Epidemiologic Profiles of HIV, STD, and Hepatitis in Missouri-2016

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Division of Community and Public Health
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http://health.mo.gov/data/hivstdaids/
1.866.628.9891

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Background

The Division of HIV/AIDS Prevention at the Centers for Disease Control and Prevention (CDC) and the Health Resources and Services Administration (HRSA) released the *Integrated Guidelines for Developing Epidemiologic Profiles* in 2004. These guidelines are meant to assist states in creating standardized profiles that meet the planning needs of HIV prevention and care programs, while allowing freedom to portray unique situations within the state. The epidemiologic profile is divided into two sections, within which five questions are addressed.

Profile Organization:

Section 1: Core Epidemiological Questions

This section deals with understanding the characteristics of the general population, the distribution of human immunodeficiency virus (HIV) disease and sexually transmitted diseases (STDs) in the state, and a description of the population at risk for HIV and STD infection. This section is organized around three key questions:

Question 1: What are the sociodemographic characteristics of the general population of Missouri?
Describes the overall demographic and socioeconomic characteristics of the general population of Missouri.

Question 2: What is the scope of the HIV disease epidemic in Missouri?
Describes the impact of the HIV disease epidemic in Missouri.

Question 3: What are the indicators of HIV disease infection risk in Missouri?
Provides an analysis of the high-risk populations. Both the direct and indirect measures of risk behaviors associated with HIV transmission and the indicators of high-risk behaviors are described in this section.

Section 2: Ryan White HIV/AIDS Care Act Special Questions and Considerations

This section focuses on the questions that pertain to the HRSA HIV/AIDS care planning groups. It describes access to, utilization of, and standards of care among persons in Missouri who are HIV infected. It is organized around two key questions:

Question 4: What are the HIV service utilization patterns of individuals with HIV disease in Missouri?
Characterizes patterns in the use of services by the population living with HIV disease in Missouri.

Question 5: What are the number and characteristics of the individuals who know they are HIV positive but who are not in care?
Assesses the unmet need of persons who know they are HIV positive but are not in care. Describes their service needs and perception of care.

General Information:

The 2016 *Profiles* provides a selective update of the questions in the *Profiles,* including the epidemiology of HIV, STDs, hepatitis, and unmet primary medical care needs among individuals living with HIV through 2016. Please refer to the data sources used in the *Profiles* on page ii and the technical notes on page iii to develop a better understanding for interpreting the data presented. Additional sections of the *Profiles* are dedicated to providing data specific to each of the six HIV planning regions to assist with regional-level planning efforts.

Missouri Planning Cycle:

The statewide Missouri Comprehensive Prevention Planning Group (CPPG) operates on a five-year planning cycle. The current comprehensive prevention plan was developed in 2010 and runs from 2011 to 2017. To best serve the CPPG planning process, updates to the epidemiologic profile are designed to coincide with the CPPG's planning cycle. As a result, a complete update of all five questions of the epidemiologic profile is completed every five years, coinciding with the development of the new comprehensive HIV prevention plan. In the other years, updates will only be made to selected questions of the *Profiles*. The current *Profiles* represent a selective update to all questions in the *Profiles*. For data from the most recent comprehensive *Profiles*, please refer to the *2014 Epidemiologic Profiles*, which can be accessed at http://health.mo.gov/data/hivstdaids/pdf/MOHIVSTD2014.pdf.

Data Sources

1. Population Data

Population Estimates, Missouri Department of Health and Senior Services (DHSS), Bureau of Health Care Analysis and Data Dissemination (BHCADD) and U.S. Census Bureau

DHSS maintains population files for Missouri and its counties based on data provided by the U.S. Census Bureau in partnership with the Federal-State Cooperative Program for Population Estimates. Census counts are produced every ten years, with the 2010 census representing the most recent census. Population estimates are produced for non-census years based on adjustments made to the most recent census counts. Due to the time required to compute the estimates, the most recent year's estimates are not available for use in the *Profiles*, and the 2015 population estimates are used instead. Beginning with the 2008 population estimates, new race/ethnicity categories are being used, which include a separate estimate for persons identifying as more than one race. This change reflects the current level of race/ethnicity detail that is captured for HIV surveillance data. As a result of the change, the population estimates from *Profiles* prior to 2009 will not be comparable with the current *Profiles*.

2. HIV Epidemic Data

HIV/Stage 3 (AIDS) Surveillance Data, eHARS

Missouri's communicable disease reporting rule, 19 CSR 20-20.020, established reporting of stage 3 (AIDS) cases in 1983, named HIV cases in 1987, CD4 lymphocyte counts in 1991, and HIV viral load lab results in 2000. Additionally, in 2016, Missouri's communicable disease reporting rule was updated to include the reporting of the following: CD4 lymphocyte percent; all test results used for diagnosis or monitoring of HIV infection and all test results (positive and negative) in the test series that indicate HIV infection; pregnancy among newly identified or pre-existing HIV positive women; and negative, undetectable, or indeterminate HIV lab results occurring within 180 days prior to the test result used for diagnosis of HIV infection. Demographic information, vital status, mode of exposure, laboratory results, and treatment and service referrals are collected on standardized case report forms and laboratory reports. The DHSS, Bureau of Reportable Disease Informatics (BRDI) is responsible for managing the HIV/stage 3 (AIDS) surveillance data, stored in the enhanced HIV/AIDS Reporting System (eHARS). Evaluations have shown a high level of completeness of the surveillance system. However, the surveillance system primarily collects information only on individuals diagnosed with HIV disease in Missouri. Some information regarding those currently living with HIV in Missouri is maintained in eHARS but is not complete. Therefore, the *Profiles* only include data on those whose most recent diagnosis (HIV or stage 3 (AIDS)) occurred in Missouri. The data collected in the surveillance system are based on diagnosis date and not the time of infection. The diagnosis can be made at any clinical stage of the disease. The characteristics associated with new diagnoses may thus not reflect characteristics associated with recent infection. The surveillance system only includes data on individuals who are tested confidentially and reported. Members of certain subpopulations may be more or less likely to be tested, and therefore, different subpopulations could be over- or under-represented among diagnosed and reported HIV cases.

3. HIV-Related Indicators of Risk Data

Hepatitis Surveillance Data, DHSS, WebSurv

Missouri's communicable disease reporting rule, 19 CSR 20-20.020, requires reporting of acute and chronic hepatitis B and C, perinatal hepatitis B, and prenatal hepatitis B within three days to the local health authority or DHSS. Demographic information, vital status, laboratory results, and treatment information are collected on standardized report forms and laboratory reports. DHSS BRDI is responsible for managing the hepatitis surveillance data, stored in the Missouri Health Surveillance Information System (WebSurv). Limitations of the data include incomplete race/ethnicity information and underreporting.

STD Surveillance Data, WebSurv

Missouri's communicable disease reporting rule, 19 CSR 20-20.020, requires reporting of chlamydia and gonorrhea cases within three days, and syphilis, including congenital syphilis, within one day to the local health authority or DHSS. Demographic information, vital status, laboratory results, and treatment information are collected on standardized report forms and laboratory reports. DHSS BRDI is responsible for managing all reportable STD surveillance data. STD data collected through 2011 were managed in the STD Management Information System (STD*MIS). Near the end of 2011, DHSS BRDI began utilizing WebSurv to collect and manage STD surveillance data. The change in databases must be considered when assessing changes in STD cases reported since 2012 compared to prior years. Data in this system are presented based on the date of report to the health department and not the diagnosis date. The data represent only those individuals tested and reported, which underestimates the true burden of infection as

many infected individuals do not seek care, often due to a lack of symptoms. In addition, many people receive treatment without being tested, again underestimating the true burden of infection. Since morbidity is frequently entered based on the receipt of laboratory reports at DHSS, race and ethnicity information is often not available. Incomplete race and ethnicity reporting limits the interpretation of trends for these characteristics.

Tuberculosis Disease Surveillance Data, WebSurv

Missouri's communicable disease reporting rule, 19 CSR 20-20.020, requires reporting of tuberculosis disease within one day to the local health authority or DHSS. Demographic information, vital status, laboratory results, and treatment information are collected on standardized report forms and laboratory reports. DHSS Bureau of Communicable Disease Control and Prevention (BCDCP) is responsible for managing the tuberculosis surveillance data stored in WebSurv. Limitations of the data include incomplete race/ethnicity information and underreporting.

4. HIV Care Services Data

HIV Case Management Data, SCOUT

DHSS participates in a cooperative agreement with HRSA for the provision of several programs funded by the Ryan White HIV Treatment Modernization Act. Data for persons served by these programs are collected and stored in the Securing Client Outcomes Using Technology (SCOUT) database. Data include key demographic and eligibility-related variables for persons residing in Missouri and portions of Illinois and Kansas. These data are used to monitor the level of need and the provision of services for individuals utilizing Ryan White funded services.

Technical Notes

Revised HIV Surveillance Case Definition: Case definitions are used for all national reportable conditions. Case definitions are standardized sets of requirements to determine whether an individual is counted as a case for a particular disease. Case definitions allow states to count cases in a standard fashion so that data can be compared across the nation. When changes in testing technology and in the understanding of a disease occur, revisions to case definitions may occur. The HIV surveillance case definition was revised in 2014 in large part to account for the implementation of the new HIV testing algorithms that no longer required the western blot as the confirmatory test. A major change to remove the distinction between HIV cases and AIDS cases occurred in the 2014 revised surveillance case definition. All individuals infected with HIV disease are classified as HIV disease with progression of the disease classified as stages (0-3). For more information, visit http://www.cdc.gov/mmwr/preview/mmwrhtml/rr6303a1.htm.

Stage 3 (AIDS): Stage 3 (AIDS) represents an advanced stage of HIV infection when the CD4+T-lymphocyte values are usually persistently depressed. Stages are defined primarily based on the CD4+T-lymphocyte values and age. For additional information, visit http://www.cdc.gov/mmwr/preview/mmwrhtml/rr6303a1.htm.

HIV Disease, HIV Case, Stage 3 (AIDS) Case: HIV disease includes all individuals diagnosed with HIV regardless of the stage of disease progression. All persons with HIV disease can be sub-classified as either a **stage 3 (AIDS) case** (if they are in the later stages of the disease process and have met the case definition for stage 3 (AIDS)) or an **HIV case** (if they are in the earlier stages of the disease process and have not met the stage 3 (AIDS) case definition). In this report, the sub-classification of HIV or stage 3 (AIDS) is based on an individual's status of disease progression as of December 31, 2016.

Date of Diagnosis: Represents the date an individual was first diagnosed with HIV, regardless of the stage of disease progression. However, in many instances the initial diagnosis of infection does not occur until several years after the initial infection, so at best the trends in diagnosed HIV cases can only approximate actual trends in new HIV infections.

Reporting Delay: Delays exist between the time HIV infection is diagnosed and the time the infection is reported to DHSS. As a result of reporting delays, case numbers for the most recent years of diagnosis may not be complete. Data from recent years should be considered provisional. The data presented in this report have not been adjusted for reporting delay. The data in this report represent all information reported to DHSS through February 28, 2017.

Place of Residence: Data are presented based on an individual's residence at time of most recent diagnosis of HIV or stage 3 (AIDS). Only cases whose most recent diagnosis occurred in Missouri are included in the analyses presented in the *Profiles*. This residence at time of most recent diagnosis may or may not correspond

with the individual's residence at the time of initial infection or with the current residence.

Vital Status: Cases are presumed to be alive unless DHSS has received notification of death. Current vital status information for cases is ascertained through routine matches with Missouri death certificates, reports of death from other states' surveillance programs, and routine site visits with major reporting sites. When comparing *Profiles*, changes in the number of living cases in a select year between the *Profiles* is due to adjustments based on results of death matching activities. Revisions for the number of persons living at the end of the year for the past ten years can be found in Figure 2 of the 2016 *Profiles.*

Exposure Category: Despite possible existence of multiple methods through which HIV can be transmitted, cases are assigned a single most likely exposure category based on a hierarchy developed by CDC. A limitation of the dataset is the large number of cases reported with an undetermined exposure category. Data on cases with missing exposure category information have been proportionately re-distributed into known exposure categories in selected analyses.

