Iowa) has increased significantly from 1,340 persons in 2005 to 2,254 persons in 2015. Of the 2,254 persons living with HIV disease as of December 31, 2015, 946 had not yet been diagnosed with AIDS.

It is important to note that the above statistics were calculated for Iowans who were diagnosed with HIV or AIDS while residing in Iowa, but some of them may have moved to another state and were not residing in Iowa at the end of 2015. In contrast, when we look at people currently living in Iowa, the number of persons with HIV disease at the end of 2015 was 2,496. This number includes persons diagnosed while residing in Iowa and living in Iowa at the end of 2015 plus people who were initially diagnosed while living in another state, but who now reside in Iowa. Although this implies that more people with HIV have moved into the state than have left the state, it should be kept in mind that it is more difficult to know when someone has left the state and might be living elsewhere. Therefore, there is likely a bias in the direction of having it seem like more people have moved into the state.

Figure 12
Number of Persons Living with a Diagnosis of HIV or AIDS[1]
in Iowa as of December 31 of Each Year, 2005 through 2015

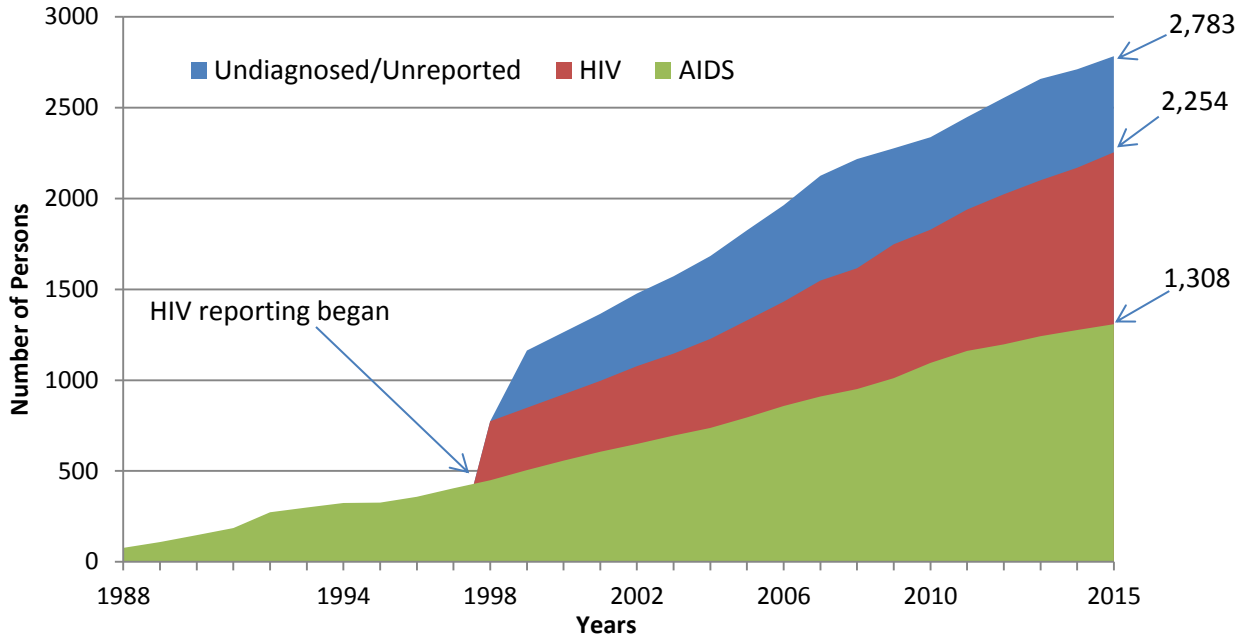


[1] Persons reported through December 31, 2015, as having HIV or AIDS and living in Iowa at the time of first diagnosis. A person may be counted only once (as either HIV or AIDS) in a given year. All deaths may not have been reported.

Estimated Prevalence

Not shown in Figure 12 are people who are diagnosed but have not yet been reported, and people who are infected with HIV but have not yet been diagnosed. Evaluations of the surveillance system show 99% completeness of reporting of HIV diagnoses among persons living in Iowa at initial diagnosis. Using back-calculations methodology developed by the Centers for Disease Control and Prevention, we estimate that approximately 19% of people living with HIV in Iowa are undiagnosed. This means that there may be 529 people who have not been diagnosed. Applying this to the number of diagnosed Iowans gives a total prevalence estimate of 2,783 Iowans with HIV (Figure 13).

Figure 13
Estimated Number of Iowans Living with HIV or AIDS[1]
as of December 31 of Each Year, 1988 through 2015



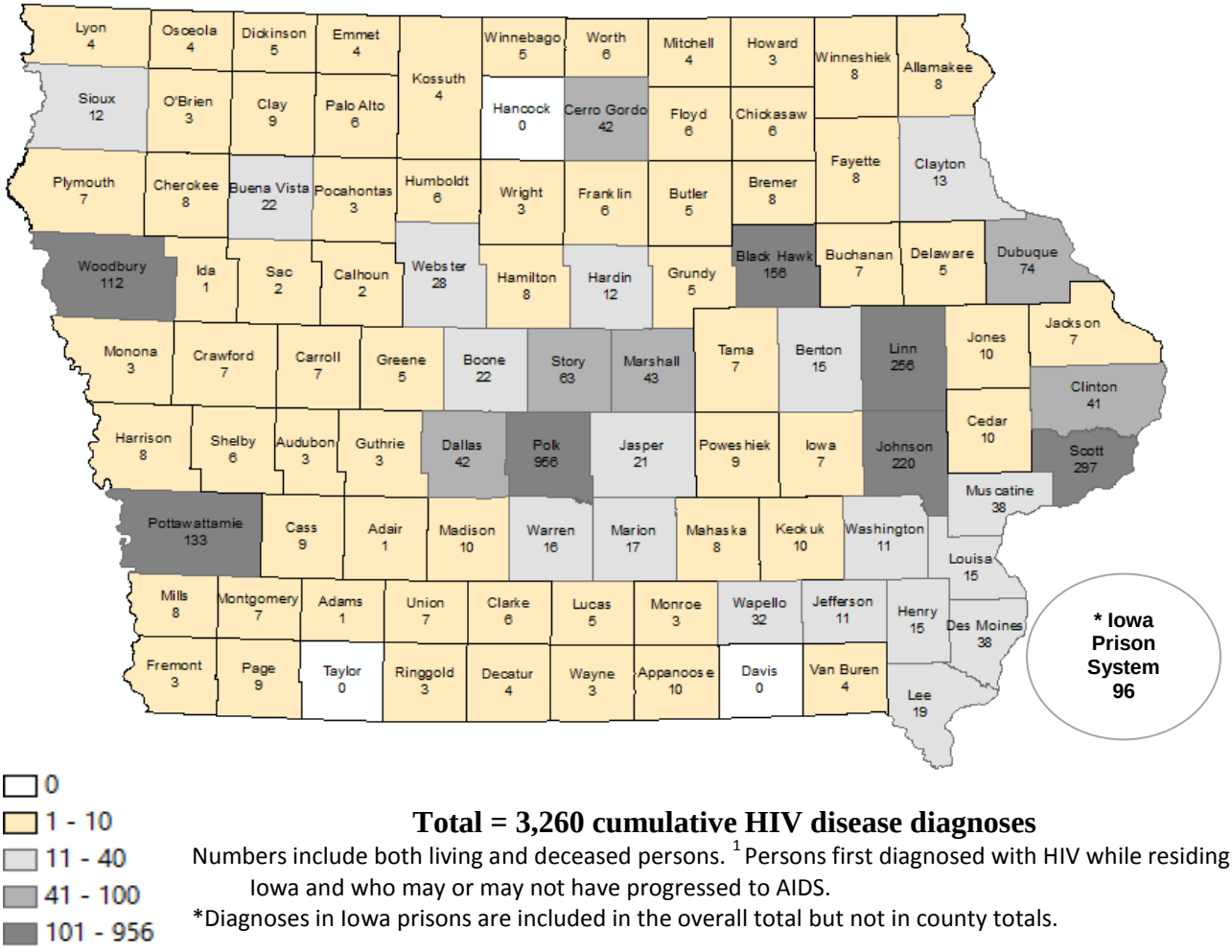
[1] Persons reported through December 31, 2015, as having HIV or AIDS and living in Iowa at time of first diagnosis. Reporting of HIV began July 1, 1998. A person may be counted only once (as either HIV or AIDS) in a given year. All deaths may not have been reported.

Geographical Distribution of HIV and AIDS

Since reporting began in 1983, 96 of the 99 counties in Iowa have reported at least one HIV disease diagnosis. While the ten most populous counties of Black Hawk, Dallas, Dubuque, Johnson, Linn, Polk, Pottawattamie, Scott, Story and Woodbury account for 51% of the total population of Iowa in 2015, 74% of the 2,465 persons living with HIV disease were living in these counties (not including 31 persons held in state correctional facilities) at the end of 2015.

Figure 14 shows the cumulative distribution of persons first diagnosed with HIV disease (regardless of AIDS status) while residing in the state of Iowa. Persons diagnosed while in Iowa prisons are included in the overall total but not in county totals.

Figure 14
Cumulative Diagnoses of HIV Disease in Iowa by County of Residence at the time of Diagnosis as of December 31, 2015



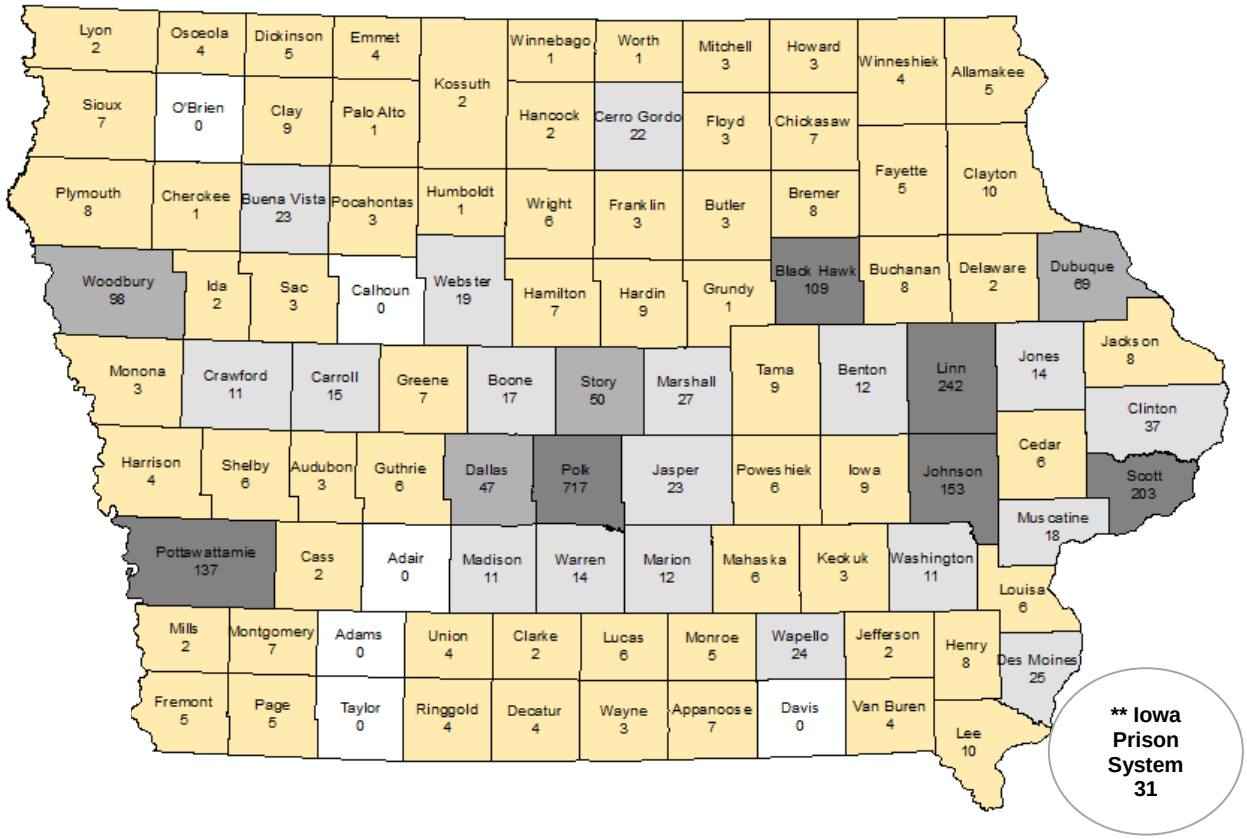
Total = 3,260 cumulative HIV disease diagnoses

Numbers include both living and deceased persons. [1] Persons first diagnosed with HIV while residing in Iowa and who may or may not have progressed to AIDS.

*Diagnoses in Iowa prisons are included in the overall total but not in county totals.

A similar picture of the distribution of HIV disease across counties emerges when deaths among people with HIV are excluded from the tally. Figure 15 shows the distribution of all persons living with HIV disease who were residing in Iowa as of December 31, 2015.

Figure 15
Persons Living with HIV Disease by Current County of Residence as of December 31, 2015



Total Prevalence = 2,496 persons

**Persons currently living in the Iowa prison system are included in the overall total but not in county totals.

The darkest shading identifies the ten most populous counties in terms of their general population.

Figure 15 shows a higher concentration of persons living with HIV disease among residents of Iowa's ten most populous counties of Polk, Linn, Johnson, Scott, Black Hawk, Pottawattamie, Dallas, Woodbury, Story, and Dubuque. Note, however, that there is no one strong "epicenter" of disease. Polk County, which is the most populous county in Iowa and includes the Des Moines metropolitan area, contains approximately 29% of all Iowans living with HIV. The ten most populous counties contain 73% of all Iowans living with HIV.

The concentration of people living with HIV in these counties is further shown by calculating the number of HIV-infected persons per 100,000 persons in the general population of each county. Table 10 and Figure 16 show the prevalence by county of persons living with HIV disease as of December 31, 2015, for selected counties. The statewide prevalence of persons living with HIV disease is 80 persons per 100,000 population. The ten most populous counties have an average prevalence of 114 persons per 100,000 population, almost three times the average prevalence (44 per 100,000) of the other 89 counties.

Polk County, which includes Des Moines, Iowa's capital city, has the highest prevalence, 153 persons per 100,000 population. Pottawattamie County, with the county seat of Council Bluffs, ranks second at 146 persons per 100,000 population. Scott County, with the cities of Davenport and Bettendorf in eastern Iowa, ranks third at 118 persons per 100,000 population. Johnson County, the location of the University of Iowa and the Iowa City/Coralville metropolitan area, has the fifth highest prevalence, 106 per 100,000 population behind Linn County, 110 per 100,000 population. Polk, Scott, Johnson, Pottawattamie, Linn, Black Hawk, and Woodbury counties have the highest prevalence among the ten most populous counties. Story, Dallas, and Dubuque counties differ from the other seven most populous counties in that their prevalence is lower than the state average of 80 persons per 100,000 population.

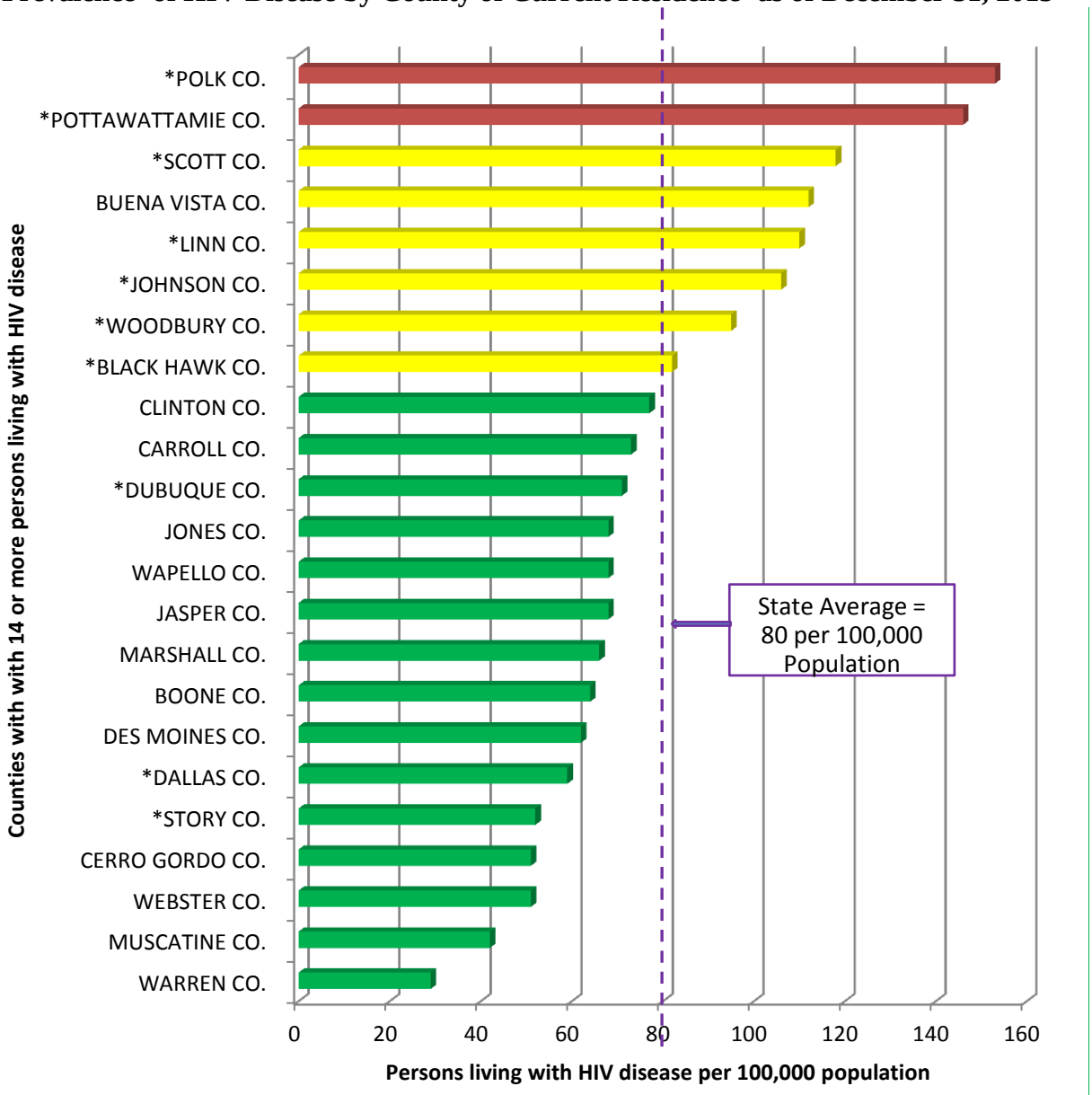
Table 10
Prevalence[1] of HIV Disease by County[2] of Residence as of December 31, 2015

County	Number of Persons	2015 Population Est.	Prevalence (Per 100,000 pop.)
*Polk	717	467,711	153
*Linn	242	219,916	110
*Scott	203	172,126	118
*Johnson	153	144,251	106
*Pottawattamie	137	93,671	146
*Black Hawk	109	133,455	82
*Woodbury	98	102,782	95
*Dubuque	69	97,125	71
*Story	50	96,021	52
*Dallas	47	80,133	59
Clinton	37	47,768	77
Marshall	27	40,746	66
Des Moines	25	40,055	62
Wapello	24	35,173	68
Jasper	23	36,827	62
Buena Vista	23	20,493	112
Cerro Gordo	22	43,017	51
Webster	19	37,071	51
Muscatine	18	43,011	42
Boone	17	26,643	64
Carroll	15	20,498	73
Jones	14	20,466	68
Warren	14	48,626	29
Marion	12	33,294	36
Benton	12	25,658	47
Washington	11	22,247	49
Madison	11	15,753	70
Crawford	11	17,094	64
Lee	10	35,089	28
Clayton	10	17,644	57
Counties with < 10 persons	285	879,717	33
Prison System	31	….	….
Total ten most populous	**1,834**	**1,607,191**	**114**
Total all other counties	**662**	**1,516,708**	**44**
State total	**2,496**	**3,123,899**	**80**

[1]Persons living with a diagnosis of HIV disease (HIV or AIDS). All deaths may not have been reported.
[2]Only counties with 10 or more PLWH are included. *The most populous counties are indicated with asterisks.
[3]Forty-seven persons were living in correctional facilities. These persons are listed under the prison system and are included in the state total, but are not included in the county data or the county totals.

In all, eight counties have prevalence rates higher than the state average. Seven of these are the counties with highest prevalence among the ten most populous counties, each reporting over 95 persons living with HIV disease. The other one is Buena Vista, reporting 23 persons living with HIV disease. Counties with fewer than 10 persons living with HIV disease are not shown in Table 10. Rate calculations in counties with fewer than 12 persons living with HIV disease cases should be interpreted with great caution as the rates are considered to be very unstable.

Figure 16
Prevalence[1] of HIV Disease by County of Current Residence[2] as of December 31, 2015



[1] Persons living HIV Disease (PLWH) per 100,000 population. All deaths may not have been reported.
[2] Only counties with 10 or more PLWH are included. *The 10 most populous counties are indicated with asterisks.

This lack of one or two strong population centers of people living with HIV has implications for the distribution of prevention and care services in Iowa. Rather than concentrate prevention and care efforts in a limited geographical area, Iowa needs to provide resources to at least 10 smaller geographical areas. This greatly increases the costs associated with providing these services, and stretches the limited funding that is available in the state.

Summary of HIV Prevalence Data

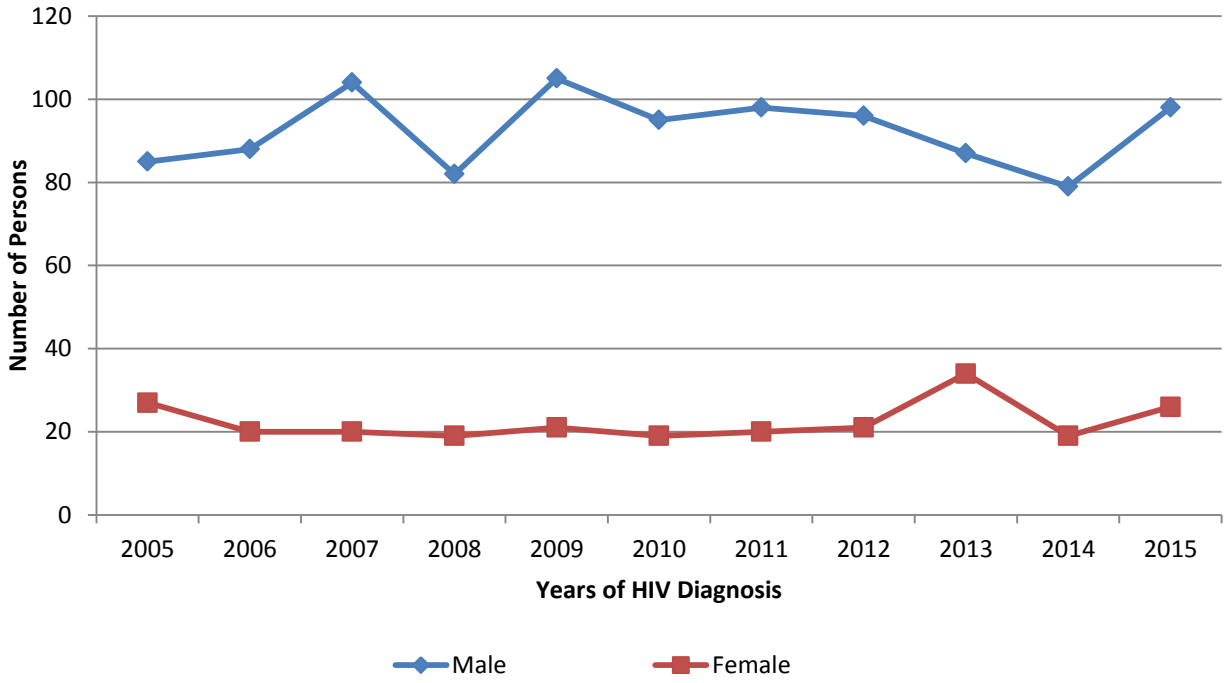
- The number of Iowans living with HIV disease continues to increase. There were 2,496 Iowans living with HIV disease as of December 31, 2015.
- As of December 31, 2015, there were 80 persons living with HIV disease per 100,000 population in Iowa.
- While the ten most populous counties of Black Hawk, Dallas, Dubuque, Johnson, Linn, Polk, Pottawattamie, Scott, Story, and Woodbury account for 51% of the total population of Iowa, 73% of the persons living with HIV disease were living in those counties at the end of 2015.
- Among the ten most populous counties, seven – Polk, Pottawattamie, Black Hawk, Scott, Johnson, Linn, and Woodbury – have the highest prevalence of persons living with HIV disease. Dallas, Story, and Dubuque counties have prevalence below the average for the state.
- The distribution of Iowans living with HIV requires that prevention and care services be distributed among those 10 population centers to be most effective at reaching people living with HIV.

SEX AND AGE

Sex – HIV Diagnoses

Figure 17 shows the number of HIV diagnoses by sex. Males have historically accounted for the largest proportion of new diagnoses and they continue to do so. Trends among males and females differ with the exception of 2015, when both saw increases in diagnoses. After peaking in 2009, the number of new HIV diagnoses in males decreased steadily from 2011 through 2014 before rebounding in 2015. Diagnoses among females have remained largely unchanged from 2006 through 2012, with increases in 2013 and 2015. The increase among women in 2013 was due to increases among foreign-born and U.S.-born females (see Figure 21).

Figure 17
Iowa HIV Diagnoses[1] by Sex
2005 through 2015

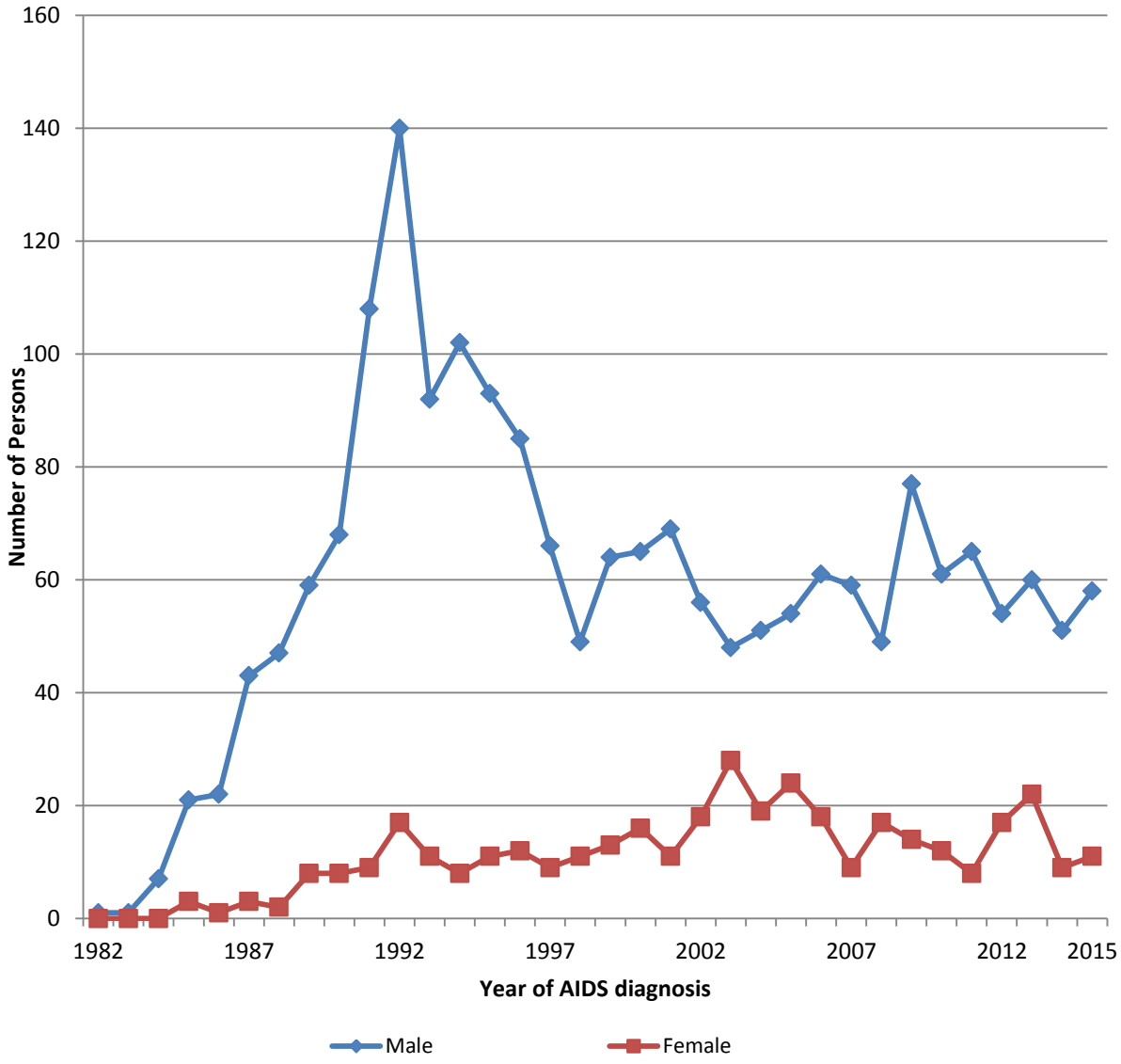


[1] HIV diagnoses reflect all persons diagnosed with HIV infection for the first time, regardless of AIDS status, who were residents of Iowa at diagnosis.

Historically, females have accounted for only a small proportion (16%) of Iowa's cumulative total of 2,385 AIDS diagnoses from 1982 through 2015. During the last decade (2006 through 2015), AIDS diagnoses among females have basically remained below 20 annually except in 2013 (22 diagnoses). Diagnoses of AIDS among males peaked in 1992 at 140 and then, largely due to the effectiveness of antiretroviral therapies, decreased to a low of 48 diagnoses in 2003. Since then, the numbers of diagnoses among males have begun a barely perceptible upward creep. The increase suggests the possibility that antiretroviral therapies were less effective for some persons, perhaps those whose HIV disease had gone undiagnosed and untreated long enough to permit substantial immune system impairment. Some of the increase in AIDS

diagnoses from 1998 to 2003 may also be explained by an increase in diagnoses among foreign-born persons.

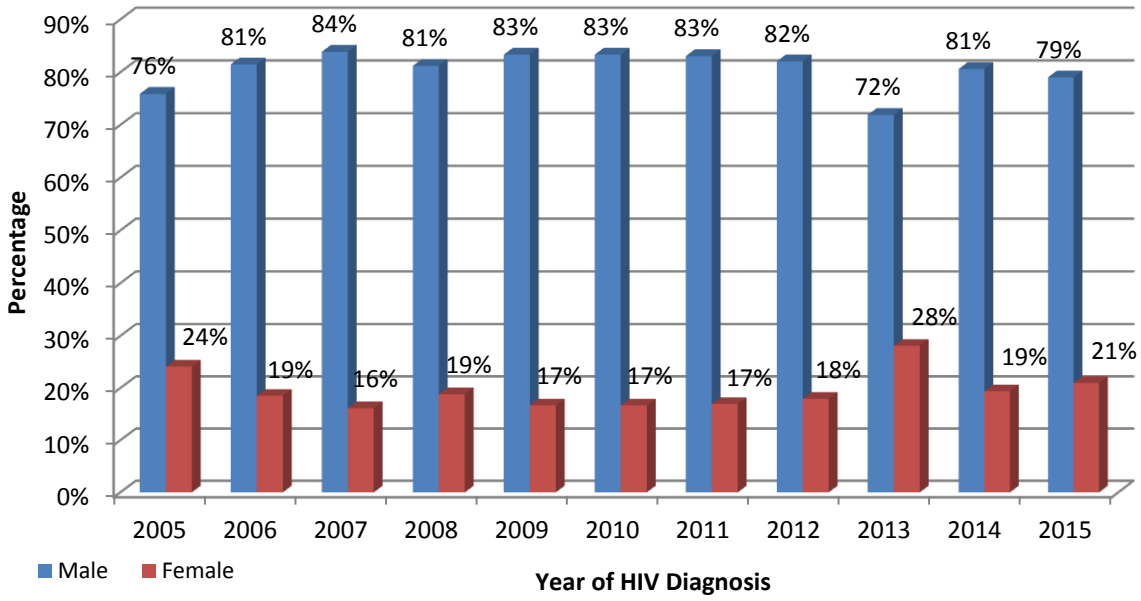
Figure 18
Iowa Diagnoses of AIDS[1] by Sex
1982 through 2015



[1] AIDS diagnoses reflect all persons who were residents of Iowa when first diagnosed with AIDS.

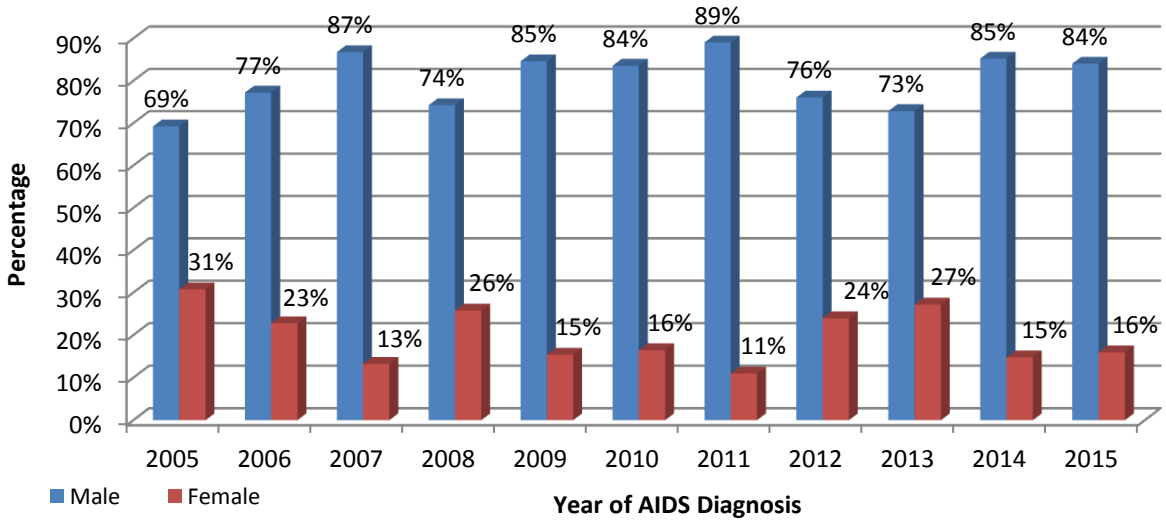
Figures 19 and 20 display HIV disease diagnoses and AIDS diagnoses, respectively, by sex. Figure 18 indicates that the proportion of HIV diagnoses among males has been near or above 80% since 2006, except in 2013 when it dropped to 72%. The proportion of males diagnosed with AIDS exceeded the proportion of males diagnosed with HIV in 7 of the last 10 years.

Figure 19
Percentage of Iowa HIV Diagnoses[1] by Sex
2005 through 2015



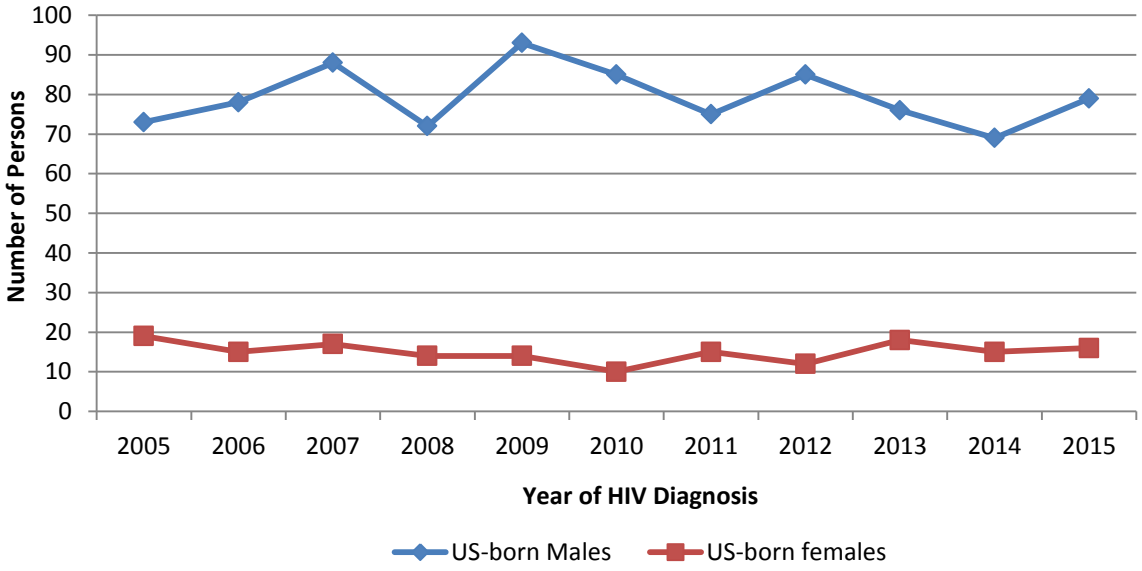
[1] HIV diagnoses reflect all persons diagnosed with HIV infection for the first time, regardless of AIDS status, who were residents of Iowa at diagnosis.

Figure 20
Percentage of Iowa AIDS Diagnoses[1] by Sex
2005 through 2015



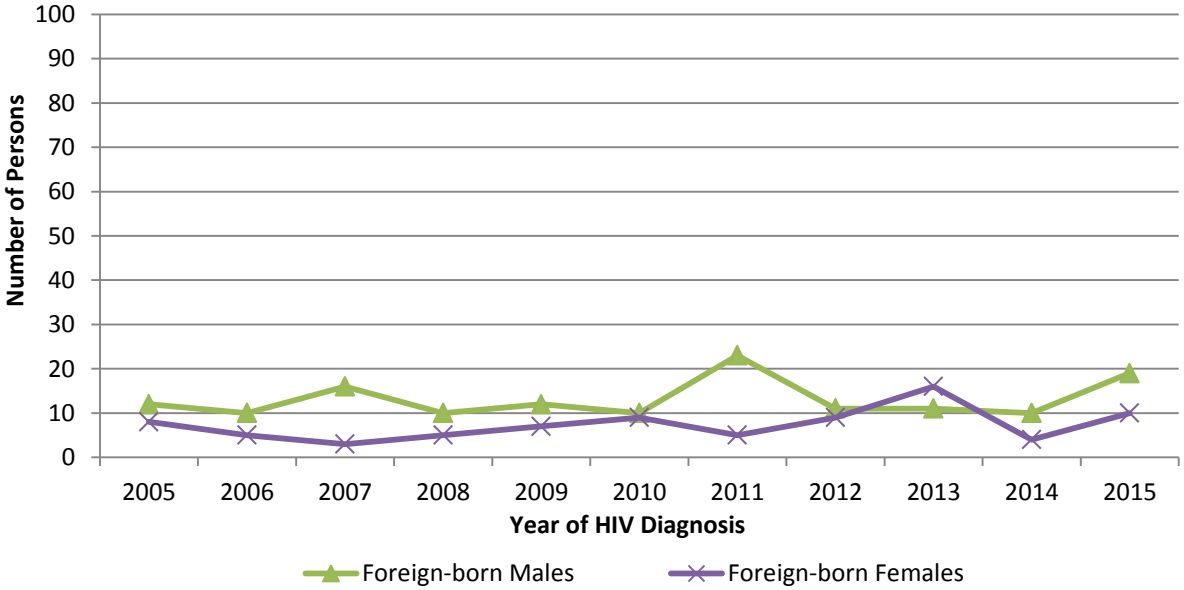
Trends in the numbers of foreign-born persons being diagnosed with HIV in Iowa have had an impact on the diagnoses by sex. Diagnoses of HIV among U.S.-born and foreign-born persons by sex are shown in Figures 21 and 22.