Routine Interstate Duplicate Review (RIDR): The mobility of American citizens impacts the ability to accurately track individuals living with HIV/stage 3 (AIDS). Mobility may result in the same HIV-infected person being counted in two or more different states. To help respond to potential duplication problems, CDC initiated the Interstate Duplication Evaluation Project (IDEP), now called Routine Interstate Duplicate Review (RIDR), in 2002. RIDR compares patient records throughout the nation in order to identify duplicate cases. The states with duplicate cases contact one another to compare patient profiles in order to determine the state to which the case belongs, based on residence on the earliest date of diagnosis. Because of this process, the cumulative number of cases within Missouri may change, but the process has increased the accuracy of Missouri's data by reducing the chance that a case has been counted more than once nationally.

Small Numbers: Data release limitations are set to ensure that the information cannot be used to inadvertently identify an individual. It is difficult to make meaningful statements concerning trends in areas with low numbers of cases. Please interpret rates with a numerator of less than 20 cases with caution because of the low reliability of rates based on a small number of cases.

Glossary of Terms: A glossary of terms is located at the end of the *Profiles*. For clarification of any terms used in the *Profiles*, please feel free to contact DHSS BRDI for additional information.

Race/Ethnicity: Race and ethnicity information has been collected under two different classifications in the HIV/ stage 3 (AIDS) reporting system. Since many cases were reported under the old classification, the use of the race and ethnicity categories from the old classification will be maintained in this report. All cases identified with a Hispanic ethnicity will be reported in the *Profiles* as Hispanic, regardless of reported race information. In the text of this document, whenever cases are being discussed, the term "white" means white, not Hispanic, and "black/African American" means black/African American, not Hispanic. The number of cases reported as "not Hispanic" may include individuals whose ethnicity was not reported. Individuals who reported multiple racial categories or whose race was unknown are included in the category "other/unknown" or "two or more races/unknown" depending on the table or figure.

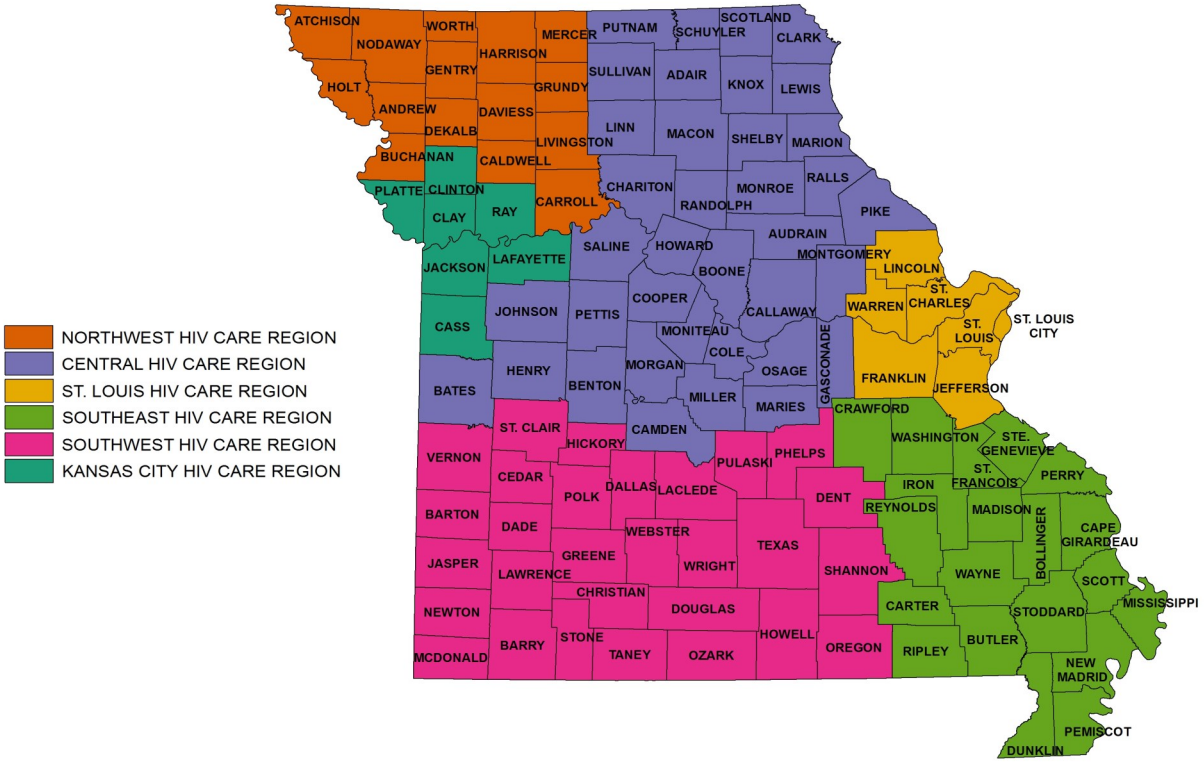
Diagnoses in Correctional Facilities: For persons living in Missouri correctional facilities (which include state, county, and local facilities) at the time of their HIV/stage 3 (AIDS), chlamydia, or gonorrhea diagnosis, the location of the correctional facility is considered the individual's residence at diagnosis. For persons living in Missouri correctional facilities at the time of their syphilis diagnosis, the residence at diagnosis is considered the individual's address prior to being incarcerated. Data for persons diagnosed in Missouri correctional facilities are included in the statewide data, since most of these individuals were likely Missouri residents prior to incarceration. However, diagnoses in Missouri correctional facilities are not included in the HIV/stage 3 (AIDS) data for the six HIV care regions of the state. This exclusion at the regional level is based on the fact that these individuals, especially those in the state prison system, are often incarcerated in a different location than where they were residing (and were likely infected) prior to imprisonment. If included among the cases from the area where imprisoned at the time of diagnosis, it would distort the picture of the epidemic in that area. Individuals diagnosed at federal correctional facilities in Missouri are not included in any data presented.

Anonymous Testing: The data do not include cases of HIV infection reported or diagnosed in persons anonymously tested at the state's four anonymous testing sites in St. Louis City, Kansas City, Springfield, and Columbia.

Geographic Area vs. HIV Region: When data are presented by geographic area, St. Louis City represents individuals diagnosed in the St. Louis City limits. St. Louis County represents individuals diagnosed in St. Louis County. Kansas City represents individuals diagnosed in the Kansas City limits. Outstate represents individuals diagnosed in all other areas. Refer to the map below for the counties included when data are presented by HIV care region.

HIV Care Region vs. HIV Region: Prior to the 2014 *Profiles,* the state was divided into geographic regions known as HIV Regions using the HIV prevention planning regions. Based on guidance from the DHSS, Bureau of HIV, STD, and Hepatitis (BHSH), the data in the *Profiles* from 2014 and later are presented by HIV care regions in an effort to align with future goals to have a single definition for the geographic regions used for HIV planning. HIV care regions use the HIV medical case management (care) regions (see map below). The transition to care regions resulted in some changes. The North Central HIV Region is now known as the Central HIV Care Region. The remaining five regions maintained the same names. The counties comprising the St. Louis, Southeast, and Southwest HIV Care Regions remained the same. The Northwest HIV Care Region no longer contains Clinton County. Clinton County now belongs to the Kansas City HIV Care Region. The Kansas City HIV Care Region no longer contains Johnson, Bates, Henry, and Benton Counties. These four counties now belong in the Central HIV Care Region. Regional data in the 2014 *Profiles* and later should not be compared to previous *Profiles*. Additionally, calculations for the past ten years were recalculated using the HIV care regions at the regional level in order to accurately display trends over time in the *Profiles* for 2014 and later.

MISSOURI HIV CARE REGIONS



Revised Hepatitis Surveillance Case Definition: The hepatitis C surveillance case definition was revised in 2016 largely due to the evolution and improvement of diagnostic tests and because of the realization that infected individuals can clear a hepatitis C infection and potentially become re-infected in their lifetime. The improvements that have been made in laboratory reporting, namely electronic laboratory reporting, have made it easier for some states to receive laboratory results, including those that meet the revised case definition for hepatitis C. However, WebSurv is not currently capable of storing certain hepatitis C conditions that meet the revised case definition, namely conditions considered to be probable based on a positive hepatitis C antibody test and conditions considered to be new diagnoses due to re-infection. Until WebSurv can be amended to account for these changes, hepatitis C cases will likely be underreported in Missouri. For more information about the revised case definition, visit https://wwwn.cdc.gov/nndss/conditions/hepatitis-c-chronic/case-definition/2016/.

Abbreviations

AIDS=Acquired Immunodeficiency Syndrome

BCDCP=Bureau of Communicable Disease Control and Prevention

BHCADD=Bureau of Health Care Analysis and Data Dissemination

BHSH=Bureau of HIV, STD, and Hepatitis

BRDI=Bureau of Reportable Disease Informatics

CDC=Centers for Disease Control and Prevention

CPPG=Comprehensive Prevention Planning Group

eHARS=enhanced HIV/AIDS Reporting System

HCV=Hepatitis C Virus

HIV=Human Immunodeficiency Virus

IDEP=Interstate Duplicate Evaluation Project

IDU=Injection drug use/Injection drug user

HRH=High-risk heterosexual contact

HRSA=Health Resources and Services Administration

DHSS=Missouri Department of Health and Senior Services

MICA=Missouri Information for Community Assessment

MSM=Men who have sex with men

MSM/IDU=Men who have sex with men and inject drugs

NIR=No indicated risk

P&S=Primary and secondary

RIDR=Routine Interstate Duplicate Review

SCOUT=Securing Client Outcomes Using Technology

STD=Sexually Transmitted Disease

STD*MIS=Sexually Transmitted Disease Management Information System

TB=Tuberculosis

MISSOURI STATE SUMMARY

Population Counts, by HIV Care Region, Missouri, 2015

	St. Louis HIV Care Region	Kansas City HIV Care Region	Northwest HIV Care Region	Central HIV Care Region	Southwest HIV Care Region	Southeast HIV Care Region	Missouri Total
Sex							
Male	1,024,171	583,302	112,623	438,629	578,360	247,960	**2,985,045**
Female	1,095,225	613,777	111,502	441,997	585,519	250,607	**3,098,627**
Total	**2,119,396**	**1,197,079**	**224,125**	**880,626**	**1,163,879**	**498,567**	6,083,672
Race/Ethnicity							
White	1,541,050	863,353	201,118	773,935	1,034,925	443,176	**4,857,557**
Black/African American	409,501	186,305	8,456	44,703	24,892	31,903	**705,760**
Hispanic	61,192	89,172	7,968	27,367	51,190	10,678	**247,567**
Asian/Pacific Islander	64,779	24,299	2,209	14,568	16,913	3,438	**126,206**
American Indian/Alaskan Native	4,369	5,124	897	3,323	10,353	1,976	**26,042**
Two or More Races/Other Race	38,505	28,826	3,477	16,730	25,606	7,396	**120,540**
Total	**2,119,396**	**1,197,079**	**224,125**	**880,626**	**1,163,879**	**498,567**	6,083,672
Race/Ethnicity-Males							
White Male	753,975	422,197	99,373	383,199	510,670	218,953	**2,388,367**
Black/African American Male	186,261	87,612	5,572	24,384	14,909	17,126	**335,864**
Hispanic Male	31,407	45,301	4,365	14,162	26,993	5,622	**127,850**
Asian/Pacific Islander Male	31,248	11,629	1,120	6,820	7,699	1,580	**60,096**
American Indian/Alaskan Native Male	2,164	2,517	468	1,754	5,255	964	**13,122**
Two or More Races/Other Race Male	19,116	14,046	1,725	8,310	12,834	3,715	**59,746**
Total	**1,024,171**	**583,302**	**112,623**	**438,629**	**578,360**	**247,960**	2,985,045
Race/Ethnicity-Females							
White Female	787,075	441,156	101,745	390,736	524,255	224,223	**2,469,190**
Black/African American Female	223,240	98,693	2,884	20,319	9,983	14,777	**369,896**
Hispanic Female	29,785	43,871	3,603	13,205	24,197	5,056	**119,717**
Asian/Pacific Islander Female	33,531	12,670	1,089	7,748	9,214	1,858	**66,110**
American Indian/Alaskan Native Female	2,205	2,607	429	1,569	5,098	1,012	**12,920**
Two or More Races/Other Race Female	19,389	14,780	1,752	8,420	12,772	3,681	**60,794**
Total	**1,095,225**	**613,777**	**111,502**	**441,997**	**585,519**	**250,607**	3,098,627
Age							
<2	51,281	31,309	5,338	20,931	28,972	12,079	**149,910**
2-12	290,192	177,211	29,934	116,939	161,985	69,529	**845,790**
13-18	164,065	94,660	16,841	66,982	91,947	38,270	**472,765**
19-24	161,161	86,335	20,876	94,564	108,643	38,831	**510,410**
25-44	553,035	324,009	54,067	209,546	279,145	119,640	**1,539,442**
45-64	581,502	315,057	58,316	226,571	294,954	134,033	**1,610,433**
65+	318,160	168,498	38,753	145,093	198,233	86,185	**954,922**
Total	**2,119,396**	**1,197,079**	**224,125**	**880,626**	**1,163,879**	**498,567**	6,083,672

Source: DHSS, Bureau of Health Care Analysis and Data Dissemination (BHCADD)

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Key Highlights: What is the scope of the HIV disease epidemic in Missouri?

Magnitude of the Problem and General Trends

- From 1982 to 2016, a total of 20,913 persons have been diagnosed with HIV disease in Missouri and reported to DHSS. Of these individuals, 13,925 (67%) were subcategorized as stage 3 (AIDS) cases, and the remaining 6,988 (33%) were subcategorized as HIV cases. Of the cumulative number of persons diagnosed with HIV disease, 12,606 (60%) were presumed to be living at the end of 2016.
- The number of new diagnoses has fluctuated slightly between 2007 and 2016, with no sustained upward or downward trend in new HIV diagnoses over this time period. In 2016, there were 517 persons newly diagnosed with HIV disease. However, this value has not been adjusted for reporting delays and therefore is likely to change.
- The number of persons living with HIV disease continued to increase every year, from 9,512 persons in 2007 to 12,606 persons in 2016. The increase is primarily due to the fact that individuals are living longer with the disease as a result of improved treatment and medical care.

Where

- HIV disease disproportionately impacts the state's two major metropolitan areas (St. Louis and Kansas City). The highest rates of new diagnoses and persons living with HIV disease were found in these two areas.
- The rate of persons newly diagnosed who remained classified as HIV cases at the end of 2016 was highest in St. Louis City (33.3 per 100,000). The second highest rate was in Kansas City (20.0 per 100,000). The rate of persons newly diagnosed who were classified as stage 3 (AIDS) cases at the end of 2016 was highest in Kansas City (6.1 per 100,000).

Who

Sex

- Males represented the majority of persons newly diagnosed (81%) and living with (83%) HIV disease. The rates of new diagnoses and persons living with HIV disease were nearly five times higher among males compared to females.

Race/Ethnicity

- HIV disease continues to disproportionately impact people of color. The rate of newly diagnosed HIV disease cases among blacks/African Americans was 8 times as high among whites, and 3.6 times as high among Hispanics compared to whites. The disparity was even greater among black/African American females. While black/African American females represented only 12% of Missouri's female population, they accounted for 60% of new female HIV disease diagnoses. It should be emphasized that race/ethnicity in itself is not a risk factor for HIV infection; however, among many racial/ethnic populations, social, economic, and cultural factors are associated with high rates of HIV risk behavior. These factors also may be barriers to receiving HIV prevention information or accessing HIV testing, diagnosis, and treatment.

Age

- The age of individuals living with HIV disease has increased over time. In 2007, the largest numbers of persons living with HIV disease were 40 to 44 years of age, whereas in 2016 persons 50 to 54 years old represented the largest number of living cases.
- Although the age of persons living with the disease has increased over time, the age of new diagnoses has remained relatively consistent. In both 2007 and 2016, the largest numbers of persons newly diagnosed with HIV disease were between 19 and 24 years of age.

Exposure Category

- The majority of new diagnoses continue to be attributed to men who have sex with men (MSM). Among females, heterosexual contact was the primary mode of transmission. In 2016, there were seven people less than 13 years of age diagnosed with HIV disease.

Figure 1. HIV disease cases (living and deceased), by current HIV vs. stage 3 (AIDS) status, Missouri, 1982-2016

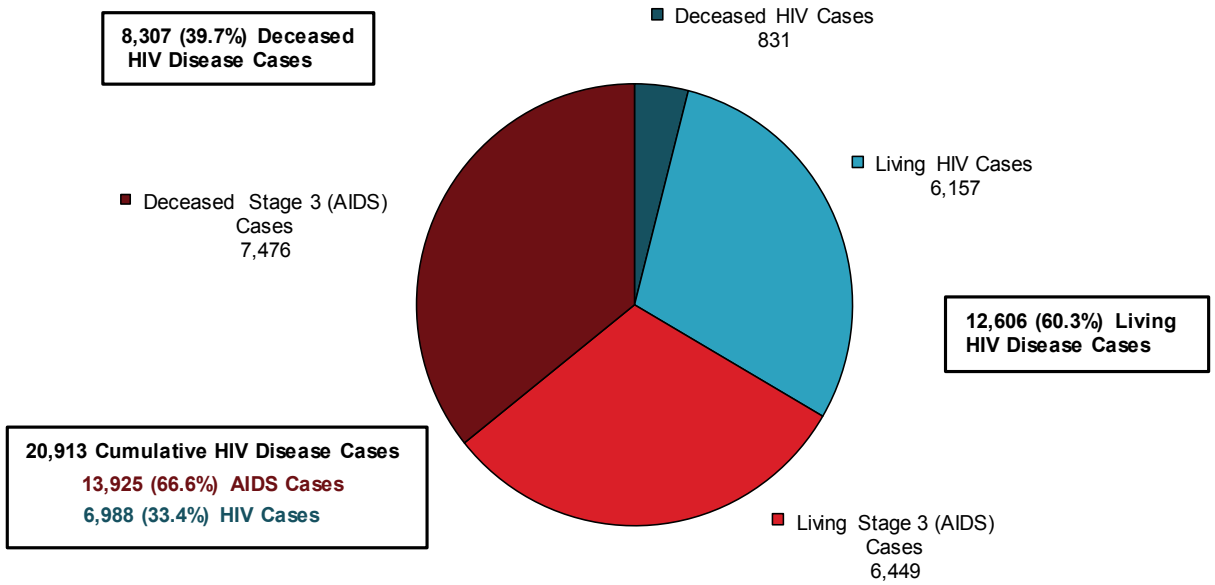
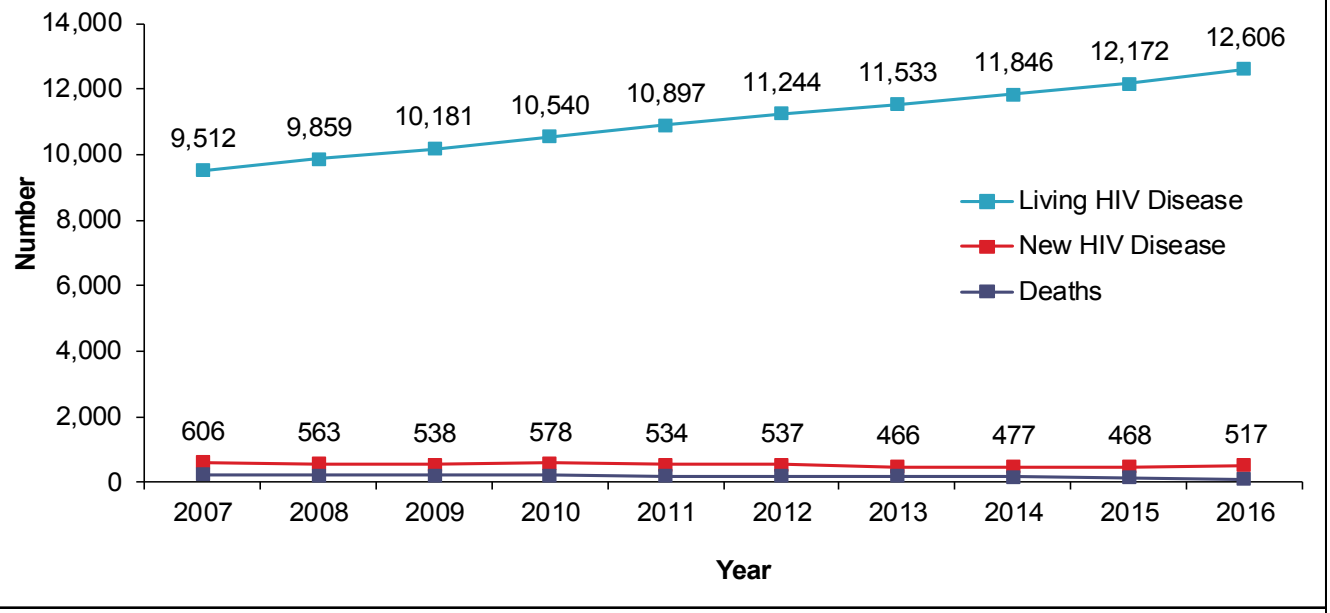


Figure 2. Living and new HIV disease cases and deaths, by year*, Missouri, 2007-2016

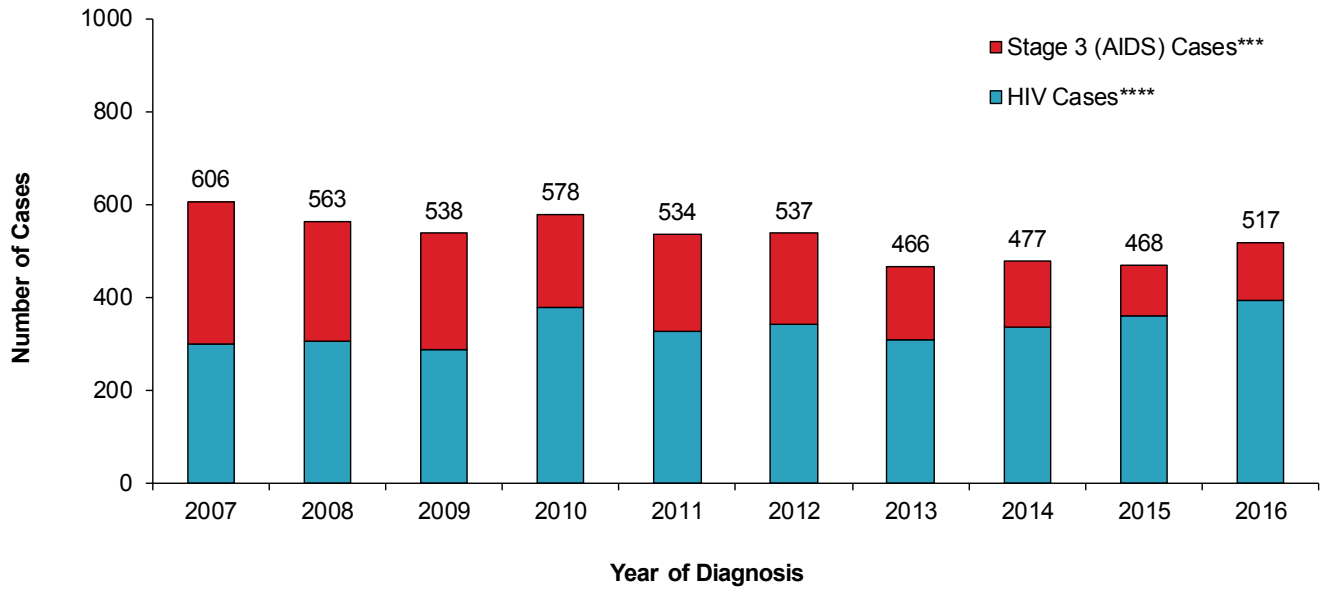


*Living HIV disease cases represent the number of individuals living with HIV disease at the end of the year. New HIV disease cases represent the number of individuals newly diagnosed in the year. HIV disease deaths represent the number of individuals who died in the year.

From 1982 to 2016, a total of 20,913 HIV disease cases have been diagnosed in Missouri and reported to DHSS (Figure 1). Of the 20,913 cumulative cases reported, 60% were still presumed to be living with HIV disease at the end of 2016. Among the 12,606 persons living with HIV disease, 6,157 were classified as HIV cases at the end of 2016 and 6,449 were classified as stage 3 (AIDS) cases.