Figure 21
Iowa HIV Diagnoses[1] among U.S.-born Persons by Sex
2005 through 2015



[1] HIV diagnoses reflect all persons diagnosed with HIV infection for the first time, regardless of AIDS status, who were residents of Iowa at diagnosis.

Figure 22
Iowa HIV Diagnoses[1] among Foreign-born Persons by Sex
2005 through 2015



[1] HIV diagnoses reflect all persons diagnosed with HIV infection for the first time, regardless of AIDS status, who were residents of Iowa at diagnosis.

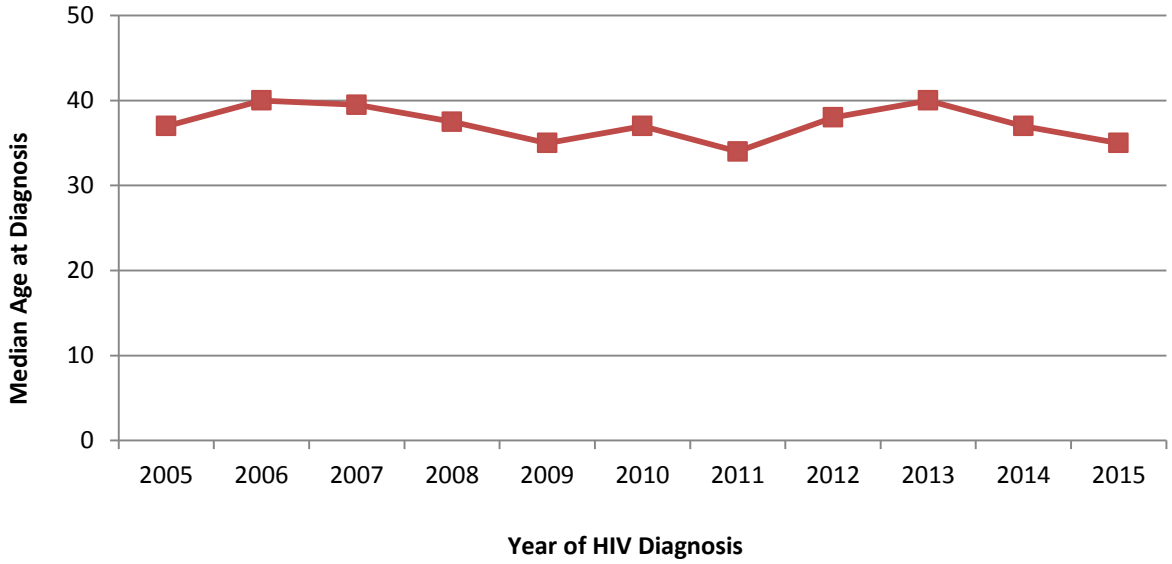
Separating U.S-.born diagnoses from foreign-born diagnoses makes the interpretation of trends a bit easier. Diagnoses among U.S.-born males have been slowly decreasing since 2009. Diagnoses among foreign-born males have remained fairly steady below 20 since 2005, except in 2011 when 23 foreign-born males were diagnosed, surpassing diagnoses among U.S.-born females. Diagnoses among foreign-born males also surpassed diagnoses among U.S.-born females in 2015.

Among females, changes in the number of overall diagnoses are largely due to fluctuations in the diagnoses among foreign-born females. Diagnoses among foreign-born females generally increased since 2007 to reach a peak of 16 diagnoses in 2013. Diagnoses among foreign-born females increased again in 2015 after dropping sharply in 2014. Diagnoses among U.S.-born females have changed little over the past 10 years.

Age – HIV Diagnoses

The median age at HIV disease diagnosis in Iowa for the past ten years has remained relatively steady, ranging from 34 to 40 years of age (Figure 23). The peak of 40 was reached in 2006 and 2013. However, the median age fell to 35 in 2015. The decrease in the median age recently is consistent with an increase in HIV diagnoses among younger people (Figure 24).

Figure 23
Median Age in Years at Time of HIV Diagnosis[1]
2005 through 2015

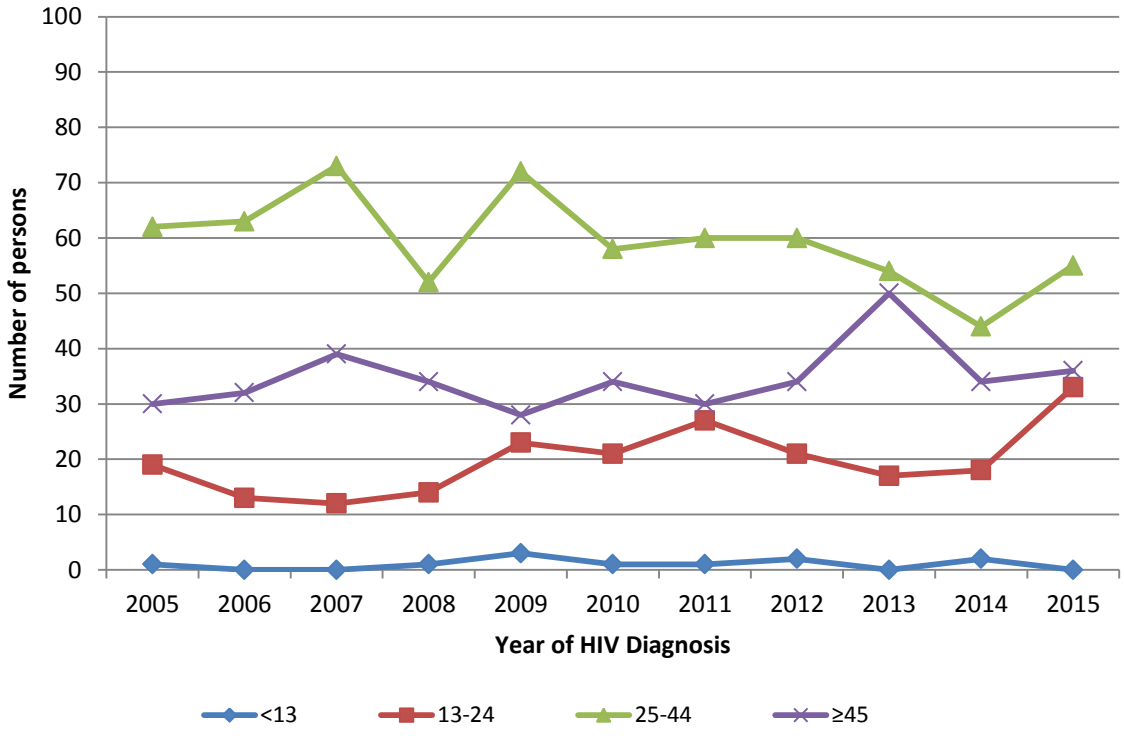


[1] HIV diagnoses reflect all persons diagnosed with HIV infection for the first time, regardless of AIDS status, who were residents of Iowa at diagnosis.

The number of persons diagnosed with HIV infection by age group is shown in Figure 24. Persons 25 to 44 years of age have consistently accounted for the largest number of new diagnoses but the gap has been shrinking since 2010. Diagnoses among persons in this age group generally decreased steadily after peaking in 2009, but saw a marked increase in 2015. Diagnoses among persons 13 to 24 years of age also increased markedly in 2015. Eleven children below the age of 13 years were diagnosed between 2005 and 2015 with number ranging from zero (in three of the years reported) to three in 2009. All diagnoses were infants born to mothers living with HIV.

HIV diagnoses among persons 45 years of age and above have fluctuated over time but trended upward from 2005 through 2015, with a significant jump upward in 2013. The number of persons diagnosed at age 45 years and above first peaked in 2007 with 39 diagnoses, and has generally increased since then before reaching a new peak of 50 diagnosed cases in 2013 (Figure 24). Diagnoses decreased sharply in 2014 and slightly increased in 2015 as in many other age groups.

Figure 24
Age in Years at Time of HIV Diagnosis[1] for Iowa HIV Diagnoses
2005 through 2015



[1] HIV diagnoses reflect all persons diagnosed with HIV infection for the first time, regardless of AIDS status, who were residents of Iowa at diagnosis.

HIV diagnoses by age and sex are shown in Table 11 for persons diagnosed in 2015. Females diagnosed with HIV were similar age (median age = 35 years) as males (median age = 35 years) at time of diagnosis.

Table 11
Iowa HIV Diagnoses[1] by Sex and Age in Years at Diagnosis
2015

	Males		Females		Total	
median age[2]	m= 35 years		m= 35 years		m= 35 years	
Age at diagnosis	#	%	#	%	#	%
0-1	0	--	0	--	0	--
2-12	0	--	0	--	0	--
13-24	26	(27)	7	(27)	33	(27)
25-44	44	(45)	11	(42)	55	(44)
45-64	27	(28)	8	(31)	35	(28)
65 and over	1	(1)	0	--	1	(1)
Total	**98**		**26**		**124**	

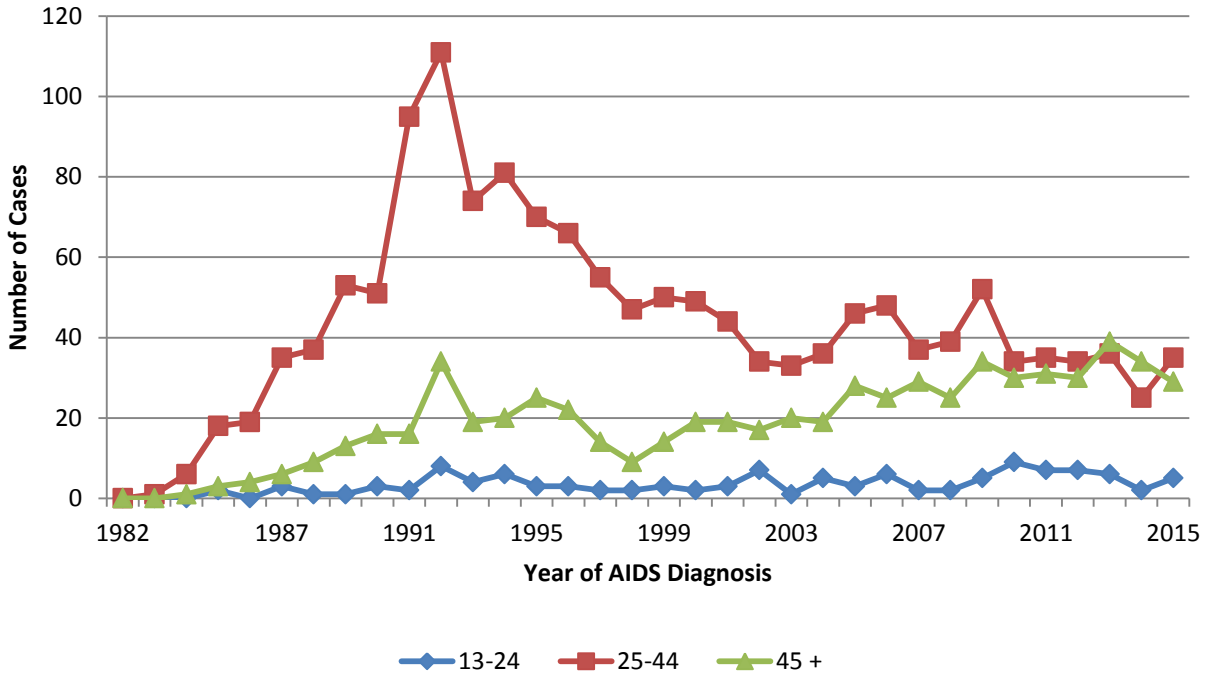
[1] HIV diagnoses reflect all persons diagnosed with HIV infection for the first time, regardless of AIDS status, who were residents of Iowa at diagnosis.
[2] m= median age of cases for that time period.
Percentage totals may not equal 100 due to rounding of numbers.

Age – AIDS Diagnoses

Historically, most persons diagnosed with AIDS have been 25 to 44 years of age. Nonetheless, this age group has also seen the largest decreases in diagnoses since 1992. Their numbers in 2013 and 2014 are exceeded by those in the 45 years of age and over group (Figure 25).

A spike in AIDS diagnoses in all age groups in 1992 was likely the result of a change in the surveillance case definition and was followed by substantial decreases. However, two age groups have seen more recent increases in AIDS diagnoses. Diagnoses have increased after 1998 among persons 45 years of age and older. Because successful antiretroviral therapy should delay the progression to AIDS and the age at diagnosis of AIDS, increased diagnoses among this group are to be expected. AIDS diagnoses among persons 13 to 24 years of age have remained relatively steady, despite peaks in 1992 and 2002. The median age at diagnosis of AIDS has been relatively steady since 2005 at 41 years.

Figure 25
Age[1] in Years at Time of AIDS Diagnosis[2]
1982 through 2015



[1] There were too few cases among age group "0-12" to plot.
[2] AIDS diagnoses reflect all persons who were residents of Iowa when first diagnosed with AIDS.

Summary of Age and Sex Data

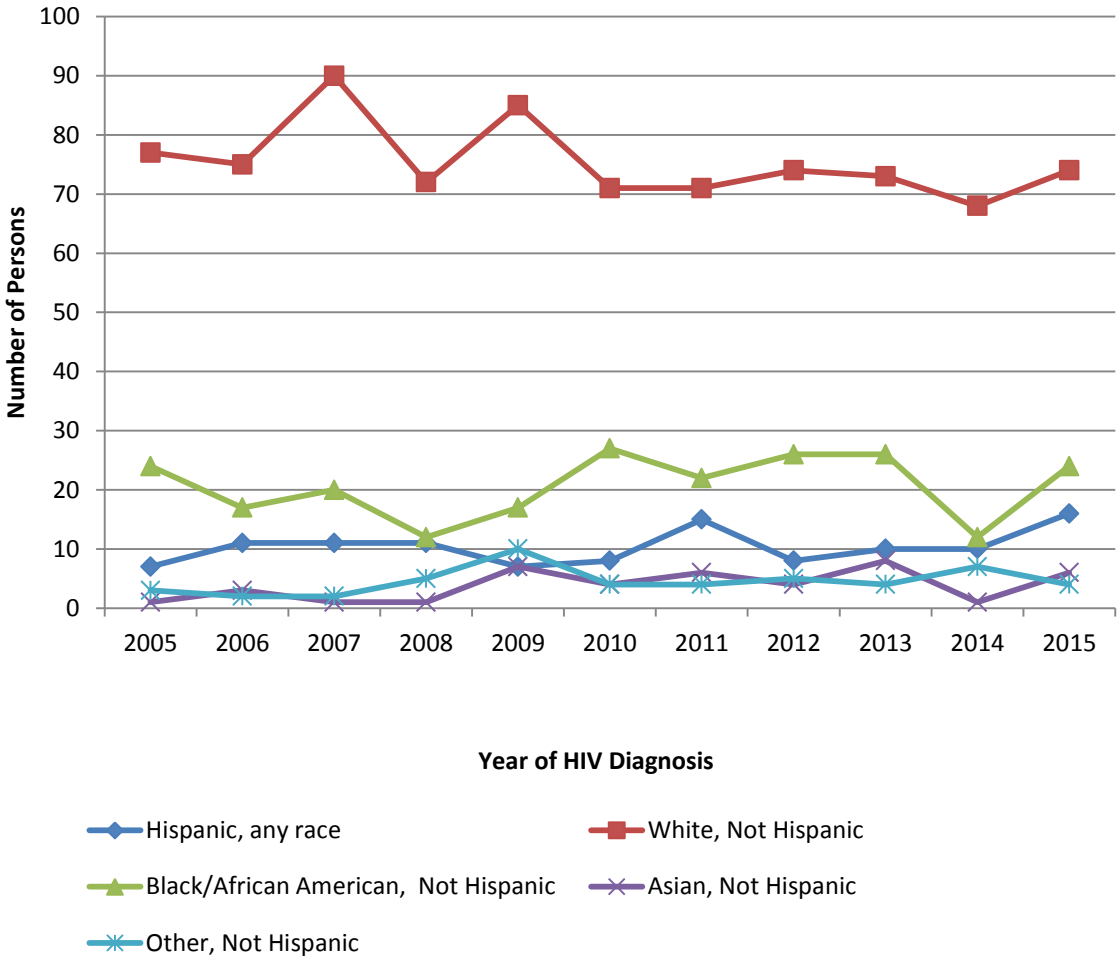
- Diagnoses of HIV among U.S.-born males accounted for the largest proportion of HIV disease diagnoses. Diagnoses in this group have been trending downwards since 2012.
- The preponderance of HIV disease diagnoses occur among men and among persons 25 to 44 years of age. However, it is notable that since 2011 HIV diagnoses have slowly increased among persons age 45 years and older and among those 13-24 years of age.
- Median age at diagnosis of HIV has generally decreased from 40 in 2006 to 35 in 2015, but there was significant variation from year to year. Median age at diagnosis of AIDS has remained relatively steady during this period at 41 years.
- About four males are diagnosed with HIV for every one female diagnosis.

RACE AND ETHNICITY

Race and Ethnicity – HIV Diagnoses

Figure 26 displays diagnoses among the major racial and ethnic groups in Iowa. HIV diagnoses among white, non-Hispanic persons declined from 90 in 2007 to 74 in 2015. After decreasing from 2005 to 2008, HIV diagnoses among black, non-Hispanic persons showed an upward trend through 2013 before dropping sharply in 2014 then recovering somewhat in 2015. Diagnoses among Hispanic persons have averaged about 10 per year for the 10 years 2005 through 2014. However, diagnoses among Hispanic persons reached a peak of 16 in 2015.

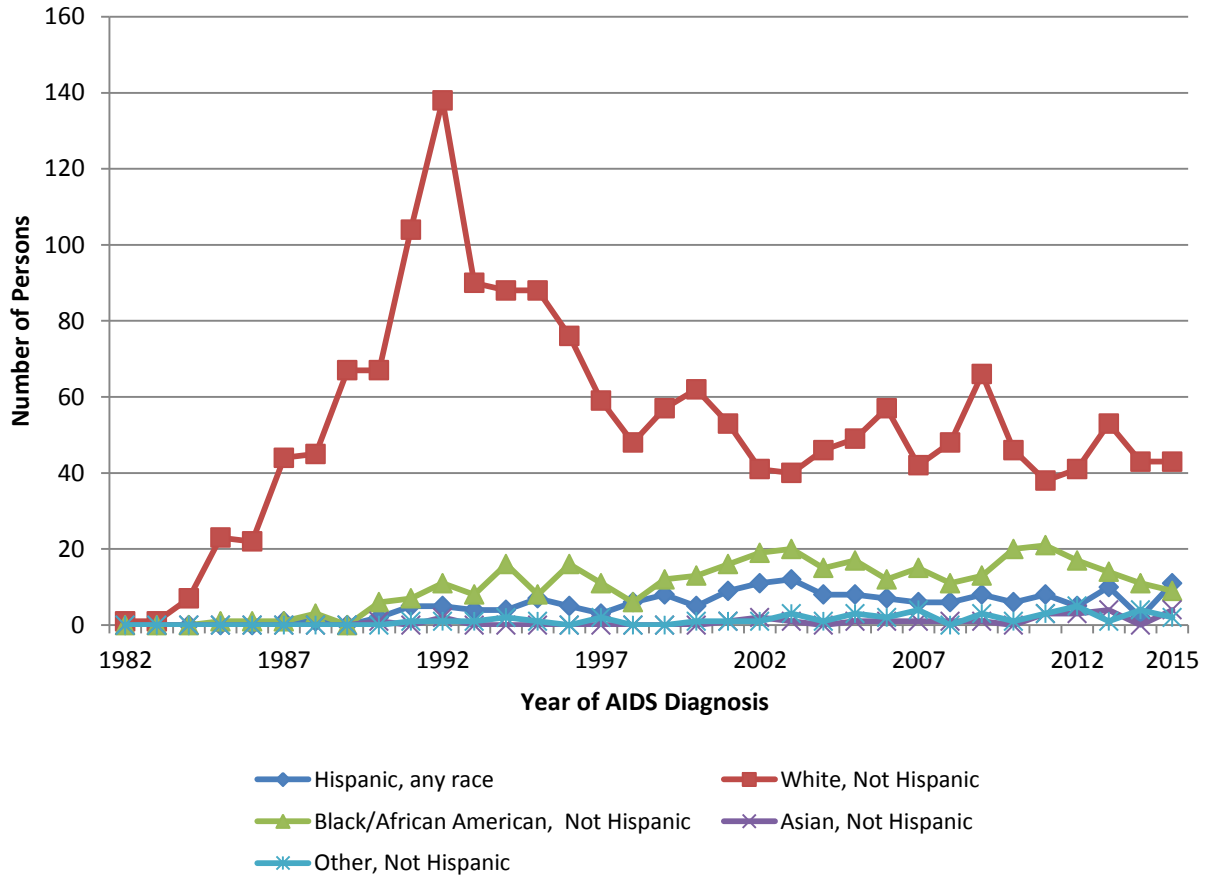
Figure 26
Iowa HIV Diagnoses[1] by Race and Ethnicity
2005 through 2015



[1] HIV diagnoses reflect all persons diagnosed with HIV infection for the first time, regardless of AIDS status, who were residents of Iowa at diagnosis.

Figure 27 shows the number of AIDS diagnoses by race and ethnicity from 1982 through 2015. The benefits of antiretroviral therapies that became available after 1995 are most evident among white, non-Hispanic persons. While they have shown some fluctuation across time, diagnoses of AIDS among this group have decreased steadily after peaking in 1992. Diagnoses of AIDS among minority populations have remained fairly level since 1995, although there have been some variation recently among Hispanic persons. Notably, however, black, non-Hispanic persons have seen a continuous decrease in the number of AIDS diagnoses since 2011.

Figure 27
Iowa AIDS Diagnoses[1] by Race/Ethnicity
1982 through 2015



[1] AIDS diagnoses reflect all persons diagnosed with AIDS for the first time who were residents of Iowa at time of diagnosis.

Of the 2,385 cumulative AIDS diagnoses through December 31, 2015, (Table 12), 75% are among white, non-Hispanic persons, 15% are among black, non-Hispanic persons, 7% are among Hispanic persons, and 3% are among other groups. In comparing diagnoses in 2015 to cumulative AIDS diagnoses, a higher proportion of 2015 diagnoses are among minorities (38% versus 25% respectively). This was due to increases in diagnoses among Hispanic persons and Asians in 2015. Black, non-Hispanic persons experienced fewer AIDS diagnoses than would have been expected from historical (i.e., cumulative) data.

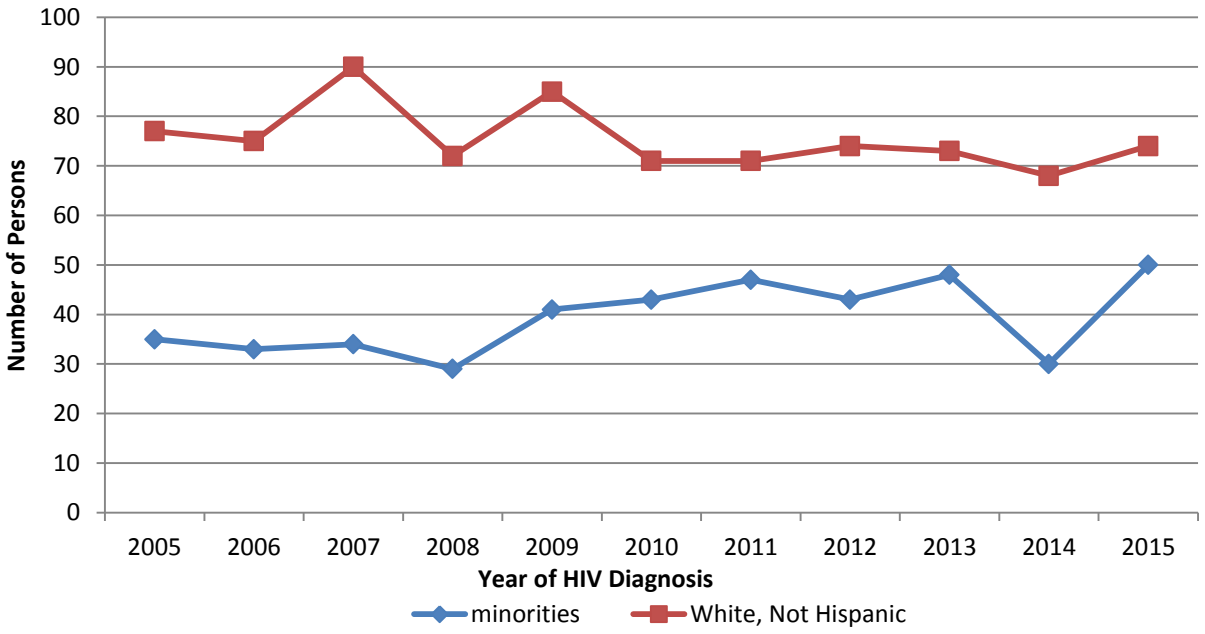
Table 12
Iowa AIDS Diagnoses[1] by Race and Ethnicity
2015 Diagnoses and Cumulative Diagnoses 1982 through 2015

	2015			Cumulative	
Race	**#**	**(%)**	**(#/100,000)**	**#**	**(%)**
White, non- Hispanic	43	(62)	1.6	1,793	(75)
Black, non-Hispanic	9	(13)	8.6	350	(15)
Hispanic	11	(16)	6.2	173	(7)
Asian	4	(6)	--	26	(1)
Native Hawaiian/ Pacific Islander	--	--	--	1	--
Am. Indian/ Alaska Native	--	--	--	5	--
Multiple Races	2	(3)	4.1	37	(2)
Total	**69**		**2.2**	**2,385**	

[1] Includes all persons who were first diagnosed with AIDS while residents of Iowa. Cumulative data include persons diagnosed from 1982 through 2015.
Percentage totals may not equal 100 due to rounding of numbers. Percentages are not shown for small numbers.

Figure 28 shows diagnoses of HIV disease among white, not-Hispanic persons compared to all minorities combined. HIV diagnoses among minorities in Iowa had declined steadily until 2008 when they began to increase steadily reaching a peak of 50. Diagnoses among white persons, which peaked in 2007 at 90, have remained fairly steady since 2010, ranging between 68 and 74. Non-Hispanic white persons have accounted for more than 60% of new diagnoses annually from 2005 to 2015. Diagnoses among minorities have remained above 30% since 2009, reaching 40% in 2015.

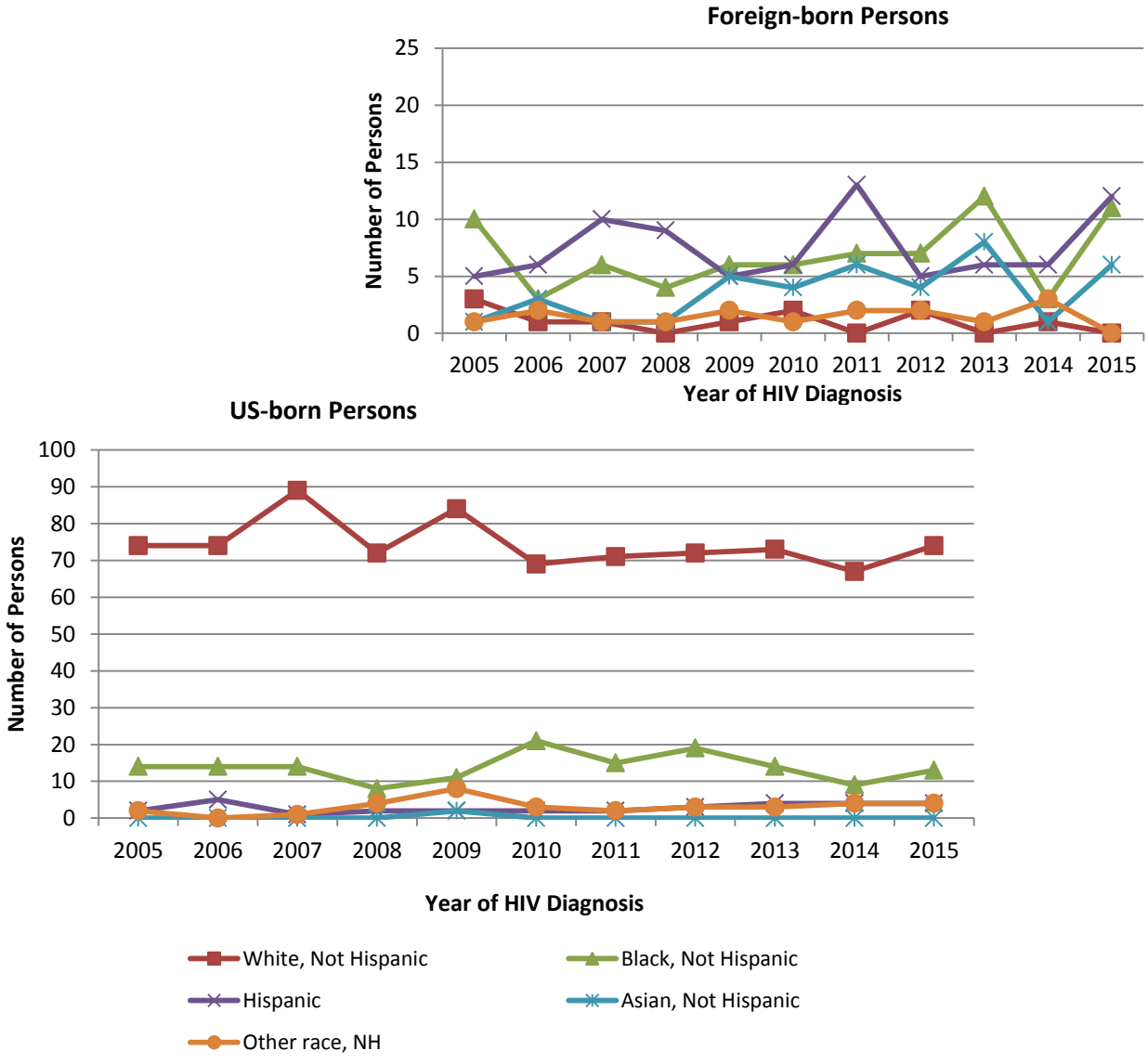
Figure 28
Iowa HIV Diagnoses[1] by Race and Ethnicity, Whites Compared to All Minorities
2005 through 2015



[1] HIV diagnoses reflect all persons diagnosed with HIV infection for the first time, regardless of AIDS status, who were residents of Iowa at diagnosis.

As Figure 29 shows, the slight decreases in diagnoses among minorities between 2005 and 2008 can mainly be attributed to decreased diagnoses among foreign-born persons (see inset). Similarly, increases in diagnoses among minorities between 2008 and 2013 are due to increases in diagnoses among foreign-born individuals. Diagnoses among U.S.-born black, non-Hispanic persons and U.S.-born Hispanic persons have been fairly stable. After peaking at 21 in 2010, diagnoses among U.S.-born black persons declined to 13 in 2015. Virtually all the diagnoses among Hispanic persons have occurred among the foreign born, while nearly all of the white, non-Hispanic diagnoses have been among U.S.-born persons.

Figure 29
Iowa HIV Diagnoses[1] by Race, Ethnicity, and Country of Origin
2005 through 2015



[1] HIV diagnoses reflect all persons diagnosed with HIV infection for the first time, regardless of AIDS status, who were residents of Iowa at diagnosis.

Table 13 shows the number of persons diagnosed with HIV in 2015 by race, ethnicity, and country of origin. Rates per 100,000 population are given as well as absolute numbers and percentages. Race-specific rates are the most appropriate way to compare the burden of disease between affected racial and ethnic groups. The rates adjust for the size of the specific racial or ethnic group within the state and allow direct comparison across groups.

In 2015, 60% of the persons diagnosed with HIV were white, non-Hispanic, 19% were black, non-Hispanic, and 13% were Hispanic. Of the 16 diagnoses among Hispanic persons, 12 were foreign-born while all the 74 white, non-Hispanic persons diagnosed were US-born.

In 2015, HIV diagnoses among black, non-Hispanic persons numbered 22.9 per 100,000 population compared to 2.7 diagnoses per 100,000 among white, non-Hispanic persons. Thus, black, non-Hispanic persons were over 8 times more likely to be diagnosed with HIV infection than were white, non-Hispanic persons. This clearly demonstrates the disproportionate representation of black, non-Hispanic persons among Iowans living with HIV. However, 46% of the diagnoses among blacks were among foreign-born people. Hispanic persons were also disproportionately diagnosed with HIV. At 10.0 diagnoses per 100,000 persons, they were over 3 times more likely to be diagnosed than white, non-Hispanic persons. Seventy-five percent of Hispanic diagnoses were among foreign-born persons.

Table 13
Iowa HIV Diagnoses[1] by Race, Ethnicity, and Country of Origin
2015

	All Persons			U.S.-Born Persons		Foreign-Born Persons	
Race and Ethnicity	#	(%)	(#/100,000)[2]	#	(%)	#	(%)
White, non-Hispanic	74	(60)	2.7	74	(78)	0	--
Black, non-Hispanic	24	(19)	22.9	13	(14)	11	(38)
Hispanic, all races	16	(13)	10.0	4	(4)	12	(41)
Asian	6	(5)	8.3	0	--	6	(21)
Multiple races	4	(3)	8.2	4	(4)	0	--
Total	**124**		**4.0**	**95**		**29**	

[1] HIV diagnoses reflect all persons diagnosed with HIV infection for the first time, regardless of AIDS status, who were residents of Iowa at diagnosis.
[2] Based on 2015 population estimate data from the U.S. Census Bureau, prevalence per 100,000 population.
Percentage totals may not equal 100 due to rounding of numbers.

Race and Ethnicity – Persons Living with HIV Disease

Table 14 shows the prevalence, i.e., the number of persons living with HIV disease (PLWH) *whose first diagnosis of HIV or AIDS was as a resident of Iowa*, as of December 31, 2015, by race and ethnicity. Races and ethnicities with the largest prevalence rates (PLWH per 100,000 population) are most impacted by the disease. *It is important to note that these persons were diagnosed with HIV or AIDS while residing in Iowa, but some of them may have moved to another state and were not residing in Iowa at the end of 2015.* Changes in prevalence since

2011 demonstrate which populations have seen the most dramatic changes in prevalence compared to 2011.

Table 14
Persons Diagnosed with HIV Disease[1] in Iowa and Living as of December 31, 2015 by Race and Ethnicity

Race and Ethnicity	#	(%)	2015 (#/100,000)[2]	2011 (#/100,000)[3]	Change[4]
White, non-Hispanic	1,467	(65)	54.2	48.2	+4.0
Black, non-Hispanic	444	(20)	423.3	442.0	-18.7
Hispanic	215	(10)	120.4	111.5	+8.9
Asian	55	(2)	76.2	69.7	+6.5
Native Hawaiian/ Pacific Islander	0	--	--	--	--
American Indian/Alaska Native	3	--	--	--	--
Multiple Races	70	(3)	143.4	--	--
Total	**2,254**		**72.2**	**63.6**	**+8.6**

[1] Persons whose first diagnosis of HIV or AIDS was as a resident of Iowa and who were reported to be living as of December 31, 2015. Persons are counted only once. All deaths may not have been reported
[2] Persons per 100,000 population living with HIV as of December 31, 2015 based on 2015 population estimates
[3] Persons per 100,000 population living with HIV as of December 31, 2011 based on 2011 population estimates
[4] Change from 2011 number of PLWHA per 100,000 population.

Overall, the state saw an increase of over 8.6 PLWH per 100,000 population from 2011 to 2015, indicating that more persons were newly diagnosed with HIV disease than died during that time. The largest increases in prevalence were among Hispanics and among Asians. There was a significant decrease in prevalence among black, non-Hispanic persons. This most likely is a reflection of increases in Iowa's population of black, non-Hispanic residents as a result of migration into Iowa. In other words, the population of blacks in Iowa grew faster than did the number of black, non-Hispanic people living with HIV. It does not reflect a disproportionate number of deaths of black, non-Hispanic people living with HIV (data not shown).

However, a better measure of prevalence uses "current address" to account for the actual number of people living with HIV residing in Iowa at the end of 2015 regardless of residence at initial diagnosis of HIV or AIDS. Based on outcomes of two special data quality projects since the end of 2013 and implementation of the re-engagement program, IDPH has been able to generate a reasonably accurate estimate of people living with HIV in Iowa at a given point in time. Table 15 shows the number of persons living with HIV disease in Iowa as of December 31, 2015, by race and ethnicity. Changes in prevalence from 2013 reflect new diagnoses, migration into and out of Iowa, deaths that may have occurred since 2013, and changes in overall population numbers (i.e., the denominator).

Table 15
Persons Living with HIV Disease[1] (PLWH) in Iowa as of December 31, 2015
by Race and Ethnicity

Race and Ethnicity	#	(%)	2015 (#/100,000)[2]	2013 (#/100,000)[3]	Change[4]
White, non-Hispanic	1,611	(65)	59.5	56.8	+2.7
Black, non-Hispanic	498	(20)	474.8	506.4	-31.6
Hispanic	216	(9)	120.9	117.9	+3.0
Asian	61	(2)	84.5	91.6	-7.1
Native Hawaiian/ Pacific Islander	1	--	--	--	--
American Indian/Alaska Native	5	--	--	--	--
Multiple Races	104	(4)	213.1	127.8	+85.3
Total	**2,496**		**79.9**	**76.2**	**+3.7**

[1] Persons living with HIV or AIDS in Iowa irrespective of where they were initially diagnosed as December 31, 2015. Persons are counted only once. All deaths may not have been reported
[2] Persons per 100,000 population living with HIV as of December 31, 2015 based on 2015 population estimates
[3] Persons per 100,000 population living with HIV as of December 31, 2013 based on 2013 population estimates
[4] Change from 2013 number of PLWH per 100,000 population.

On December 31, 2015, the prevalence of HIV disease for white, non-Hispanic persons was 59.5 PLWH per 100,000 population compared to 474.8 per 100,000 for black non-Hispanic persons and 120.9 for Hispanic persons. Black, non-Hispanic persons had over 7 times higher prevalence per 100,000 than white, non-Hispanic persons. Hispanic persons had over 2 times the prevalence of white, non-Hispanic persons.

Although the absolute numbers of minority diagnoses are comparatively small, prevalence data show that HIV disease disproportionately impacts minority groups. Figure 30 further illustrates this. Comparing the percentage of diagnoses in a racial or ethnic group to the proportion of the total population that belongs to that group will demonstrate disparities. Black, non-Hispanic persons account for 3% of Iowa's population, and Hispanics account for 6%. These two populations each account for more than those percentages of HIV diagnoses and people living with HIV.