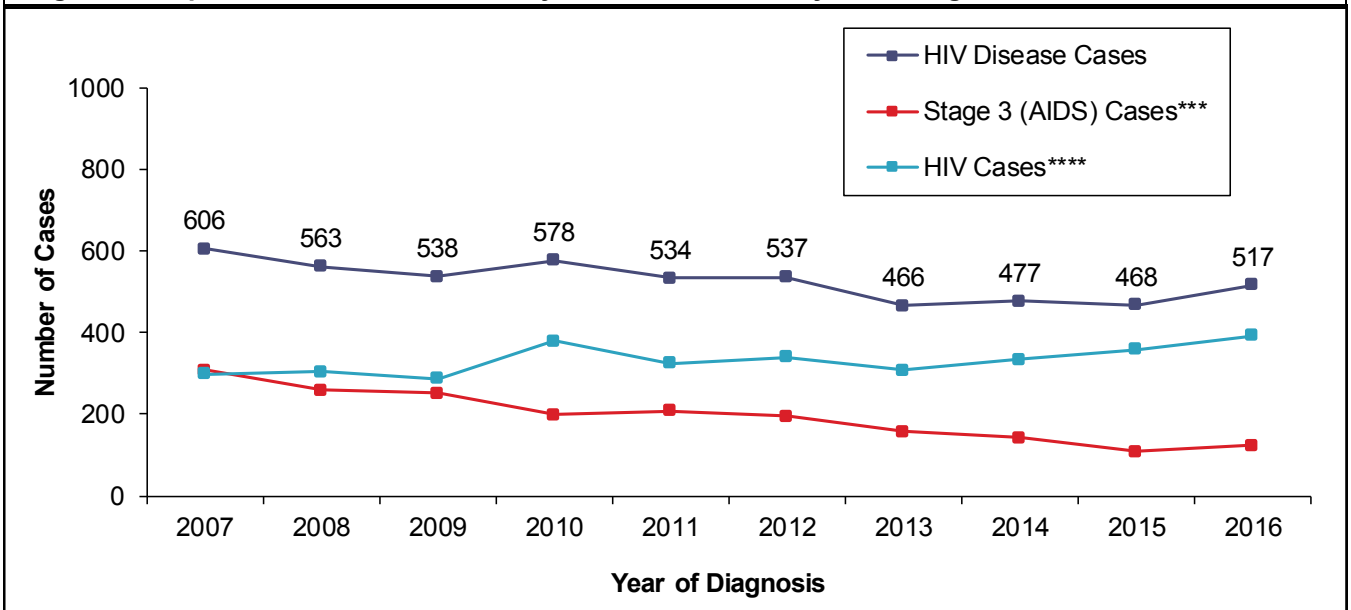
At the end of 2016, there were 12,606 persons living with HIV disease whose most recent diagnosis occurred in Missouri (Figure 2). The number of people living with HIV disease increased each year. There were 517 new HIV disease diagnoses in 2016. The number of new diagnoses each year from 2007 to 2016 has fluctuated. The number of deaths among persons with HIV disease each year has remained generally steady. The lower number of deaths in 2016 (83) was likely due to delays in death reporting.

Figure 3. HIV disease cases, by current status* and year of diagnosis, Missouri, 2007-2016**



*HIV case vs. stage 3 (AIDS) case.
**Cases are indicated by year of initial diagnosis reported to DHSS (i.e., the year in which the first diagnosis of the person, whether as an HIV case or a stage 3 (AIDS) case, was documented by DHSS).
***These cases were either: 1) initially reported as HIV cases and then later reclassified as stage 3 (AIDS) cases because they subsequently met the stage 3 (AIDS) case definition; or 2) initially reported as stage 3 (AIDS) cases.
****These cases were initially reported as HIV cases and have remained HIV cases. They have not met the case definition for stage 3 (AIDS) as of December 31, 2016.

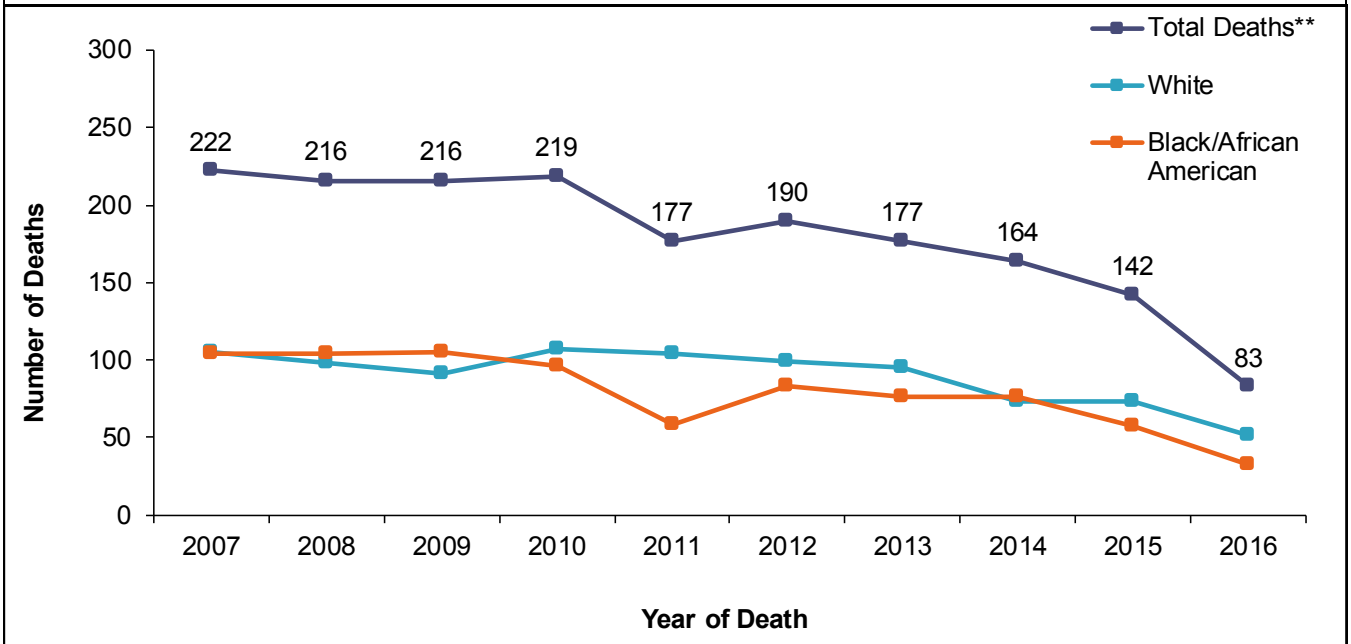
Figure 4. Reported HIV disease cases, by current status* and year of diagnosis, Missouri, 2007-2016**



*HIV case vs. stage 3 (AIDS) case.
**Cases are indicated by year of initial diagnosis reported to DHSS (i.e., the year in which the first diagnosis of the person, whether as an HIV case or a stage 3 (AIDS) case, was documented by DHSS).
***These cases were either: 1) initially reported as HIV cases and then later reclassified as stage 3 (AIDS) cases because they subsequently met the stage 3 (AIDS) case definition; or 2) initially reported as stage 3 (AIDS) cases.
****These cases were initially reported as HIV cases and have remained HIV cases. They have not met the case definition for stage 3 (AIDS) as of December 31, 2016.

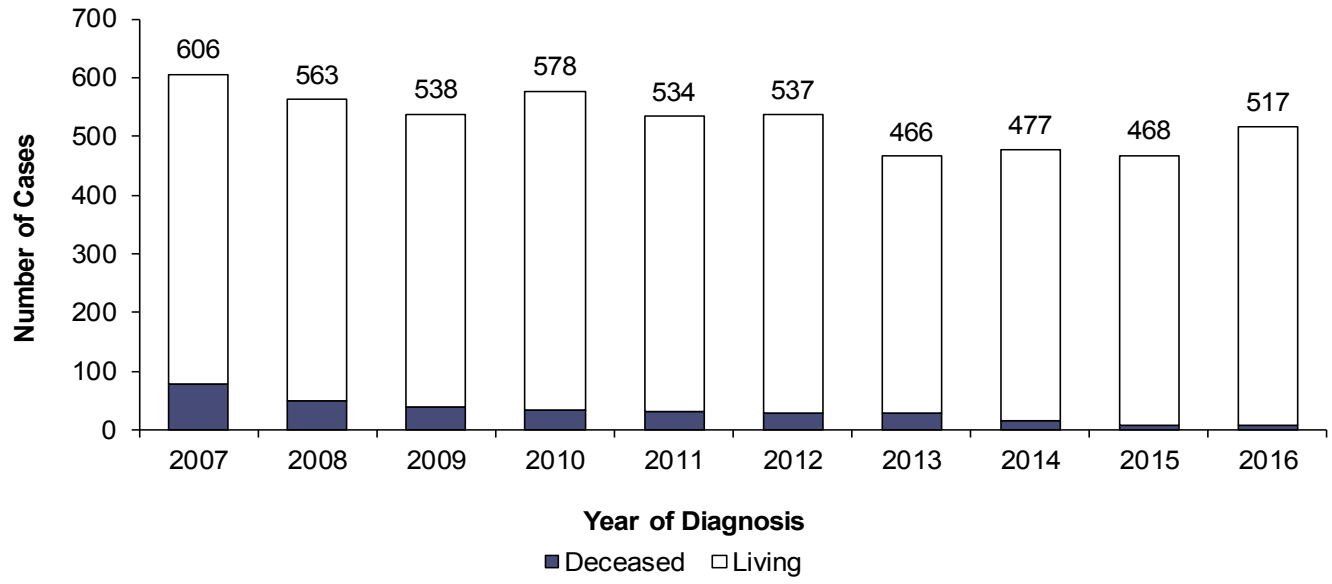
Between 2007 and 2016, the number of new HIV disease diagnoses has ranged from 466 cases in 2013 to 606 cases in 2007 (Figures 3 and 4). The number of new diagnoses fluctuated slightly between 2007 and 2016, with no sustained upward or downward trend in new HIV diagnoses over this time period. Differences in the number of persons sub-classified as stage 3 (AIDS) cases each year are due to the progression of the disease over time. For those diagnosed with HIV disease in 2007, a larger number are currently classified as stage 3 (AIDS) cases compared to those diagnosed in 2016 because they have been living with the virus longer.

Figure 5. HIV disease deaths*, by selected race and year of death, Missouri, 2007-2016†**



*Includes deaths that have occurred among those diagnosed with HIV disease in Missouri.
**Total deaths include persons of all races.
†Only includes deaths through December 31, 2016, and reported by February 28, 2017.

Figure 6. Persons diagnosed with HIV disease, by current vital status* and year of diagnosis, Missouri, 2007-2016**



*Vital status on December 31, 2016.
**Cases are indicated by year of initial diagnosis reported to DHSS (i.e., the year in which the first diagnosis of the person, whether as an HIV case or a stage 3 (AIDS) case, was documented by DHSS).

The number of deaths among persons with HIV disease remained generally steady from 2007 to 2010 and then decreased from 2010 to 2011. The number of deaths steadily decreased between 2011 and 2015 (Figure 5). The lower number of deaths in 2016 (83) is likely due to delays in death reporting. Of the 606 persons diagnosed with HIV disease in 2007, 77 (13%) were deceased by the end of 2016 (Figure 6). Among the 517 cases first diagnosed in 2016, 7 (1%) were deceased at the end of 2016. The difference in the proportion of cases that are deceased is due to the length of time individuals have been living with the disease.