Figure 30
Race and Ethnicity as Proportions of HIV Disease Diagnoses, HIV Disease Prevalence, and the General Population of Iowa

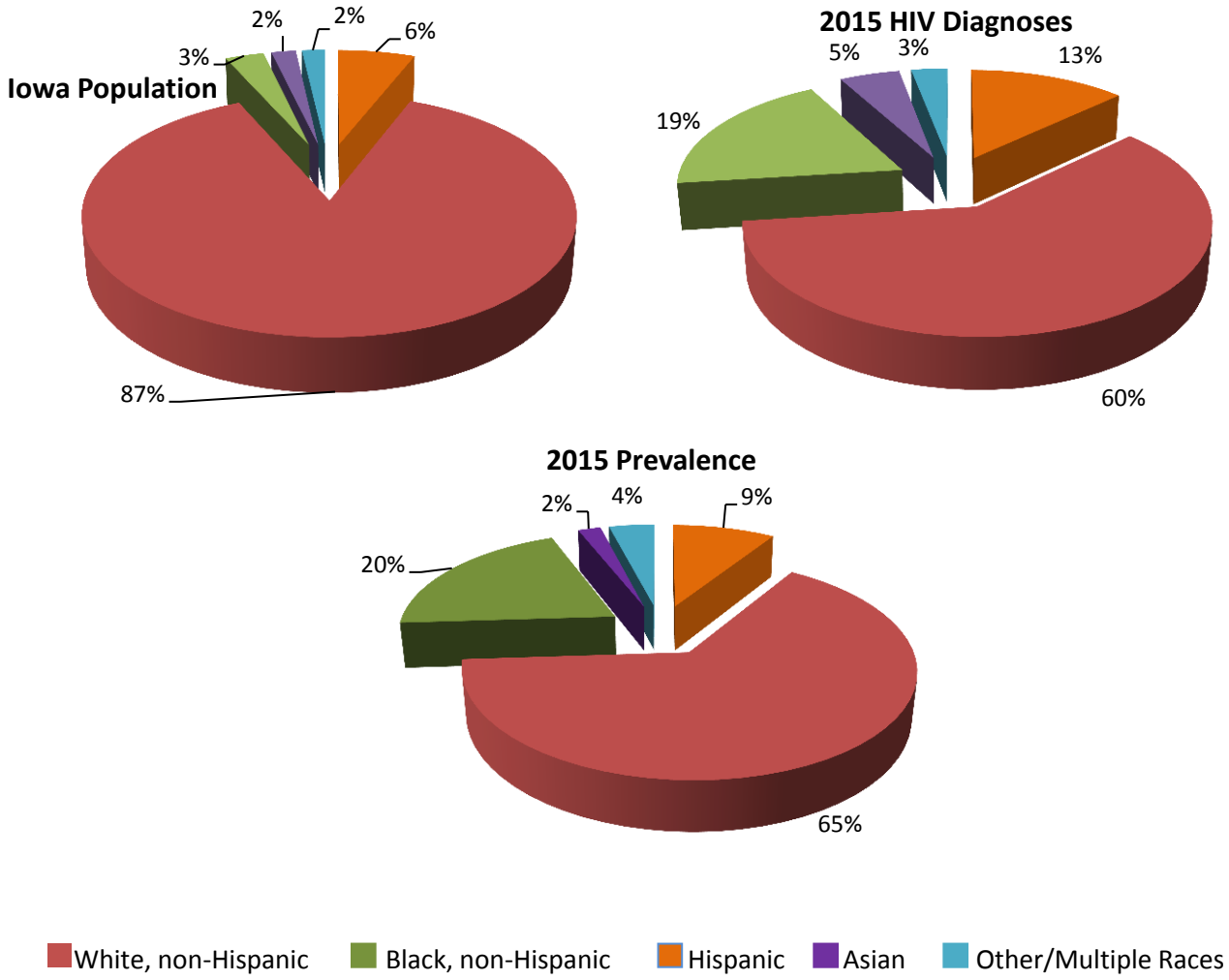


Figure 30 shows that the over-representation of minority populations is quite evident among 2015 HIV diagnoses and among prevalence of persons living with HIV disease. Black, non-Hispanic persons accounted for 19% of HIV diagnosis in 2015, more than six times what would be expected from the size of the black, non-Hispanic population in Iowa. Hispanics accounted for 13% of HIV diagnoses in 2015 and 9% of persons living with HIV disease, yet make up about 6% of Iowa's population.

Race, Ethnicity, and Sex – HIV Diagnoses

The breakdown of HIV diagnoses in 2015 by race, ethnicity, and sex shows that the overrepresentation of minorities mainly extends to five specific groups: black, non-Hispanic males; black, non-Hispanic females; Hispanic males; multiple-race males and multiple-race females. All five groups have HIV diagnosis rates substantially higher than the general

population. Table 16 also shows that all of the white, non-Hispanic diagnosed persons are U.S.-born whereas all of the Asian, non-Hispanic diagnosed persons are foreign-born. The majority of black, non-Hispanic and Hispanic diagnosed persons is also foreign-born.

Table 16
Iowa HIV Diagnoses[1] in 2015
by Race, Ethnicity, Sex and Country of Origin

	All 2015 Diagnoses			U.S.-born Only	
Males	**#**	**(%)**	**(#/100,000)[2]**	**#**	**(%)**
White, non-Hispanic	61	(62)	4.6	61	(77)
Black, non-Hispanic	17	(17)	30.6	11	(14)
Hispanic	13	(13)	14.0	4	(5)
Asian	4	(4)	11.0	--	--
Multiple Races	3	(3)	12.2	3	(4)
Total Males	**98**		**6.3**	**79**	

	All 2015 Diagnoses			U.S.-born Only	
Females	**#**	**(%)**	**(#/100,000)[2]**	**#**	**(%)**
White, non-Hispanic	13	(50)	0.9	13	(81)
Black, non-Hispanic	7	(27)	14.1	2	(13)
Hispanic	3	(12)	3.5	--	--
Asian	2	(8)	5.6	--	--
Multiple Races	1	(4)	4.1	1	(6)
Total Females	**26**		**1.7**	**16**	

[1] HIV diagnoses reflect all persons diagnosed with HIV infection for the first time, regardless of AIDS status, who were residents of Iowa at diagnosis.
[2] Based on 2014 population estimates from the U.S. Census Bureau
Percentage totals may not equal 100 due to rounding of numbers. Percentages are not shown for small numbers.

Black, non-Hispanic males had HIV diagnosis rate of 30.6 diagnoses per 100,000 population, over 7 times higher than the rate of 4.6 per 100,000 for white, non-Hispanic males in 2015. Black, non-Hispanic females had a diagnosis rate of 14.1 per 100,000 population, over 14 times the rate of 0.9 per 100,000 for white, non-Hispanic females, but it is important to note that over 70% of the black females were foreign born, whereas 65% of black male diagnoses were among U.S.-born persons. The rate is also disproportionately higher among Hispanic persons than white, non-Hispanic persons – over 3 times higher for both males and females. All the Hispanic females diagnosed in 2015 were foreign born, compared to 70% of the males.

Despite the great disparity in diagnosis rates, white, non-Hispanic males still account for the largest group of persons being diagnosed with HIV in Iowa. In 2015, they numbered 74, 60% of all persons newly diagnosed with HIV disease.

Race, Ethnicity, and Sex – Persons Living with HIV and AIDS

The higher rates of diagnosis of HIV disease among minority groups correspond to higher prevalence of persons living with HIV disease per 100,000 population. Although the largest *numbers* of persons living with HIV infection are white, non-Hispanic persons, black, non-Hispanic males have the highest *prevalence* of persons living with HIV disease per 100,000 population of any ethnic or racial group (Table 17 and Figure 31). There were over 546 persons with HIV for every 100,000 black, non-Hispanic males as December 31, 2015. If all populations experienced this prevalence, there would be more than 17,000 persons living with HIV disease in Iowa.

With a prevalence of 395 persons per 100,000 population, black, non-Hispanic females have the second highest prevalence of persons living with HIV disease per 100,000 population, more than 22 times that of white, non-Hispanic females. Increases in prevalence from 2013 to 2015 were most pronounced among Hispanic males, black females, and white males.

Table 17
Persons Living with HIV Disease (PLWH) as of December 31, 2015[1]
by Race, Ethnicity, and Sex

Males	#	%	2015 (#/100,000)[2]	2013 (#/100,000)[3]	Change[4]
White, non-Hispanic	1,366	(69)	102.2	97.3	+4.9
Black, non-Hispanic	303	(15)	546.1	582.9	-36.8
Hispanic	187	(9)	200.7	194.4	+6.3
Asian	43	(2)	118.5	126.4	-7.9
Native Hawaiian/ Pacific Islander	1	--	--	--	--
Am. Indian/ Alaska Native	3	--	--	--	--
Multiple Races	74	(4)	300.4	197.6	+102.8
Total Males	**1,977**		**127.4**	**121.5**	**+5.9**

Females	#	%	2015 (#/100,000)[2]	2013 (#/100,000)[3]	Change[4]
White, non-Hispanic	245	(47)	17.9	17.4	+0.5
Black, non-Hispanic	195	(38)	394.7	420.4	-25.7
Hispanic	29	(6)	33.9	33.6	+0.3
Asian	18	(3)	50.2	56.3	-6.1
Native Hawaiian/ Pacific Islander	0	--	--	--	--
Am. Indian/ Alaska Native	2	--	--	--	--
Multiple Races	30	(6)	124.1	**57.4**	+66.7
Total Females	**519**		**33.0**	**31.6**	**+1.4**

[1] Persons living with HIV or AIDS in Iowa irrespective of where they were initially diagnosed as of December 31, 2015. Persons are counted only once. All deaths may not have been reported
[2] Persons per 100,000 population living with HIV as of December 31, 2015 based on 2015 population estimates
[3] Persons per 100,000 population living with HIV as of December 31, 2013 based on 2013 population estimates
[4] Change from 2013 number of PLWH per 100,000 population.

Figure 31
Prevalence of Persons Living with HIV Disease on December 31, 2015[1]
by Race, Ethnicity, and Sex

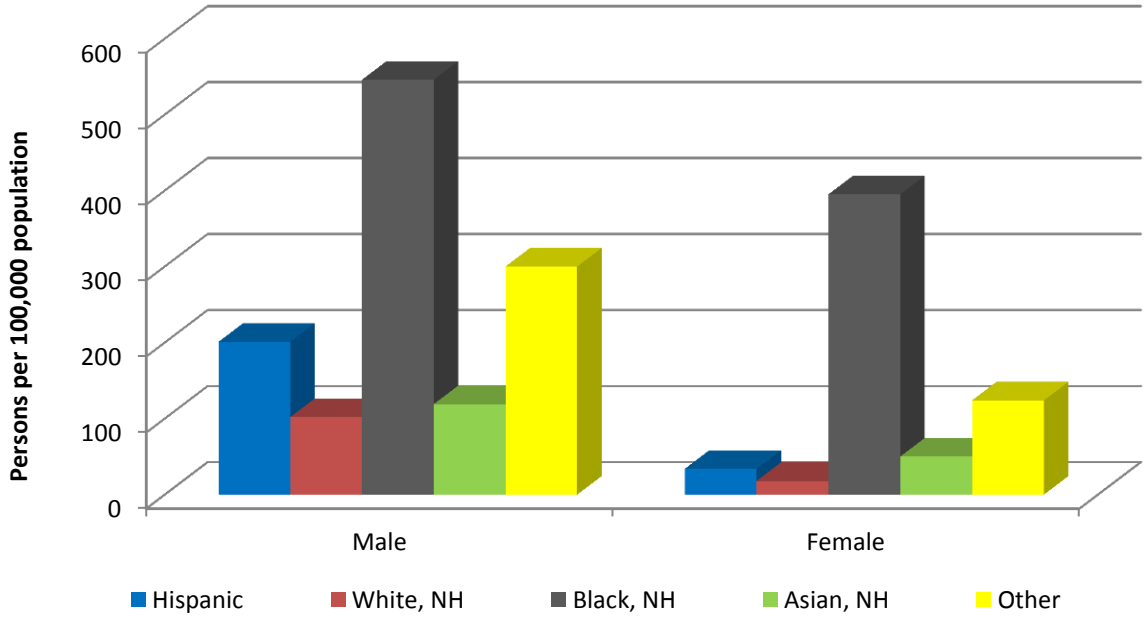
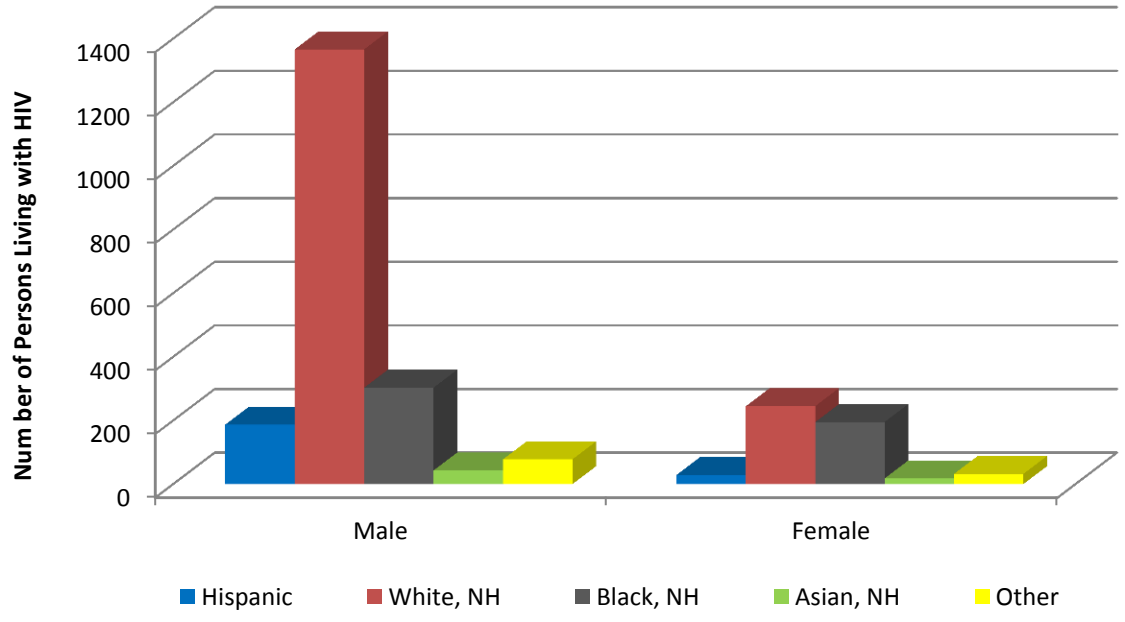


Figure 32
Number of Persons Living with HIV Disease on December 31, 2015[1]
by Race, Ethnicity and Sex



[1] Persons whose first diagnosis of HIV or AIDS was as a resident of Iowa and who were reported to be living as of December 31, 2015. Persons are counted only once. All deaths may not have been reported.

As these two figures above show, Iowa must address both large numbers of diagnoses among one population and very significant impacts among other smaller populations. There are significant disparities among populations when prevalence per population is considered, even though this disparity results in relatively fewer cases overall. Even with the disproportionate numbers of persons living with HIV or AIDS per 100,000 population among black, non-Hispanic persons and among Hispanics (Figure 31), white, non-Hispanic males still account for the largest *numbers* of persons living with HIV disease in the state (Figure 32). However, other sections of this profile will show that HIV is not distributed evenly among white, non-Hispanic persons, and this population definition can be narrowed substantially.

The comparatively small numbers of minorities in the state explain the seeming paradox of small *numbers* of diagnoses but high *rates* of diagnosis and prevalence. Relatively small minority populations in the state result in low numbers of diagnoses when compared to the much larger white, non-Hispanic population. Despite the low numbers of diagnoses, the impact of high infection rates within a small population can be devastating to that population. For that reason, diagnoses per 100,000 population must be considered along with absolute numbers when prioritizing specific populations for prevention and care activities.

Summary of Race and Ethnicity Data:

- Black, non-Hispanic males; black, non-Hispanic females; and Hispanic males are over-represented among HIV and AIDS diagnoses when their numbers in the general population are taken into account.

- Black, non-Hispanic males have HIV diagnosis rates more than seven times that of white, non-Hispanic males and Hispanic males have HIV diagnosis rates more than three times that of white, non-Hispanic males.

- Black, non-Hispanic females had the highest rate of diagnosis of any racial and ethnic group among females in 2015. Their rate was over 14 times that of white, non-Hispanic females. However, significant numbers of cases are among foreign-born black women.

- Absolute numbers, rates (per 100,000 population), and changes in prevalence from previous years all need to be considered when prioritizing populations for prevention and care. Despite seemingly low numbers of diagnoses, HIV disease is having a very substantial impact on certain minority populations in the state.

- The effects of high diagnosis rates in small populations can be especially profound. Black, non-Hispanic persons, both males and females, and Hispanic males are experiencing HIV rates unparalleled among white, non-Hispanic persons. If the prevalence of HIV seen among black, non-Hispanic males were experienced by all racial and ethnic groups in Iowa, over 17,000 Iowans would now be living with HIV disease in the state.

- Despite the impact of HIV disease on black, non-Hispanic persons and Hispanic males, the overwhelming majority of diagnoses are among white, non-Hispanic persons. This is explained by the very large white, non-Hispanic population compared to other groups in the state. A comprehensive picture of the epidemic can be presented only by examining both numbers and rates.

HIV AND AIDS BY EXPOSURE CATEGORY

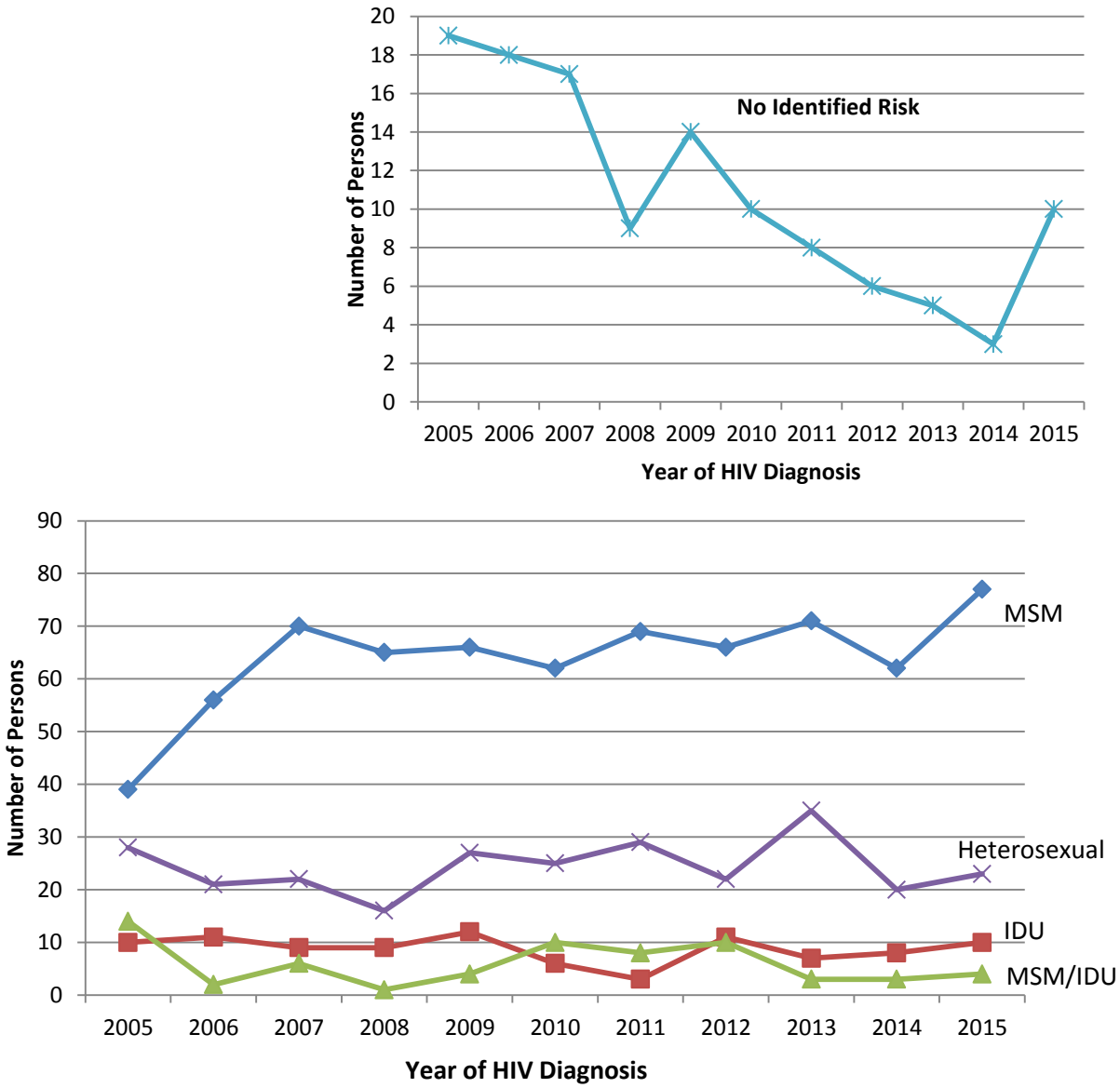
Behavioral and health histories of people diagnosed with HIV are reported by health care providers and are also collected through interviews with recently diagnosed people. Behaviors and risk histories are ranked according to probability of HIV transmission, and a new case is categorized according to that probability. Exposure categories include men who have sex with men (MSM), men who have sex with men and inject drugs (MSM/IDU), people who inject drugs (IDU), heterosexual contact with a person with a documented HIV infection, hemophilia, transplant/transfusion recipient, no identified risk (NIR), and other risk (e.g., occupational exposures such as needle sticks or exposures to blood). For surveillance purposes, HIV cases are counted only once in a hierarchy of exposure categories. People with more than one reported mode of exposure to HIV are classified in the exposure category listed first in the hierarchy, except for men with both a history of sexual contact with other men and a history of injection drug use. They make up a separate category.

It is important to keep in mind that the category "heterosexual contact" is likely to be underestimated, particularly for women and foreign-born people. "Heterosexual contact" includes people who report specific heterosexual contact with a person with *documented* HIV infection, or heterosexual contact with a person at increased risk for HIV infection, such as a person who injects drugs, person with hemophilia, transfusion recipient with documented HIV infection, or bisexual male. A person who reports heterosexual contact with partners whose specific HIV risks and HIV status are unknown is considered to have "no risk reported or identified" (NIR). Adults and adolescents born, or who had sex with someone born, in a country where heterosexual exposure was believed to be the predominant mode of HIV transmission (formerly classified as Pattern-II countries by the World Health Organization) are no longer classified as having heterosexually acquired HIV. Similar to case reports for other people who are reported without behavioral or transfusion risks for HIV, these reports are now classified (in the absence of other risk information that would classify them in another exposure category) as "NIR" (MMWR 1994:43:155-60).

Exposure Category – HIV and AIDS Diagnoses

Figure 33 shows HIV diagnoses from 2005 to 2015 by mode of exposure. Male-to-male sex remains the predominant mode of exposure in Iowa. The annual number of diagnoses among men who have sex with men (MSM) increased considerably from 39 diagnoses in 2005 to a high of 77 in 2015, the highest since 2005. Diagnoses among men who have sex with men and also inject drugs (MSM/IDU) have decreased from a high of 14 in 2005 to 4 in 2015. MSM/IDU diagnoses have fallen below diagnosis among those who inject drugs since 2012. Diagnoses among IDU have remained relatively steady in Iowa from 2005 through 2015, ranging from 3 to 12 with a median of 9 and a mean of 8.7.

Figure 33
Iowa Adult and Adolescent HIV Diagnoses[1] by Exposure Category
2005 through 2015



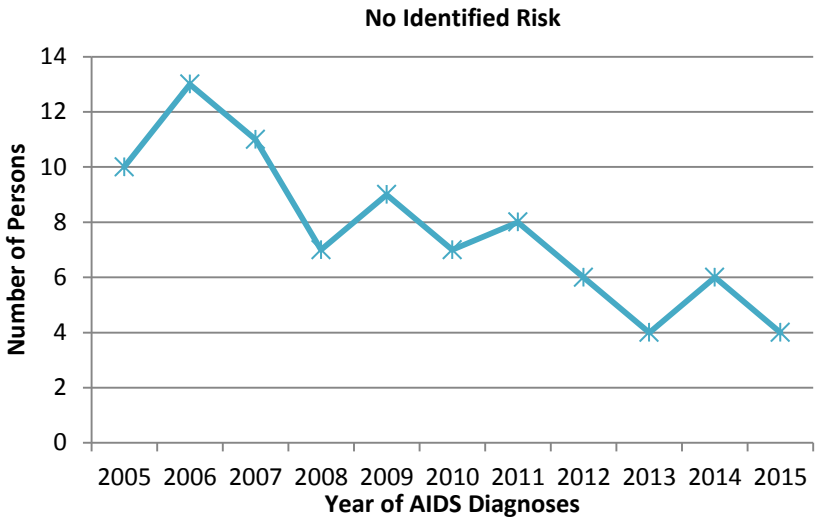
[1] HIV diagnoses reflect all people diagnosed with HIV for the first time, regardless of AIDS status, who were residents of Iowa at diagnosis and were ≥ 13 years of age at the time of diagnosis. However, exposure to HIV may have been at a younger age.

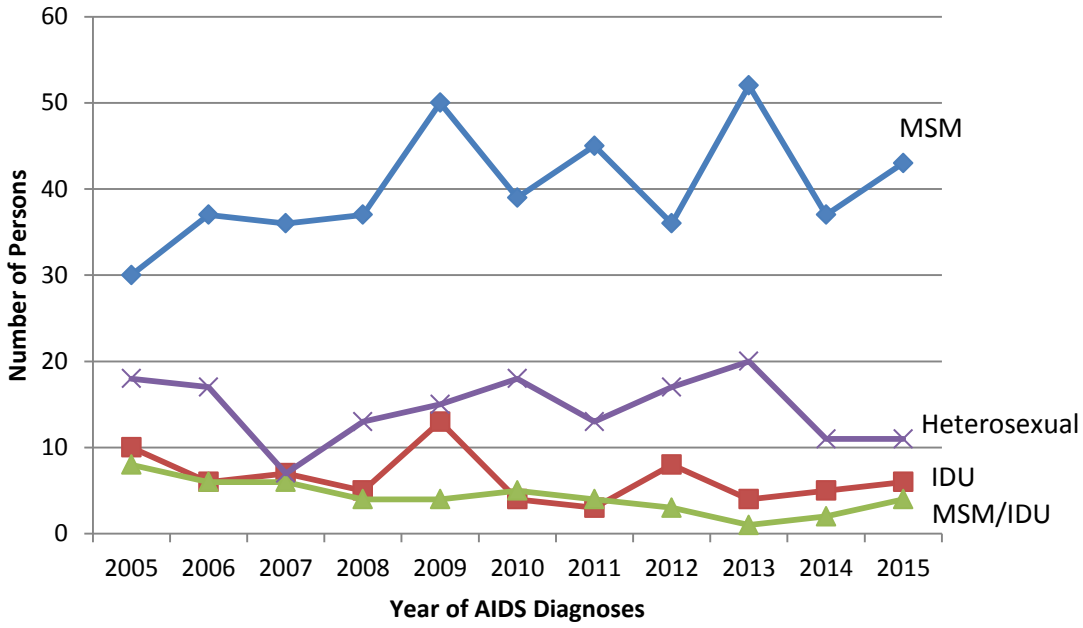
Diagnoses among people reporting heterosexual exposure have remained steady throughout this period. Of those with a known mode of exposure, heterosexual contact is the second most common route of infection.

People reported with no identified risk had shown a general decline from 2005 through 2014, only to increase again in 2015 (Figure 32 inset). Many people initially reported without an identified risk are reclassified over time as more information becomes available. Reclassification can alter interpretations of trends among exposure categories.

Diagnoses of AIDS among MSM increased from 30 in 2005 to a peak of 52 in 2013, and decreased to a low of 43 in 2015 (Figure 34). Diagnoses of AIDS among IDU peaked at 13 in 2009 and then dropped to 6 in 2015. Diagnoses of AIDS among people with heterosexual contact have gradually increased since 2007 reaching a peak of 20 in 2013 before dropping to 11 in 2015. Since 2005, 85 AIDS diagnoses have occurred among people with no known risk. Reclassification of risk for a large number of these diagnoses seems unlikely.

Figure 34
Iowa Adult and Adolescent AIDS Diagnoses[1] by Exposure Category
2005 through 2015

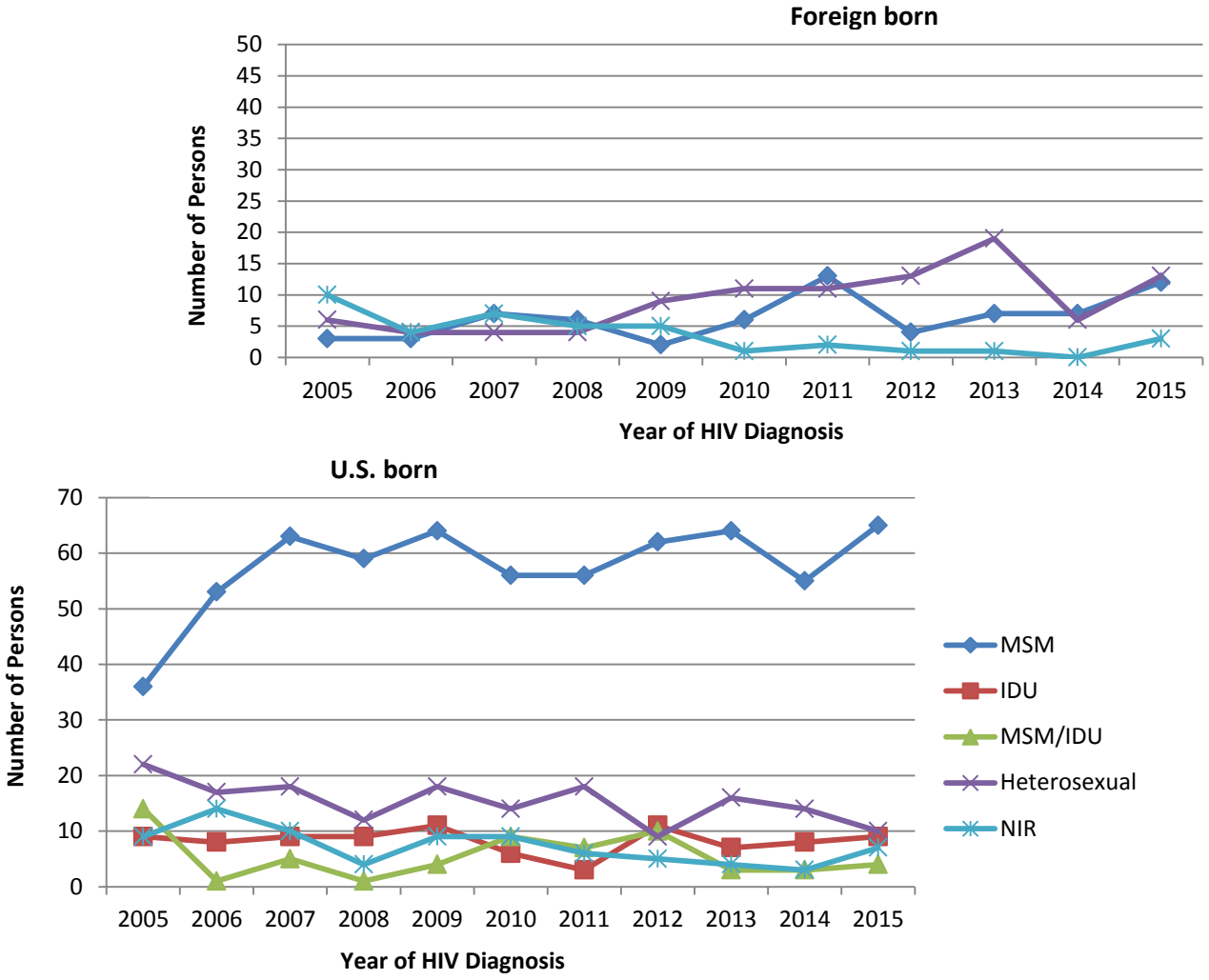




[1] AIDS diagnoses reflect all people ≥ 13 years of age diagnosed with AIDS while residing in Iowa at the time of diagnosis. However, exposure to HIV may have been at a younger age.

Because foreign-born people with HIV are more likely to be females and minorities, exposure categories may vary from those for U.S.-born people with HIV. Figure 35 shows diagnoses of HIV by country of origin and exposure category.

Figure 35
Iowa Adult and Adolescent HIV Diagnoses[1] by Exposure Category and Country of Origin
2005 through 2015



[1] HIV diagnoses reflect all people diagnosed with HIV for the first time, regardless of AIDS status, who were residents of Iowa at diagnosis, and were ≥ 13 years of age at the time. However, exposure to HIV may have been at a younger age.

The three major exposure categories for foreign-born people are heterosexual contact, male-to-male sex, and no identified risk. In 2005, foreign-born people accounted for 53% of all people without an identified risk. In 2015, this was 30%. Approximately 50% of the foreign-born people diagnosed in 2005 did not have a risk identified compared to about 10% in 2015.

Historically, mode of exposure to HIV in foreign countries is more likely to be unknown for several reasons. Poorer access to testing in many foreign countries means that the HIV status of heterosexual partners is not documented, which is needed for categorization into the heterosexual classification. Medical interventions, including injections with contaminated needles, have also been implicated as more frequent sources of exposure in some countries. These interventions are difficult to document and would not qualify as risks in the United States without documentation. Importantly, in 2015 male-to-male sex became the major route of exposure among foreign-born people.

Plotting U.S.-born and foreign-born people separately shows that male-to-male sex has remained the predominant mode of exposure among U.S.-born people (Figure 35). It also demonstrates that much of the fluctuation in diagnoses from 2013 to 2015 was due to diagnoses among U.S.-born MSM, although there were also increases in diagnoses in 2015 among foreign-born MSM and heterosexuals. Diagnoses of HIV in U.S.-born people with heterosexual contact decreased from a high of 22 in 2005 to 10 in 2015.

Table 18
Iowa Adult and Adolescent HIV Diagnoses[1] in 2015,
by Exposure Category and Country of Origin

	All People		U.S.-born		Foreign-born	
Exposure Category	**#**	**(%)**	**#**	**(%)**	**#**	**(%)**
MSM	77	(62)	65	(68)	12	(41)
IDU	10	(8)	9	(9)	1	(3)
MSM/IDU	4	(3)	4	(4)	0	--
Heterosexual	23	(19)	10	(11)	13	(45)
Transfusion/transplant	0	--	0	--	0	--
NIR/other	10	(8)	7	(7)	3	(10)
Total	**124**		**95**		**29**	

[1] HIV diagnoses reflect all people diagnosed with HIV for the first time, regardless of AIDS status, who were residents of Iowa at diagnosis and were ≥ 13 years of age at the time. However, exposure to HIV may have been at a younger age. Percentage totals may not equal 100 due to rounding of numbers. Percentages are not shown for small numbers.

Table 18 characterizes adult and adolescent HIV diagnoses in 2015 by exposure category and country of origin. Sixty-two percent of all adult and adolescent HIV diagnoses in 2015 were among men who reported male-to-male sexual contact. Of the 77 males reporting male-to-male sex, 65 (84%) were U.S. born. Although MSM and heterosexual contact are the two main risks for both U.S.-born and foreign-born people, heterosexual risk tends to be more common among foreign-born people. As noted above, male-to-male sexual contact is the second highest mode of exposure among foreign-born people diagnosed in 2015 at 41%.

In 2015, 6% of people diagnosed with AIDS had no risk identified (Table 19). This is less than 9% of cumulatively reported AIDS cases with no identified risk. It is possible that risk could be obtained over time on additional individuals diagnosed in 2015.

Table 19 shows some differences in proportions between cumulative AIDS diagnoses and AIDS diagnoses in 2015. In general, there was an increase in the proportion of diagnoses among MSM and among heterosexuals in 2015 when compared to all AIDS diagnoses to date.

Table 19
Iowa Adult and Adolescent AIDS Diagnoses[1] in 2015
and Cumulatively through 2015, by Exposure Category

	2015		Cumulative	
Exposure Category	**#**	**(%)**	**#**	**(%)**
MSM	43	(62)	1,358	(57)
IDU	6	(9)	248	(10)
MSM/IDU	4	(6)	166	(7)
Hemophilia	0	--	40	(2)
Heterosexual	11	(16)	335	(14)
Transfusion/transplant	1	(1)	24	(1)
NIR/other	4	(6)	192	(8)
Total	**69**		**2,363**	

[1] Adult and adolescent AIDS diagnoses reflect all people diagnosed with AIDS for the first time who were residents of Iowa at diagnosis and who were 13 or more years of age at the time. However, exposure to HIV could have been at any age. Percentage totals may not equal 100 due to rounding of numbers. Percentages are not shown for small numbers.

Exposure Category – People Living with HIV Disease

Numbers of people living with HIV disease (PLWH) by exposure category are shown in Table 20. True prevalence, or PLWH per 100,000 population, cannot be calculated because the population sizes are unknown. That is, there is no census of people who inject drugs or men who have sex with men in Iowa. However, there have been efforts to provide accurate estimates of the number of MSM by state recently. CDC estimated the U.S. population of men who have sex with men to be 3.9% of all adult males. Researchers at Emory University and CDC then used data from the American Community Survey to apply that to states[1]. Iowa's estimate is that 1.8% of adult males in Iowa are gay or bisexual. Using the 2015 population estimate of 1,179,279 adult males would mean that there are 21,227 men who have sex with men in Iowa. Table 20 indicates that there are 1,525 MSM living with HIV in Iowa. This gives prevalence of 7,184 per 100,000 MSM (or 7.1 per 100 MSM). By comparison, black males in Iowa have a 2015 prevalence of 546 per 100,000.

Just over half of all people living with HIV disease in Iowa are men who have sex with men. Heterosexual exposure is the second most common exposure, with 18% of people living with HIV reporting this risk. People who inject drugs account for 8% of all people living with HIV disease. Eleven percent of PLWH had no risk identified.

[1] Estimating the Population Sizes of Men Who Have Sex with Men in US States and Counties Using Data From the American Community Survey; Gray, JA, et al.; JMIR Public Health Surveill. 2016;2(1):e14.

Table 20
People Living with HIV Disease[1] as of December 31, 2015
by Exposure and Country of Origin

	All People		U.S. Born		Foreign Born	
Exposure Category	**#**	**(%)**	**#**	**(%)**	**#**	**(%)**
MSM	1,339	(54)	1,208	(59)	131	(30)
IDU	201	(8)	187	(9)	14	(3)
MSM/IDU	186	(7)	179	(9)	7	(2)
Hemophilia	6	--	6	--	0	--
Heterosexual	458	(18)	309	(15)	149	(34)
Transfusion/transplant	3	--	3	--	0	--
NIR/other	303	(12)	172	(8)	131	(30)
Total	**2,496**		**2,064**		**432**	

[1] Reflects people residing in Iowa who were living with HIV disease as of December 31, 2015. All deaths may not have been reported.