Table 1. Living† HIV, stage 3 (AIDS), and HIV disease cases, by sex, by race/ethnicity, by race/ethnicity and sex, and by current age, Missouri, 2016

	HIV*			Stage 3 (AIDS)**			HIV Disease***		
	Cases	%	Rate****	Cases	%	Rate****	Cases	%	Rate****
Sex									
Male	5,051	82.0%	169.2	5,366	83.2%	179.8	10,417	82.6%	349.0
Female	1,106	18.0%	35.7	1,083	16.8%	35.0	2,189	17.4%	70.6
Total	**6,157**	**100.0%**	**101.2**	**6,449**	**100.0%**	**106.0**	**12,606**	**100.0%**	**207.2**
Race/Ethnicity									
White	2,952	47.9%	60.8	3,066	47.5%	63.1	6,018	47.7%	123.9
Black/African American	2,807	45.6%	397.7	2,961	45.9%	419.5	5,768	45.8%	817.3
Hispanic	271	4.4%	109.5	291	4.5%	117.5	562	4.5%	227.0
Asian/Pacific Islander	50	0.8%	39.6	38	0.6%	30.1	88	0.7%	69.7
American Indian/Alaskan Native	6	0.1%	23.0	4	0.1%	15.4	10	0.1%	38.4
Two or More Races/Unknown	71	1.2%	--	89	1.4%	--	160	1.3%	--
Total	**6,157**	**100.0%**	**101.2**	**6,449**	**100.0%**	**106.0**	**12,606**	**100.0%**	**207.2**
Race/Ethnicity-Males									
White Male	2,583	51.1%	108.1	2,745	51.2%	114.9	5,328	51.1%	223.1
Black/African American Male	2,141	42.4%	637.5	2,271	42.3%	676.2	4,412	42.4%	1313.6
Hispanic Male	227	4.5%	177.6	247	4.6%	193.2	474	4.6%	370.7
Asian/Pacific Islander Male	39	0.8%	64.9	26	0.5%	43.3	65	0.6%	108.2
American Indian/Alaskan Native Male	6	0.1%	45.7	4	0.1%	30.5	10	0.1%	76.2
Two or More Races/Unknown Male	55	1.1%	--	73	1.4%	--	128	1.2%	--
Total	**5,051**	**100.0%**	**169.2**	**5,366**	**100.0%**	**179.8**	**10,417**	**100.0%**	**349.0**
Race/Ethnicity-Females									
White Female	369	33.4%	14.9	321	29.6%	13.0	690	31.5%	27.9
Black/African American Female	666	60.2%	180.1	690	63.7%	186.5	1,356	61.9%	366.6
Hispanic Female	44	4.0%	36.8	44	4.1%	36.8	88	4.0%	73.5
Asian/Pacific Islander Female	11	1.0%	16.6	12	1.1%	18.2	23	1.1%	34.8
American Indian/Alaskan Native Female	0	0.0%	0.0	0	0.0%	0.0	0	0.0%	0.0
Two or More Races/Unknown Female	16	1.4%	--	16	1.5%	--	32	1.5%	--
Total	**1,106**	**100.0%**	**35.7**	**1,083**	**100.0%**	**35.0**	**2,189**	**100.0%**	**70.6**
Current Age‡									
<2	0	0.0%	0.0	1	0.0%	0.7	1	0.0%	0.7
2-12	30	0.5%	3.5	2	0.0%	0.2	32	0.3%	3.8
13-18	45	0.7%	9.5	9	0.1%	1.9	54	0.4%	11.4
19-24	392	6.4%	76.8	92	1.4%	18.0	484	3.8%	94.8
25-44	2,833	46.0%	184.0	1,802	27.9%	117.1	4,635	36.8%	301.1
45-64	2,564	41.6%	159.2	4,081	63.3%	253.4	6,645	52.7%	412.6
65+	293	4.8%	30.7	462	7.2%	48.4	755	6.0%	79.1
Total	**6,157**	**100.0%**	**101.2**	**6,449**	**100.0%**	**106.0**	**12,606**	**100.0%**	**207.2**

†Includes persons diagnosed with HIV disease in Missouri who are currently living, regardless of current residence. Includes persons diagnosed in Missouri correctional facilities.
*Cases which remained HIV cases at the end of 2016.
**Cases classified as stage 3 (AIDS) by December 31, 2016.
***The sum of HIV cases and stage 3 (AIDS) cases.
****Per 100,000 population based on 2015 DHSS estimates.
‡Based on age as of December 31, 2016.
Note: Percentages may not total 100% due to rounding.

Table 2. Diagnosed HIV, stage 3 (AIDS), and HIV disease cases, by sex, by race/ethnicity, by race/ethnicity and sex, and by current age, Missouri, 2016

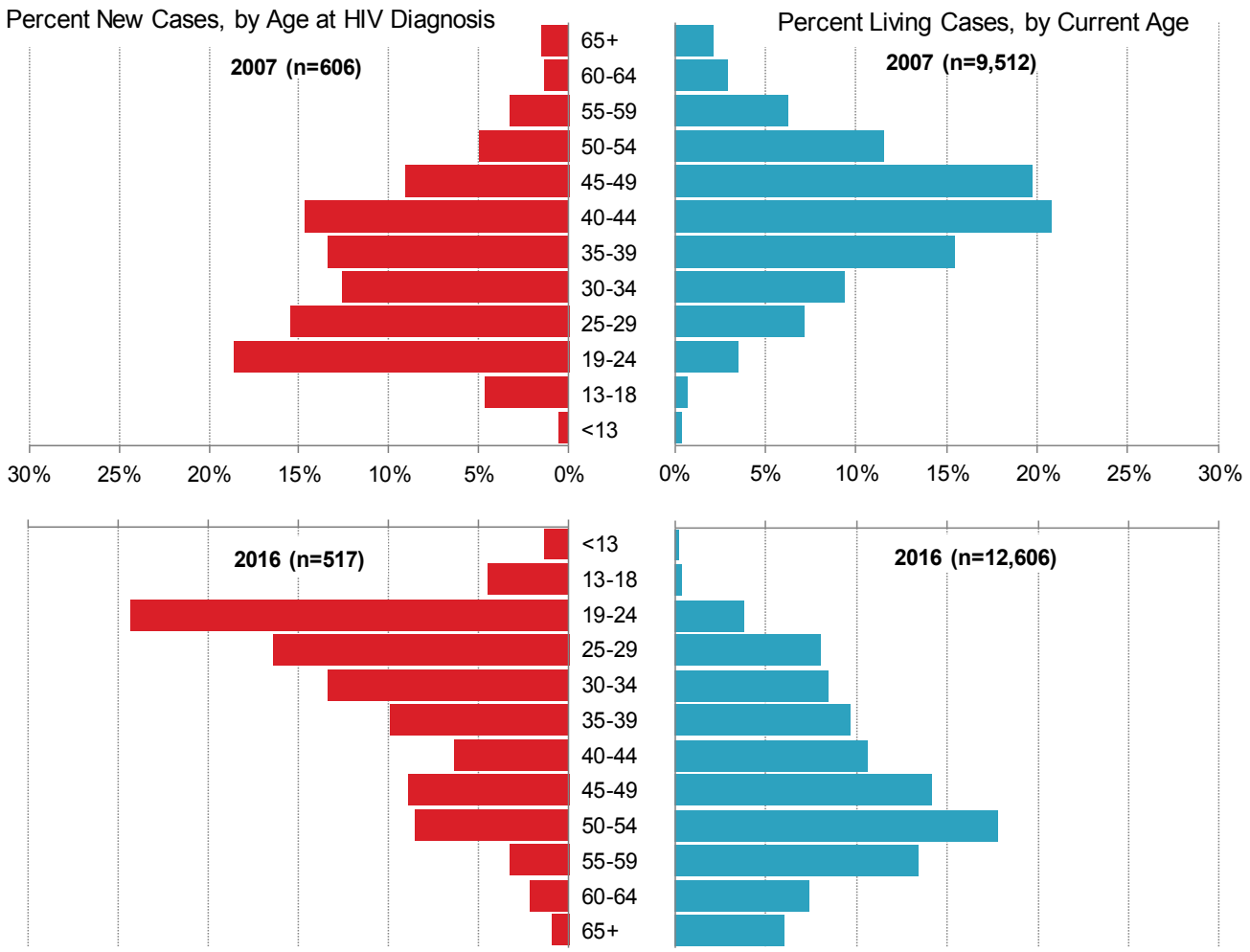
	HIV*			Stage 3 (AIDS)**			HIV Disease***		
	Cases	%	Rate****	Cases	%	Rate****	Cases	%	Rate****
Sex									
Male	324	82.4%	10.9	94	75.8%	3.1	418	80.9%	14.0
Female	69	17.6%	2.2	30	24.2%	1.0	99	19.1%	3.2
Total	**393**	**100.0%**	**6.5**	**124**	**100.0%**	**2.0**	**517**	**100.0%**	**8.5**
Race/Ethnicity									
White	153	38.9%	3.1	60	48.4%	1.2	213	41.2%	4.4
Black/African American	196	49.9%	27.8	54	43.5%	7.7	250	48.4%	35.4
Hispanic	30	7.6%	12.1	9	7.3%	3.6	39	7.5%	15.8
Asian/Pacific Islander	5	1.3%	4.0	0	0.0%	0.0	5	1.0%	4.0
American Indian/Alaskan Native	0	0.0%	0.0	0	0.0%	0.0	0	0.0%	0.0
Two or More Races/Unknown	9	2.3%	7.5	1	0.8%	0.8	10	1.9%	--
Total	**393**	**100.0%**	**6.5**	**124**	**100.0%**	**2.0**	**517**	**100.0%**	**8.5**
Race/Ethnicity-Males									
White Male	131	40.4%	5.5	51	54.3%	2.1	182	43.5%	7.6
Black/African American Male	155	47.8%	46.1	36	38.3%	10.7	191	45.7%	56.9
Hispanic Male	27	8.3%	21.1	6	6.4%	4.7	33	7.9%	25.8
Asian/Pacific Islander Male	4	1.2%	6.7	0	0.0%	0.0	4	1.0%	6.7
American Indian/Alaskan Native Male	0	0.0%	0.0	0	0.0%	0.0	0	0.0%	0.0
Two or More Races/Unknown Male	7	2.2%	--	1	1.1%	--	8	1.9%	--
Total	**324**	**100.0%**	**10.9**	**94**	**100.0%**	**3.1**	**418**	**100.0%**	**14.0**
Race/Ethnicity-Females									
White Female	22	31.9%	0.9	9	30.0%	0.4	31	31.3%	1.3
Black/African American Female	41	59.4%	11.1	18	60.0%	4.9	59	59.6%	16.0
Hispanic Female	3	4.3%	2.5	3	10.0%	2.5	6	6.1%	5.0
Asian/Pacific Islander Female	1	1.4%	1.5	0	0.0%	0.0	1	1.0%	1.5
American Indian/Alaskan Native Female	0	0.0%	0.0	0	0.0%	0.0	0	0.0%	0.0
Two or More Races/Unknown Female	2	2.9%	--	0	0.0%	--	2	2.0%	--
Total	**69**	**100.0%**	**2.2**	**30**	**100.0%**	**1.0**	**99**	**100.0%**	**3.2**
Current Age‡									
<2	0	0.0%	0.0	1	0.8%	0.7	1	0.2%	0.7
2-12	4	1.0%	0.5	0	0.0%	0.0	4	0.8%	0.5
13-18	14	3.6%	2.9	4	3.2%	0.8	18	3.5%	3.8
19-24	107	27.2%	20.8	11	8.9%	2.1	118	22.8%	22.8
25-44	193	49.1%	12.7	57	46.0%	3.7	250	48.4%	16.3
45-64	72	18.3%	4.4	48	38.7%	3.0	120	23.2%	7.4
65+	3	0.8%	0.3	3	2.4%	0.3	6	1.2%	0.6
Total	**393**	**100.0%**	**6.5**	**124**	**100.0%**	**2.0**	**517**	**100.0%**	**8.5**

*HIV cases diagnosed during 2016 which remained HIV cases at the end of the year. Includes persons diagnosed in Missouri correctional facilities.
**Stage 3 (AIDS) cases initially diagnosed in 2016.
***The sum of newly diagnosed HIV cases and newly diagnosed stage 3 (AIDS) cases. Does not include cases diagnosed prior to 2016 with HIV which progressed to stage 3 (AIDS) in 2016.
****Per 100,000 population based on 2015 DHSS estimates.
‡Based on age as of December 31, 2016.
Note: Percentages may not total 100% due to rounding.

Of the 12,606 persons living with HIV at the end of 2016, 83% were males (Table 1). The rate of those living with HIV disease was 4.9 times as high among males compared to females. Although whites represented the largest proportion of living HIV disease cases (48%), the rate of those living with HIV disease was 6.6 times as high among blacks/African Americans compared to whites. The rate was 1.8 times as high among Hispanics compared to whites. Among males, the rate of living cases among blacks/African Americans was 5.9 times as high as the rate among whites, and 1.7 times as high among Hispanics compared to whites. Among females, the rate of those living with HIV disease among blacks/African Americans was 13.1 times as high as the rate among whites, and 2.6 times as high among Hispanics compared to whites.

Of the 517 persons newly diagnosed with HIV disease in 2016, 24% were classified as stage 3 (AIDS) cases by the end of 2016 (Table 2). The rate of new HIV disease diagnoses was 4.4 times as high among males compared to females. The rate of new HIV disease cases was 8 times as high among blacks/African Americans compared to whites and 3.6 times as high among Hispanics compared to whites. The rate of new HIV disease diagnoses was greatest among persons 19 to 24 years of age at the end of 2016 (22.8 per 100,000).

Figure 7. Distribution of new HIV disease cases, by age at diagnosis, and living HIV disease cases, by current age in selected year, Missouri, 2007 and 2016

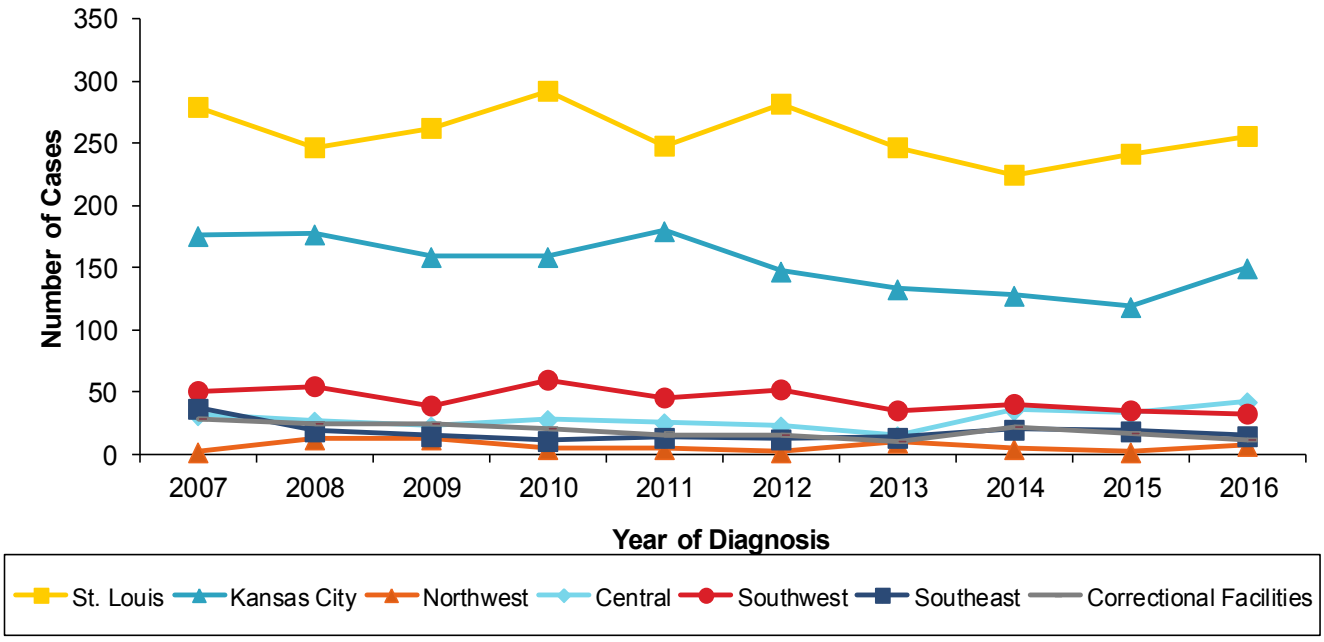


The distribution of the age at diagnosis among new HIV disease cases has gradually shifted to younger populations over time (Figure 7). In 2007, the greatest proportion of new diagnoses occurred among those ages 19 to 24 (19%) and 25 to 29 (16%). In 2016, the greatest proportion of new diagnoses also occurred among those ages 19 to 24 (24%). Although the age of new diagnoses has decreased, the age of individuals living with HIV has increased over time. In 2007, the greatest proportion of living cases was among those ages 40 to 44 (21%). In 2016, the greatest proportion of living cases was among those 50 to 54 years old (18%).

Figure 8. Number of persons living with HIV disease, by county of residence* and HIV care region at time of diagnosis, Missouri, 1982-2016

*Based on residence at time of most recent diagnosis of HIV or stage 3 (AIDS). Excludes persons diagnosed in Missouri correctional facilities (n=499).

Figure 9. Persons diagnosed with HIV disease by HIV care region at time of diagnosis, Missouri, 2007-2016



The largest numbers of persons living with HIV disease in 2016 were most recently diagnosed in St. Louis City (3,410), Jackson County (3,189), and St. Louis County (2,256) (Figure 8).

The St. Louis HIV Care Region represented the largest number of new HIV disease diagnoses in each year from 2007 to 2016 (Figure 9). However, the largest increases in new HIV disease diagnoses from 2015 to 2016 were seen in the Kansas City HIV Care Region (26%) and the Central HIV Care Region (26%). The numbers of new diagnoses reported in the St. Louis HIV Care Region fluctuated from 2007 to 2014 with slight increases seen in recent years. The numbers of new diagnoses reported in the remaining regions have remained relatively consistent from 2007 to 2016 with no sustained upward or downward trends.

Table 3. New and living HIV and stage 3 (AIDS) cases and rates, by geographic area, and by HIV care region, Missouri, 2016

	HIV Cases						Stage 3 (AIDS) Cases					
	Diagnosed 2016*			Living with HIV			Diagnosed 2016**			Living with Stage 3 (AIDS)		
Location	Cases	%	Rate***	Cases	%	Rate***	Cases	%	Rate***	Cases	%	Rate***
Geograhic Area												
St. Louis City†	105	26.7%	33.3	1,680	27.3%	532.2	16	12.9%	5.1	1,730	26.8%	548.0
St. Louis County†	78	19.8%	7.8	1,164	18.9%	116.0	30	24.2%	3.0	1,092	16.9%	108.8
Kansas City†	95	24.2%	20.0	1,332	21.6%	280.2	29	23.4%	6.1	1,668	25.9%	350.9
Outstate†	105	26.7%	2.4	1,646	26.7%	38.4	47	37.9%	1.1	1,795	27.8%	41.8
Missouri Correctional Facilities††	10	2.5%	N/A	335	5.4%	N/A	2	1.6%	N/A	164	2.5%	N/A
MISSOURI TOTAL	**393**	**100.0%**	**6.5**	**6,157**	**100.0%**	**101.2**	**124**	**100.0%**	**2.0**	**6,449**	**100.0%**	**106.0**
HIV Care Region												
St. Louis†	204	51.9%	9.6	3,104	50.4%	146.5	52	41.9%	2.5	3,041	47.2%	143.5
Kansas City†	114	29.0%	9.5	1,673	27.2%	139.8	36	29.0%	3.0	2,062	32.0%	172.3
Northwest†	4	1.0%	1.8	53	0.9%	23.6	4	3.2%	1.8	91	1.4%	40.6
Central†	33	8.4%	3.7	340	5.5%	38.6	10	8.1%	1.1	359	5.6%	40.8
Southwest†	19	4.8%	1.6	500	8.1%	43.0	13	10.5%	1.1	502	7.8%	43.1
Southeast†	9	2.3%	1.8	152	2.5%	30.5	7	5.6%	1.4	230	3.6%	46.1
Missouri Correctional Facilities††	10	2.5%	N/A	335	5.4%	N/A	2	1.6%	N/A	164	2.5%	N/A
MISSOURI TOTAL	**393**	**100.0%**	**6.5**	**6,157**	**100.0%**	**101.2**	**124**	**100.0%**	**2.0**	**6,449**	**100.0%**	**106.0**

*HIV cases diagnosed and reported to DHSS during 2016 which remained HIV cases at the end of the year.
**Does not include HIV cases diagnosed prior to 2016 that progressed to stage 3 (AIDS) in 2016.
***Per 100,000 population based on 2015 DHSS estimates.
†Does not include persons diagnosed in Missouri correctional facilities.
††Includes persons diagnosed in Missouri correctional facilities.
Note: Percentages may not total 100% due to rounding.

There were differences in the proportion of persons newly diagnosed with HIV disease that were either concurrently diagnosed with stage 3 (AIDS) or progressed to stage 3 (AIDS) at the end of 2016 by geographic area and HIV care region (Table 3). In Outstate, 31% of newly diagnosed HIV disease cases progressed to stage 3 (AIDS) by the end of 2016. In comparison, the proportions were 28%, 23%, 17%, and 13% for St. Louis County, Kansas City, Missouri correctional facilities, and St. Louis City, respectively. In the Northwest HIV Care Region, 50% of newly diagnosed HIV disease cases progressed to stage 3 (AIDS) at the end of 2016, whereas the proportions were 44%, 41%, 24%, 23%, 20%, and 17% for the HIV care regions of Southeast, Southwest, Kansas City, Central, St. Louis, and Missouri correctional facilities, respectively. The variation in the proportion of newly diagnosed individuals that progressed to stage 3 (AIDS) by the end of 2016 among the geographic areas may be related to differences in when individuals were tested in the course of their disease progression or differences in active surveillance techniques.

The rates of new and living HIV and living stage 3 (AIDS) cases were greatest in St. Louis City (Table 3). The rate of new HIV case diagnoses in St. Louis City was 13.9 times as high as Outstate and 8.3 times as high in Kansas City compared to Outstate. The rate of new stage 3 (AIDS) case diagnoses was 5.5 times as high in Kansas City compared to Outstate and 4.6 times as high in St. Louis City compared to Outstate. This demonstrates the disproportionate impact of HIV disease in the major metropolitan areas in Missouri.

Table 4. Diagnosed HIV cases and rates, by selected race/ethnicity and geographic area, Missouri, 2016

Area	White			Black/African American			Hispanic			Total		
	Cases	%	Rate*	Cases	%	Rate*	Cases	%	Rate*	Cases**	%	Rate*
St. Louis City†	24	22.9%	17.3	75	71.4%	51.1	3	2.9%	24.5	105	100.0%	33.3
St. Louis County†	18	23.1%	2.7	54	69.2%	22.6	3	3.8%	10.7	78	100.0%	7.8
Kansas City†	35	36.8%	13.4	42	44.2%	30.1	17	17.9%	36.2	95	100.0%	20.0
Outstate Missouri†	70	66.7%	1.8	23	21.9%	12.8	5	4.8%	3.1	105	100.0%	2.4
Missouri Correctional Facilities††	6	60.0%	N/A	2	20.0%	N/A	2	20.0%	N/A	10	100.0%	N/A
MISSOURI TOTAL	**153**	**38.9%**	**3.1**	**196**	**49.9%**	**27.8**	**30**	**7.6%**	**12.1**	**393**	**100.0%**	**6.5**

*Per 100,000 population based on 2015 DHSS estimates.
**Includes cases among persons whose race/ethnicity is either unknown or not listed.
†Does not include persons diagnosed in Missouri correctional facilities.
††Includes persons diagnosed in Missouri correctional facilities.
Note: Row percentages are shown. Percentages may not total 100% due to rounding.

Table 5. Diagnosed HIV cases and rates, by selected race/ethnicity and HIV care region, Missouri, 2016

HIV Care Region	White			Black/African American			Hispanic			Total		
	Cases	%	Rate*	Cases	%	Rate*	Cases	%	Rate*	Cases**	%	Rate*
St. Louis†	57	27.9%	3.7	133	65.2%	32.5	6	2.9%	9.8	204	100.0%	9.6
Kansas City†	47	41.2%	5.4	47	41.2%	25.2	18	15.8%	20.2	114	100.0%	9.5
Northwest†	3	75.0%	1.5	1	25.0%	11.8	0	0.0%	0.0	4	100.0%	1.8
Central†	27	81.8%	3.5	5	15.2%	11.2	1	3.0%	3.7	33	100.0%	3.7
Southwest†	10	52.6%	1.0	4	21.1%	16.1	3	15.8%	5.9	19	100.0%	1.6
Southeast†	3	33.3%	0.7	4	44.4%	12.5	0	0.0%	0.0	9	100.0%	1.8
Missouri Correctional Facilities††	6	60.0%	N/A	2	20.0%	N/A	2	20.0%	N/A	10	100.0%	N/A
MISSOURI TOTAL	**153**	**38.9%**	**3.1**	**196**	**49.9%**	**27.8**	**30**	**7.6%**	**12.1**	**393**	**100.0%**	**6.5**

*Per 100,000 population based on 2015 DHSS estimates.
**Includes cases in persons whose race/ethnicity is either unknown or not listed.
†Does not include persons diagnosed in Missouri correctional facilities.
††Includes persons diagnosed in Missouri correctional facilities.
Note: Row percentages are shown. Percentages may not total 100% due to rounding.