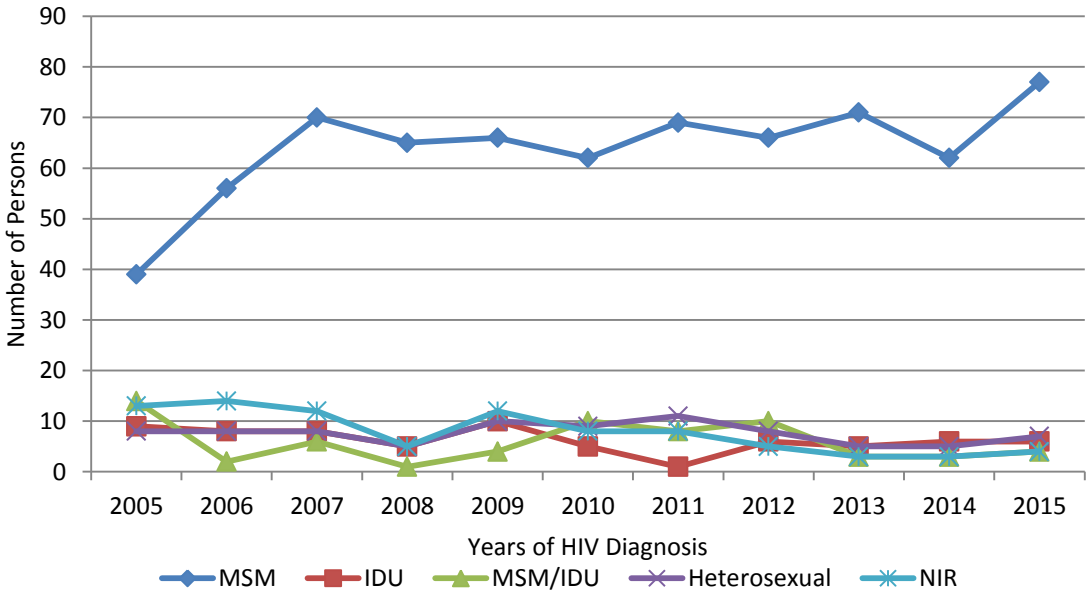
The most common mode of exposure among U.S. born is MSM at 59% compared to 30% among the foreign born. In contrast, heterosexual exposure is the most common exposure among the foreign born at 34%, compared to 15% among U.S.-born people. Risk could not be ascertained for approximately a third (30%) of foreign-born PLWH compared to 8% of U.S.-born PLWH.

Exposure Category and Sex – HIV Diagnoses

Because such a large proportion of all HIV disease diagnoses are attributed to one sex (male) and one exposure category (MSM), it is helpful to examine exposure data separately by sex to give a better picture of how other groups are being affected.

Diagnoses of HIV infection for all adult and adolescent males by exposure are shown by year in Figure 36. Clearly, the trends among adult and adolescent males are dominated by MSM. Diagnoses among MSM increased from 2005 to 2007, but then remained level between 60 and 70 diagnoses until 2015. Diagnoses among males with other modes of exposure have decreased since 2005 and continue to remain low. A total of 87 diagnoses among males from 2005 through 2015 have no other mode of transmission identified.

Figure 36
Iowa HIV Diagnoses[1] by Exposure Category
Adult and Adolescent Males, 2005 through 2015

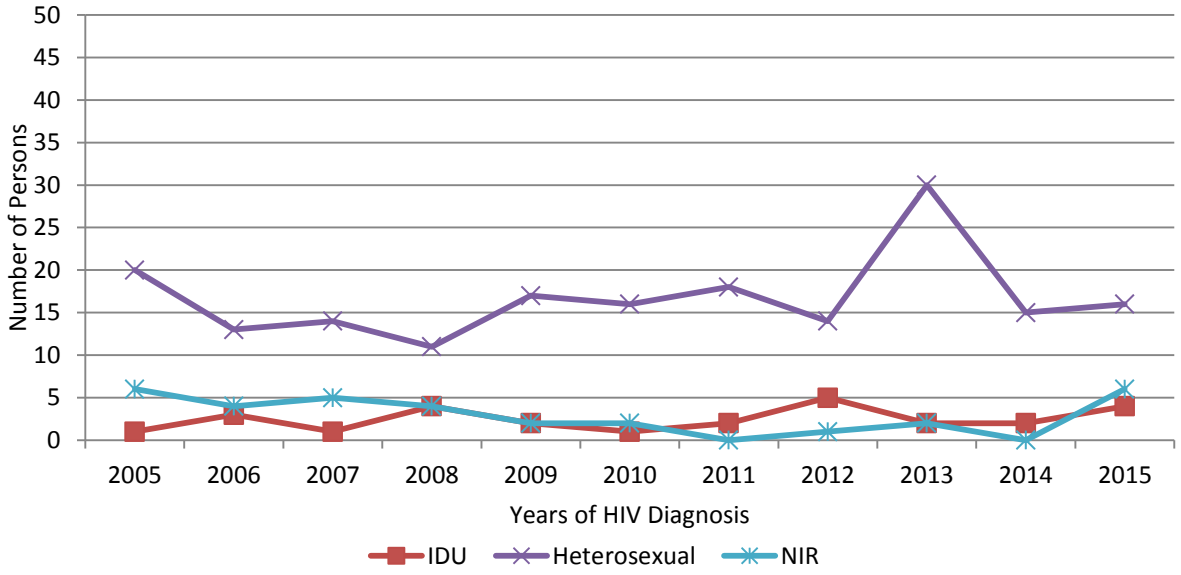


[1] HIV diagnoses reflect all people diagnosed with HIV for the first time, regardless of AIDS status, who were residents of Iowa at diagnosis and who were ≥ 13 years of age at diagnosis. However, exposure to HIV may have been at a younger age.
NIR = no identified risk.

Diagnoses of HIV infection by exposure category among females are shown in Figure 37. Heterosexual contact was the most common mode of exposure between 2005 and 2015. During that interval, heterosexual diagnoses ranged from 11 to 30, with an average of 17. The most notable event was the marked increase in diagnoses among heterosexual women in 2013. This can be attributed to an increase in diagnoses among foreign-born women. In general, diagnoses among each exposure group of adult and adolescent females was fairly level from 2005 to 2015.

A total of 32 diagnoses among females from 2005 through 2015 have no other mode of transmission identified. Diagnoses of females in the no identified risk group have decreased steadily from a peak of 6 diagnoses in 2005 to 0 in 2014, but increased to 6 in 2015 (Figure 37).

Figure 37
Iowa HIV Diagnoses by Exposure Category for Adult and Adolescent[1] Females, 2005 through 2015



[1] HIV diagnoses reflect all people diagnosed with HIV for the first time, regardless of AIDS status, who were residents of Iowa at diagnosis and who were ≥ 13 years of age at time of diagnosis. However, exposure to HIV may have occurred at a younger age.
NIR = no identified risk.

Exposure category by sex and country of origin for adult and adolescent HIV diagnoses in 2015 is shown in Table 21. More than two-thirds of diagnoses among adult and adolescent males were among men who have sex with men, but this was even higher among U.S.-born males. There was a significantly higher proportion of heterosexual exposures (26%) among foreign-born males than among U.S.-born males (3%) in 2015. Of the males diagnosed in 2015, only 6 (6%) reported injection drug use as a mode of exposure, and this did not vary by country of origin. Another 4 (4%) were men who have sex with men and inject drugs. No risk was identified for 4% of all adult and adolescent males. In terms of country of origin, no risk was identified for 4% of U.S.-born males and 5% of foreign-born males.

Among adult and adolescent females diagnosed in 2015, the largest proportion, 62%, indicated heterosexual contact as their likely mode of exposure, but this was significantly higher among foreign-born women. No risk was identified for 23% of all adult and adolescent females. Injection drug use was an exposure found only among U.S.-born women.

Table 21
Iowa Adult and Adolescent HIV Diagnoses[1] in 2015
by Exposure Category, Sex, and Country of Origin

	All People		U.S. Born		Foreign Born	
Exposure Category- Males	**#**	**(%)**	**#**	**(%)**	**#**	**(%)**
MSM	77	(79)	65	(82)	12	(63)
IDU	6	(6)	5	(6)	1	(5)
MSM/IDU	4	(4)	4	(5)	0	--
Heterosexual contact	7	(7)	2	(3)	5	(26)
NIR/other	4	(4)	3	(4)	1	(5)
Total Males	**98**		**79**		**19**	
Exposure Category-Females						
IDU	4	(15)	4	(25)	0	--
Heterosexual contact	16	(62)	8	(50)	8	(80)
NIR/ other	6	(23)	4	(25)	2	(20)
Total Females	**26**		**16**		**10**	

[1] HIV diagnoses reflect all people diagnosed with HIV for the first time, regardless of AIDS status, who were residents of Iowa at diagnosis and were ≥ 13 years of age at the time. However, exposure to HIV may have occurred at a younger age.

Ascertaining modes of exposure for people recently diagnosed with HIV is a priority for the Iowa Department of Public Health. Clearly, trends can be misinterpreted when 8% of the recent cases have no risk associated with them. As partners are tested and new information becomes available, some of the people, particularly the U.S. born, diagnosed in 2015 without a known risk, will have modes of exposure determined in the coming year.

Identifying risks for foreign-born people is difficult. Many people do not remember exposures that may have occurred before they entered the U.S. Specific medical interventions, immunizations or other injections with needles that may have been contaminated, or sexual partners who are unavailable for testing are some examples of risks more common to immigrants from foreign countries.

Table 22 compares AIDS diagnoses in 2015 to cumulative AIDS diagnoses by exposure category and sex. There was a higher proportion of MSM diagnosed with AIDS in 2015 than expected from historical data (i.e., cumulative cases). Among adult and adolescent females, there were fewer cases related to injection drug use and more related to heterosexual or unidentified modes of exposure than expected from cumulative cases.

Table 22
Iowa AIDS Diagnoses by Exposure Category and Sex
Adults and Adolescents[1], 2015 and Cumulatively[2] through 2015

	2015		Cumulative[2]	
Exposure Category: Males	**#**	**(%)**	**#**	**(%)**
MSM	43	(74)	1,358	(68)
IDU	5	(9)	176	(9)
MSM/IDU	4	(7)	166	(8)
Hemophilia	0	--	39	(2)
Heterosexual contact	4	(7)	110	(6)
Transfusion/transplant	1	(2)	14	(1)
NIR/other	1	(2)	126	(6)
Total Males	**58**		**1,989**	
Exposure Category: Females				
IDU	1	(9)	72	(19)
Hemophilia	0	--	1	--
Heterosexual contact	7	(64)	225	(60)
Transfusion/transplant	0	--	10	(3)
NIR/other	3	(27)	67	(18)
Total Females	**11**		**375**	

[1] Includes all people who were first diagnosed with AIDS while residents of Iowa and who were ≥ 13 years of age at time of diagnosis. However, exposure to HIV may have occurred at less than 13 years of age.
[2] Cumulative data include people diagnosed from 1982 through 2015.

Exposure Category and Sex – People Living with HIV Disease

Exposure categories by sex are shown in Table 23 for adults and adolescents (people who were diagnosed at age 13 years or older) living with HIV disease in Iowa (i.e., with current residence in Iowa).

Among adult and adolescent males living with HIV disease in Iowa at the end of 2015, 68% were infected through male-to-male sex, 10% were MSM/IDU, and 6% were infected through injection drug use. More than 80% of all people who inject drugs (MSM/IDU and IDU) living with HIV disease are male.

Nearly two-thirds of all living adult and adolescent females with HIV disease were infected through heterosexual contact. Another 15% were infected through injection drug use. No risk has been identified for nearly of quarter of adult and adolescent females living with HIV disease. This compares to only 8% of males who have no risk identified. The higher percentage for females can be attributed to the higher probability that a woman will be exposed through heterosexual sex where the risk of the partner must be identified for proper risk classification.

Table 23
People Diagnosed as Adults or Adolescents[1] and Living with HIV Disease as of December 31, 2015 by Exposure Category and Sex

Exposure Category-Males	Prevalence #	(%)
MSM	1339	(68)
IDU	126	(6)
MSM/IDU	186	(10)
Hemophilia	6	--
Heterosexual Contact	139	(7)
Transfusion/transplant	1	--
NIR/other	159	(8)
Total Males	**1,956**	

Exposure Category-Females		
IDU	75	(15)
Hemophilia	0	--
Heterosexual Contact	319	(63)
Transfusion/ transplant	2	--
NIR/other	111	(22)
Total Females	**507**	

[1] Includes all people residing in Iowa, who were ≥ 13 years of age at diagnosis, and were living with HIV or AIDS as of December 31, 2015. Exposure to HIV may have occurred at less than 13 years of age. All deaths may not have been reported. Percentage totals may not equal 100 due to rounding. Percentages are not shown for small numbers.

Exposure Category, Race, Ethnicity, and Sex – People Living with HIV Disease

Exposure categories by race, ethnicity, and sex are shown in Figure 38 for adults and adolescents living with HIV disease.

The greatest proportion of adults and adolescents living with HIV disease in Iowa at the end of 2015 were white, non-Hispanic MSM (40%) followed by white, non-Hispanic heterosexual females (7%). More than 75% of all MSM (MSM and MSM/IDU) living with HIV disease are white, non-Hispanic.

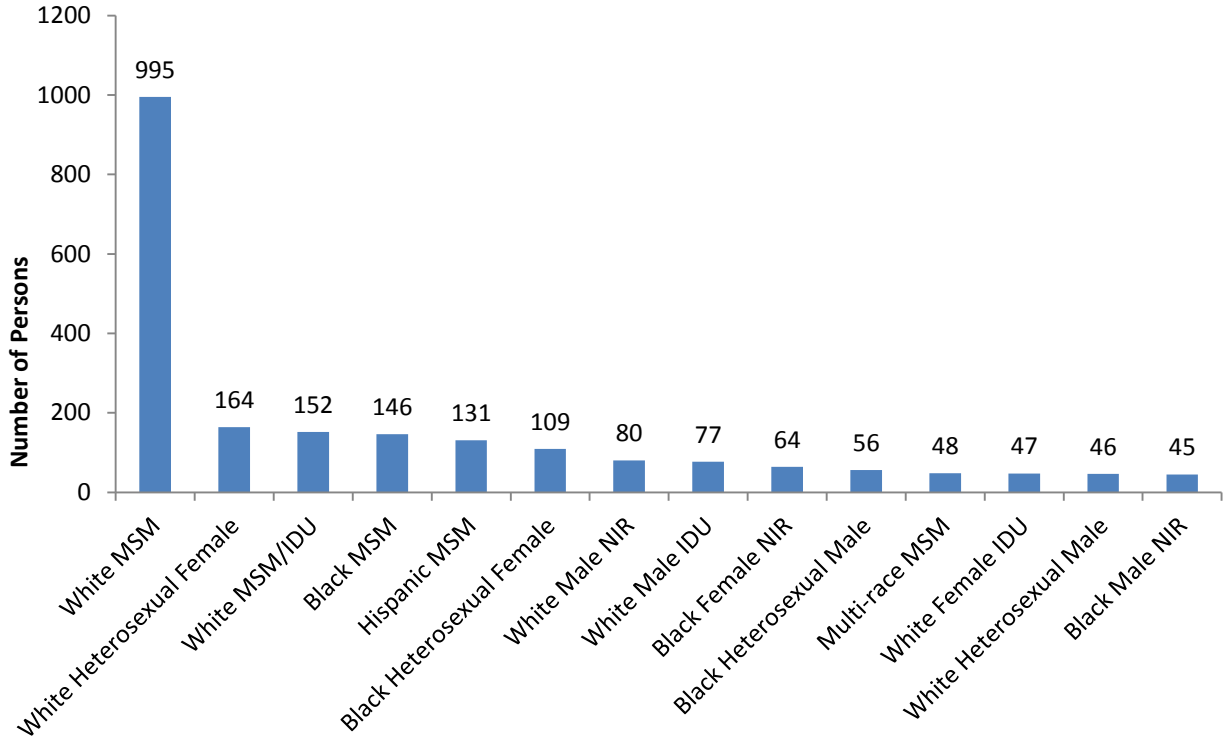
Black, non-Hispanic people accounted for 20% of PLWH in Iowa at the end of 2015. Of all black, non-Hispanic adults and adolescents living with HIV disease, 34% are MSM (MSM and MSM/IDU) compared to 64% of Hispanic adults and adolescents living with HIV disease.

Heterosexual risk accounted for 19% of people living with HIV disease in Iowa at the end of 2015. Of all black, non-Hispanic adults and adolescents, 34% were exposed via heterosexual sex

compared to 14% of white non-Hispanic adults and adolescents, and 17% of Hispanic adults and adolescents.

No risk has been identified for 8% of adult and adolescent people living with HIV disease. Of all black, non-Hispanic adults and adolescents, 22% have no identified risk compared to 7% of white non-Hispanic adults and adolescents, and 12% of Hispanic adults and adolescents.

Figure 38
People Living with HIV Disease by Race, Ethnicity and Exposure Category for Adults and Adolescents[1] as of December 31, 2015



[1] Includes all people residing in Iowa, who were ≥ 13 years of age at diagnosis, and were living with HIV disease as of December 31, 2015. Exposure to HIV may have occurred at less than 13 years of age. All deaths may not have been reported.

Exposure Category and Race – Five Years of HIV Diagnoses, 2011 through 2015

To explore links between mode of exposure and race and ethnicity for more recent cases, we analyzed HIV diagnoses for the five year period from January 1, 2011, through December 31, 2015. Adult and adolescent HIV diagnoses by exposure category, race, and ethnicity are presented in Table 24.

Differences in modes of exposure are evident between racial and ethnic groups. MSM accounted for the highest proportions of cases among white, non-Hispanic people (69%), and Hispanic people (59%). Heterosexual contact is the most common mode of exposure among black, non-Hispanic people (47%). The proportion of no identified risks is highest among black, non-Hispanic people (9%) and people who do not identify as black, white, or Hispanic. Injection drug use was a relatively uncommon mode of exposure among all populations.

Table 24
Iowa Adult and Adolescent HIV Diagnoses[1] by Exposure Category, Race and Ethnicity
January 1, 2011 through December 31, 2015

Exposure Category	White Non-Hispanic		Black Non-Hispanic		Hispanic		Other		All Groups	
	#	(%)	#	(%)	#	(%)	#	(%)	#	(%)
MSM	247	(69)	38	(35)	41	(59)	19	(40)	345	(60)
IDU	28	(8)	8	(7)	2	(3)	1	(2)	39	(7)
MSM/IDU	24	(7)	2	(2)	1	(2)	1	(2)	28	(5)
Hemophilia	0	--	0	--	0	--	0	--	0	--
Heterosexual	40	(11)	51	(47)	13	(22)	22	(52)	129	(23)
Transfusion/transplant	0	--	0	--	0	--	0	--	0	--
NIR/Other	18	(5)	10	(9)	2	(3)	2	(4)	32	(6)
Totals	**357**		**109**		**59**		**48**		**573**	

[1] Includes all people who were first diagnosed with HIV, regardless of AIDS status, while residents of Iowa and who were ≥ 13 years of age at diagnosis. Exposure to HIV may have occurred at a younger age.
Percentage totals may not equal 100 due to rounding of numbers. Percentages are not shown for small numbers.

The data in Table 24 suggest the need for more than one approach to prevention. The proportions of people without identified risk, while relatively small, still leave room for speculation or misinterpretation. While CDC has developed multiple imputation computer programs designed to assign people without known risk to standard exposure categories, the programs have limited application to states with low HIV prevalence.

Modes of exposure within a racial or ethnic group may vary by country of origin as well. Thirty-six percent of black, non-Hispanic people and 71% of Hispanic people diagnosed from January 1, 2011, through December 31, 2015, were foreign born. Table 25 presents HIV diagnoses separately for foreign- and U.S.-born black, non-Hispanic and Hispanic people.

Table 25
Minority Adult and Adolescent HIV Diagnoses[1] by Exposure Category, Race, Ethnicity and Country of Origin
January 1, 2011 through December 31, 2015

	Black, non-Hispanic				Hispanic			
	U.S.-born		Foreign-born		U.S.-born		Foreign-born	
Exposure Category	**#**	**(%)**	**#**	**(%)**	**#**	**(%)**	**#**	**(%)**
MSM	34	(49)	4	(10)	12	(71)	29	(69)
IDU	8	(11)	0	--	1	(6)	1	(2)
MSM/IDU	2	(3)	0	--	0	--	1	(2)
Hemophilia	0	--	0	--	0	--	0	--
Heterosexual	19	(27)	32	(80)	4	(24)	9	(21)
Transfusion/transplant	0	--	0	--	0	--	0	--
NIR/other	7	(10)	3	(8)	0	--	2	(5)
Total	**70**		**35**		**17**		**42**	

[1] Includes all people who were first diagnosed with HIV, regardless of AIDS status, while residents of Iowa and who were ≥ 13 years of age at diagnosis. Exposure to HIV may have occurred at a younger age.
Percentage totals may not equal 100 due to rounding of numbers. Percentages are not shown for small numbers.

Table 53 indicates that among U.S.-born black, non-Hispanic people (African Americans), men who have sex with men, at 49%, is the most common mode of exposure. Among black, non-Hispanic foreign-born people, heterosexual contact, at 80%, is the most common mode of exposure. The proportion of unidentified risk was higher for U.S.-born black, non-Hispanic people (10%) than for foreign-born, black, non-Hispanic people (8%). However, there is little difference in modes of exposure between U.S.-born Hispanics and foreign-born Hispanics.

Exposure Category and Race – Cumulative AIDS Diagnoses

Differences between racial and ethnic groups are also evident among cumulative AIDS diagnoses (Table 26). A lower proportion of AIDS diagnoses among black, non-Hispanic people has been attributed to MSM and a higher proportion attributed to injection drug use and heterosexual contact than among white, non-Hispanic people and Hispanic people. The proportion of diagnoses among Hispanic people attributed to MSM is less than among white, non-Hispanic people. However, exposure category is unknown for 15% of Hispanics, more than twice that for white, non-Hispanic people. There was a higher proportion of heterosexual exposure among Hispanics than among the white, non-Hispanics. However, MSM is the most common route of exposure among all racial and ethnic groups.

Table 26
Iowa Adult and Adolescent AIDS Diagnoses[1] by Exposure Category, Race, and Ethnicity
Cumulative through December 31, 2015

Exposure Category	White non-Hispanic		Black non-Hispanic		Hispanic		Other		All Groups	
	#	(%)	#	(%)	#	(%)	#	(%)	#	(%)
MSM	1,133	(64)	102	(30)	90	(52)	33	(46)	1,358	(57)
IDU	167	(9)	62	(18)	15	(9)	4	(6)	248	(10)
MSM/IDU	135	(8)	19	(6)	7	(4)	5	(7)	166	(7)
Hemophilia	39	(2)	1	--	0	--	0	--	40	(2)
Heterosexual	183	(10)	98	(29)	35	(20)	19	(26)	335	(14)
Transfusion/transplant	22	(1)	2	(1)	0	--	0	--	24	(1)
NIR/other	101	(6)	57	(17)	25	(15)	10	(14)	193	(8)
Total	**1,780**		**341**		**172**		**71**		**2,364**	

[1] Includes all people who were first diagnosed with AIDS while residents of Iowa and who were ≥ 13 years of age at diagnosis. However, exposure to HIV may have occurred at less than 13 years of age.
Percentage totals may not equal 100 due to rounding of numbers. Percentages are not shown for small numbers.

Comparison of HIV diagnoses from 2011 through 2015 (Table 25) with cumulative AIDS diagnoses (Table 26) reveals a somewhat higher proportion of MSM among recent HIV diagnoses than among cumulative AIDS diagnoses for white, non-Hispanic people; black, non-Hispanic people; and Hispanic people. However, people with more recent diagnoses are more likely to have a risk identified, and this makes comparisons of exposure modes more difficult over time.

Exposure Category by Race, Ethnicity, and Sex – HIV Diagnoses 2011 through 2015

To examine differences in modes of exposure between racial and ethnic groups for each sex, five years of data were examined. Among males diagnosed with HIV since January 1, 2011, MSM is the primary exposure for all reported races and ethnic groups (Table 27). However, MSM is the route of exposure at least 80% of white males and of Hispanic males. Higher proportions of males from other racial and ethnic groups reported heterosexual contact or were unable to identify risk than was the case for white, non-Hispanic or Hispanic males. Eleven percent of black, non-Hispanic males had no risk identified.

Table 27
Iowa Adult and Adolescent HIV Diagnoses[1] among Males
by Exposure Category, Race and Ethnicity, January 1, 2011 through December 31, 2015

Exposure Category	White non-Hispanic		Black non-Hispanic		Hispanic		Other		All Groups	
	#	(%)	#	(%)	#	(%)	#	(%)	#	(%)
MSM	247	(80)	38	(58)	41	(85)	19	(58)	345	(76)
IDU	16	(5)	5	(8)	2	(4)	1	(3)	24	(5)
MSM/IDU	24	(8)	2	(3)	1	(2)	1	(3)	28	(6)
Hemophilia	0	--	0	--	0	--	0	--	0	--
Heterosexual	10	(3)	13	(20)	3	(6)	10	(30)	36	(8)
Transfusion/transplant	0	--	0	--	0	--	0	--	0	--
NIR/other	13	(4)	7	(11)	1	(2)	2	(6)	23	(5)
Total Males	**310**		**65**		**48**		**33**		**456**	

[1] Includes all people who were first diagnosed with HIV, regardless of AIDS status, while residents of Iowa and who were ≥ 13 years of age at time of diagnosis. Exposure to HIV may have occurred at less than 13 years of age.
Percentage totals may not equal 100 due to rounding of numbers. Percentages are not shown for small numbers.

When injection drug use is considered as a separate category, no racial or ethnic group had more than 8% of diagnoses among people who report injecting drugs. Black, non-Hispanic males were only slightly more likely than males of other races and ethnicities to report IDU as a mode of exposure.

Data from the most recent five years of HIV diagnoses for adult and adolescent females are shown in Table 28. Heterosexual contact was the most common risk for all races and ethnic groups, but more than one-quarter of white women were exposed through IDU.

Table 28
Iowa Adult and Adolescent HIV Diagnoses[1] among Females
by Exposure Category, Race and Ethnicity, January 1, 2011 through December 31, 2015

Exposure Category	White non-Hispanic		Black non-Hispanic		Hispanic		Other		All Groups	
	#	(%)	#	(%)	#	(%)	#	(%)	#	(%)
IDU	12	(26)	3	(7)	0	--	0	--	15	(10)
Hemophilia	0	--	0	--	0	--	0	--	0	--
Heterosexual	30	(64)	38	(86)	10	(91)	15	(100)	93	(79)
Transfusion/transplant	0	--	0	--	0	--	0	--	0	--
NIR/other	5	(11)	3	(7)	1	(9)	--	--	9	(10)
Total Females	**47**		**44**		**11**		**15**		**117**	

[1] Includes all people who were first diagnosed with HIV, regardless of AIDS status, while residents of Iowa and who were ≥ 13 years of age at diagnosis. Exposure to HIV could have occurred at less than 13 years of age.
Percentage totals may not equal 100 due to rounding of numbers. Percentages are not shown for small numbers.

Exposure Category by Race, Ethnicity, and Sex – Cumulative AIDS Diagnoses

Cumulative adult and adolescent AIDS diagnoses by exposure, race/ethnicity, and sex are shown in Tables 29 and 30. Because of larger numbers, comparisons between racial and ethnic groups are more valid using cumulative AIDS diagnoses, rather than HIV diagnoses. In addition, there are considerably fewer AIDS diagnoses with no identified risk, only 9% overall. However, many of these people were diagnosed a considerable time ago. Therefore, conclusions drawn from the comparisons may not be valid for more recently diagnosed people.

Table 29 indicates that nearly three-fourths of all AIDS diagnoses among white, non-Hispanic males were MSM. In contrast, among black, non-Hispanic males diagnosed with AIDS, only 46% were MSM. Seventeen percent of black, non-Hispanic men reported injection drug exposure, more than twice the proportion reported in white, non-Hispanic males. Historically speaking, injection drug use has contributed to a larger proportion of AIDS diagnoses among black, non-Hispanic males than among other racial and ethnic groups. This is not the case for people more recently diagnosed with HIV disease (Table 24). For diagnoses from 2011 through 2015, the proportions of IDU are relatively equal for white, non-Hispanic males and black, non-Hispanic males.

Table 29
Iowa Adult and Adolescent AIDS Diagnoses[1] among Males
by Exposure Category, Race and Ethnicity: Cumulative through December 31, 2015

Exposure Category	White non-Hispanic		Black non-Hispanic		Hispanic		Other		All Groups	
	#	(%)	#	(%)	#	(%)	#	(%)	#	(%)
MSM	1,133	(72)	102	(46)	90	(63)	33	(59)	1,358	(68)
IDU	123	(8)	37	(17)	13	(9)	3	(5)	176	(9)
MSM/IDU	135	(9)	19	(9)	7	(5)	5	(9)	166	(8)
Hemophilia	38	(2)	1	--	0	--	0	--	39	(2)
Heterosexual	51	(3)	34	(15)	16	(11)	9	(16)	110	(6)
Transfusion/transplant	14	(1)	0	--	0	--	0	--	14	(1)
NIR/other	72	(5)	30	(13)	18	(13)	6	(11)	126	(6)
Total Males	**1,566**		**223**		**144**		**56**		**1,989**	

[1] Includes all people who were first diagnosed with AIDS while residents of Iowa and who were ≥ 13 years of age at time of diagnosis. However, exposure to HIV could have occurred at less than 13 years of age.
Percentage totals may not equal 100 due to rounding of numbers. Percentages are not shown for small numbers.

Table 30 shows cumulative adult and adolescent AIDS diagnoses among females by race and ethnicity. Heterosexual risk is the primary risk among females for all races and ethnicities. Twenty-five percent of Hispanic females and 23% of black, non-Hispanic females diagnosed with AIDS did not have a risk identified. Injection drug use may have played a slightly larger role among black, non-Hispanic females than other groups, but the number of females without a reported risk complicates comparisons between racial and ethnic groups.

Table 30
Iowa Adult and Adolescent AIDS Diagnoses[1] among Females
by Exposure Category, Race and Ethnicity: Cumulative through December 31, 2015

Exposure Category	White non-Hispanic		Black non-Hispanic		Hispanic		Other		All Groups	
	#	(%)	#	(%)	#	(%)	#	(%)	#	(%)
IDU	44	(20)	25	(21)	2	(7)	1	(7)	71	(19)
Hemophilia	1	--	0	--	0	--	0	--	1	--
Heterosexual	132	(61)	64	(54)	19	(68)	10	(67)	218	(59)
Transfusion/transplant	8	(4)	2	(2)	0	--	0	--	10	(3)
NIR/other	29	(13)	27	(23)	7	(25)	4	(27)	68	(18)
Total Females	**215**		**118**		**28**		**15**		**368**	

[1] Includes all people who were first diagnosed with AIDS while residents of Iowa and who were ≥ 13 years of age at diagnosis. Exposures to HIV may have occurred at less than 13 years of age.
Percentage totals may not equal 100 due to rounding of numbers. Percentages are not shown for small numbers.

Pediatric Exposures to HIV

Pediatric (less than 13 years of age at time of diagnosis) AIDS diagnoses have been reportable since February 1983. Diagnoses of HIV (not AIDS) became reportable as of July 1, 1998. Because most HIV disease in children is perinatally acquired (i.e., mother to infant transmission), births to women living with HIV disease also became reportable on July 1, 1998. Monitoring perinatal exposures allows the Iowa Department of Public Health to assess the efficacy of public health recommendations on the use of medications to decrease perinatal transmission of HIV. It also allows the department to assess any potential adverse consequences of these interventions to the infant.

In 1999, the Centers for Disease Control and Prevention issued a revised surveillance case definition for HIV infection. It included criteria for categorizing perinatally exposed infants as "exposed," "uninfected," or "infected" on the basis of virological tests conducted in the first 18 months of life. The 2014 revised surveillance case definition combined the adult and pediatric criteria for a confirmed case of HIV infection and specified different criteria for staging HIV infection among three age groups (less than 1 year; 1 to 5 years; 6 years and older). Furthermore, the revision eliminated the distinction between definitive and presumptive diagnoses of HIV infection in children aged less than 18 months. It also eliminated the requirement that evidence of HIV infection in a child's biologic mother was needed to define a case of HIV infection in a child aged less than 18 months when laboratory testing of the infant independently confirms HIV infection.

To ensure completeness of data, the surveillance database is matched annually to the birth registry. Any female who was living with HIV and who gave birth should be included in these data, even if the birth occurred outside of Iowa.

To date, there have been reports of 145 births to women living with HIV in Iowa from January 1, 2005 through December 31, 2015 (Table 31, Figure 39). Data for 2015 are provisional pending follow-up investigation of births to women known to be living with HIV disease in Iowa who gave birth in 2015. Of the 145 births between 2005 and 2015, 74 infants (51%) were uninfected, 4 (3%) were infected, and 67 (46%) remain undetermined (i.e. perinatally exposed). Those who remain undetermined may have been lost to follow up (usually because they have moved from the state with their parent[s] or guardian) or because laboratories or providers failed to report the negative test results required to establish HIV seronegativity. It is highly likely that most of those for whom a final HIV status has not been determined do not have HIV disease. This assumption is based on the absence of detectable viral load results for this cohort.

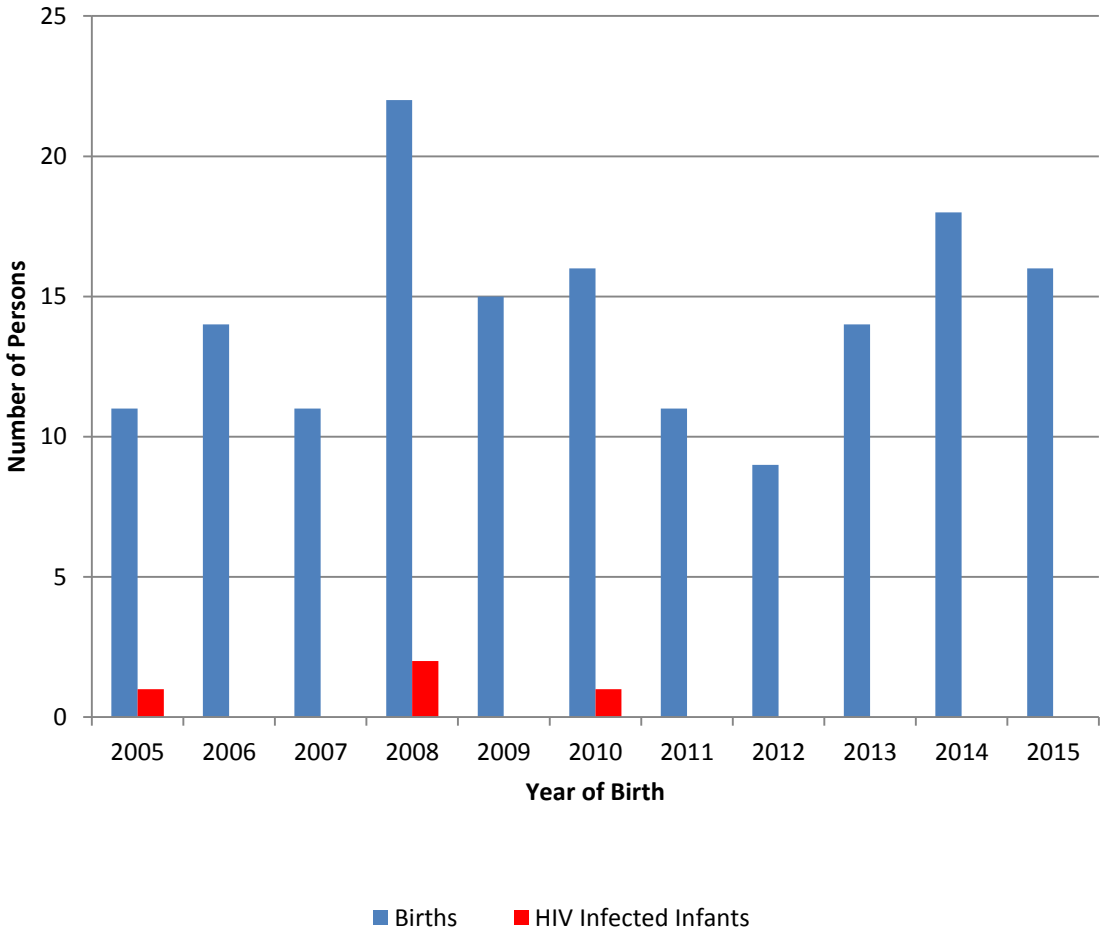
Table 31
HIV Status of Child for Births to Iowan Females Living with HIV
2005 through 2015[1]

Year of Birth	# Living with HIV	# HIV Negative	# HIV Undetermined	Total HIV Exposures
2005	1	9	1	11
2006	0	7	7	14
2007	0	7	4	11
2008	2	17	3	22
2009	0	13	2	15
2010	1	1	14	16
2011	0	4	7	11
2012	0	4	5	9
2013	0	5	9	14
2014	0	14	1	15
2015	0	2	14	16
Totals	**4**	**74**	**67**	**145**

[1] Data for 2015 are incomplete pending matching of the state birth registry with the surveillance database to identify all women in the surveillance database who gave birth in Iowa during 2015.

Studies indicate that appropriate prenatal treatment for the mother and prophylaxis for the infant result in less than one percent of infants becoming infected. Although only four (3% of those exposed) Iowa infants have been diagnosed with perinatal transmission of HIV, this is just slightly above the 1% that would be expected when appropriate and timely interventions for the mother are accessed.

Figure 39
Births to Women Living with HIV Disease in Iowa
and the Number Resulting in an Infant with HIV Disease, 2005 through 2015



Summary of Exposure Data:

- Male-to-male sex remains the predominant risk category among people diagnosed with HIV and the number of diagnoses among the MSM population has increased in recent years. In 2015, 74% of all males diagnosed with HIV reported having sex with other males.

- Diagnoses of HIV infection among people who reported heterosexual contact have generally remained steady since 2011. In 2015, heterosexual contact was the second most common mode of exposure.

- In 2015, 8% of all people diagnosed did not have a risk identified. Reclassification of these cases over time may alter interpretations of the data.

- As a group, MSM account for 54% of all people living with HIV in Iowa as of December 31, 2015, with a prevalence of 7,184 per 100,000 MSM. Heterosexual contact was the mode of exposure for 18% of PLWH, injection drug use was reported by 8%, and a combination of injection drug use and male-to-male sex was reported by 7%. Exposure category was not known for 12% of the PLWH.

- For people diagnosed with HIV infection between January 1, 2011, and December 31, 2015, MSM is the most common mode of exposure among white, non-Hispanic people and Hispanic people, while heterosexual contact is the most common mode of exposure among black, non-Hispanic people. The proportion of people reporting heterosexual contact or with no identified risk is highest among black, non-Hispanic people followed by Hispanic people. Over two-thirds of all diagnoses in white, non-Hispanic people were attributed to male-to-male exposure, and another 8% were MSM/IDU. Fifty-nine percent of HIV diagnoses among Hispanics were among MSM. Injection drug use alone accounted for only 7% of all diagnoses in the five-year period. Nearly all people who report injecting drugs were white or black (non-Hispanic).

- Among women diagnosed with HIV between January 1, 2011, and December 31, 2015, heterosexual contact was the most common risk, accounting for 79% of all diagnoses. Injection drug use accounted for 10% of all diagnoses among females. Comparatively low numbers of diagnoses among females and substantial proportions of cases without an identified risk make interpretation of trends difficult.

- To date, there have been reports of 145 births to females living with HIV who were residents of Iowa from January 1, 2005, to December 31, 2015. Of the 145 births, 4 (3%) have been diagnosed with HIV disease. This is above the expected rate (1%) when appropriate and timely interventions for the mother and newborn are accessed.

Question 3

Who is at the greatest risk of becoming infected with HIV and other STDs in Iowa?

This section provides a detailed look at high-risk populations using direct and indirect measures of high-risk behavior. Counseling and testing data, STD data, viral hepatitis data, and other survey data will be used to examine this question.

Section Highlights

- Chlamydia is the most frequently reported sexually transmitted disease in Iowa, with 12,133 cases reported in 2015. This represents the greatest number of cases ever reported for a reportable condition in Iowa.