The proportion of new HIV cases diagnosed in 2016 by race/ethnicity varied by geographic area (Table 4). Whites comprised 67% of new HIV case diagnoses in Outstate, but only 23% of new HIV cases in both St. Louis City and St. Louis County. Differences in the general population distribution of each of these geographic areas likely explain some of the variation observed. The difference in the rate of new HIV case diagnoses by race/ethnicity also varied by geographic area. In Outstate, the rate of new HIV cases among blacks/African Americans was 7.1 times as high as the rate among whites and 1.7 times as high among Hispanics compared to whites. In comparison, in St. Louis City, the rate of new HIV cases was 3 times as high in blacks/African Americans compared to whites and 1.4 times as high among Hispanics compared to whites.

Similar patterns to those observed for the geographic areas were also present by HIV care region (Table 5). In the Central HIV Care Region, whites represented 82% of new HIV case diagnoses, whereas blacks/African Americans represented the majority of cases in the St. Louis HIV Care Region (65%).

Table 6. Newly diagnosed and living HIV and stage 3 (AIDS) cases in men who have sex with men, by selected race/ethnicity, Missouri, 2016

	HIV Cases*				Stage 3 (AIDS) Cases			
	Newly Diagnosed		Living		Newly Diagnosed**		Living	
Race/Ethnicity	Cases	%	Cases	%	Cases	%	Cases	%
White	103	40.4%	2,069	53.3%	34	50.7%	2,152	53.9%
Black/African American	119	46.7%	1,553	40.0%	27	40.3%	1,604	40.2%
Hispanic	23	9.0%	183	4.7%	5	7.5%	159	4.0%
Other/Unknown	10	3.9%	77	2.0%	1	1.5%	80	2.0%
MISSOURI TOTAL* **	**255**	**100.0%**	**3,882**	**100.0%**	**67**	**100.0%**	**3,995**	**100.0%**

*Remained HIV cases at the end of the year.
**Does not include HIV cases diagnosed prior to 2016 that progressed to stage 3 (AIDS) in 2016.
***Totals include persons diagnosed in Missouri correctional facilities.
Note: Percentages may not total 100% due to rounding.

Table 7. Living HIV disease cases in men who have sex with men, by selected race/ethnicity and current age group, Missouri, 2016

	White		Black/African American		Hispanic		Total*	
Age Group	Cases	%**	Cases	%**	Cases	%**	Cases	%**
13-18	1	0.0%	13	0.4%	0	0.0%	14	0.2%
19-24	66	1.6%	254	8.0%	14	4.1%	348	4.4%
25-44	1,206	28.6%	1,481	46.9%	160	46.8%	2,929	37.2%
45-64	2,597	61.5%	1,320	41.8%	154	45.0%	4,127	52.4%
65+	351	8.3%	89	2.8%	14	4.1%	459	5.8%
MISSOURI TOTAL	**4,221**	**100.0%**	**3,157**	**100.0%**	**342**	**100.0%**	**7,877**	**100.0%**

*Row totals and percentages include cases in persons whose race/ethnicity is either unknown or not listed. Totals include persons diagnosed in Missouri correctional facilities.
**Percentage of cases per age group.
Note: Percentages may not total 100% due to rounding.

The data presented for each exposure category in Tables 6 through 19 have not been adjusted to redistribute individuals with missing exposure category information. Therefore, these data represent only those individuals with an exposure category reported to DHSS. The total number of individuals in each exposure category is likely underestimated, especially among those newly diagnosed in 2016. These data are subject to change.

A total of 322 new HIV disease diagnoses were attributed to MSM in 2016 (Table 6). The number of new HIV cases among blacks/African Americans was 1.2 times as many new HIV cases among whites; however, whites represented 1.3 times the number of new stage 3 (AIDS) cases compared to blacks/African Americans in 2016. Whites represented a larger proportion of MSM living with both HIV and stage 3 (AIDS) compared to blacks/ African Americans and Hispanics. Of the newly diagnosed cases among MSM, 21% progressed to stage 3 (AIDS) by the end of 2016.

The distribution of living HIV disease cases by current age varied by race/ethnicity among MSM, with those who identify as non-white tending to be younger (Table 7). Among white MSM living with HIV disease, the majority (62%) were between 45 and 64 years of age at the end of 2016. However, only 42% of living black/African American MSM and 45% of living Hispanic MSM with HIV disease were in this age group. The greatest numbers of black/African American and Hispanic MSM living with HIV disease were between 25 and 44 years of age. Blacks/African Americans represented the largest number of MSM under the age of 25 (267).

Table 8. Living HIV disease cases in men who have sex with men, by selected race/ethnicity, by geographic area, by HIV care region, Missouri, 2016

	White		Black/African American		Hispanic		Total*	
Geographic Area	**Cases**	**%****	**Cases**	**%****	**Cases**	**%****	**Cases**	**%*****
St. Louis City	1,045	46.8%	1,098	49.2%	44	2.0%	2,232	28.3%
St. Louis County	572	39.8%	784	54.6%	57	4.0%	1,436	18.2%
Kansas City	1,084	51.7%	822	39.2%	141	6.7%	2,097	26.6%
Outstate	1,447	76.7%	308	16.3%	93	4.9%	1,887	24.0%
Missouri Correctional Facilities	73	32.4%	145	64.4%	7	3.1%	225	2.9%
MISSOURI TOTAL	**4,221**	**53.6%**	**3,157**	**40.1%**	**342**	**4.3%**	**7,877**	**100.0%**
HIV Care Region								
St. Louis	1,859	47.0%	1,920	48.5%	105	2.7%	3,958	50.2%
Kansas City	1,416	55.4%	900	35.2%	178	7.0%	2,556	32.4%
Northwest	57	80.3%	12	16.9%	2	2.8%	71	0.9%
Central	244	69.9%	87	24.9%	15	4.3%	349	4.4%
Southwest	457	83.7%	43	7.9%	32	5.9%	546	6.9%
Southeast	115	66.9%	50	29.1%	3	1.7%	172	2.2%
Missouri Correctional Facilities	73	32.4%	145	64.4%	7	3.1%	225	2.9%
MISSOURI TOTAL	**4,221**	**53.6%**	**3,157**	**40.1%**	**342**	**4.3%**	**7,877**	**100.0%**

*Row totals and percentages include cases in persons whose race/ethnicity is either unknown or not listed. Missouri totals include persons diagnosed in Missouri correctional facilities.
**Percentage of race/ethnicity in each area/region.
***Percentage of cases per area/region.
Note: Percentages may not total 100% due to rounding.

Of the 7,877 MSM living with HIV disease at the end of 2016, the largest proportion was diagnosed in St. Louis City (28%), followed by Kansas City (27%) (Table 8). There were differences in the proportion of living HIV disease cases among MSM diagnosed in each geographic area by race/ethnicity. In Outstate Missouri, 77% of persons living with HIV disease attributed to MSM were white, whereas only 32% of this group who were diagnosed in Missouri correctional facilities were white. The differences were likely due to variations in the general population of the geographic areas.

Similar patterns were also seen for the HIV care regions. The St. Louis HIV Care Region represented 50% of all living cases among MSM and the Kansas City HIV Region comprised 32%. The proportion of living cases among white MSM was highest in the Southwest HIV Care Region (84%) and lowest in Missouri correctional facilities (32%).

Table 9. Newly diagnosed and living HIV and stage 3 (AIDS) cases in men who have sex with men and inject drugs, by selected race/ethnicity, Missouri, 2016

	HIV Cases*				Stage 3 (AIDS) Cases			
	Newly Diagnosed		Living		Newly Diagnosed**		Living	
Race/Ethnicity	Cases	%	Cases	%	Cases	%	Cases	%
White	7	77.8%	164	68.0%	5	0.0%	229	62.1%
Black/African American	0	0.0%	64	26.6%	0	0.0%	119	32.2%
Hispanic	2	22.2%	8	3.3%	0	0.0%	13	3.5%
Other/Unknown	0	0.0%	5	2.1%	0	0.0%	8	2.2%
MISSOURI TOTAL* **	**9**	**100.0%**	**241**	**100.0%**	**5**	**100.0%**	**369**	**100.0%**

*Remained HIV cases at the end of the year.
**Does not include HIV cases diagnosed prior to 2016 that progressed to stage 3 (AIDS) in 2016.
***Totals include persons diagnosed in Missouri correctional facilities.
Note: Percentages may not total 100% due to rounding.

Table 10. Living HIV disease cases in men who have sex with men and inject drugs, by selected race/ethnicity, by current age group, Missouri, 2016

	White		Black/African American		Hispanic		Total*	
Age Group	Cases	%**	Cases	%**	Cases	%**	Cases	%**
13-18	0	0.0%	0	0.0%	0	0.0%	0	0.0%
19-24	4	1.0%	1	0.5%	1	4.8%	6	1.0%
25-44	126	32.1%	40	21.9%	9	42.9%	184	30.2%
45-64	243	61.8%	131	71.6%	11	52.4%	389	63.8%
65+	20	5.1%	11	6.0%	0	0.0%	31	5.1%
MISSOURI TOTAL	**393**	**100.0%**	**183**	**100.0%**	**21**	**100.0%**	**610**	**100.0%**

*Row totals and percentages include cases in persons whose race/ethnicity is either unknown or not listed. Totals include persons diagnosed in Missouri correctional facilities.
**Percentage of cases per age group.
Note: Percentages may not total 100% due to rounding.

A total of 14 new HIV disease diagnoses were attributed to men who have sex with men and inject drugs (MSM/IDU) in 2016 (Table 9). The small number of new cases diagnosed among MSM/IDU makes patterns by race/ethnicity and sex difficult to interpret. Five newly diagnosed cases progressed to stage 3 (AIDS) by the end of 2016. Whites represented the majority (78%) of new HIV cases among MSM/IDU. Among living HIV and stage 3 (AIDS) cases, whites represented the largest proportion of cases (68% and 62%, respectively).

The distribution of living HIV disease cases by current age varied by race/ethnicity among MSM/IDU (Table 10). Among white and black/African American MSM/IDU living with HIV disease, the majority (62% and 72%, respectively) were between 45 and 64 years of age at the end of 2016. Comparatively, only 52% of Hispanic MSM/IDU living with HIV disease were between 45 and 64 years of age.

Table 11. Living HIV disease cases in men who have sex with men and inject drugs, by selected race/ethnicity, by geographic area, by HIV care region, Missouri, 2016

	White		Black/African American		Hispanic		Total*	
Geographic Area	**Cases**	**%****	**Cases**	**%****	**Cases**	**%****	**Cases**	**%*****
St. Louis City	46	41.1%	61	54.5%	3	2.7%	112	18.4%
St. Louis County	25	49.0%	26	51.0%	0	0.0%	51	8.4%
Kansas City	94	63.5%	38	25.7%	9	6.1%	148	24.3%
Outstate	193	81.4%	33	13.9%	8	3.4%	237	38.9%
Missouri Correctional Facilities	35	56.5%	25	40.3%	1	1.6%	62	10.2%
MISSOURI TOTAL	**393**	**64.4%**	**183**	**30.0%**	**21**	**3.4%**	**610**	**100.0%**
HIV Care Region								
St. Louis	84	47.5%	87	49.2%	4	2.3%	177	29.0%
Kansas City	135	69.9%	41	21.2%	9	4.7%	193	31.6%
Northwest	10	71.4%	4	28.6%	0	0.0%	14	2.3%
Central	34	65.4%	16	30.8%	2	3.8%	52	8.5%
Southwest	76	87.4%	4	4.6%	5	5.7%	87	14.3%
Southeast	19	76.0%	6	24.0%	0	0.0%	25	4.1%
Missouri Correctional Facilities	35	56.5%	25	40.3%	1	1.6%	62	10.2%
MISSOURI TOTAL	**393**	**64.4%**	**183**	**30.0%**	**21**	**3.4%**	**610**	**100.0%**

*Row totals and percentages include cases in persons whose race/ethnicity is either unknown or not listed. Missouri totals include persons diagnosed in Missouri correctional facilities.
**Percentage of race/ethnicity in each area/region.
***Percentage of cases per area/region.
Note: Percentages may not total 100% due to rounding.