- The incidence of gonorrhea has increased by 38% since 2005. In 2015, 2,223 cases were reported in Iowa. This is the greatest number of gonorrhea cases reported in the last ten years. Gonorrhea shows the most disproportionate distribution among racial and ethnic groups of all sexually transmitted diseases. Black, non-Hispanic males have an incidence rate of reported cases of gonorrhea that is 22 times that of white, non-Hispanic males. Black, non-Hispanic females have a rate 15 times that of white, non-Hispanic females. Rates among Hispanic persons are 1.7 times greater than double those of white, non-Hispanic persons.

- The incidence of syphilis remains high, with a total of 228 cases reported in 2015. This is more than triple the number of cases reported in 2011. Men who have sex with men (MSM) are disproportionately impacted by syphilis in Iowa. Additionally, black, non-Hispanic persons are disproportionately impacted by this infection also, with rates that were 11 times higher than white, non-Hispanic persons in 2015.

- The male-to-female ratios for chlamydia and gonorrhea differ between minority populations and the white, non-Hispanic population. White, non-Hispanic females with gonorrhea diagnoses outnumber white, non-Hispanic males by 1.2 to 1; while black, non-Hispanic males outnumber black, non-Hispanic females 1.4 to 1. This may indicate that minority females are not being screened for asymptomatic infection at the same rate as other women in the state, the prevalence of gonorrhea is higher among black, non-Hispanic males than their white counterparts, or it may reflect other as yet undetermined differences.

- As of March 31, 2016, the Iowa Department of Public Health had received 21,334 reports of hepatitis C infection among Iowans. Based upon this number of reports, there are likely to be 35,216 to 129,127 Iowans with hepatitis C infection, with 15,061 to 109,758 of these cases undiagnosed. Since 2000, approximately 9,000 hepatitis C tests were conducted at IDPH-supported counseling, testing, and referral sites, with an average annual positivity of 10%. HIV-HCV co-infection rates have not been determined.

HIV AND AIDS BY OTHER INDICATORS

Economic status of persons with HIV and AIDS

Although the economic status of persons diagnosed with HIV and AIDS is not reported on the confidential case-report form, the reimbursement source for medical treatment may be reported by the medical provider. However, this information is rarely included. Enrollment in the Ryan White Part B Program is a better measure of economic status among PLWH in Iowa. In 2015, 1,218 people received Ryan White Part B services (see *Section 2 – Ryan White Care Act Special Questions and Considerations* for more details). Eligibility for the program requires an income of 400% of Federal Poverty Level (FPL) - ($46,680 for a single person). Among the 2,496 PLWH in Iowa in 2015, 49% were enrolled in Part B services with incomes below 400% FPL.

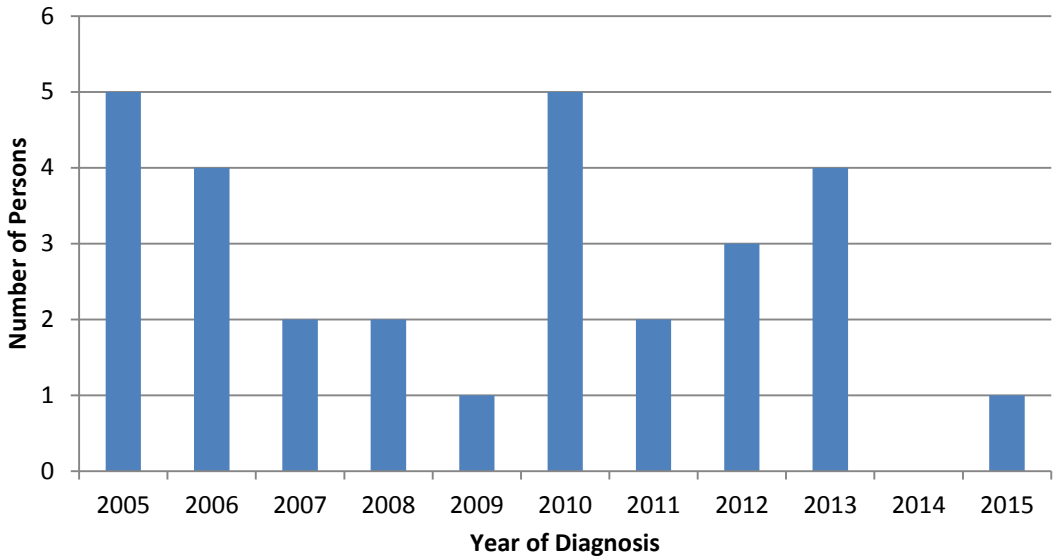
Diagnoses of HIV in the Iowa Department of Corrections

People incarcerated in prisons and jails suffer disproportionately from infectious diseases, substance abuse, and socioeconomic problems. According to CDC, risk factors associated with HIV transmission such as injection drug use, commercial sex work, and lower socioeconomic status are higher among prison populations than non-prison populations. It is estimated that one in seven persons living with HIV passes through a correctional facility in the U.S. where they may or may not have been initially diagnosed. HIV testing procedures differ by state.

The Iowa Department of Corrections oversees nine state prisons in Iowa. As of July 1, 2015, there were 8,221 state inmates. There were 5,266 admissions and 5,166 releases in FY2015. Upon admission to the Iowa Department of Corrections, every inmate is screened for tuberculosis, HIV, and other sexually transmitted diseases. There was one new HIV diagnosis made in the Iowa Department of Corrections in 2015. From January 1, 2005, to December 31, 2015, 29 persons were first diagnosed with HIV in the state correctional system (Figure 40).

Overall, a total of 110 persons were first diagnosed with HIV disease in the state correctional system since the beginning of the epidemic. As of December 31, 2015, 31 PLWH, representing 1.2% of all PLWH in Iowa, were held in a Department of Corrections facility.

Figure 40
HIV Diagnoses in the Iowa Department of Corrections[1]
2005 through 2015



[1] HIV diagnoses reflect all persons diagnosed with HIV for the first time, regardless of AIDS status, upon intake into the Iowa Department of Corrections.

HIV Risk Assessment and Behavioral Data

In 2012, the Iowa Department of Public Health funded 12 free, confidential HIV testing and counseling sites in Iowa, and held Memoranda of Agreement (MOA) with two sites which were provided with rapid test kits. Starting in 2013, the administration of a new funding cycle led to the elimination of two testing sites and both MOA sites. This contributed to a significant decrease in HIV testing numbers. Additionally, testing sites faced an increased requirement to reach high-risk and/or disproportionately impacted populations. This requirement decreased their number of tests to people who were considered to be at low risk for HIV. Although fewer new diagnoses were found, the positivity rate has increased (0.39% in 2012 to 0.57% in 2015). This may indicate improved efficiency in testing, in that there is a better understanding of how to reach populations at higher risk for HIV.

Participants at IDPH-funded sites complete risk assessments as part of a testing visit or during outreach. Because the counseling and testing system collects information only from persons who seek counseling and testing services at IDPH-funded test sites, data are not representative of all persons who are living with HIV in Iowa.

Table 31 presents the sex, race, and ethnicity of the persons tested at IDPH-funded sites in 2015. More males than females were tested. Black, non-Hispanic persons represented 30% of the persons tested; white, non-Hispanic persons made up 52% of the group, and Hispanics accounted for 12%. The proportion of Black and Hispanic individuals tested for HIV increased from 2009 to 2012, and has remained fairly steady from 2012 through 2015.

Table 32
HIV Counseling and Testing Participants by Sex, Race, and Ethnicity
2015

Sex	#	%
Male	2,824	68
Female	1,344	32
Transgender	8	0.2
Total	**4,174**	

Race and Ethnicity	#	%
White, non-Hispanic	2,182	52
Black, non-Hispanic	1,265	30
Hispanic	497	12
Am Indian/Alaskan	50	1
Asian/Pacific Islander	59	1
Other	123	3
Total	**4,174**	

The ages of those tested are shown in Table 33. Forty-five percent of the persons testing for HIV at IDPH-funded sites were 20 to 29 years of age. Twenty-six percent of tests were performed on people between 30 and 39 years of age.

A risk group was assigned to participants according to the behaviors that were identified on risk assessments. Table 31 shows that in 2015, 31% of the participants were did not indicate a specific risk, 26% identified as men who have sex with men (MSM), 24% were identified as high-risk heterosexual contact (HRH), and 18% indicated injection drug use (IDU). Since 2008, the proportion of persons being tested who are considered high-risk (HRH, MSM, IDU, and MSM/IDU) has increased as IDPH-funded test sites have focused testing outreach efforts on these populations. The percentage of testing among MSM, in particular, has increased significantly.

Table 33
HIV Counseling and Testing Participants by Age Group and Risk
2015

Age Range	#	%
13-19	278	7
20-29	1,877	45
30-39	1,088	26
40-59	560	13
60 and over	82	2
Total	**4,174**	

Risk Group	#	%
MSM/IDU	51	1
MSM	1,101	26
IDU	747	18
HRH	985	24
None	1,290	31
Total	**4,174**	

The risk behaviors of the participants and of their partners are shown in Table 34. In 2012, 62% of the persons testing for HIV at IDPH-funded test sites had been tested previously, which increased to 69% in 2015. Twenty-one percent of clients tested in 2012 indicated that they had been infected with a sexually transmitted disease in the past year, which decreased slightly to

19% during the following three years. The percentage of clients indicating they had ever had sex with someone who has injected drugs increased from 16% in 2012 to 22% in 2015.

Table 34
Reported Behaviors of HIV Counseling and Testing Participants
2012 through 2015

Participant Responses	2012		2013		2014		2015	
	#	%	#	%	#	%	#	%
Indicated they had been tested before	3,346	62	2,746	58	2,987	70	2,883	69
Had a STD diagnosis within the last year	1,121	21	898	19	836	19	808	19
Had ever had sex with someone who exchanges sex for drugs, money, or something they needed.	467	9	485	10	392	9	428	10
Had ever had sex with someone who was HIV+	314	6	329	7	371	9	349	8
Had ever had sex with someone who injected drugs	874	16	860	18	802	19	909	22
TOTAL TESTS	**5,389**		**4,755**		**4,296**		**4,174**	

Demographics of Clients Testing Positive at IDPH-Funded sites

Table 35 presents demographic trends of clients testing positive for HIV in IDPH-funded sites from 2012 through 2015. The largest proportion of clients testing positive for HIV among IDPH-funded counseling, testing, and referral sites (CTR) are white and non-Hispanic. This may be, in part, a reflection of who is tested at the sites and the predominant population in Iowa, as a whole. However, the number of Hispanic clients testing positive increased from 5% in 2012 to almost 17% in 2015. This may be due to an increased effort of IDPH-funded sites to reach Hispanic and black clients, who are among the disproportionately impacted populations in Iowa. It should be noted that the small numbers of clients testing positive at IDPH-funded testing sites necessitates that caution be taken when analyzing trends in data.

The epidemic, as it appears in those seeking and receiving HIV tests at IDPH-funded CTR sites, remains largely among males (86% in 2012; 79% in 2013; 95% in 2014; 83% in 2015) ages 20 through 39. In 2015, 67% of clients testing positive were between 20 and 39 years of age. The average age of persons testing positive for HIV in 2015 was 37 years, with a range from 22 years to 75 years. The median age was 35 years old.

Table 35
Demographic Characteristics of Clients Testing HIV-Positive at IDPH-Funded Sites
2012 through 2015

		2012 21 new diagnoses n (%)	2013 19 new diagnoses n (%)	2014 19 new diagnoses n (%)	2015 24 new diagnoses n (%)
Race	**White, non-Hispanic**	13 (62%)	11 (58%)	12 (63%)	14 (58%)
	Black, non-Hispanic	6 (29%)	5 (26%)	3 (16%)	4 (17%)
	Hispanic	1 (5%)	1 (5%)	3 (16%)	4 (17%)
	Asian	0	0	0	1 (4%)
	Native Hawaiian/Pacific Islander	0	0	0	0
	Multiple Races	1 (5%)	2 (11%)	1 (5%)	1 (4%)
Age	**13-19**	3 (14%)	2 (11%)	0	0
	20-29	8 (38%)	5 (26%)	12 (63%)	10 (42%)
	30-39	5 (24%)	4 (21%)	5 (26%)	6 (25%)
	40-49	2 (10%)	3 (16%)	0	2 (8%)
	50-59	2 (10%)	4 (21%)	2 (11%)	4 (17%)
	60+	1 (5%)	1 (5%)	0	2 (8%)
Sex	**Male**	18 (86%)	15 (79%)	18 (95%)	20 (83%)
	Female	3 (14%)	4 (21%)	1 (5%)	4 (17%)

Risk Behaviors of Clients Testing Positive for HIV in IDPH-Funded Clinics

Table 36 illustrates trends in reported risk behaviors of clients testing positive for HIV in IDPH-funded sites from 2012 through 2015. The epidemic, as it appears in clients seeking and receiving HIV tests at IDPH clinics and agencies, remains largely in the MSM community (men who have sex with men). Of the 21 clients who tested positive for HIV in 2012, 14 identified as MSM (67%). In both 2013 and 2014, of 19 HIV-positive clients, 79% identified as MSM (n=15). The percentage of diagnoses among MSM at IDPH-funded sites decreased to 58% (n=14) in 2015. The number of diagnoses from partners of those already sero-positive fluctuated between 2012 and 2014, and then increased significantly in 2015 (33% in 2012; 47% in 2013; 37% in 2014; 67% in 2015). The percentage of newly diagnosed HIV-positive clients reporting being diagnosed with an STD during the preceding year has increased, from 5% in 2013 to 21% in 2015.

Table 36
Reported Risk Behaviors of Individuals Testing HIV Positive at IDPH-Funded CTR Sites
2012 through 2015

	Total Number of Positive Clients	MSM and MSM/IDU	IDU	HRH	HIV+ Partners (ever)	Diagnosed w/ STD in last year
		n (%)	n (%)	n (%)	n (%)	n (%)
2012	**21**	14 (67%)	0	3 (14%)	7 (33%)	2 (10%)
2013	**19**	15 (79%)	0	3 (16%)	9 (47%)	1 (5%)
2014	**19**	15 (79%)	0	3 (16%)	7 (37%)	3 (16%)
2015	**24**	14 (58%)	2 (8%)	7 (29%)	16 (67%)	5 (21%)

SEXUALLY TRANSMITTED DISEASES (STDs)

STDs are among the most frequently reported infectious diseases and constitute a significant health problem in Iowa. While STD rates may indicate riskier sexual behavior, they do not necessarily correlate with HIV infection. However, the presence of STDs increase the likelihood of HIV transmission.

The three bacterial STDs reportable to the Iowa Department of Public Health are chlamydia, gonorrhea, and syphilis. In considering STD data, one should be aware of certain limitations. The quality of STD data is dependent upon which provider or facility is reporting. All cases reported to the STD Program in 2015 are presented here, including cases for which some demographic variables are unknown. Race was not reported for approximately five percent of cases. In addition, the reported incidence of STDs may reflect the demographics of individuals seeking care at a particular facility or may reflect the practices of certain providers (e.g., many STDs are often asymptomatic so providers who routinely screen higher risk populations will identify a greater number of infections). Reports are not necessarily representative of the characteristics of all individuals with STDs.

Females are generally reported with STDs more frequently than males. Females tend to seek routine medical care more often than males, which presents greater opportunities for them to be tested for these infections. It is more common for males to be tested only if they present with signs or symptoms. Because many STDs often present asymptomatically, this commonly results in a higher number of cases diagnosed and reported among females.

Iowa maintains a chlamydia and gonorrhea testing program for individuals at increased risk. It is referred to as the Community-Based Screening Services (CBSS) program. The purpose of the program is to provide chlamydia and gonorrhea testing to target populations (i.e., those who are uninsured, underinsured, or seeking confidential services) at low or no cost to the patients. The program's previous incarnation, the Infertility Prevention Project (IPP) primarily focused on

testing females to prevent costly, long-term complications such as pelvic inflammatory disease (PID) and infertility. CBSS expanded to include males in certain populations. Persons 24 years of age and younger are tested regardless of the presence of signs or symptoms. Persons 25 and older must present with one or more risk factors to qualify (e.g., new or multiple sexual partners in the last 90 days, exposure to someone who has been recently diagnosed, or signs/symptoms suggestive of chlamydia or gonorrhea).

There are approximately 60 clinics enrolled in CBSS. Many are family planning clinics but STD clinics, student health centers, correctional facilities, community health centers, a tribal clinic, and non-Title X women's health centers are also included. CBSS reported 1,887 chlamydia diagnoses in 2015, which is 16% of all reported cases of chlamydia in Iowa.

Newly diagnosed and reported cases of chlamydia and gonorrhea are shown in Figure 41. Chlamydia is the most frequently reported sexually transmitted disease in Iowa, with 12,133 cases reported in 2015. This is the highest number of cases ever reported and comes after 15 years of steady increases, with the exception of a slight decrease in 2013. Incidence of gonorrhea has increased since 2013. Gonorrhea is becoming more widespread throughout the state's urban centers. Increases were once primarily seen in the state's eastern urban centers but larger cities in the west, such as Sioux City and Council Bluffs, are seeing significant increases. Reported cases of syphilis are displayed in Figure 42. The incidence of syphilis began to rapidly increase in 2012. Despite a decrease in the number of syphilis cases, numbers remain high.

Figure 41
Reported Cases of Chlamydia and Gonorrhea in Iowa
2000 through 2015

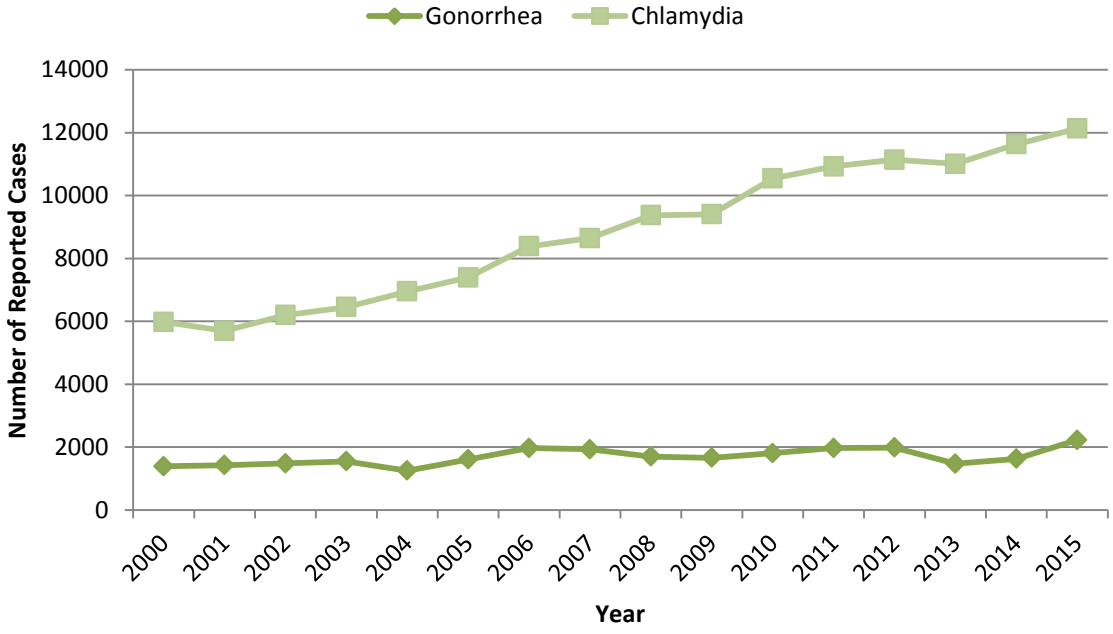
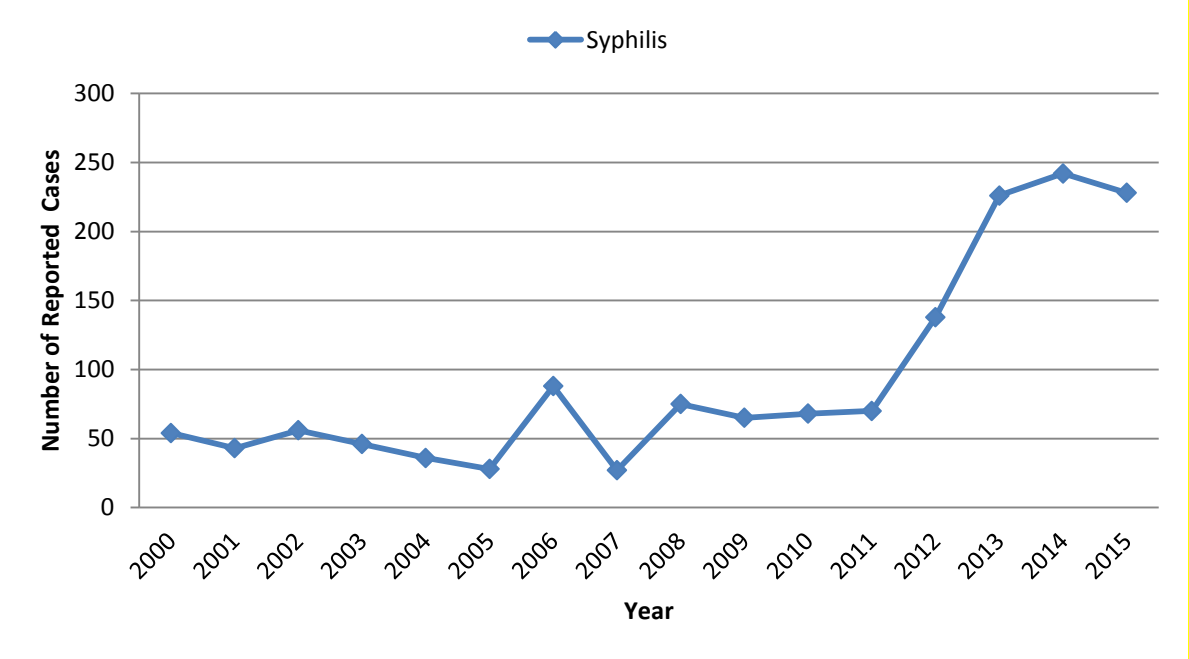


Figure 42
Reported Cases of Syphilis in Iowa
2000 through 2015



In 2012, the State Hygienic Laboratory at the University of Iowa completed its validation of chlamydia and gonorrhea testing using oropharyngeal and rectal specimens. Some other larger laboratories have also developed this capacity. Increased screening at oropharyngeal and rectal sites has contributed to increases of gonorrhea. However, this factor alone does not account for the entire increase seen since 2013.

Chlamydia

In the United States, urogenital infections of *Chlamydia trachomatis* occur very frequently among sexually active adolescents and young adults. CDC estimates that 3 million people are newly infected annually in the U.S. Asymptomatic infection is common among both males and females. Sexually active adolescents and young adults should be routinely screened for chlamydia during annual examinations, even if symptoms are not present. In females, untreated chlamydia can result in pelvic inflammatory disease, which can cause infertility, ectopic pregnancy, and chronic pelvic pain. Though rarer, males with untreated chlamydia may develop complications including epididymitis and decreased fertility.

Chlamydia remains the most reported bacterial sexually transmitted disease in the United States and in Iowa. In 2015, there were 12,133 cases (390 cases per 100,000 population) reported to the STD Program. Figure 43 displays the reported cases by sex. Females account for the majority of chlamydia cases, accounting for approximately 70% of all cases.

Figure 43
Reported Cases of Chlamydia by Sex
2000 through 2015

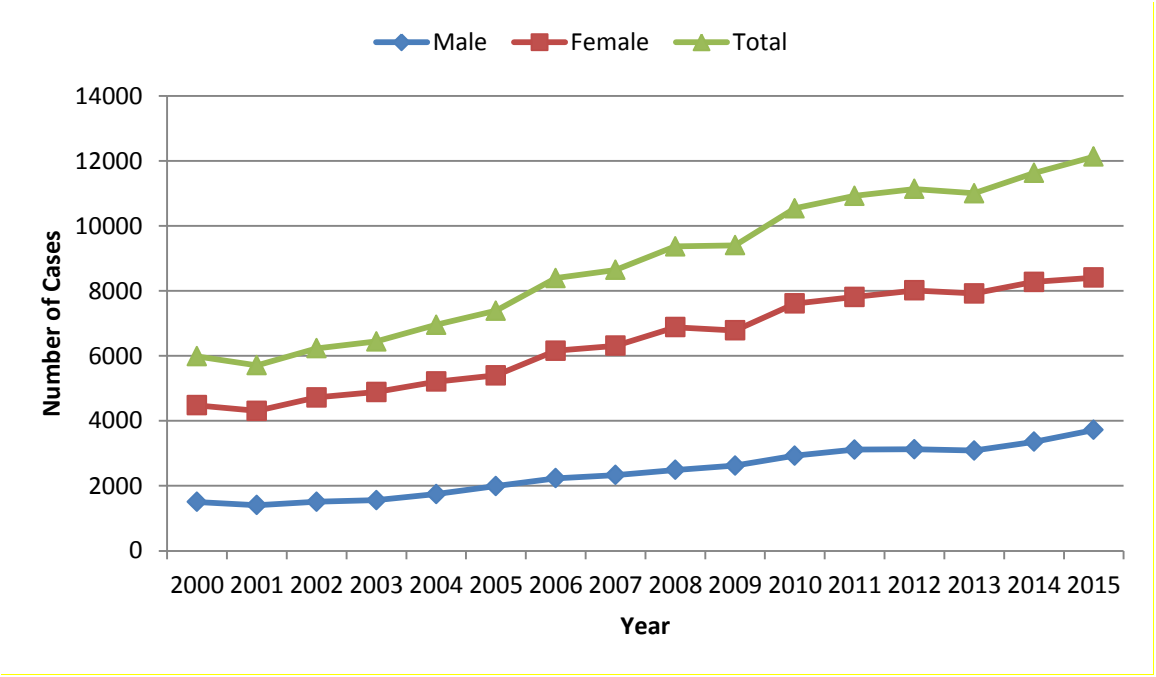
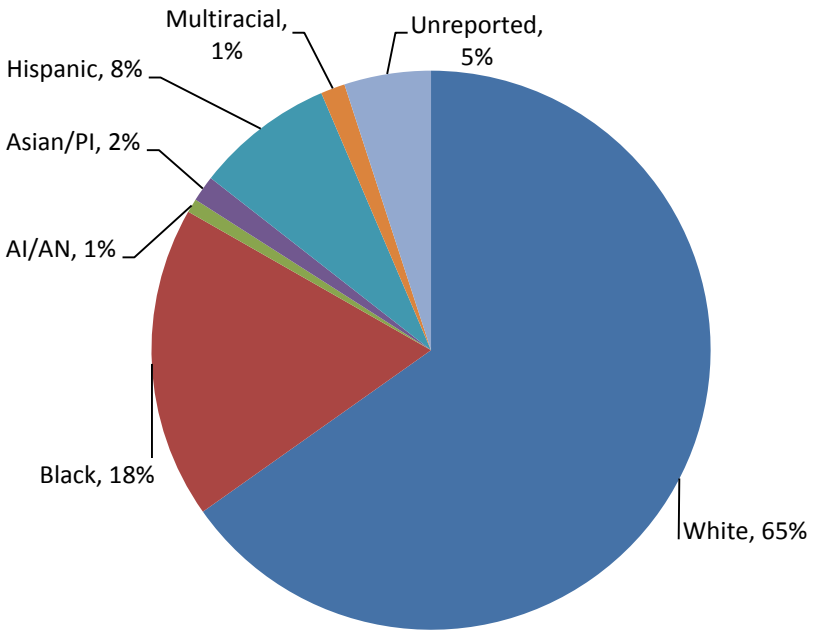


Figure 44 shows the number of reported cases of chlamydia by race/ethnicity for 2015. The largest proportion of cases is among white, non-Hispanic persons, and the trends seen in the overall incidence of reported chlamydia cases are due, in large part, to females within this group.

Females of all three racial and ethnic groups have higher reported morbidity than males. Despite the relatively low population of black, non-Hispanic persons in Iowa (approximately 3% of the state's population), this group makes up a large proportion of chlamydia. According to 2014 data from CDC, Iowa's black, non-Hispanic population has the highest rate of chlamydia in the U.S.

Figure 44
Proportion of Chlamydia Cases by Race/Ethnicity, 2015



Incidence of chlamydia by county, for those counties that reported at least 40 cases, is shown in Table 37. Counties are ranked according to the highest rate per 100,000 population. Seven of the ten counties with the greatest incidence rate per 100,000 population are among the ten most populous counties.

The increase in reported cases of chlamydia in 2015 was not experienced by all counties. Polk, Story, Marshall, and Johnson counties accounted for the largest increases in absolute numbers of cases.

Table 37
Incidence of Chlamydia by County

County	# of Cases	Rate per 100,000
Black Hawk	838	631
Webster	217	587
Johnson	783	550
Wapello	192	545
Woodbury	555	543
Scott	920	537
Marshall	216	529
Polk	2382	518
Story	484	514
Linn	1045	480
Clinton	219	456
Pottawattamie	413	443
Des Moines	177	440
Dubuque	396	411
Mahaska	92	411
Winnebago	42	398
Crawford	68	395
Union	46	368
Muscatine	145	338
Poweshiek	56	300
Page	46	297
Hardin	51	295
Warren	141	294
Delaware	51	293
Tama	51	292
Jasper	105	285
Buena Vista	58	282
Floyd	45	280
Hamilton	42	278
Marion	92	276
Lee	95	269
Cerro Gordo	115	266
Jackson	51	262
Carroll	53	258
Boone	66	250
Iowa	41	250
Dallas	191	247
Cedar	44	239
Fayette	45	221
Benton	56	218
Bremer	54	218
Henry	40	198
Buchanan	40	190
Plymouth	45	181
Washington	40	181
Sioux	54	156
All counties	12,133	390

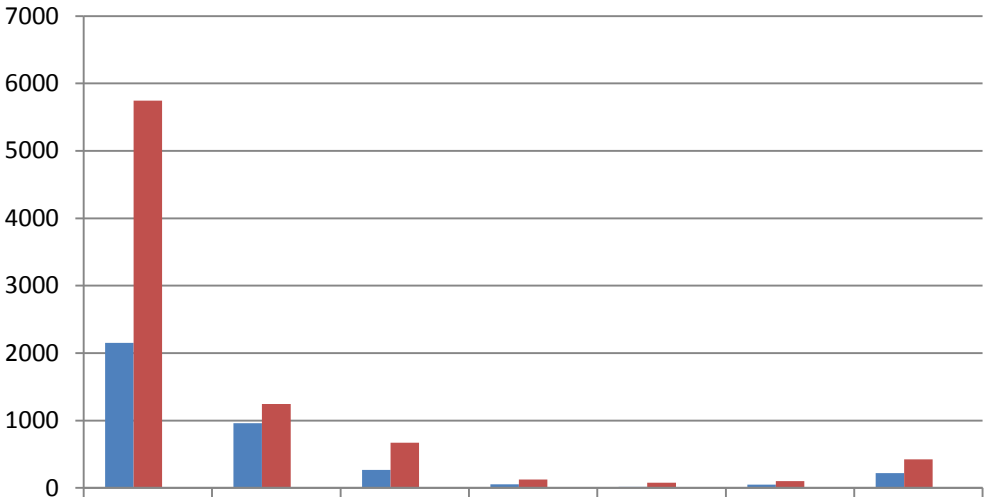
Table 38 shows the number of reported cases of chlamydia by age, race, ethnicity, and sex. Seventy-one percent of all cases were female. Older adolescents and young adults (age groups 15 to 19 years and 20 to 24 years) had the burden of disease, with 66% of all cases occurring in these two age groups. The majority of cases (65%) occurred among white, non-Hispanic persons. Black, non-Hispanic persons accounted for 18% of the cases even though they make up 3% of Iowa's population. Hispanic persons accounted for 8% of the cases. Five percent of cases did not have a race or ethnicity reported.

Table 38
2015 Reported Cases of Chlamydia by Age, Race, Ethnicity, and Sex

Age Group	Asian		Black		Hispanic		American Indian/ Alaskan Native		White		Hawaiian Native/ Pacific Islander		Multiracial		Unreported Race		Total Male	Total Female
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
0 - 4	0	0	0	0	0	1	0	0	2	2	0	0	0	0	0	0	2	3
5 - 9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10 - 14	0	1	3	14	1	4	0	1	0	32	0	0	0	1	0	1	4	54
15 - 19	4	28	194	410	37	193	3	21	269	1365	0	7	12	31	32	112	551	2167
20 - 24	24	51	379	504	103	269	6	23	922	2637	4	9	20	45	88	177	1546	3715
25 - 29	13	27	212	198	67	103	5	18	525	1002	0	2	13	15	54	70	889	1435
30 - 34	4	9	88	74	34	49	2	14	239	396	1	3	3	5	18	43	389	593
35 - 39	7	4	44	31	12	31	0	2	95	169	1	0	1	1	14	17	174	255
40 - 44	3	2	26	8	8	15	0	0	48	81	0	1	1	0	8	3	94	110
45 - 54	0	1	13	7	3	7	0	0	36	48	0	1	0	1	3	2	55	67
55 - 64	0	0	3	0	0	0	0	0	12	11	0	0	0	0	1	1	16	12
65+	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0
Total	**55**	**123**	**962**	**1246**	**265**	**672**	**16**	**79**	**2150**	**5743**	**6**	**23**	**50**	**99**	**218**	**426**	**3722**	**8411**

Figure 45 illustrates the ratio of female-to-male cases. Females outnumbered males for all races and ethnicities, but the ratio of males to females varied for the different racial and ethnic groups. The overall ratio of female to male cases is 2.3 to 1.

Figure 45
Diagnoses of Chlamydia by Race, Ethnicity, and Sex, 2015



	White, non-Hispanic	Black, non-Hispanic	Hispanic	Asian	American Indian	Multiracial	Unreported
Male	2150	962	265	55	16	50	218
Female	5743	1246	672	123	79	99	426
Female:Male	2.7	1.3	2.5	2.2	4.9	2.0	2.0

The disproportionate distribution of chlamydia among minority groups is illustrated in Table 39. Asian/Pacific Islander is the only minority group that is not disproportionately affected by chlamydia. When standardized for population size, black, non-Hispanic males have an incidence rate of reported cases of chlamydia that is more than 12 times that of white, non-Hispanic males. Black, non-Hispanic females have a rate that is nearly four times that for white, non-Hispanic females. The rate among American Indian, non-Hispanic persons is nearly four times that of white, non-Hispanic persons and the rate among Hispanics is more than two times that of white, non-Hispanic persons.

Table 39
Incidence Rates[1] for Chlamydia by Race, Ethnicity, and Sex
Iowa, 2015

Race and Ethnicity	Males (# / 100,000 males)	Females (# / 100,000 females)	Total (# / 100,000 pop.)
White, non-Hispanic	161	419	292
Black, non-Hispanic	1,794	2,616	2,181
American Indian, non-Hispanic	354	1,731	1,045
Asian/PI, non-Hispanic	161	366	263
Hispanic	292	813	540
All Cases	**241**	**538**	**390**

[1]Based upon 2014 population estimates by race and ethnicity from the U.S. Census Bureau

Gonorrhea

In the United States, CDC estimates that there are 700,000 new infections of *Neisseria gonorrhoeae* each year. Most infections among males produce symptoms that cause them to seek curative treatment soon enough to prevent serious sequelae (i.e., conditions resulting from the disease), but this may not be soon enough to prevent transmission to others. Many infections among females do not produce recognizable symptoms until complications (e.g., pelvic inflammatory disease) have occurred. Both symptomatic and asymptomatic cases of PID can result in tubal scarring that leads to infertility or ectopic pregnancy. Because gonococcal infections among females often are asymptomatic, an important component of gonorrhea control in the United States and Iowa continues to be the screening of females at high risk for STDs.

The number of reported cases of gonorrhea in Iowa increased sharply from 2004 to 2006, and decreased between 2006 and 2009 in both males and females (Figure 46). Between 2009 and 2012, the number of gonorrhea cases increased steadily until a decline in 2013. From 2013 to 2015, reported diagnoses increased quickly. The increase was among both males and females but was more substantial in males. For the first time, the number of cases among males slightly outnumbered those among females. Some of the increase among males is attributable to increased testing at oropharyngeal and rectal sites.

In 2015, there were 2,223 reported cases of gonorrhea (72 cases per 100,000 population).

Figure 46
Diagnoses of Gonorrhea by Sex, 2000 through 2015

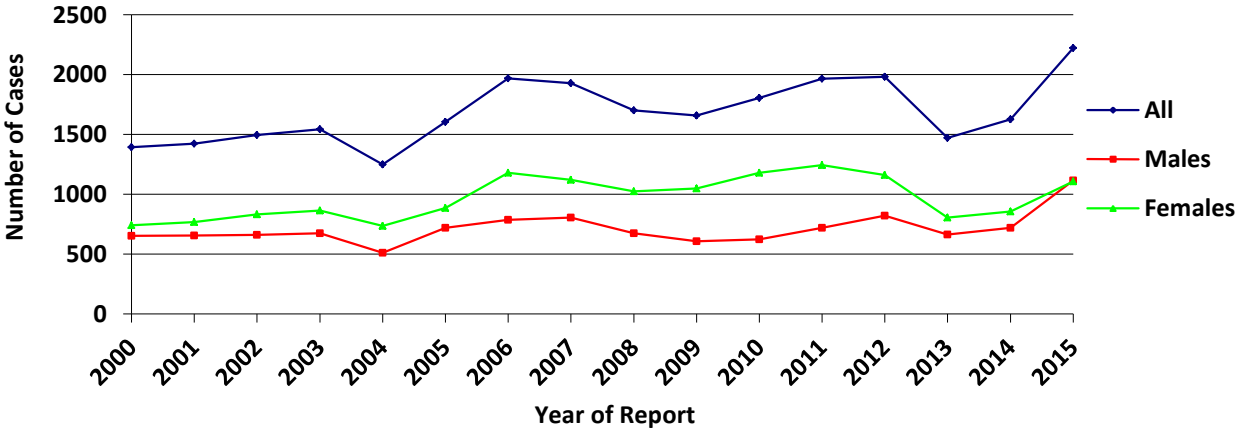
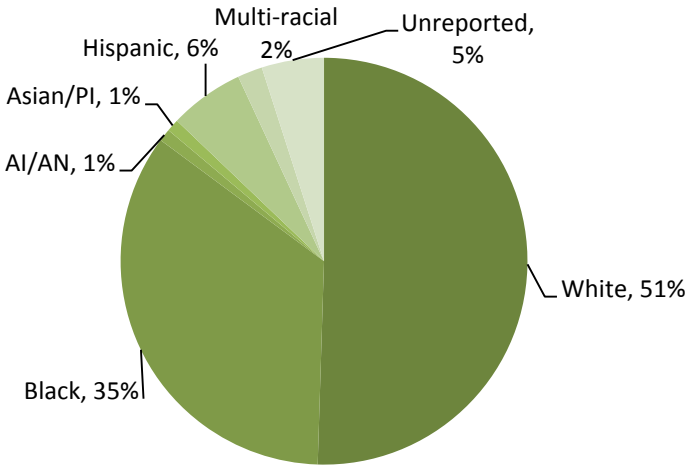


Figure 47 shows the incidence of gonorrhea by race/ethnicity for 2015. Black, non-Hispanic persons account for the largest proportions of reported cases. Black males have consistently outnumbered black females. This is the reverse of what is seen with chlamydia.

Figure 47
Diagnoses of Gonorrhea by Race/Ethnicity
2015



As is the case for HIV and chlamydia, the eight most populous counties contributed a disproportionate number of cases. Approximately 77%of gonorrhea cases were reported from these eight counties. These counties contain just 45 percent of Iowa's total population.

Incidence rates by county, for those counties with at least five reported cases, are shown in Table 40. Counties are ranked according to the highest rate per 100,000 population. Incidence in the eight most populous counties is almost two times higher than in the other counties. The largest increases in absolute numbers of cases were seen in Black Hawk, Dubuque, Linn, Johnson, and Pottawattamie.

Table 40
Incidence of Gonorrhea by County
2015

County	# of cases	Rate per 100,000
Black Hawk	271	204
Woodbury	164	160
Pottawattamie	135	145
Polk	628	137
Scott	191	111
Clinton	44	92
Webster	31	84
Linn	170	78
Shelby	9	75
Buena Vista	15	73
Mahaska	16	72
Johnson	99	70
Cass	9	67
Des Moines	26	65
Marshall	26	64
Story	58	62
Wapello	21	60
Lee	18	51
Carroll	10	49
Page	7	45
Poweshiek	8	43
Dubuque	41	43
Mills	6	40
Boone	10	38
Marion	12	36
Jasper	13	35
Muscatine	15	35
Henry	7	35
Fayette	7	34
Warren	15	31
Jones	6	29
Bremer	7	28
Dallas	17	22
Cerro Gordo	6	14
All counties	2,223	72

Table 41 shows the incidence of gonorrhea by age, race, ethnicity, and sex. Fifty-three percent of all cases were female. Older adolescents and young adults (ages 15 to 29 years) shared the burden of disease, with over 71% of all cases occurring among persons of these ages. Males, on average, tended to be older than females. Black, non-Hispanic persons, though only 3% of the population, had the largest burden of disease among all racial groups, with 35 percent of the cases. White, non-Hispanic persons accounted for 51% of cases and Hispanic persons accounted for six percent. Race and ethnicity were not identified for 5% of the cases.

Table 41
2015 Reported Cases of Gonorrhea by Age, Race, Ethnicity, and Sex

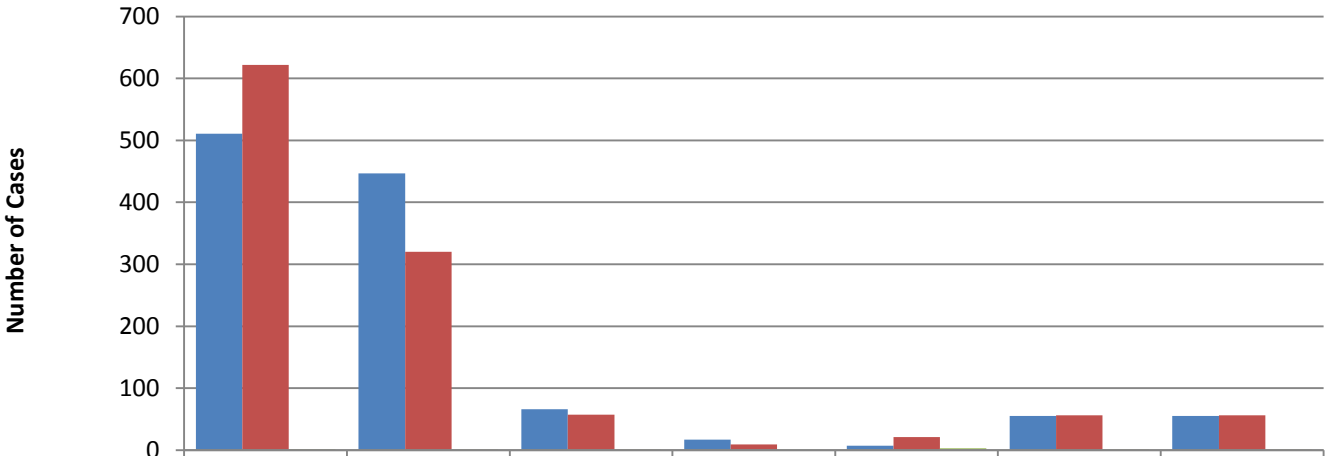
Age Group	Asian		Black		Hispanic		American Indian/ Alaskan Native		White		Hawaiian Native/ Pacific Islander		Multiracial		Unreported Race		Total Male	Total Female
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
0 - 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5 - 9	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
10 - 14	0	0	0	3	0	0	0	0	0	1	0	0	0	0	0	0	0	4
15 - 19	2	1	56	79	6	12	2	2	36	111	0	0	3	7	3	12	108	224
20 - 24	7	4	150	129	18	25	1	4	136	218	0	0	2	6	16	18	330	404
25 - 29	5	1	120	66	24	12	1	4	119	126	1	0	3	7	15	11	288	227
30 - 34	0	1	64	23	8	5	2	9	70	86	0	0	1	2	11	8	156	134
35 - 39	2	2	30	16	5	2	1	1	56	47	0	0	2	0	3	3	99	71
40 - 44	1	0	14	2	3	1	0	1	31	10	0	0	1	0	2	2	52	16
45 - 54	0	0	11	2	1	0	0	0	42	19	0	0	0	0	3	2	57	23
55 - 64	0	0	1	0	1	0	0	0	19	3	0	0	0	0	1	0	22	3
65+	0	0	1	0	0	0	0	0	2	0	0	0	0	0	1	0	4	0
Total	**17**	**9**	**447**	**320**	**66**	**57**	**7**	**21**	**511**	**622**	**1**	**0**	**12**	**22**	**55**	**56**	**1116**	**1107**

Figure 48 illustrates the ratio of female-to-male cases by race and ethnicity. There is a difference in the relative numbers of males and females between the white, non-Hispanic group and the black, non-Hispanic group. Among white, non-Hispanic persons, females outnumbered males 1.2 to 1. Black, non-Hispanic and Hispanic males outnumbered females 1.4 to 1. Female-to-male ratios are not only different between racial and ethnic groups, but the ratios are very different from the female-to-male ratios seen for chlamydia.

A number of different factors may contribute to differences in female-to-male ratios between racial groups and diseases. For example, minority females may have less access to routine screening than do white, non-Hispanic females. In that case, asymptomatic infections may not be diagnosed among minority females. Because gonorrhea is symptomatic more often than chlamydia, particularly among males, more males may seek care for gonorrhea than for chlamydia. Together, these factors may explain some of the differences described here.

It is also not known whether there are differences in the prevalence of chlamydia and gonorrhea in certain risk groups, such as MSM. This could potentially cause differences in female-to-male ratios as well. If the diseases differ in how prevalent they are among MSM, or if the diseases affect MSM of one racial or ethnic group more than other groups, the female-to-male ratio may increase for that disease or group.

Figure 48
Diagnoses of Gonorrhea by Race, Ethnicity, and Sex, 2015



	White, non-Hispanic	Black, non-Hispanic	Hispanic	Asian	American Indian	Multiracial	Unreported Race
Male	511	447	66	17	7	55	55
Female	622	320	57	9	21	56	56
Female:Male	1.2	0.7	0.9	0.5	3.0	1.0	1.0

The disproportionate distribution of gonorrhea among minority groups is illustrated in Table 42. When standardized for the population size, black, non-Hispanic males have an incidence rate of reported cases of gonorrhea that is more than 22 times that of white, non-Hispanic males. Black, non-Hispanic females are also disproportionately represented, with a rate 15 times that of white, non-Hispanic females. The rate among American Indian females is 10 times that of white, non-Hispanic females. Hispanic persons are more than 1.7 times more likely to be diagnosed with gonorrhea than white, non-Hispanic persons.

Table 42
Incidence Rates[1] for Gonorrhea by Race, Ethnicity, and Sex, 2015

Race and Ethnicity	Males (# / 100,000 males)	Females (# / 100,000 females)	Total (# / 100,000 pop.)
White, non-Hispanic	38	45	42
Black, non-Hispanic	834	672	758
American Indian, non-Hispanic	155	460	308
Asian, non-Hispanic	19	26	22
Hispanic	73	69	71
All Cases	**72**	**71**	**72**

[1]Based upon 2014 Population Projections by Race and Ethnicity from the U.S. Census Bureau

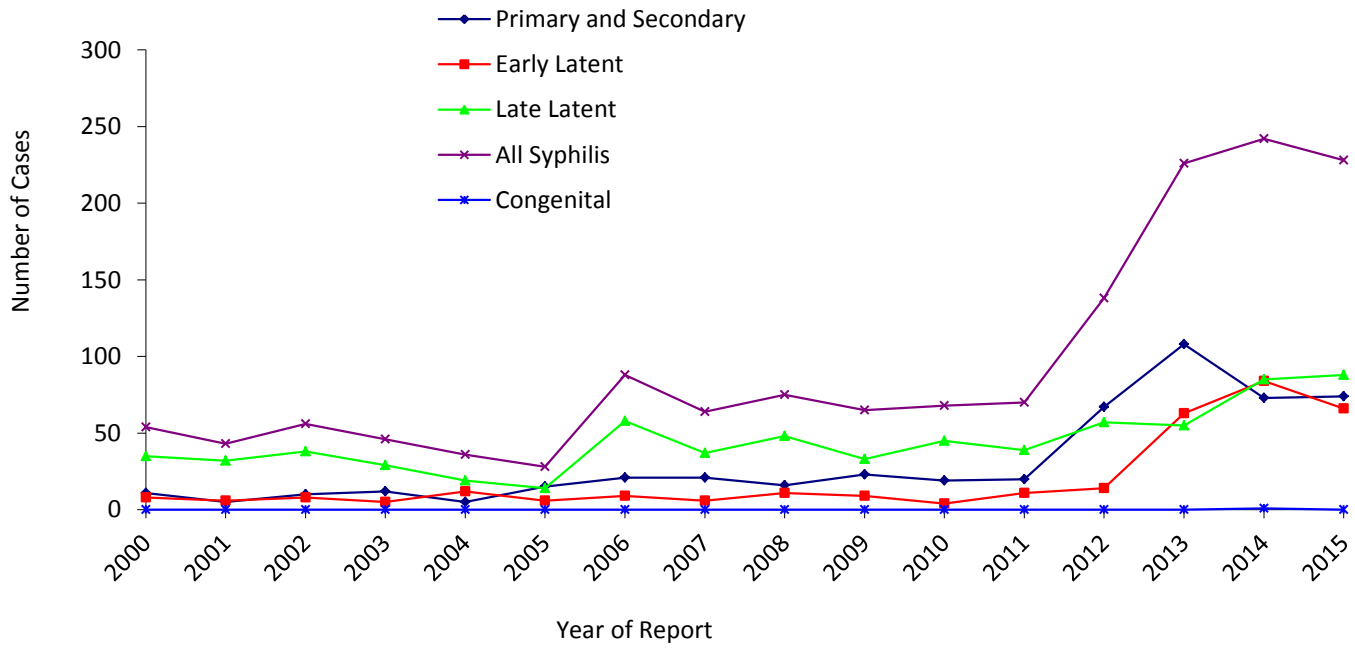
Syphilis

Syphilis is a systemic disease caused by the bacteria *Treponema pallidum.* People with syphilis may seek treatment for signs or symptoms of primary infection (e.g., ulcer or chancre at the infection site), secondary infection (e.g., manifestations that include rash, mucocutaneous lesions, condyloma latum, and adenopathy), or tertiary infection (e.g., cardiac, neurologic, ophthalmic, auditory, or gummatous lesions). Neurosyphilis occurs when there is evidence of central nervous system infection with *T. pallidum*; this can occur in any stage, especially in persons living with HIV. Infections also may be detected by serological testing. Latent syphilis is a term used to describe the period after infection when patients are seroreactive but demonstrate no other evidence of disease. Latent syphilis acquired within the preceding year is referred to as *early latent syphilis*; all other cases of latent syphilis are *late latent syphilis*. The term *early syphilis* refers to the sum of primary, secondary, and early latent syphilis. These first three stages of syphilis are infectious, whereas late latent syphilis is not.

Cases of syphilis reported to the Iowa Department of Public Health are prioritized for follow up by a Disease Intervention Specialist. One of the more important reasons for syphilis case follow-up is the prevention of congenital syphilis, which arises as a result of transmission from a pregnant woman to her unborn fetus. Congenital syphilis can manifest as stillbirth or as a full range of severe medical problems that can last an entire lifetime. Other reasons for case reporting include the prevention of tertiary syphilis or neurosyphilis, the prevention of spread to others, and lowering the chance of HIV acquisition.

In 2015, there were 140 primary, secondary, and early latent cases, 88 cases of late latent syphilis, and zero cases of congenital syphilis reported to the STD Program. Syphilis in Iowa has increased substantially since 2011. Much of the increase is attributable to a surge of early syphilis in Iowa's MSM populations.

Figure 49
Diagnoses of Syphilis, 2000 through 2015



Among the 140 early syphilis cases (i.e., recent infections) reported in 2015, 61% were 20-39 years of age. Unlike chlamydia and gonorrhea, a large majority of syphilis cases are among males rather than females. Of the early syphilis cases among males, approximately 70% were among MSM. Approximately 30 percent of those diagnosed with early syphilis were comorbid for HIV.

Syphilis, like other sexually transmitted diseases, reflects an over-representation of minority populations. In 2015, 19 early syphilis cases (14%) were reported among black, non-Hispanic persons, 99 (71%) were among white, non-Hispanic persons, and 14 (10%) were among Hispanic persons.

VIRAL HEPATITIS

Viral hepatitis is the leading cause of liver cancer and the most common reason for liver transplantation. Hepatitis C virus (HCV) infection is the most common chronic blood-borne infection in the United States. HCV causes hepatitis (inflammation of the liver), and is transmitted from person to person via blood or, to a much lesser extent, bodily fluids like semen. Today, most people contract HCV through sharing needles or equipment to inject drugs with someone who is already living with HCV. Another established risk factor is receipt of a blood transfusion before 1992, prior to implementation of screening programs for donated blood. Although less frequent, HCV can also be transmitted through other types of blood exposures, like tattooing, during sexual contact, or perinatally from mother to child[1].

The Centers for Disease Control and Prevention (CDC) estimate that 4.25 to 8.2 million people in the United States are living with chronic hepatitis B (HBV) or chronic hepatitis C (HCV) infection. About 850,000 to 2.2 million people have HBV, and an additional 3.4 to 6 million people have chronic HCV. It is estimated that 45 to 85% of persons with HCV are unaware of their infection[2].

As of March 31, 2016, the Iowa Department of Public Health had received 21,334 reports of hepatitis C infection among Iowans (Table 43). Based upon this number of reports, there are likely to be 35,216 to 129,127 Iowans with hepatitis C infection, with 15,061 to 109,758 of these cases undiagnosed. HCV diagnoses have increased sharply in Iowa since 2000. Over 2,000 Iowans were diagnosed in 2015, an increase of 182% since 2000. HCV diagnoses among those between the ages of 18 and 30 have increased 300% since 2009, with 299 diagnoses in 2015.

[1] Viral Hepatitis- Hepatitis C Information; Centers for Disease Control and Prevention, 2016. http://www.cdc.gov/hepatitis/hcv/hcvfaq.htm

[2] Toward a More Accurate Estimate of the Prevalence of Hepatitis C in the United States; Edlin, B.R., et al.; *Hepatology 2016; 62*(5), 1353-1363.

Table 43
Characteristics of People Reported with HCV

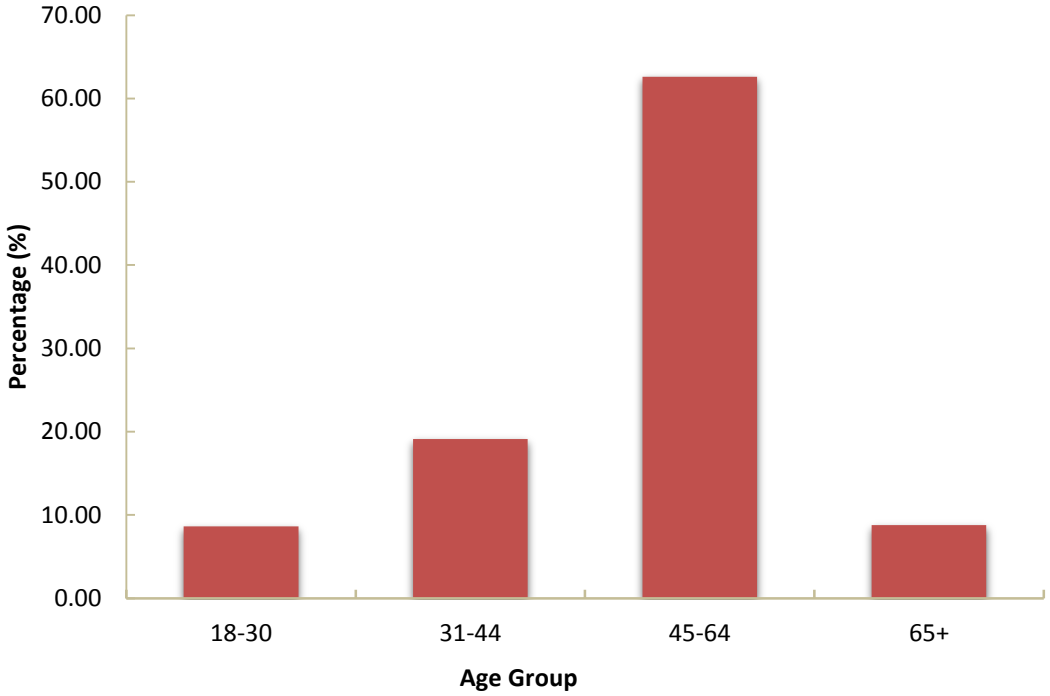
	No.	%
Sex		
Male	13,115	61.6
Female	7,806	36.7
Other	363	1.7
Race and Ethnicity*		
White, non-Hispanic	5,476	82.4
Black, non-Hispanic	700	10.5
Latino/Hispanic	216	3.3
American Indian or Alaska Native	114	0.5
Asian, Native Hawaiian or Other Pacific Islander	120	0.6
Multiple Races	24	0.4
Age At Time Of Test		
Median	52.0	
Age Group		
Under 18	188	0.9
18-30	1,844	8.7
31-44	4,077	19.3
45-64	13,354	63.2
65+	1,871	8.9

* Among cases for which it was reported. Race and ethnicity were missing for 14,684 cases.

There are disparities among persons living with HCV for sex and age. Over 61% of persons reported with HCV were males. The majority (63%) of persons reported with HCV were diagnosed between the ages of 45 and 64. Although race and ethnicity were not reported on nearly 70% of cases, there appear to be pronounced disparities by race and ethnicity. Of people for whom race and ethnicity was reported, over 10% were black and non-Hispanic. This group only makes up 3% of Iowa's total population (Table 43).

The median age at diagnosis of those reported as HCV positive was 52. Of the 21,334 people reported, 188 (< 1%) were less than 18 years of at onset of the disease. Data indicate that 8.9% of people diagnosed with HCV were 65 or older, 63.2% were 45 to 64 years of age, 19.3% were 31 to 44 years of age, and 8.7% were 18 to 30 years of age at diagnosis (Figure 50).

Figure 50
Age Distribution of People Living with HCV in Iowa



Over 56% of the people reported as HCV positive (defined in this analysis as either antibody positive or confirmed positive) had their first test from 2010 to 2015. In 2015, 10.65% of those reported as HCV positive received their first positive HCV antibody or confirmatory test, which was the highest percentage in this analysis. The number of Iowans reported as having HCV positive antibody or confirmatory tests per year has increased between 2000 and 2015. Table 44 shows these trends over time.

In general, diagnoses have increased each year since 2000. The number of diagnoses in 2015 represents an increase of 182% over that seen in 2000 (Table 44, Figure 51). Diagnoses of people 18 to 30 years of age have increased similarly, the most dramatic increase has occurred since 2009 (Table 44, Figure 52). This represents a 300% increase in diagnoses among those between the ages of 18 and 30.

Table 44
Number of Iowans Reported with Positive HCV Antibody or Confirmatory Test per Year

Year	All ages	18 – 30 yrs.
2000	754	5
2001	815	9
2002	183	1
2003	741	22
2004	1,311	26
2005	783	25
2006	888	40
2007	1,027	55
2008	1,422	66
2009	724	73
2010	1,503	103
2011	1,767	194
2012	1,847	233
2013	2,059	300
2014	2,007	276
2015	2,126	299

Figure 51
Year of First Positive HCV Antibody or Confirmatory Test: Total Population

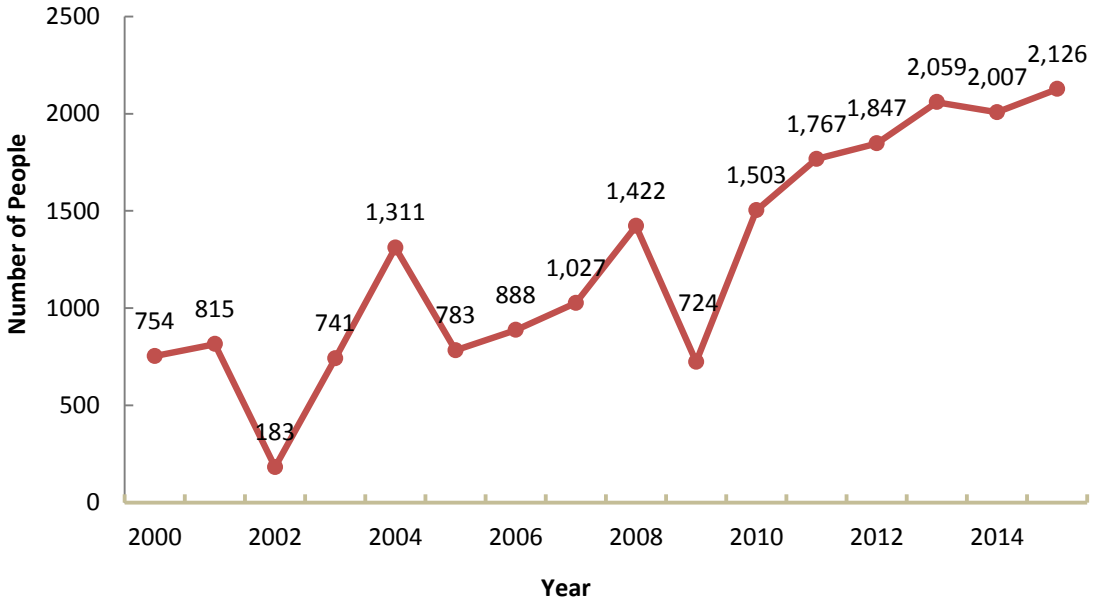
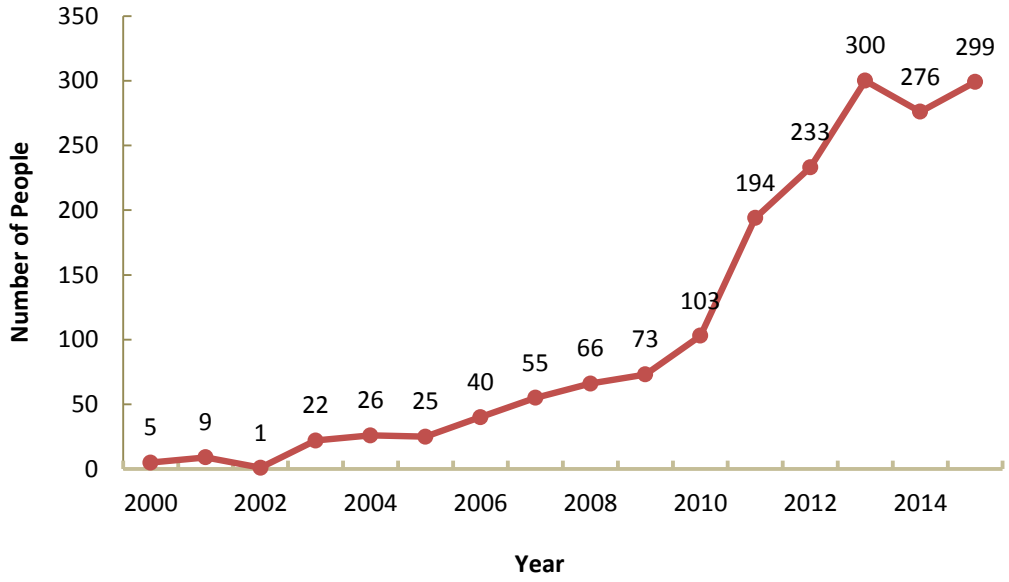


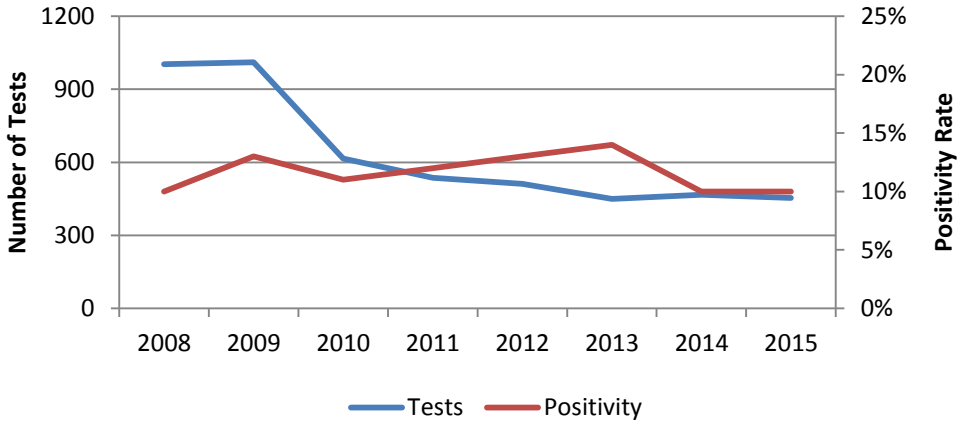
Figure 52
Year of First Positive HCV Antibody or Confirmatory Test: 18 to 30 Years of Age



HCV Testing and Hepatitis A/B Vaccination Program

In 2015, the eight IDPH-funded Counseling, Testing, and Referral (CTR) sites tested 453 high-risk individuals for antibodies to the hepatitis C virus. Forty-seven people (10%) were identified as antibody positive (Figure 53). Of the 453 high-risk individuals tested for HCV, 435 (96%) reported injection drug use (IDU). Forty-seven (11%) persons who reported ever having injected drugs were identified as HCV antibody positive.

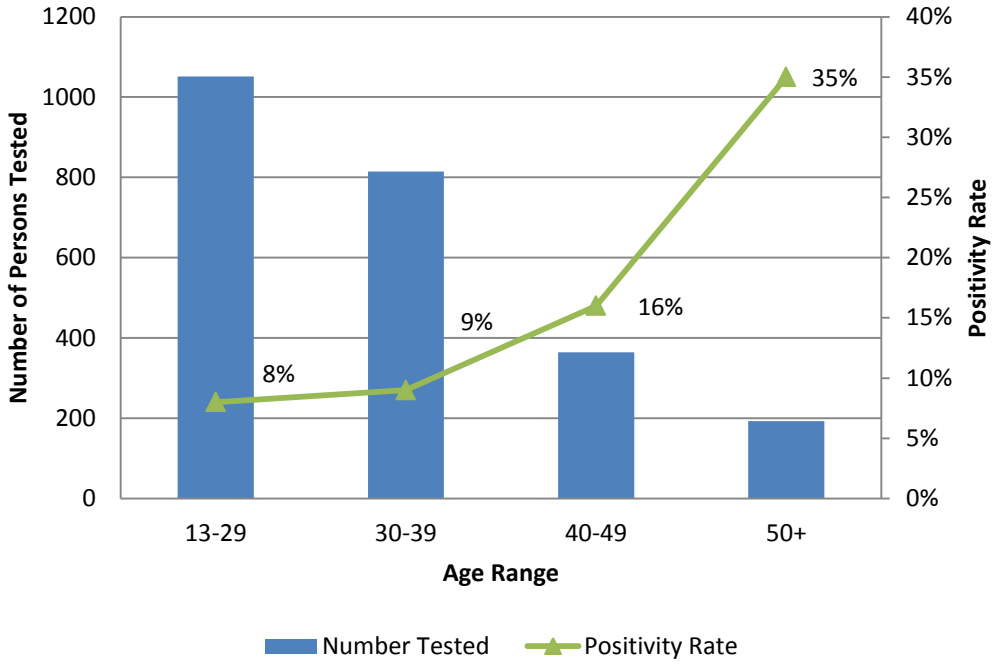
Figure 53
Hepatitis C Testing and Positivity by Year at IDPH-Funded Sites



The positivity rate among males tested for HCV in 2015 was higher than the positivity rate for females. Almost 12% (n=29) of 248 males were identified as HCV antibody positive, compared to almost 9% (n=18) of 205 females.

The age range experiencing the highest positivity rate at IDPH-funded sites between 2011 and 2015 was the 50 and older population, with a positivity rate of 35% (Figure 54).

Figure 54
HCV Testing and Positivity Rate by Age Range at IDPH-Funded Sites, 2011-2015



Hepatitis A/B Immunization Activity

Combination hepatitis A/B immunization is indicated for active immunity against disease caused by hepatitis A virus and infection by all known subtypes of hepatitis B virus. The combination hepatitis A/B vaccine is approved for use in persons 18 years of age or older. This vaccine is administered by intramuscular injection. Standard dosing is through a series of three doses given on a 0, 1, and 6-month schedule. Combination hepatitis A/B vaccine can follow an accelerated dosing schedule by administering vaccine on days 0, 7, and 21 to 30 followed by a booster dose at month 12.

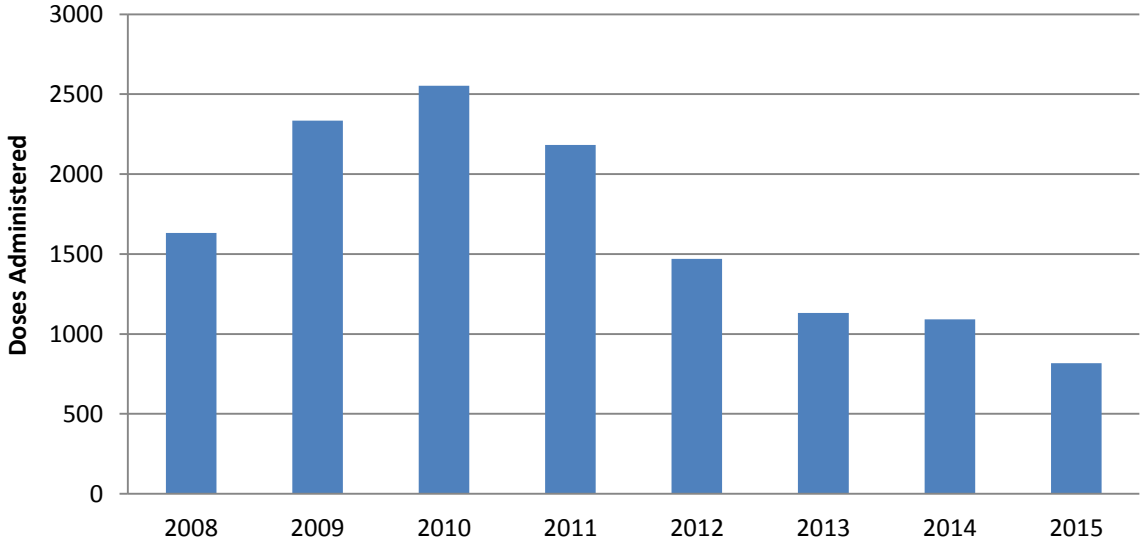
Nine IDPH-funded CTR sites offer hepatitis A/B vaccinations to the following high-risk populations:

- People who use injection and non-injection drugs;
- Men who have sex with men;
- Persons with an STD diagnosis within the past 12 months;
- People living with HIV and/or HCV; and

- Sexual partners of persons living with HIV, hepatitis A (HAV), and/or hepatitis B (HBV).

In 2015, the nine CTR sites administered 817 combination hepatitis A/B vaccinations to high-risk individuals. Doses administered are broken down into first doses, second doses, and third doses received by clients. In 2015, 477 individuals received a first dose, 194 received a second dose, and 146 individuals received a third dose of combination hepatitis A/B vaccine. The number of immunizations has decreased steadily since 2010 (Figure 55). This is likely due to an increasing number of people being immunized against hepatitis B as part of the school vaccination requirements that went into effect November 4, 1998.

Figure 55
IDPH-Funded Administration of Hepatitis A/B Vaccinations by Year



Section

2

RYAN WHITE CARE ACT SPECIAL QUESTIONS AND CONSIDERATIONS

Question 1: What are the characteristics of people living with HIV/AIDS who receive HIV services in Iowa?

Question 2: What are the patterns of utilization of HIV services by people living with HIV in Iowa?

This section describes the characteristics of persons living with HIV in Iowa who receive Ryan White services, their patterns of use of HIV primary medical care and support services, and a description of who is not receiving HIV primary medical care. The information presented includes a description of the Ryan White Program and its services; a breakdown of program participants by age, gender, race and ethnicity, income, housing status, and medical insurance provider; and a summary of the utilization of Ryan White Part B and Part C services. The information may be used by prevention and care planning groups to identify gaps in services or to help target services to specific populations of HIV-positive persons.

Section Highlights

- In 2014, the Affordable Care Act was implemented, including Medicaid expansion, resulting in major changes to the Ryan White program.
- Iowa receives Ryan White Part B and Part C funds for the delivery of essential services to individuals and families with HIV disease. In 2015, 10 Ryan White Part B sub-recipients served 1,218 people with case management, core, and other support services.
- The AIDS Drug Assistance Program (ADAP) enrolled 489 persons living with HIV/AIDS in 2015. Of those enrolled, 459 utilized the program, with 179 utilizing the medication assistance and 374 utilizing the insurance assistance.
- Three Ryan White Part C clinics located in Sioux City, Des Moines, and Iowa City served 1,294 clients in 2015. Outpatient ambulatory medical care was the most utilized service in 2015, followed by medical case management.

RYAN WHITE HIV/AIDS TREATMENT EXTENSION ACT OF 2009

In 1990, Congress enacted the Ryan White Comprehensive AIDS Resources Emergency (CARE) Act to provide emergency assistance to localities that are disproportionately affected by HIV and to make financial assistance available to states and other public or private nonprofit entities. The funds are for the development, organization, coordination, and operation of more effective and cost-efficient systems for the delivery of essential health and support services to people living with HIV (PLWH) and their families. Funding for the Ryan White CARE Act is administered by the Health Resources and Services Administration (HRSA) through cooperative agreements with states and other agencies.

Congress reauthorized the legislation in 1996, 2000, 2006, and 2009 to support funding for Part A through D, Special Projects of National Significance (SPNS), HIV/AIDS Education Training Centers, and the Dental Reimbursement Program. In 2009, the legislation was renamed the Ryan White HIV/AIDS Treatment Extension Act to emphasize that the HIV epidemic should no longer be considered an emergency, but instead approached as a chronic disease epidemic.

Iowa receives funding for Part B, Part C, and an AIDS Education Training Center. The Iowa Department of Public Health is the grantee for Part B, and there are four Iowa Part C grantees located in Davenport, Iowa City, Des Moines and Sioux City, and another Part C grantee in Omaha, Nebraska that serves many Iowans living with HIV in southwest Iowa.

Ryan White Part B Program

Part B funding is provided by HRSA to improve the quality, availability, and organization of health care and support services for low-income individuals and families with, or affected by, HIV disease. Funding is also available for low-income individuals to provide access to pharmaceuticals through the AIDS Drug Assistance Programs (ADAP).

The Part B program, which includes ADAP, serves as the payer of last resort for PLWH who are uninsured or underinsured and cannot cover the costs of care on their own. In other words, clients must be ineligible for all other resources, including Medicaid, before being enrolled. The ADAP also assists individuals who are low income and have adequate insurance coverage, but cannot cover the costs of their premiums, copayments, coinsurance, and/or deductibles. In 2015, 1,218 Iowans received services through the Ryan White Part B program (unduplicated), and 489 persons were enrolled in the ADAP. Approximately 179 clients utilized medication assistance and 374 utilized insurance assistance.

Iowa has 10 Ryan White Part B sub-recipients that serve all counties of the state. For the purposes of this report, the state has been divided into three regions: Western, Central, and Eastern (Figure 56). The providers in each region deliver essential core and support services, such as case management, mental health services, emergency financial assistance, transportation services, housing services and referrals to eligible clients living with HIV.

The Ryan White Part B program experienced an intensely transitional year in 2014, and the effects were still apparent in 2015. The implementation of the Affordable Care Act (ACA), including the expansion of Iowa Medicaid, proved to be a significant challenge. Compounding factors included difficulty using and interacting with the healthcare.gov website, new Iowa Medicaid program requirements, educating clients on their new health insurance benefits, and the transition to calculating Modified Adjusted Gross Income (MAGI) within ADAP.

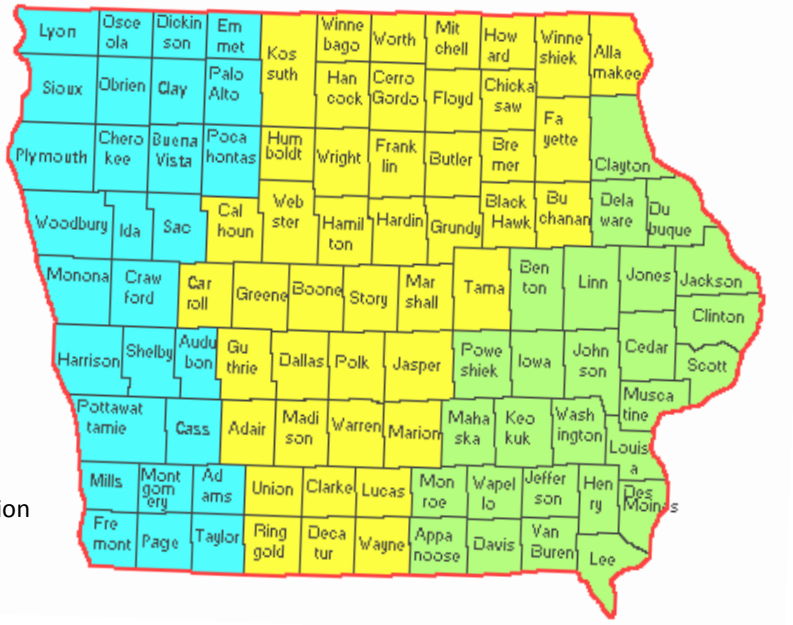
Outside of the ACA implementation, in 2014, the Ryan White Part B program also transitioned to a tier system of case management. New program requirements, including a new set of case management services in CAREWare (Iowa's client-level data system), were implemented. This significant change led to an adjustment period for contracted sub-recipients.

Figure 56
2015 Ryan White Part B Service Areas

Western Iowa Service Area
Siouxland Community Health Center
Sioux City, Iowa
Nebraska AIDS Project
Omaha, Nebraska

Central Iowa Service Area
Cedar AIDS Support System
Waterloo, Iowa
Mid-Iowa Community Action
Ames, Iowa
North Iowa Community Action Organization
Mason City, Iowa
The Project at Primary Healthcare
Des Moines, Iowa

Eastern Iowa Service Area
Dubuque Visiting Nurses Association
Dubuque, Iowa
Linn County Community Services
Cedar Rapids, Iowa
The Project Quad Cities
Davenport, Iowa
University of Iowa
Iowa City, Iowa



Client Services Program

Ryan White Part B Services, which includes a multi-level, or tiered, case management system, as well as other support services, are provided in a variety of settings in Iowa. Case management

and support services can help improve client quality of life, satisfaction with care, and use of community-based services.

HIV case management exists in part to connect an often-fragmented system. It can serve as a catalyst for quality, cost-effective care by linking the patient, the physician, and other members of the care coordination team, the payer, and the community. Without the coordination provided by case managers, some clients can become confused about how the system works and frustrated by the time and effort involved. Consequently, many clients can become detached and ultimately disengage from care services.

In 2014, the Part B case management program was redesigned to better meet the needs of Iowans living with HIV. A tiered model was implemented in response to unique local, organizational, and client factors. Four tiers of case management are provided: Medical Case Management, Non-Medical Case Management, Brief Contact Management, and Maintenance Outreach Support Services. The principles of self-determination and self-direction have been deeply integrated into the program structure.

AIDS Drug Assistance Program (ADAP)

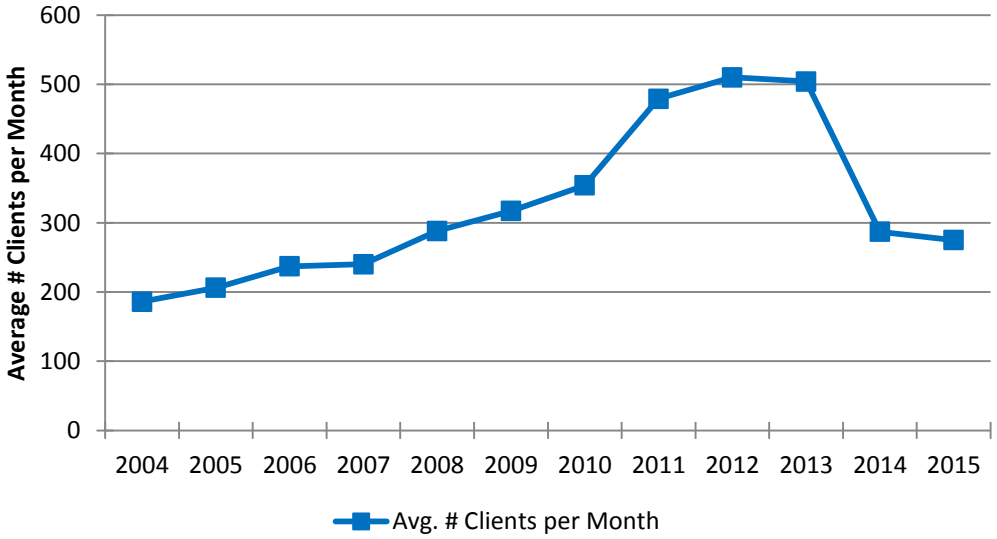
Iowa's ADAP provides medication assistance (HIV-related prescription drugs) to uninsured and underinsured persons living with HIV/AIDS. In addition, the ADAP provides insurance assistance to insured persons living with HIV/AIDS who are unable to pay for their premiums, medication copayments, and deductibles. To qualify for medication assistance, individuals must make less than 200% of the Federal Poverty Level (FPL). To qualify for insurance assistance, individuals must make less than 400% of the FPL.

The ADAP is administered by IDPH and uses a centralized pharmacy that distributes drugs to clients statewide. The Ryan White ADAP Advisory Committee provides periodic review of ADAP, including the ADAP formulary. Eighty-two medications are available to low-income individuals with HIV. The categories of drugs include nucleoside analogues, non-nucleoside reverse transcriptase inhibitors, nucleotide reverse transcriptase inhibitors, protease inhibitors, fusion inhibitors, PCP prophylaxis medications, antidepressant/anxiety medications, antipsychotic/hypnotic medications, antifungals, anti-mycobacterials, general antivirals, an anti-neoplastic medication, and Hepatitis C medications.

In 2015, 489 individuals were enrolled in the ADAP, with an average of 275 individuals receiving either medication assistance or insurance assistance per month. Figure 57 presents the average number of clients utilizing ADAP each year from 2004 to 2015. Monthly ADAP utilization peaked in 2012 at an average of 510 individuals per month. The significant impact of the ACA can be seen in the sharp decrease from 2013 to 2014. In 2014, Iowa expanded Medicaid through two 1115 waivers. Consequently, approximately 400 clients were dis-enrolled from the ADAP and enrolled into other benefit homes, such as Medicaid. Additionally in 2014, a targeted effort was made to enroll eligible ADAP clients into a health insurance Marketplace plan or their employer-sponsored insurance plan. The ADAP then provided "wraparound" services for the Marketplace and employer-sponsored insurance plans, paying for premiums, deductibles, and

copays/coinsurance. In 2015, the ADAP discontinued its participation in the Marketplace, and instead purchased private health insurance for clients through BlueCross, Blue Shield.

Figure 57
Average Number of ADAP Client Utilization[1] per Month
2004-2015



[1]ADAP client utilization includes both medication and insurance assistance clients. Additionally, clients could not be unduplicated, and therefore may have received both medication and insurance assistance.

To aid in the ACA transition, field benefits specialists were hired and placed at Part B agencies across the state. They were responsible for assisting clients enrolling into the Marketplace (2014), BlueCross BlueShield (2015), and employer-sponsored insurance plans, as well as educating clients on their new insurance coverage. Additionally, the field benefits specialists helped identify clients who were eligible for the newly expanded Medicaid and assisted with their enrollment.

Ryan White Part C Program

Ryan White Part C funds are provided directly to clinics to support primary medical care and other services for low-income people living with HIV disease. There are five Part C clinics that are accessible to low-income Iowans living with HIV. Three of these are federally qualified health centers (FQHCs) located in Davenport, Des Moines, and Sioux City. The other two clinics are the University of Iowa Hospitals and Clinics in Iowa City, Iowa, and the University of Nebraska Medical Center (UNMC) in Omaha, Nebraska.

Part C services include:

- Medical evaluation, clinical care, antibody testing, and risk-reduction counseling;
- Antiretroviral therapies; protection against opportunistic infections; and ongoing medical, oral, nutritional, psychosocial, and other care services for clients living with HIV;

- Medical case management to ensure access to services and continuity of care for clients living with HIV; and
- Attention to other health problems that occur frequently with HIV infection, including tuberculosis and substance abuse.

Data from 2015 were only available from the Part C clinics located in Des Moines, Sioux City and Iowa City. These clinics reported all Part C-eligible clients who utilized services, not just those clients whose services were paid with Part C funds. There may be duplication of clients among the clinics, as clients occasionally change clinics or move within the state. Additionally, data may include non-residents. In particular, the Part C clinic in Davenport serves many Illinois residents and the Part C clinic in Sioux City serves Nebraska and South Dakota residents.

As mentioned earlier, part of the challenge in 2014 was the integration of the Ryan White Part B program (especially the new tiered case management system) and Part C clinics. There are three agencies in Iowa that are funded for both Ryan White Part B and C, and they experienced some significant programmatic complications during this transitional time. To help address any problems, IDPH facilitated planning meetings with the three agencies. The first meeting was held in September 2014, and meetings have continued quarterly thereafter.

Question 1

What are the characteristics of people living with HIV/AIDS who receive HIV services in Iowa?

CHARACTERISTICS OF PART B CLIENTS

Primary Demographic Characteristics

Table 45 shows the primary demographic characteristics of Part B support service clients by region in 2015. There were 1,218 total clients served. The Central region served 51% of all clients (n=619), while the Eastern region served 33% of clients (n=405) and the Western region served the remaining 16% (n=194). This is consistent with the geographic distribution of the HIV epidemic in Iowa. The Western region of Iowa is more rural, and therefore has a lower population compared to the rest of the state.

Table 45
Primary Demographic Characteristics of Part B Clients[1] by Region
2015

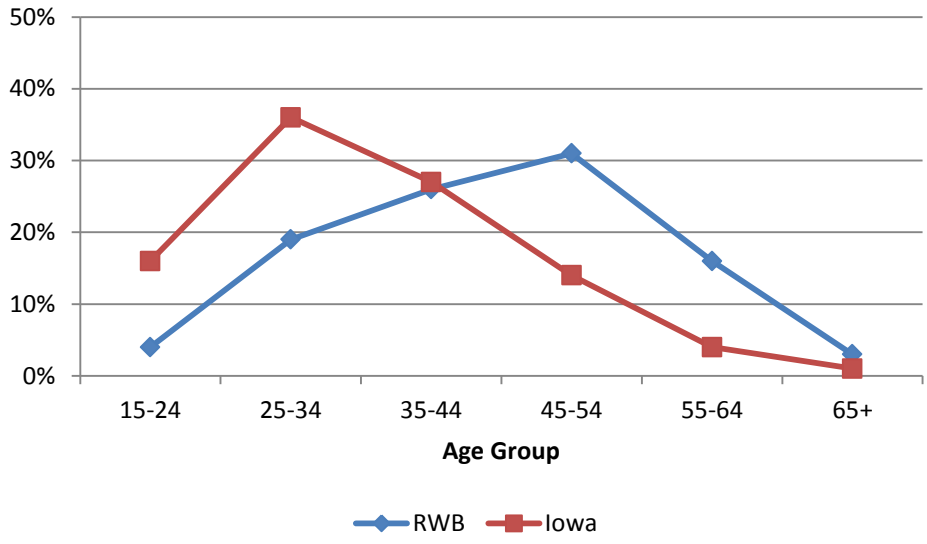
REGION	WESTERN		CENTRAL		EASTERN		TOTAL	
Race/Ethnicity	**#**	**%**	**#**	**%**	**#**	**%**	**#**	**%**
White	114	59	368	59	267	66	**749**	**61**
Black/African American	37	19	160	26	99	24	**296**	**24**
Hispanic	33	17	54	9	24	6	**111**	**9**
Asian	3	2	26	4	5	1	**34**	**3**
Native Hawaiian/Pacific Islander	--	--	--	--	--	--	**--**	**--**
American Indian/Alaska Native	4	2	--	--	2	0.5	**6**	**0.5**
More than one race	3	2	10	2	8	2	**21**	**2**
Unknown	--	--	1	0.2	--		**1**	**0.1**
Sex	**#**	**%**	**#**	**%**	**#**	**%**	**#**	**%**
Male	142	73	464	75	308	76	**914**	**75**
Female	51	26	151	24	94	23	**296**	**24**
Transgender (M to F)	1	1	4	1	3	1	**8**	**1**
Transgender (F to M)	--	--	--	--	--	--	**--**	**--**
Age (in 2015)	**#**	**%**	**#**	**%**	**#**	**%**	**#**	**%**
<13	2	1	--	--	1	0.2	**3**	**0.2**
13-14	--	--	--	--	--	--	**--**	**--**
15-24	9	5	21	3	19	5	**49**	**4**
25-34	29	15	113	18	88	22	**230**	**19**
35-44	58	30	170	27	94	23	**322**	**26**
45-54	61	31	184	30	132	33	**377**	**31**
55-64	29	15	109	18	61	15	**199**	**16**
≥65	5	3	22	4	10	2	**38**	**3**
➢ **TOTALS**	**194**		**619**		**405**		**1,218**	

[1]All clients who utilized a service eligible for Part B funding are included.

Within the Ryan White Part B service regions, the distribution of clients by race/ethnicity, sex, and age were similar, with the exception of Hispanic clients. The Western region had a higher proportion of clients who identified as Hispanic (17%), compared to 9% of Ryan White Part B clients, and 8% of all Iowans living with HIV. This higher proportion of Hispanics in western Iowa may be due to the meat packing plants that are located there where many of the Hispanic Ryan White Part B clients are employed.

The Ryan White Part B program had approximately the same distribution of clients by race/ethnicity and sex compared to all Iowans living with HIV. However, there was a significant difference between the distribution of Ryan White Part B clients by age compared to all Iowans living with HIV in 2015 (Figure 58). Over one-third (36%) of persons living with HIV in Iowa were between the ages of 25 and 34. Among Ryan White Part B clients, only 19% were between the ages of 25 and 34, while 31% were between the ages of 45 and 54. It is unclear what accounts for the age distribution differences between the Ryan White Part B program clients and Iowans living with HIV.

Figure 58
Age Distribution of Iowans Living with HIV and Ryan White Part B Clients
2015



Economic Indicators for Part B Support Service Clients

Table 46 shows the indicators for living arrangement, income, and health insurance for clients who were served by the Ryan White Part B program in 2015. In the Central region, 83% of clients reported living in stable/permanent housing, which was the lowest percentage of all regions.

In total, approximately 55% of clients had an income less than or equal to 138% of the Federal Poverty Level (FPL). These clients would have been eligible for Medicaid due to expansion from

the ACA. In 2015, an additional 11% of clients were qualified to receive Medicaid through the expansion (those with an FPL between 101% and 138%).

The majority (40%) of Ryan White Part B clients received health care coverage through Medicaid and approximately 9% of clients had no access to insurance. Clients who were uninsured in 2015 were most likely undocumented individuals, and therefore not eligible for any health insurance benefit programs.

In terms of clients who were covered by private health insurance, a greater proportion of Ryan White Part B clients were enrolled in employer-sponsored insurance (18%) compared to those enrolled in private health insurance plans (12%). Furthermore, this fluctuated between regions. The Western region had the greatest difference between clients enrolled in employer-sponsored insurance and private health insurance, at 21% and 8%, respectively.

Table 46
Economic Indicators for Part B Clients[1] by Region
2015

REGION	WESTERN		CENTRAL		EASTERN		TOTAL	
Living Arrangement	**#**	**%**	**#**	**%**	**#**	**%**	**#**	**%**
Stable/Permanent Housing	176	91	515	83	359	89	**1050**	**86**
Unstable	8	4	51	8	26	6	**85**	**7**
Temporary	9	5	7	1	19	5	**35**	**3**
Unknown	1	1	46	7	1	0.2	**48**	**4**
Income	**#**	**%**	**#**	**%**	**#**	**%**	**#**	**%**
0%-100% FPL[2]	94	48	277	45	163	40	**534**	**44**
101%-138% FPL	25	13	60	10	52	13	**137**	**11**
139%-200% FPL	25	13	90	15	78	19	**193**	**16**
201%-300% FPL	32	16	94	15	75	19	**201**	**17**
301%-400% FPL	10	5	33	5	29	7	**72**	**6**
Greater than 400% FPL	7	4	8	1	8	2	**23**	**2**
Unknown	1	1	57	9	--	--	**58**	**5**
Primary Medical Insurance	**#**	**%**	**#**	**%**	**#**	**%**	**#**	**%**
Private – Employer	40	21	105	17	72	18	**217**	**18**
Private - Individual	16	8	63	10	64	16	**143**	**12**
Medicare	35	18	95	15	81	20	**211**	**17**
Medicaid	77	40	585	42	155	38	**490**	**40**
No Insurance	24	12	52	8	28	7	**104**	**9**
VA, Tricare, other military health care	--	--	1	0.2	3	1	**4**	**0.3**
Other	1	1	2	0.3	2	0.5	**5**	**0.4**
Unknown	1	1	43	7	--	--	**44**	**4**
TOTALS	**194**		**619**		**405**		**1218**	

[1]All clients that utilized a service eligible for Part B funding are included.
[2]FPL = Federal Poverty Level

There was a significant decrease in uninsured Ryan White Part B clients from 2011 (30%) to 2015 (9%). In addition, enrollment in private insurance (both employer-sponsored and individual) increased from 21% in 2011 to 30% in 2015, and Medicaid enrollment increased from 29% in 2011 to 40% in 2015. These changes can be attributed to the implementation of the ACA and expansion of Iowa Medicaid.

CHARACTERISTICS OF THE AIDS DRUG ASSISTANCE PROGRAM (ADAP) CLIENTS

Primary Demographic Characteristics

Table 47 presents the demographic characteristics of clients who utilized ADAP services in 2015, both medication and insurance assistance. Utilization data was chosen instead of enrollment in order to more accurately represent the ADAP.

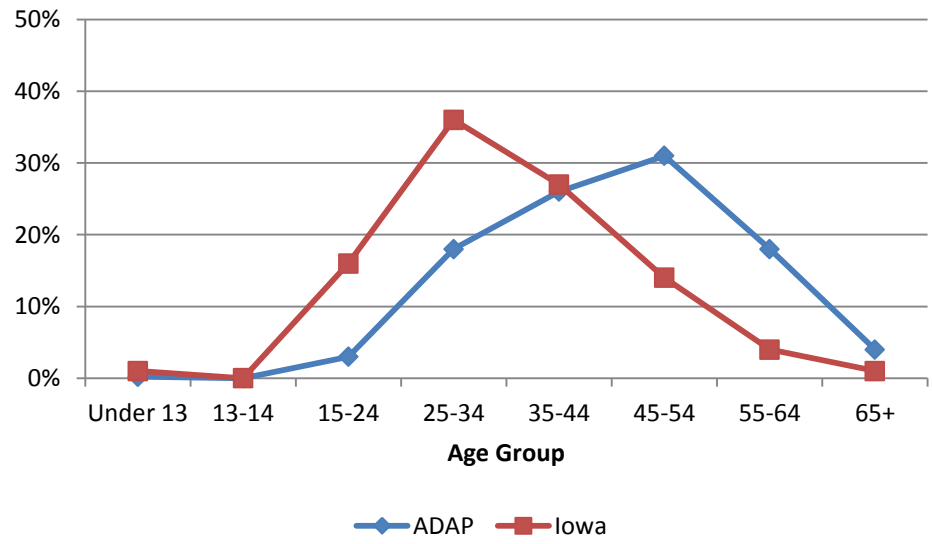
Table 47
Primary Demographic Characteristics of AIDS Drug Assistance Program Clients[1]
2015

	MEDICATION ASSISTANCE		INSURANCE ASSISTANCE		ANY ADAP PROGRAM[2]	
Race/Ethnicity	**#**	**%**	**#**	**%**	**#**	**%**
White, non-Hispanic	83	46	260	70	**289**	**63**
Black, non-Hispanic	35	20	66	18	**81**	**18**
Hispanic	55	31	32	9	**70**	**15**
Asian	4	2	13	3	**15**	**3**
Native Haw./Pacific Islander	--	--	--	--	**--**	**--**
Amer. Indian/Alaska Native	2	1	1	0.3	**2**	**0.4**
More than one race	--	--	2	1	**2**	**0.4**
Sex	**#**	**%**	**#**	**%**	**#**	**%**
Male	143	80	299	80	**367**	**80**
Female	36	20	75	20	**92**	**20**
Transgender (M to F)	--	--	--	--	**--**	**--**
Transgender (F to M)	--	--	--	--	**--**	**--**
Age (in 2015)	**#**	**%**	**#**	**%**	**#**	**%**
<13	--	--	1	0.3	**1**	**0.2**
13-14	--	--	--	--	**--**	**--**
15-24	10	6	13	3	**14**	**2**
25-34	42	23	61	16	**84**	**18**
35-44	61	34	86	23	**118**	**26**
45-54	49	27	120	32	**142**	**31**
55-64	16	9	75	20	**81**	**18**
≥65	1	1	18	5	**19**	**4**
TOTALS	**179**		**374**		**459**	

[1]Client data are based on ADAP utilization, not enrollment.
[2]Clients could not be unduplicated between Medication Assistance and Insurance Assistance. Therefore, ANY ADAP includes clients who may have accessed both Medication and Insurance Assistance.

The distribution of ADAP clients (whole program) by race/ethnicity and sex were roughly the same as Iowans living with HIV. However, there were significant difference between the ADAP and Iowans living with HIV with regards to age (Figure 59). The majority of ADAP clients were between the ages of 45-54, while the majority of Iowans living with HIV in 2015 were age 25-34. At this time, it is unclear as to what is responsible for the difference in age distribution between the ADAP and Iowans living with HIV.

Figure 59
Age Distribution of Iowans Living with HIV and ADAP Clients
2015



As previously stated, the ADAP is separated into two programs: medication and insurance assistance. Clients without access to insurance and an FPL below 200% may utilize the medication assistance program. Clients who utilize the insurance assistance program have access to creditable insurance, but need help paying for their prescription copays, deductibles, and/or premiums. The distribution of both medication and insurance assistance clients by sex were identical. The distribution by race/ethnicity and age between the two programs did, however, vary. The insurance assistance program served a higher proportion of white clients at 70% compared to the medication assistance program at 46%. Additionally, the medication assistance program served a higher proportion of Hispanic clients compared to the insurance assistance program at 31% and 9% respectively.

In regards to the distribution of ADAP clients by age, the insurance assistance program served a higher proportion of clients between the ages of 55 to 64 at 20% compared to the medication assistance program at 9%.

CHARACTERISTICS OF PART C PROGRAM CLIENTS

Primary Demographic Characteristics

Table 48 shows the primary demographic characteristics of Part C clients by provider. In 2015, Iowa City served the most clients at 47%, followed by Des Moines (41%), and Sioux City (13%).

Table 48
Primary Demographic Characteristics of Part C Clients[1] by Provider
2015

PART C PROVIDER	SIOUX CITY		DES MOINES		IOWA CITY		TOTAL	
Race/Ethnicity	**#**	**%**	**#**	**%**	**#**	**%**	**#**	**%**
White, non-Hispanic	74	45	297	57	428	71	**799**	**62**
Black, non-Hispanic	41	23	139	26	112	18	**292**	**23**
Hispanic	32	20	52	10	38	6	**122**	**9**
Asian	5	3	31	6	13	2	**49**	**4**
Native Haw./Pacific Islander	--	--	1	0.2	--	--	**1**	**0.1**
Amer. Indian/Alaska Native	6	4	--	--	3	0.5	**9**	**1**
More than one race	5	3	5	1	12	2	**22**	**2**
Sex	**#**	**%**	**#**	**%**	**#**	**%**	**#**	**%**
Male	124	76	388	74	472	78	**984**	**76**
Female	37	23	132	25	132	22	**301**	**23**
Transgender (M to F)	2	1	5	1	2	0.2	**9**	**1**
Transgender (F to M)	--	--	--	--	--	--	**--**	**--**
Unknown	--	--	--	--	--	--	**--**	**--**
Age (in 2015)	**#**	**%**	**#**	**%**	**#**	**%**	**#**	**%**
<13	3	2	--	--	--	--	**3**	**0.2**
13-14	--	--	--	--	--	--	**--**	**--**
15-24	5	4	21	4	21	3	**48**	**4**
25-34	29	18	99	19	103	17	**231**	**18**
35-44	45	28	168	32	119	20	**332**	**26**
45-54	48	29	143	27	194	32	**385**	**30**
55-64	25	15	74	14	147	24	**246**	**19**
≥65	7	4	20	4	22	4	**49**	**4**
TOTALS	**163**		**525**		**606**		**1,294**	

[1]All clients that utilized a service eligible for Part C funding are included.

Client distribution by race varied for white, black, and Hispanic. Iowa City had a significantly higher proportion of white clients (71%), while Sioux City had a much lower proportion (45%). For black and Hispanic clients, Iowa City had a lower proportion compared to Sioux City and Des Moines.

Part C client distribution by sex was relatively consistent. However, there were some variations when looking at the distribution by age. Sioux City served a higher proportion of clients aged 35-44 compared to the other provider sites.

Economic Indicators

Table 49 shows the living arrangement, income, and health insurance for clients who were served by the Ryan White Part C program in 2015.

Table 49
Economic Indicators for Part C Clients[1] by Provider
2015

PART C PROVIDER	SIOUX CITY		DES MOINES		IOWA CITY		TOTAL	
Living Arrangement	**#**	**%**	**#**	**%**	**#**	**%**	**#**	**%**
Stable/Permanent Housing	146	90	429	82	562	93	**1,137**	**88**
Unstable	9	6	55	10	18	3	**82**	**6**
Temporary	7	4	5	1	25	4	**37**	**3**
Unknown	1	1	36	7	1	0.2	**38**	**3**
Income	**#**	**%**	**#**	**%**	**#**	**%**	**#**	**%**
0%-100% FPL	75	46	240	46	247	41	**562**	**43**
101%-138% FPL	22	13	48	9	89	15	**159**	**12**
139%-200% FPL	22	13	76	14	63	10	**161**	**12**
201%-300% FPL	31	19	63	12	175	29	**269**	**12**
301%-400% FPL	7	4	28	5	25	4	**60**	**5**
Greater than 400% FPL	5	3	9	2	6	1	**20**	**2**
Unknown	1	1	61	12	1	0.2	**63**	**5**
Primary Medical Insurance	**#**	**%**	**#**	**%**	**#**	**%**	**#**	**%**
Private – Employer	39	24	87	17	120	20	**346**	**19**
Private - Individual	13	8	60	11	143	24	**216**	**17**
Medicare	26	16	80	15	106	17	**212**	**16**
Medicaid	63	39	227	43	198	33	**488**	**38**
No Insurance	20	12	47	9	27	4	**94**	**7**
VA, Tricare, other military health care	--	--	--	--	--	--	**--**	**--**
Other	1	1	1	0.2	9	1	**11**	**1**
Unknown	1	1	23	4	3	0.5	**27**	**2**
TOTALS	**163**		**525**		**606**		**1,294**	

[1] All clients that utilized a service eligible for Part C funding are included.

Part C client distribution by living arrangement was relatively consistent, with the exception of Des Moines, which had a lower percentage of clients who were in stable/permanent housing and a higher percentage of clients with an unknown housing status, and Iowa City which had a lower

proportion of clients who were in unstable housing. Overall, the majority of Part C clients were stably housed in 2015 at 88%.

In 2015, the majority of Part C clients were below 100% FPL (43%). The distribution of Part C clients by income was relatively consistent. However, Iowa City had a higher proportion of clients with an FPL between 201% and 300% (29%) compared to the other two sites.

Client distribution by primary medical insurance widely varied between Part C providers. Overall, the majority of clients were enrolled in Medicaid (38%), followed closely by private health insurance (36% for both employer-sponsored and individual coverage). Only 7% of clients were uninsured.

Des Moines and Sioux City had a greater proportion of clients enrolled in employer-sponsored insurance compared to individual plans. Conversely, Iowa City had a higher proportion of clients enrolled in individual health insurance.

Similar to the Ryan White Part B program, Part C providers experienced an increase in clients enrolled in private insurance (both employer-sponsored and individual) and Medicaid between 2011 and 2015 from 22% to 36%, and 22% to 38%, respectively. Furthermore, uninsured Part C clients decreased from 27% in 2011 to 7% in 2015. These changes can be attributed to the implementation of the ACA and expansion of Iowa Medicaid.

Question 2

What are the patterns of utilization of HIV services by people with HIV in Iowa?

UTILIZATION OF RYAN WHITE PART B SERVICES

Utilization of Ryan White Part B services by region can be seen in Table 50. Medical case management, non-medical case management, psychosocial support and service outreach each correspond with different levels of case management in the new tiered model (which was fully implemented on April 1, 2014). Psychosocial support was the most utilized service, as 49% of clients received this service. On average, clients accessed this service 11 times. Non-medical case management was the second most-utilized service, closely followed by medical case management. Clients accessed non-medical case management services an average of 12 times in 2015, and medical case management an average of 14 times.

Table 50
Utilization of Ryan White Part B Services by Region
2015

REGION	WESTERN		CENTRAL		EASTERN		TOTAL	
Service	# Clients	Services per client[1]	# Clients	Services per client	# Clients	Services per client	# Clients	Services per client
Medical case management	116	16.08	90	16.37	176	11.44	382	14.01
Non-medical case management	48	15.21	213	13.14	132	10.19	393	12.40
Psychosocial support	68	10.81	288	10.63	238	11.04	594	10.82
Service outreach	22	4.36	65	3.45	27	2.59	114	3.42
Food bank/home-delivered meals	1	1	50	2.78	68	3.49	119	3.17
Health insurance premium and cost sharing assistance	3	1.67	19	2.42	6	2.5	28	2.36
Mental health services	40	4.80	55	3.18	1	1	96	3.83
Transportation services	72	4.31	194	3.63	113	2.37	379	3.38
Emergency financial assistance	31	2.48	8	1.13	4	1.25	43	2.12
Oral health care	1	1	10	1.30	3	3	14	1.64
Housing services	21	1.48	66	2.68	116	2.78	203	2.61
Linguistic services	0	0	24	3.75	0	0	24	3.75
Substance Abuse: Outpatient	0	0	18	1.06	0	0	18	1.06
Referral: Health care/supportive	0	0	188	1.83	0	0	188	1.83
Support Group/non-mental health	0	0	10	4.20	0	0	10	4.20

[1]The average number of services per client

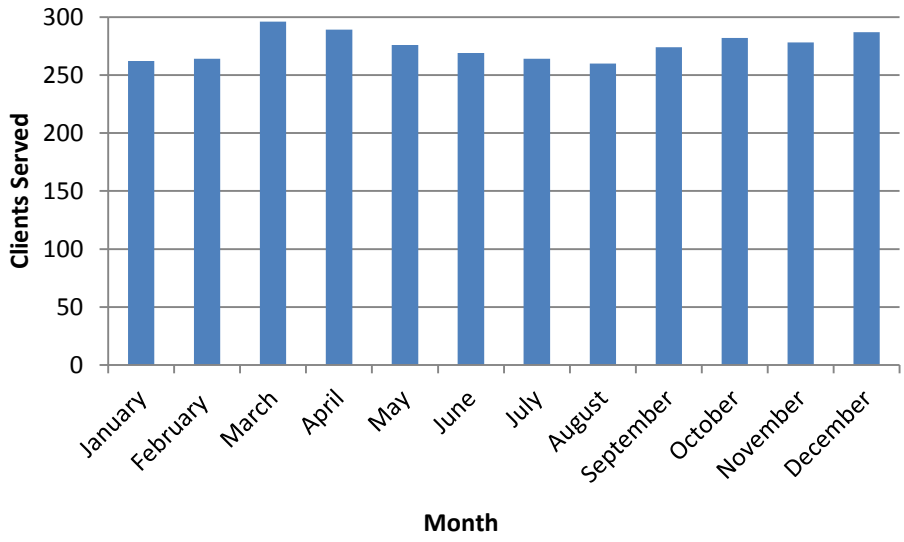
This distribution of services per clients between the four tiers of case management corresponds with the clients' levels of need in each tier. Medical case management clients require the most intensive case management, which is why the average services per client is 14. Service outreach was the least utilized case management service, and had an average of 3 services per client. This corresponds with the acuity of clients in this tier (the lowest of case management), as these clients have fewer needs and require less support.

Outside of case management services, clients utilized transportation assistance the most, followed by housing services. Clients utilized support group/non-mental health the most, with an average of 4.2 services per client, followed by mental health services (3.8 services per client), and linguistic services (3.7 services per client).

UTILIZATION OF THE AIDS DRUG ASSISTANCE PROGRAM

In 2015, there were 489 clients enrolled in the ADAP, including medication and/or insurance assistance. An average of 275 clients utilized the ADAP per month. March had the highest utilization at 296 clients (Figure 60).

Figure 60
ADAP Utilization for Whole Program, 2015



UTILIZATION OF PART C EARLY INTERVENTION SERVICES

Services provided in 2015 by Part C clinics are displayed in Table 51.

Table 51
Utilization of Ryan White Part C Services[1] by Provider, 2015

PART C PROVIDER	DES MOINES		IOWA CITY		SIOUX CITY		TOTAL	
Service	# Clients	Services per client[2]	# Clients	Services per client	# Clients	Services per client	# Clients	Services per client
Medical case management (Part C Funding)	**511**	**6.46**	**183**	**3.01**	**141**	**7.70**	**835**	**5.91**
Non-medical case management (Part C Funding)	**5**	**1.00**	**0**	**--**	**1**	**2.00**	**6**	**1.17**
Outpatient/ambulatory medical care (Part C Funding)	**54**	**1.91**	**436**	**2.87**	**98**	**3.80**	**588**	**2.93**
Outpatient/ambulatory medical care (All Funding)	448	2.49	595	3.02	149	4.34	1192	2.98
Transportation services (Part C Funding)	**97**	**2.18**	**16**	**1.06**	**27**	**2.81**	**140**	**2.17**
Transportation services (All Funding)	111	2.13	17	1.06	27*	2.81*	155	2.13
Oral health care (Part C Funding)	**11**	**2.64**	**71**	**2.21**	**45**	**2.51**	**127**	**2.35**
Oral health care (All Funding)	34	2.06	89	2.20	45*	2.51*	168	2.26
Insurance cost sharing (Part C Funding)	**6**	**4.83**	**0**	**--**	**1**	**1.00**	**7**	**4.29**
Interpreter/linguistic services (Part C Funding)	**10**	**1.70**	**0**	**--**	**22**	**6.91**	**32**	**5.28**
Interpreter/linguistic services (All Funding)	10	1.70	0	--	25	7.56	35	5.89
Emergency financial assistance (Part C Funding)	**0**	**--**	**12**	**1.33**	**0**	**0**	**12**	**1.33**
Mental health services (Part C Funding)	**0**	**--**	**27**	**1.67**	**25**	**2.84**	**52**	**2.23**
Mental health services (All Funding)	0	--	55	2.15	25*	2.84	80	2.36
Nutritional therapy (Part C Funding)	**0**	**--**	**1**	**1.00**	**0**	**--**	**1**	**1**
Nutritional therapy (All Funding)	0	--	9	1.44	0	--	9	1.44
Substance abuse treatment (Part C Funding)	**0**	**--**	**3**	**3.33**	**12**	**1.92**	**15**	**2.20**
Substance abuse treatment (All Funding)	0	--	5	3.00	14	1.86	19	2.16
Health education/risk reduction/prevention (Part C Funding)	**0**	**--**	**0**	**--**	**11**	**1.09**	**11**	**1.09**
Health education/risk reduction/prevention (All Funding)	0	--	0	--	14	1.21	14	1.21
Treatment adherence counseling (Part C Funding)	**0**	**--**	**0**	**--**	**25**	**1.40**	**25**	**1.40**
Treatment adherence counseling (All Funding)	0	--	0	--	28	1.36	28	1.36
Medications (Part C Funding)	**0**	**--**	**0**	**--**	**30**	**1.83**	**30**	**1.83**
Referral: health care/support services (Part C Funding)	**0**	**--**	**0**	**--**	**3**	**1.00**	**3**	**1**

[1] Counts could not be unduplicated. Clients who received services at more than one Part C clinic will be counted more than once. All clients that utilized a service eligible for Part C funding are included.
[2]The average number of services per client.
*Indicates that this service was only funded by RW Part C.

Outpatient ambulatory medical care (OAMC) was the most utilized service in 2015. Of the 1,294 clients served, 92% received an OAMC service. The majority of these services (approximately 50%) were not funded by Part C, but other sources instead, such as Medicaid or private health insurance. This is as a result of the ACA and Iowans having more access to medical coverage.

The second most utilized service was Medical Case Management (MCM). Sixty-five percent of clients received this service, which was the highest average number of services per client. Other frequently utilized services included oral health care, transportation, and mental health services. There was a wide variety of services provided by each Part C clinic. The only services that were provided by all 3 clinics were OAMC, MCM, oral health care and transportation services.

There was a significant increase in the number of clients served by Part C clinics from 2011 to 2015. In total, there was a 19% increase in Part C clients served between the three clinics. Individually, Des Moines experienced the greatest increase (28%), compared to Sioux City (17%) and Iowa City (11%).

Section

3

HIV CARE CONTINUUM OUTCOMES AND CONSIDERATIONS

Question: What does Iowa's HIV Continuum of Care look like and how does it vary by population?

Section Highlights

- There were 2,922 people living with HIV disease and residing in Iowa on December 31, 2015. Of these, 2,367 (81%) had been diagnosed, leaving 529 Iowans who have yet to be diagnosed with HIV.
- In 2015, 88% of people diagnosed with HIV were linked to care within one month; and 97% were linked within three months.
- Of the 124 diagnosed cases in 2015, 89% were linked to care within a month of diagnosis and 97% were linked to care within 3 months of diagnosis. Black, non-Hispanic persons, Hispanic persons, those with heterosexual or unidentified modes of exposure, people under the age of 24, and foreign-born people take longer to link than other populations who are diagnosed with HIV in Iowa.
- Of the 2,367 PLWH in Iowa at the end of 2015, 83% were retained in care according to Iowa's definition of retention in care. Among Iowans diagnosed and living with HIV, 76% were virally suppressed, but among those who were retained in care, 91% had achieved viral suppression. The same groups that take longer to link are less likely to be retained in care or to achieve viral suppression.
- Iowa's Continuum of Care demonstrates the testing, retention, and re-engagement in care should be focused on to improve health outcomes for Iowans living with HIV and to reduce transmission of HIV to others.

This section focuses on the HIV care continuum in Iowa, also referred to as the HIV treatment cascade. The bars in the HIV care continuum represent the number of Iowans living with HIV who have achieved each progressive stage in the care continuum – from diagnosis, to linkage to care, to retention in care, and finally, to viral suppression.

Now incorporated in the National HIV/AIDS Strategy for the United States, the HIV care continuum provides a framework for understanding where there are major barriers or obstacles to being engaged in care, and it helps to illuminate population-level disparities in accessing care and treatment services and in achieving optimal health outcomes. Understanding the characteristics of specific populations of Iowans living with HIV that do not achieve viral suppression can help target services or interventions to populations or geographical areas of the state that are most in need.

Laboratory data (diagnostic tests, CD4+ cell counts, and viral loads) are used as proxies for estimating people living with HIV who are engaged in HIV-related care.

The stages along HIV care continuum are described as:

Diagnosis of HIV infection
People have to be tested and diagnosed with HIV to be able to access HIV care and treatment services. CDC recommends testing for adults and adolescents at least once in their lifetimes and at least annually for certain populations at risk. According to CDC, an estimated 12.8% of people living with HIV in the US were unaware of their infections in 2012[1].

Linkage to HIV care
Newly diagnosed people living with HIV should be promptly connected to HIV care and treatment services to help them stay healthy and prevent transmission to others. Linkage should occur within one month of diagnosis.

Retention in HIV care
People living with HIV infection should regularly receive care through a qualified HIV care provider to remain healthy and potentially prevent HIV transmission to others. Ideally, regular care should involve at least two visits a year to an HIV specialist, or to a primary care provider in conjunction with an HIV specialist.

Receipt of antiretroviral therapy
Treatment with antiretroviral therapy (ART) helps to control HIV virus in the body. ART treatment is recommended for every person living with HIV. Treatment should begin as soon as a person is diagnosed.

Viral suppression
ART can help achieve viral suppression (a very low level of HIV in the body) and also greatly reduce HIV transmission in the population. Studies have shown viral suppression

[1] Prevalence of Diagnosed and Undiagnosed HIV Infection- United States, 2008-2012; Hall, I.H., et al. (2015); *MMWR*, 64(24), 657-662

optimizes individual health outcomes and may reduce the likelihood of transmitting HIV by up to 96%.

Late diagnosis of HIV, delays in linkage to HIV care, and poor adherence to ART treatment could be barriers to achieving the goal of the HIV care continuum. In a 2015 CDC study, 91.5 percent of new HIV infections in 2009 were attributable to people with HIV who were either not in medical care or who didn't know they were infected, compared to less than 6 percent of new infections attributed to people with HIV who were in care and receiving antiretroviral therapy. This means that 9 in 10 new HIV infections in the United States could be prevented through early diagnosis and prompt, ongoing care and treatment[2].

DEFINITION OF MEASURES IN IOWA

PLWH - number of people diagnosed with HIV on or before December 31, 2014, and living in Iowa at the end of 2015 plus an estimated 19% who are undiagnosed. Iowa has almost 100% reporting of diagnosed cases.

HIV Diagnosed - number of people diagnosed with HIV on or before December 31, 2014, and living in Iowa at the end of 2015. People may have been initially diagnosed with HIV while living in Iowa or diagnosed in another state before moving to Iowa. This estimate serves as the underlying population for retention in care and viral suppression measures (described below).

Linked to Care - number of people (≥ 13 years of age) newly diagnosed with HIV while residing in Iowa in 2015 that are linked to HIV care services. The denominator here is different from the one used to calculate other stages of the continuum. Linkage to care can also be defined based on a timeline, for example: linkage within 3 months or 12 months.

Retained in Care - number of HIV Diagnosed cohort who have two CD4+ cell counts or viral load test results in 2015 at least three months apart **or** who have one viral load test result in 2015 with the result ≤200 copies/ml of blood. This definition is different than that of the national or other jurisdictions' definitions.

Viral Suppression - number of HIV Diagnosed cohort with a viral load test result of ≤ 200 copies/ml at the most recent test during 2015.

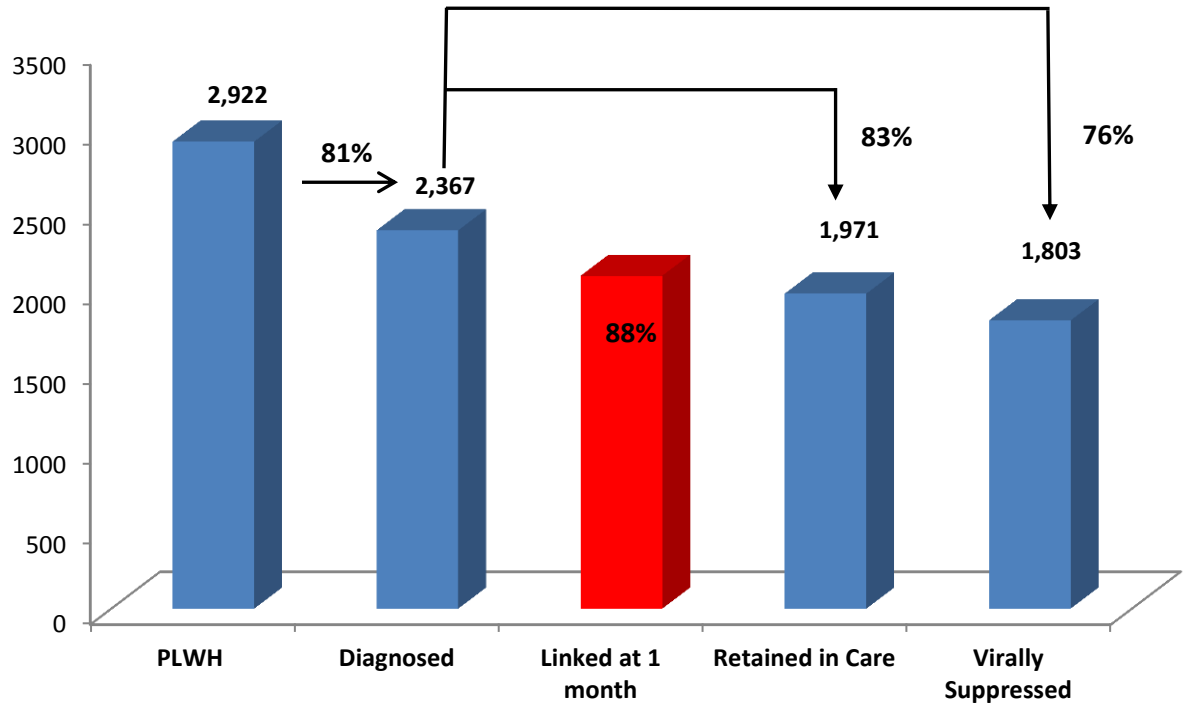
[2] Human Immunodeficiency Virus Transmission at Each Step of the Care Continuum in the United States; Skarbinski, et al. (2015); *Journal of the American Medical Association*, 175(4), 588-596

Question 1

What does Iowa's Continuum of Care look like and how does it vary by population?

HIV CONTINUUM OF CARE

Figure 61
Iowa's HIV Continuum of Care
2015



Using back-calculation methods established by CDC to estimate the number of PLWH who are undiagnosed (based upon previous diagnoses in Iowa), Iowa estimates that there are 529 people who have yet to be diagnosed. Using the state's diagnosed prevalence of 2,367 people living with HIV, we estimate that there are a total of 2,896 persons living with HIV (Figure 61). Approximately 19% of PLWH in Iowa are undiagnosed, which considerably above national average of 12.8%.

As of December 31, 2015, there were 2,367 persons diagnosed and living with HIV disease in Iowa. Some of these persons may have been first diagnosed with HIV infection from other states before moving to Iowa. Of the 2,367, 1,971 (83%) were retained in HIV care in 2015, and 1,803 (76%) were virally suppressed at the end of 2015.

Viral suppression can also be calculated as a proportion of all people who are in care. Of the 1,971 persons retained in HIV care, 91% were virally suppressed at the end of 2015. This indicates the importance of linkage to and retention in care. People who are retained in care are very likely to reach viral suppression, an important predictor of positive health outcomes.

In the continuum, linkage to care is measured among those who were diagnosed in 2015. Therefore, this is not a subset of all people diagnosed, but only of the 124 diagnosed in 2015. The linkage to care bar in Figure 60 is in red to indicate that the definition is different from the rest of the continuum. Eighty-eight percent of persons diagnosed in 2015 who were linked to HIV care within a month of their diagnosis.

Linkage to Care

To get linked to care, individuals have to be tested and diagnosed with HIV infection. Iowa has a relatively high proportion of "late diagnoses," which increased from 41% of diagnosed cases in 2004 to 46% in 2013, but dropped to 38% in 2015. This high proportion of late diagnoses means that delays in testing is one of the barriers to achieving the goals of the HIV care continuum in Iowa. Early diagnosis and prompt linkage to care and treatment services ensures timely partner services and case management. Linkage to HIV care is measured by documentation of a CD4+ cell counts or viral load test within a given time interval after diagnosis.

Table 52 shows linkage to HIV care of newly diagnosed HIV cases in Iowa in 2015. Of the 124 diagnosed cases, 109 (88%) were linked to care within a month of diagnosis and 120 (97%) were linked within 3 months of diagnosis.

There was little difference in rates of linkage to HIV care by sex at one or three months. People ages 45 years and over were more likely to be linked to HIV care within a month of diagnosis (92%) compared to ages 14 to 24 years (85%) and 25 to 44 years (87%), although those differences disappeared by three months. Linkage among black, non-Hispanic and multi-racial people was much lower at one month than among other racial and ethnic groups, although linkage among both of these groups improved substantially by three months.

Persons with infection attributed to injection drug use (IDU) were all linked to HIV care within a month of diagnosis, compared to 88% of persons with infection attributed to MSM and 78% of persons with infection attributed to heterosexual contact. Interestingly, people diagnosed in a region classified as rural areas had higher linkage rates at one month compared to those in urban areas, but these differences had disappeared by three months. Urban areas are defined as any of the ten most populous counties in Iowa (Black Hawk, Dallas, Dubuque, Johnson, Linn, Polk, Pottawattamie, Scott, Story, or Woodbury). Finally, more U.S.-born people were linked within a month of diagnosis than foreign-born people. Again, both groups achieved high linkage rates by three months.

Table 52
Numbers and Percentage of People Diagnosed and Linked to Care
by Demographic Characteristics
2015

Characteristics	# HIV Diagnosis (>13yrs)	% Linked ≤1 month	% Linked ≤3 months
Sex at Birth			
Male	98	88	96
Female	26	88	100
Age at Diagnosis			
14-24	33	85	97
25-44	35	87	96
45 or older	36	92	97
Ethnicity/Race			
Not Hispanic, White	74	93	97
Not Hispanic, Black/African American	24	71	92
Hispanic	16	88	100
Not Hispanic, Asian	6	100	100
Not Hispanic, Multi-race	4	75	100
Mode of Exposure – Adult/Adolescent[5]			
Men who have sex with men (MSM)	77	88	96
Injection Drug Use (IDU)	10	100	100
MSM and Injection Drug Use (MSM/IDU)	4	100	100
Heterosexual Contact	23	78	96
Risk not reported (NIR)	10	90	100
Region[1]			
Urban	85	87	96
Rural	39	90	97
Country			
US born	95	89	97
Foreign born	29	83	97
TOTALS	**124**	**88**	**97**

[1] Urban counties are Black Hawk, Dallas, Dubuque, Johnson, Linn, Polk, Pottawattamie, Scott, Story, and Woodbury.

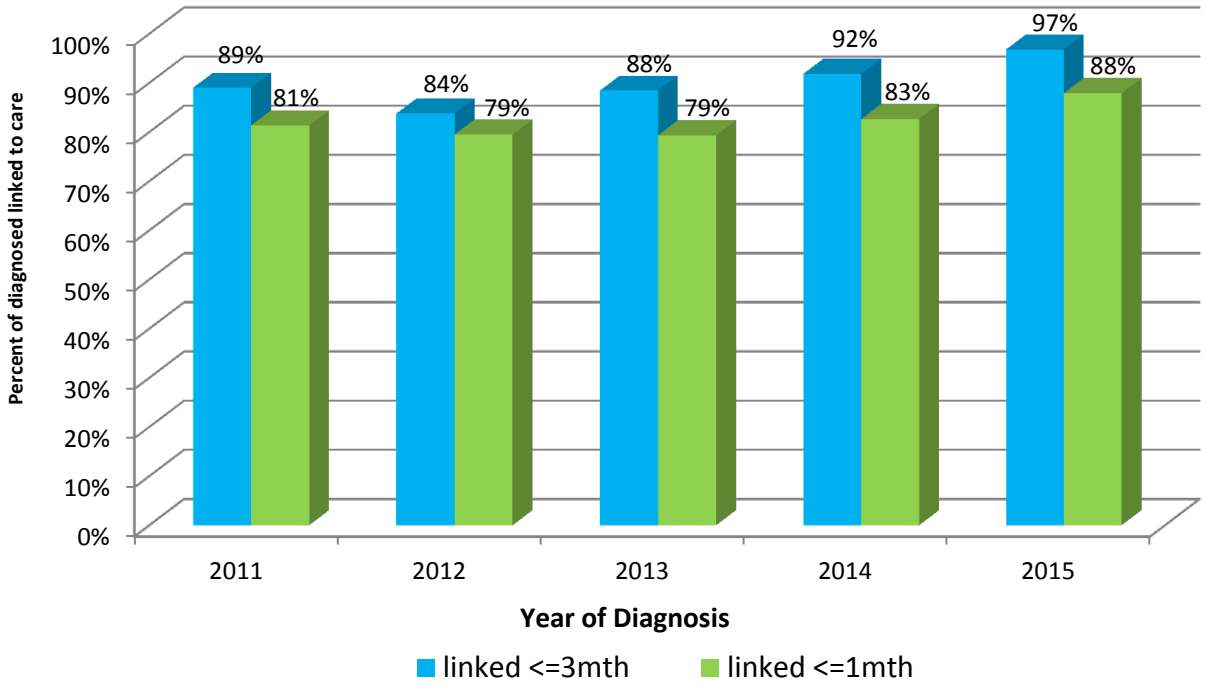
Table 53 shows linkage to HIV care of newly diagnosed HIV cases in Iowa in 2015 by sex and mode of exposure. Linkage lagged for males with heterosexual or unknown risk and females with heterosexual modes of contact.

Table 53
Numbers and Percentage of People Diagnosed and Linked to Care
by Sex and Mode of Exposure
2015

Mode of Exposure by sex – Adult/Adolescent[5]	HIV Diagnosis (>13yrs)	% Linked ≤1 month	% Linked ≤3 months
Male	#	%	%
Men who have sex with men (MSM)	77	88	96
Injection Drug Use (IDU)	6	100	100
MSM and Injection Drug Use (MSM/IDU)	4	100	100
Heterosexual Contact	7	71	86
Risk not reported (NIR)	4	75	100
Female			
Injection Drug Use (IDU)	4	100	100
Heterosexual Contact	16	81	100
Risk not reported (NIR)	6	100	100
	126	**88**	**97**

Examination of linkage to HIV care data of people ≥ 13 years over the last 5-years (2011-2015) is shown in Figure 62. Linkage of people within a month of diagnosis increased steadily from 81% of diagnosed cases in 2011 to 88% in 2015.

Figure 62
Linkage to Care Rates
2011 to 2015



Retention in Care and Viral Suppression

After consulting with HIV specialists in Iowa, the definition of retention in care was modified from that recommended by the Health Resources and Services Administration and CDC. Because Iowa is a rural state with a diffuse distribution of PLWH, medical providers in Iowa may recommend that only one visit per year is necessary for people who are stable and doing well on the HIV medications they receive. For that reason, for the purposes of retention in care, we have chosen to include people who have had only one viral load in a given year, if that viral load was below the level of detection (i.e., the person was virally suppressed). Therefore, retention is care is measured by documentation of two CD4 or viral load test results performed in 2015 at least three months apart **or** at least viral load test result in 2015 if the result was ≤200 copies/ml of blood. Viral suppression is measured by a documentation of at least one viral load test result in 2015 with the most recent result ≤200 copies/ml of blood. These lab results must be received at the health department.

As shown in Table 54, of the 2,367 PLWH in Iowa at the end of 2015, 83% were retained in care according to Iowa's definition of retention in care. Among Iowans living with HIV, 76% were virally suppressed, but among those who were retained in care, 91% had achieved viral suppression.

Males and females did not vary in their retention in care, although a slightly higher percentage of males achieved viral suppression.

Among adults and adolescents (i.e., those over 12 years of age), younger people are less likely to be retained in care (75%) or to achieve viral suppression (64%) than people who are older. People 45 years of age are most likely to be retained in care (90%) and to achieve viral suppression (85%).

Minority PLWH were the least likely to be retained in care or to achieve viral suppression. Among Hispanic PLWH, 70% were retained in care, and only 64% achieved viral suppression. Among Black, non-Hispanic people, 78% were retained and 67% achieved viral suppression. Asian PLWH did slightly better with 81% retained and 77% achieving viral suppression. White, non-Hispanic people had retention and viral suppression rates of 87% and 80%, respectively.

There was less variation in retention and viral suppression by mode of exposure, except among those without an identified risk. Their retention was 75% and their viral suppression was 69%. There was also little difference in retention between people who lived in rural areas of the state and people who lived in more urban areas. However, foreign-born people were less likely to be retained or to achieve viral suppression than U.S.-born people. Among people who were foreign born, 72% were retained in care and 65% achieved viral suppression. This compared to 86% and 78%, respectively, for those born in the U.S.

Table 54
Retention in Care and Viral Suppression among People Diagnosed with HIV and Living on December 31, 2015

Characteristics	Diagnosed Iowans	Retained in Care per HRSA definition		Retained in Care per Iowa Definition		Viral Suppressed (≤200 copies/ml)		
						Total	Among PLWH	Among in care
	#	#	(%)	#	(%)	#	(%)	(%)
Sex at Birth								
Male	1,875	1,512	(81)	1,560	(83)	1,439	(77)	(92)
Female	492	401	(82)	411	(84)	364	(74)	(89)
Age at Diagnosis								
<=12	33	27	(82)	29	(88)	28	(85)	(97)
13-24	367	267	(73)	276	(75)	235	(64)	(85)
25-44	1,534	1,247	(81)	1,277	(83)	1,174	(77)	(92)
45 or older	433	372	(86)	389	(90)	366	(85)	(94)
Ethnicity/Race								
White, Not Hispanic	1,538	1,285	(84)	1,333	(87)	1,238	(80)	(93)
Black, Not Hispanic	473	359	(76)	368	(78)	319	(67)	(87)
Hispanic, All Races	197	135	(69)	137	(70)	127	(64)	(93)
Asian, Not Hispanic	53	44	(83)	43	(81)	41	(77)	(95)
Multi-race/other	106	90	(85)	90	(85)	78	(74)	(87)
Mode of Exposure								
MSM	1,262	1,026	(81)	1,073	(85)	996	(79)	(93)
IDU	191	159	(83)	160	(84)	141	(74)	(88)
MSM/IDU	181	149	(82)	145	(80)	126	(70)	(87)
Heterosexual Contact	435	359	(83)	364	(84)	329	(76)	(90)
Hemoph,/Coag./Blood	9	7	(78)	8	(89)	7	(78)	(88)
NIR	257	187	(73)	193	(75)	177	(69)	(92)
Pediatric/other	32	26	(81)	28	(88)	27	(84)	(96)
Region[1]								
Urban	1,741	1,427	(82)	1,457	(84)	1,323	(76)	(91)
Rural	626	486	(78)	514	(82)	480	(77)	(93)
Country								
US born	1,969	1,631	(83)	1,684	(86)	1,543	(78)	(92)
Foreign born	398	282	(71)	287	(72)	260	(65)	(91)
TOTALS	**2,367**	**1,913**	(81)	**1,971**	(83)	**1,803**	(76)	(91)

[1] Urban counties are Black Hawk, Dallas, Dubuque, Johnson, Linn, Polk, Pottawattamie, Scott, Story, and Woodbury.

Note the high viral suppression rates among those who are retained in care. This demonstrates the importance of having strong programs to retain people in care. If people regularly attend at least two appointments for HIV primary medical care, they are very likely to achieve a suppressed viral load.

The following figures (63-66) illustrate the differences in retention and viral suppression described in the text above.

Figure 63
Retention and Viral Suppression by Sex
2015

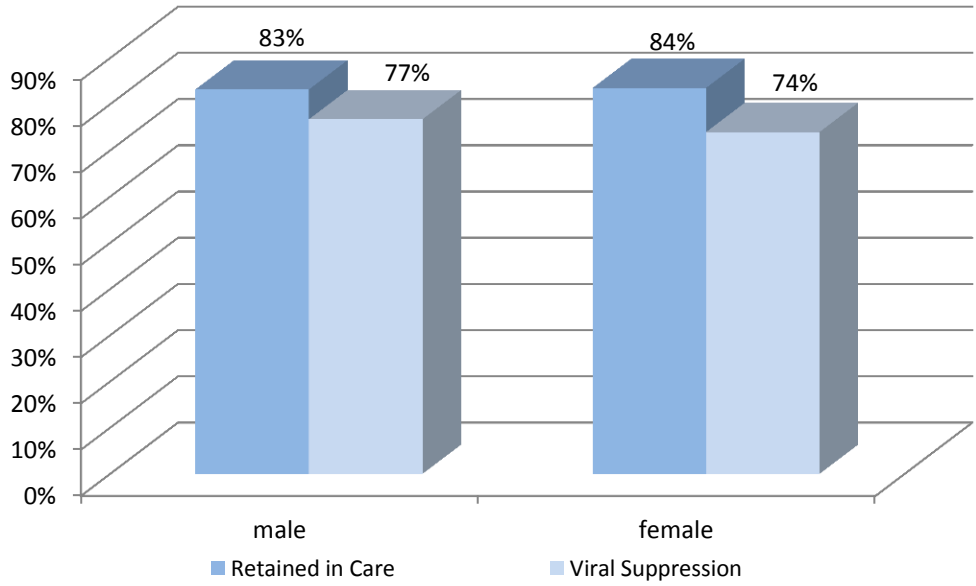


Figure 64
Retention and Viral Suppression by Age Group
2015

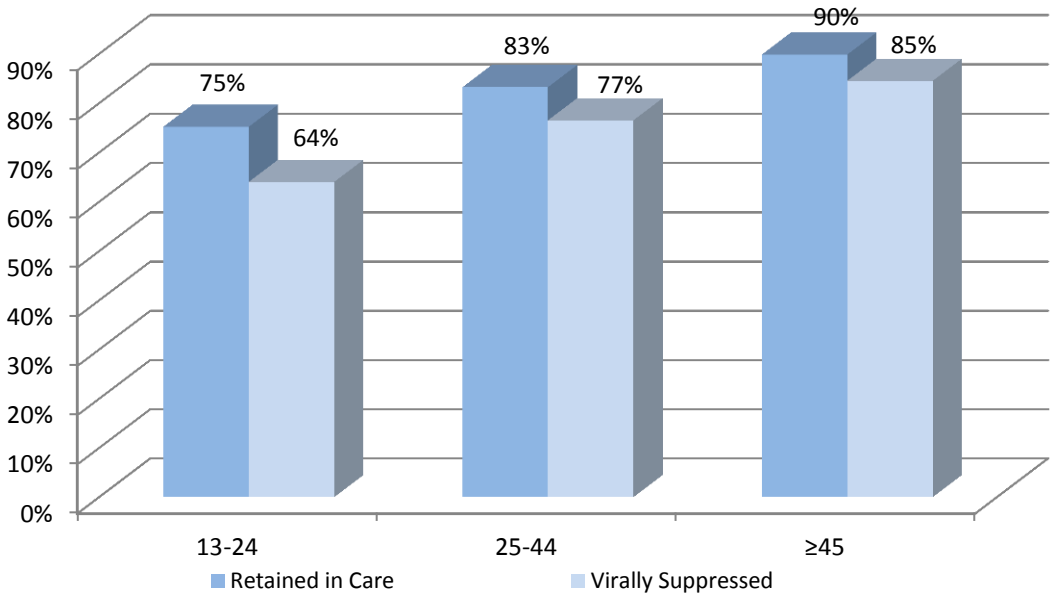


Figure 65
Retention and Viral Suppression by Race and Ethnicity
2015

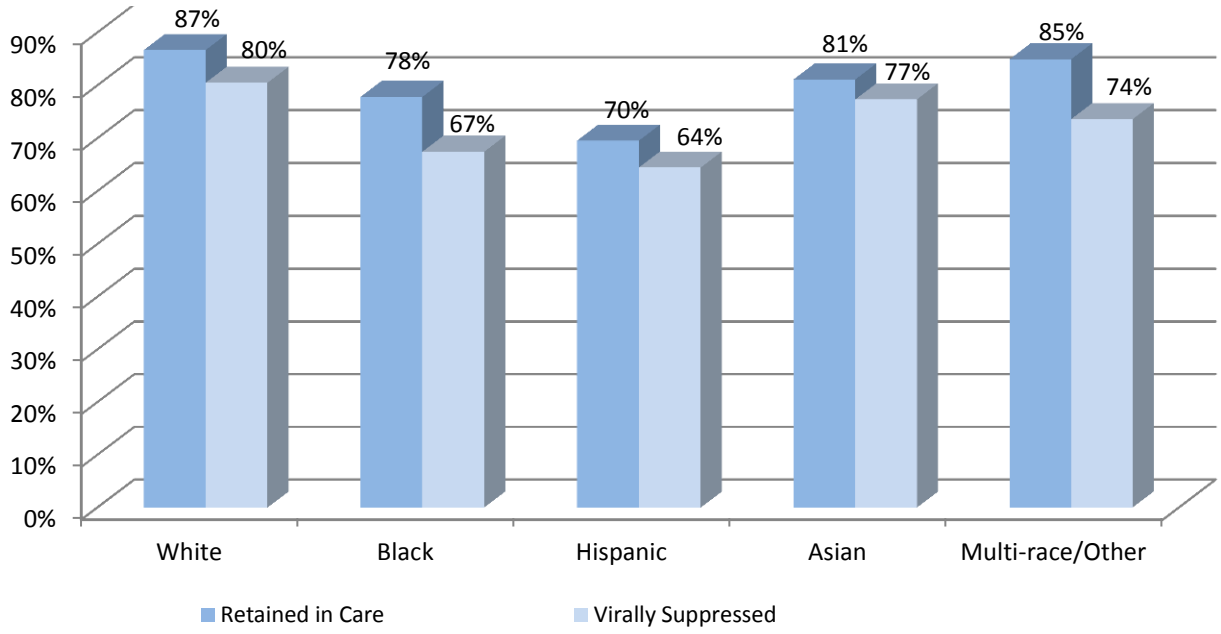
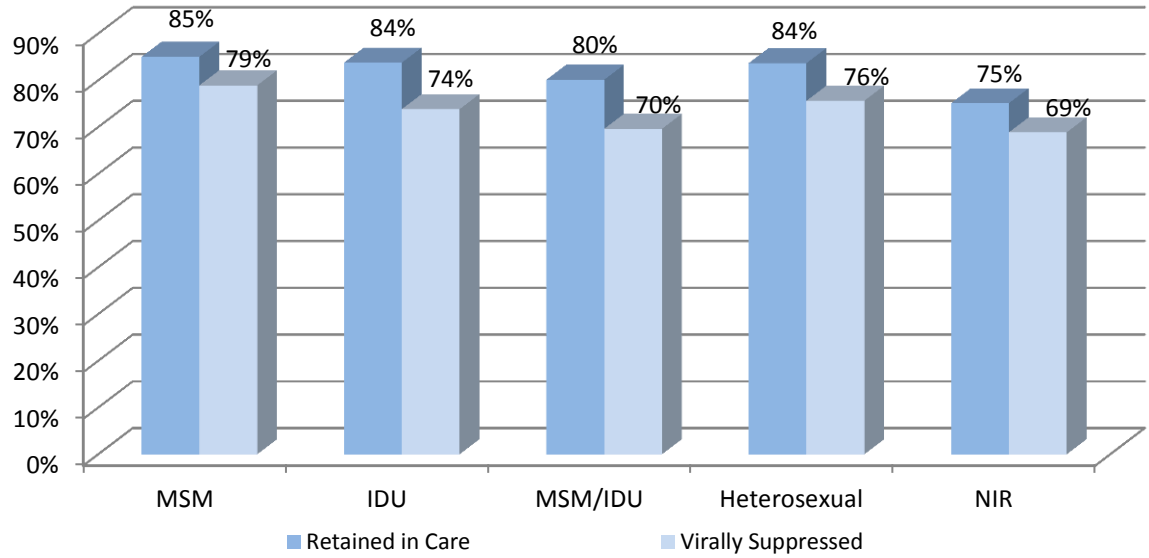


Figure 66
Retention and Viral Suppression by Mode of Exposure
2015



Looking at mode of exposure by sex (for those modes of exposure that include both males and females) adds another layer of complexity. These data are not included in Table 54. As Figure 67 shows, females who inject drugs are retained in care at lower rates than are males who inject drugs. On the other hand, males who had heterosexual exposures were both linked and retained at lower rates than females who were exposed through heterosexual exposures. Among people without an identified risk, sex did not affect rates of linkage or retention.

Figure 67
Retention and Viral Suppression by Mode of Exposure and Sex
2015

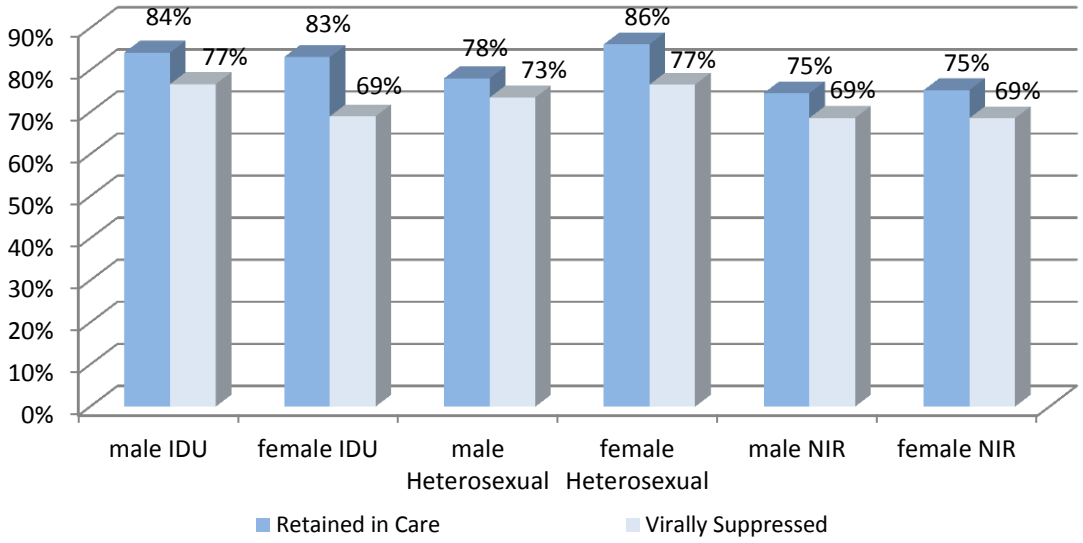


Figure 68
Retention and Viral Suppression by Geographical Population
2015

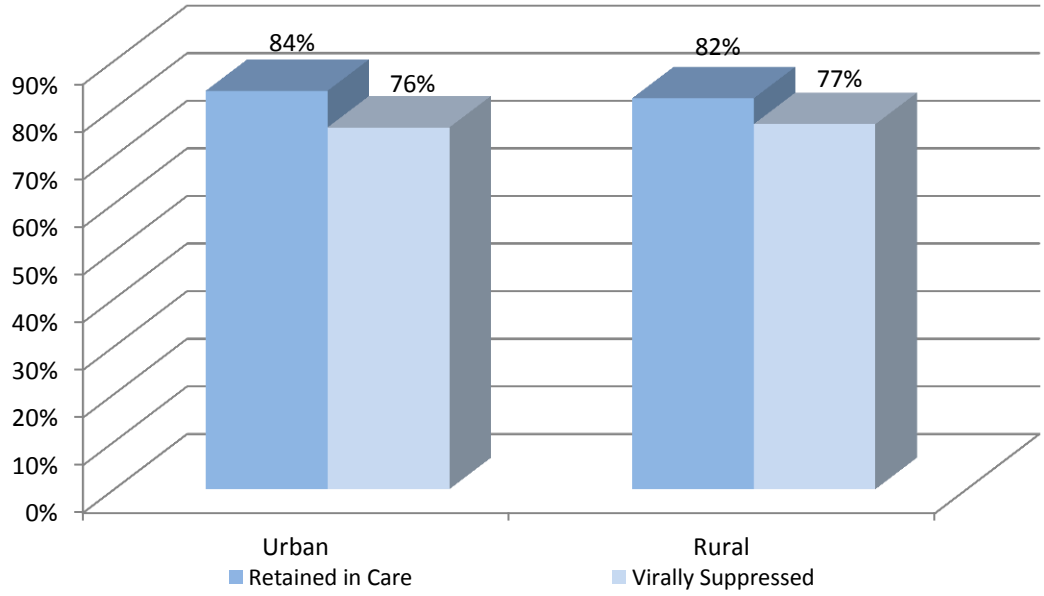
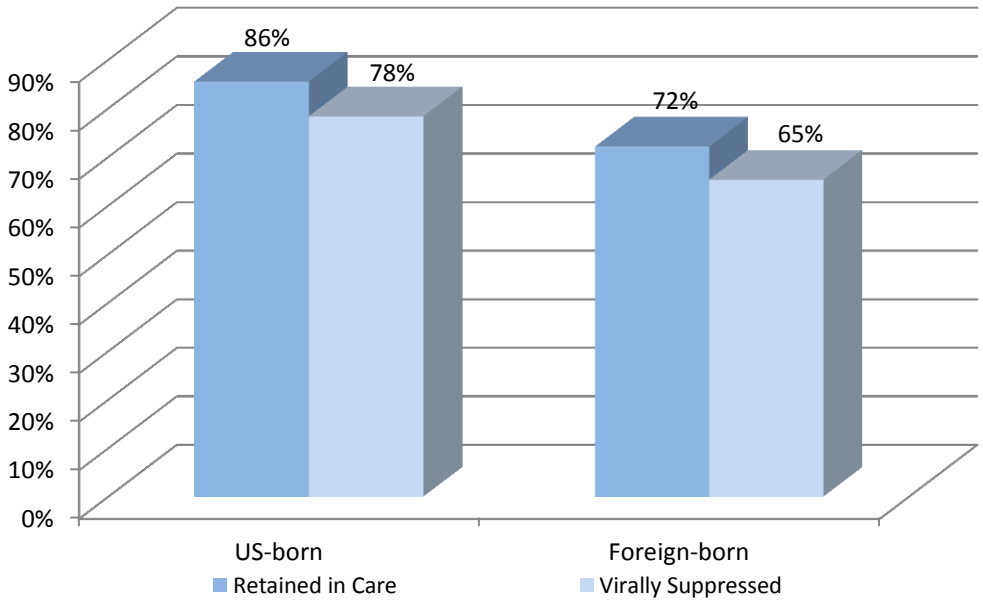


Figure 69
Retention and Viral Suppression by Country of Origin
2015



In summary, Iowa's continuum of care demonstrates that there are substantial numbers of people who have yet to be diagnosed. With 19% of Iowans living with HIV still undiagnosed, Iowa ranks among the bottom five states for the proportion of people who are undiagnosed. Some of this may reflect the very disperse distribution of PLWH in Iowa. Des Moines, the largest metropolitan area in the state, houses less than 30% of all people living with HIV in the state. Given the comparatively low prevalence of HIV in Iowa, that means that no area or medical provider is likely to encounter many people who have HIV. Clearly, a focus on increasing routine and targeted testing in Iowa will be an important strategy for reducing the number of transmissions occurring in the state and improving long-term health outcomes for those who are currently undiagnosed.

Once people are diagnosed, Iowa has high rates of linkage to care, although a number of populations take longer to link. Black, non-Hispanic persons, Hispanic persons, those with heterosexual or unidentified modes of exposure, people under the age of 24, and foreign-born people take longer to link than other populations who are diagnosed with HIV in Iowa.

Retention in care and re-engagement of those who have been lost to care should also be focused for future prevention and care strategies. Only 83% of people diagnosed with HIV are retained in care, and this differs by population. The same groups that take longer to link are less likely to be retained in care or to achieve viral suppression.

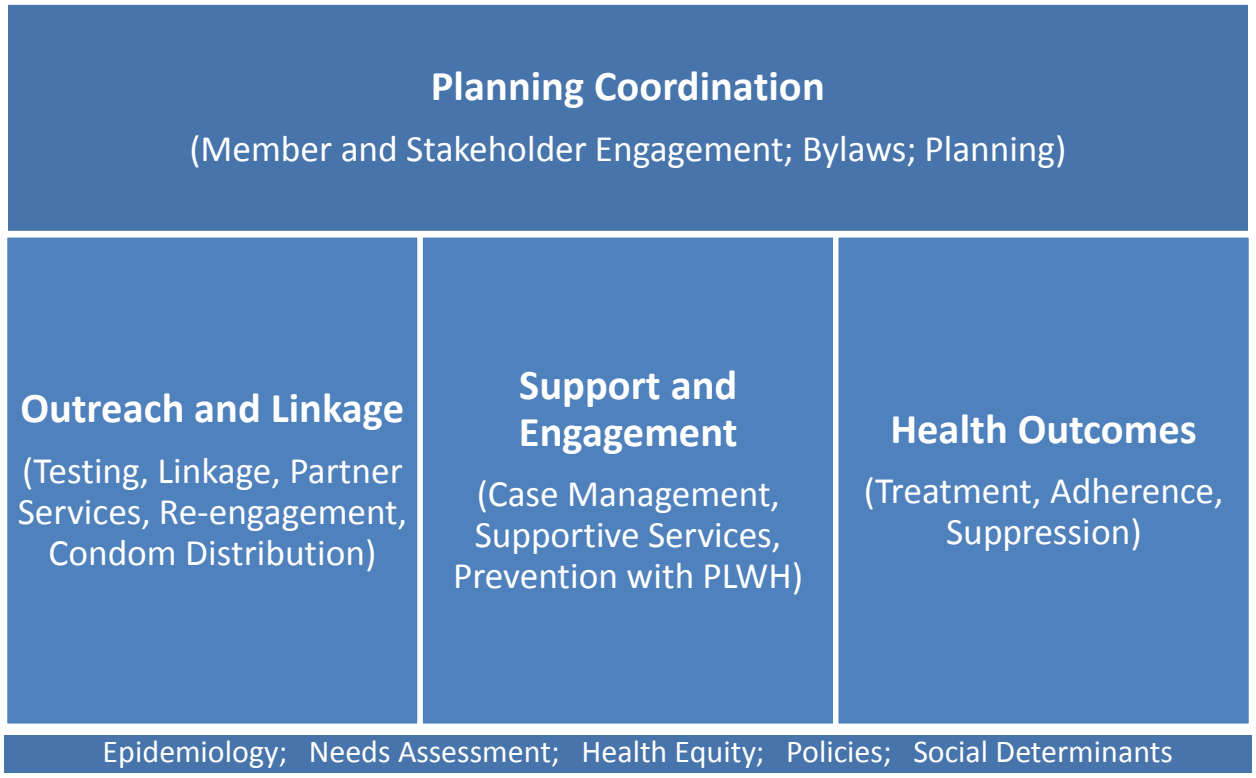
Utilization of the HIV Continuum of Care

The care continuum demonstrates where prevention and care efforts should be targeted to have the greatest effect on reducing transmission of HIV and improving health outcomes for Iowans living with HIV. It gives a visual representation of where the weakest links are in our system of care in Iowa.

The HIV and Hepatitis Community Planning Group (CPG) works with the Iowa Department of Public Health to plan and evaluate prevention and care strategies and activities. In 2011, the CPG and IDPH worked with a consultant to realign the CPG committees with the concept of the HIV Continuum of Care.

The committee structure is shown below.

Figure 70
CPG Committee Structure to Support the HIV Continuum of Care



Each committee examines and uses relevant epidemiological data, conducts and/or reviews needs assessments, examines health equity and social determinants, and identifies policies and regulations that impede or encourage the delivery of prevention and care services.

All committee members engage in the following activities:

- Gather and evaluate information and data to enrich and strengthen discussions and decisions;

- Discuss opportunities and challenges to ensure the highest success of current goals, objectives, and strategies;
- Monitor the engagement process to ensure that the identified strategies promote a coordinated, collaborative, and seamless approach to HIV and HCV prevention, care, and treatment services; and that they address health disparities related to HIV and HCV; and
- Review and update the plans and the components therein.

More specifically, the committee charges are detailed below:

Outreach and Linkage Committee
This committee advises IDPH on implementation, monitoring, and evaluation of **testing, linkage, partner services, re-engagement, and condom distribution activities.**

Support and Engagement Committee
This committee advises IDPH on **case management, support services, and prevention-with-positives programming activities.**

Health Outcomes Committee
This committee advises IDPH on **treatment, adherence, and viral load suppression activities.**

Planning Coordination Committee - Member and Stakeholder Engagement
This committee identifies and implements strategies to **recruit, engage, and retain CPG members** who represent:

- The diversity of people living with HIV and viral hepatitis;
- Other key stakeholders in HIV and viral hepatitis prevention, care, and related services;
- Organizations that can best inform and support the development and implementation of comprehensive, statewide plans.

This committee is responsible for maintaining an **orientation and training** curriculum for new members and providing them with member responsibilities. The committee also advises IDPH on ongoing leadership development and technical assistance needs of the CPG.

In addition, the CPG works closely with the Quality Management (QM) Team. In 2014, Iowa launched its QM Team. The QM Team guides the work of the Ryan White Quality Management Program, which aims to ensure the highest quality of medical and support services to achieve optimal health outcomes for Iowans living with HIV. Currently, the QM Team is monitoring 23 performance measures aligned along the HIV continuum of care. In addition to statewide outcome measures, there are several indicators focused on the Ryan White system of care in Iowa, such as churn within the AIDS Drug Assistance Program and the percent of men who have sex with men (MSM) tested for syphilis at three Iowa Part C clinics. In the future, the Quality Management Plan will be expanded to incorporate more HIV Prevention and STD Program performance measures.

2015 HIV Epidemiological Profile for Iowa

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