Of the 610 MSM/IDU living with HIV disease at the end of 2016, the largest proportion was diagnosed in Outstate Missouri (39%), followed by Kansas City (24%) (Table 11). There were differences in the proportion of living HIV disease cases among MSM/IDU diagnosed in each geographic area by race/ethnicity. In Outstate Missouri, 81% of living cases attributed to MSM/IDU were white, whereas only 41% of living cases diagnosed in St. Louis City among MSM/IDU were white.

The Kansas City HIV Care Region represented 32% of all living cases among MSM/IDU, and the St. Louis HIV Care Region comprised 29%. The proportion of living cases among white MSM/IDU was highest in the Southwest HIV Care Region (87%) and lowest in the St. Louis HIV Care Region (48%).

Table 12. Newly diagnosed and living HIV and stage 3 (AIDS) cases in injection drug users, by selected race/ethnicity and sex, Missouri, 2016

	HIV Cases*				Stage 3 (AIDS) Cases			
	Newly Diagnosed		Living		Newly Diagnosed**		Living	
Race/Ethnicity and Sex	Cases	%	Cases	%	Cases	%	Cases	%
White Male	5	35.7%	87	32.2%	2	40.0%	106	25.6%
Black/African American Male	2	14.3%	75	27.8%	1	20.0%	136	32.9%
Hispanic Male	0	0.0%	7	2.6%	0	0.0%	18	4.3%
White Female	5	35.7%	60	22.2%	1	20.0%	64	15.5%
Black/African American Female	2	14.3%	35	13.0%	1	20.0%	75	18.1%
Hispanic Female	0	0.0%	3	1.1%	0	0.0%	9	2.2%
MISSOURI TOTAL* **	**14**	**100.0%**	**270**	**100.0%**	**5**	**100.0%**	**414**	**100.0%**

*Remained HIV cases at the end of the year.
**Does not include HIV cases diagnosed prior to 2016 that progressed to stage 3 (AIDS) in 2016.
***Totals include cases in persons whose race/ethnicity is either unknown or not listed. Totals include persons diagnosed in Missouri correctional facilities.
Note: Percentages may not total 100% due to rounding.

Table 13. Living HIV disease cases in injection drug users, by selected race/ethnicity and sex and current age group, Missouri, 2016

	White Males		Black/African American Males		White Females		Black/African American Females		Total*	
Age Group	Cases	%**	Cases	%**	Cases	%**	Cases	%**	Cases	%**
13-18	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
19-24	1	0.5%	3	1.4%	1	0.8%	0	0.0%	6	0.9%
25-44	38	19.7%	35	16.6%	46	37.1%	27	24.5%	159	23.2%
45-64	144	74.6%	147	69.7%	76	61.3%	78	70.9%	471	68.9%
65+	10	5.2%	26	12.3%	1	0.8%	5	4.5%	48	7.0%
MISSOURI TOTAL	**193**	**100.0%**	**211**	**100.0%**	**124**	**100.0%**	**110**	**100.0%**	**684**	**100.0%**

*Row totals and percentages include cases in persons whose race/ethnicity is either unknown or not listed. Totals include persons diagnosed in Missouri correctional facilities.
**Percentage of cases per age group.
Note: Percentages may not total 100% due to rounding.

A total of 19 new HIV disease diagnoses were attributed to injection drug use (IDU) in 2016 (Table 12). The small number of new cases diagnosed among IDU make patterns by race/ethnicity and sex difficult to interpret. Of the newly diagnosed cases among IDU, 26% progressed to stage 3 (AIDS) by the end of 2016. Males represented approximately 63% of all living HIV disease cases among IDU.

Among IDU living with HIV disease, a smaller proportion of white males and white females had progressed to stage 3 (AIDS) by the end of 2016 compared to non-white males and females. There were differences in the distribution of living cases by race/ethnicity and sex among IDU between those classified as HIV cases compared to those classified as stage 3 (AIDS) cases. For example, white males represented the largest proportion of living HIV cases (36%) while black/African American males represented the largest proportion (33%) of living stage 3 (AIDS) cases among IDU.

The greatest numbers of persons living with HIV disease in each race/ethnicity and sex category presented among IDU were 45 to 64 years of age at the end of 2016 (Table 13). The age group of 25 to 44 represented the second highest number of cases. The proportion of living HIV disease cases between the ages of 25 and 44 was greatest among white females.

Table 14. Living HIV disease cases in injection drug users, by selected race/ethnicity, by geographic area, by HIV care region, Missouri, 2016

	White		Black/African American		Hispanic		Total*	
Geographic Area	**Cases**	**%****	**Cases**	**%****	**Cases**	**%****	**Cases**	**%*****
St. Louis City	24	17.1%	111	79.3%	3	2.1%	140	20.5%
St. Louis County	20	35.7%	34	60.7%	1	1.8%	56	8.2%
Kansas City	44	30.1%	86	58.9%	13	8.9%	146	21.3%
Outstate	193	72.6%	54	20.3%	17	6.4%	266	38.9%
Missouri Correctional Facilities	36	47.4%	36	47.4%	3	3.9%	76	11.1%
MISSOURI TOTAL	**317**	**46.3%**	**321**	**46.9%**	**37**	**5.4%**	**684**	**100.0%**
HIV Care Region								
St. Louis	74	32.6%	146	64.3%	4	1.8%	227	33.2%
Kansas City	79	42.2%	89	47.6%	16	8.6%	187	27.3%
Northwest	9	64.3%	3	21.4%	1	7.1%	14	2.0%
Central	36	66.7%	15	27.8%	3	5.6%	54	7.9%
Southwest	66	70.2%	18	19.1%	9	9.6%	94	13.7%
Southeast	17	53.1%	14	43.8%	1	3.1%	32	4.7%
Missouri Correctional Facilities	36	47.4%	36	47.4%	3	3.9%	76	11.1%
MISSOURI TOTAL	**317**	**46.3%**	**321**	**46.9%**	**37**	**5.4%**	**684**	**100.0%**

*Row totals and percentages include cases in persons whose race/ethnicity is either unknown or not listed. Missouri totals include persons diagnosed in Missouri correctional facilities.
**Percentage of race/ethnicity in each area/region.
***Percentage of cases per area/region.
Note: Percentages may not total 100% due to rounding.

Of the 684 IDU living with HIV disease at the end of 2016, the largest proportion was diagnosed in Outstate Missouri (39%), followed by Kansas City (21%) (Table 14). There were differences in the proportion of living HIV disease cases among IDU diagnosed in each geographic area by race/ethnicity. In Outstate Missouri, 73% of living cases attributed to IDU were white, whereas only 17% of living cases diagnosed in St. Louis City among IDU were white. The differences are likely due to variations in the general population of the geographic areas.

The St. Louis HIV Care Region represented 33% of all living cases among IDU, and the Kansas City HIV Care Region comprised 27%. The proportion of living cases among white IDU was highest in the Southwest HIV Care Region (70%) and lowest in the St. Louis HIV Care Region (33%), while the reverse was true of black/African American living cases among IDU (19% and 64%). Though proportions of Hispanic living cases among IDU by HIV care region are difficult to interpret due to small numbers of individuals in this population, the highest number of these cases was in the Kansas City HIV Care Region (16).

Table 15. Newly diagnosed and living HIV and stage 3 (AIDS) cases in heterosexual contacts, by selected race/ethnicity and sex, Missouri, 2016

	HIV Cases*				Stage 3 (AIDS) Cases			
	Newly Diagnosed		Living		Newly Diagnosed**		Living	
Race/Ethnicity and Sex	Cases	%	Cases	%	Cases	%	Cases	%
White Male	2	3.2%	57	6.4%	2	9.1%	59	6.4%
Black/African American Male	10	16.1%	133	15.0%	2	9.1%	183	19.7%
Hispanic Male	0	0.0%	6	0.7%	0	0.0%	12	1.3%
White Female	15	24.2%	233	26.2%	6	27.3%	203	21.9%
Black/African American Female	30	48.4%	412	46.4%	11	50.0%	428	46.1%
Hispanic Female	2	3.2%	25	2.8%	1	4.5%	25	2.7%
MISSOURI TOTAL* **	**62**	**100.0%**	**888**	**100.0%**	**22**	**100.0%**	**929**	**100.0%**

*Remained HIV cases at the end of the year.
**Does not include HIV cases diagnosed prior to 2016 that progressed to stage 3 (AIDS) in 2016.
***Total includes cases in persons whose race/ethnicity is either unknown or not listed. Totals include persons diagnosed in Missouri correctional facilities.
Note: Percentages may not total 100% due to rounding.

Table 16. Living HIV disease cases in heterosexual contacts, by selected race/ethnicity and sex, by current age group, Missouri, 2016

	White Males		Black/African American Males		White Females		Black/African American Females		Total*	
Age Group	Cases	%**	Cases	%**	Cases	%**	Cases	%**	Cases	%**
13-18	0	0.0%	0	0.0%	0	0.0%	5	0.6%	6	0.3%
19-24	0	0.0%	8	2.5%	7	1.6%	38	4.5%	56	3.1%
25-44	20	17.2%	117	37.0%	150	34.4%	369	43.9%	708	39.0%
45-64	74	63.8%	168	53.2%	242	55.5%	397	47.3%	927	51.0%
65+	22	19.0%	23	7.3%	37	8.5%	31	3.7%	120	6.6%
MISSOURI TOTAL	**116**	**100.0%**	**316**	**100.0%**	**436**	**100.0%**	**840**	**100.0%**	**1,817**	**100.0%**

*Row totals and percentages include cases in persons whose race/ethnicity is either unknown or not listed. Totals include persons diagnosed in Missouri correctional facilities.
**Percentage of cases per age group.
Note: Percentages may not total 100% due to rounding.

A total of 84 new HIV disease diagnoses were attributed to heterosexual contact in 2016 (Table 15). Black/ African American females represented the largest number of new HIV disease diagnoses among heterosexuals. They were also more likely to have progressed to stage 3 (AIDS) by the end of 2016 than white females (50% compared to 27%). Overall, 26% of newly diagnosed cases attributed to heterosexual contact progressed to stage 3 (AIDS) by the end of 2016. Females represented 75% of living HIV cases and 82% of living stage 3 (AIDS) cases among heterosexual contact cases.

Among heterosexual contact cases, the greatest proportion of living cases was among adults aged 45 to 64 years of age in all race and sex categories presented (Table 16). This age group comprised just over half (51%) of total cases.

Table 17. Living HIV disease cases in heterosexual contacts, by selected race/ethnicity, by geographic area, by HIV care region, Missouri, 2016

	White		Black/African American		Hispanic		Total*	
Geographic Area	**Cases**	**%****	**Cases**	**%****	**Cases**	**%****	**Cases**	**%*****
St. Louis City	71	13.2%	443	82.2%	15	2.8%	539	29.7%
St. Louis County	80	19.2%	316	75.8%	13	3.1%	417	22.9%
Kansas City	57	21.3%	190	71.2%	14	5.2%	267	14.7%
Outstate	330	62.3%	158	29.8%	25	4.7%	530	29.2%
Missouri Correctional Facilities	14	21.9%	49	76.6%	1	1.6%	64	3.5%
MISSOURI TOTAL	**552**	**30.4%**	**1,156**	**63.6%**	**68**	**3.7%**	**1,817**	**100.0%**
HIV Care Region								
St. Louis	199	19.5%	772	75.5%	30	2.9%	1,022	56.2%
Kansas City	102	30.2%	203	60.1%	23	6.8%	338	18.6%
Northwest	14	56.0%	11	44.0%	0	0.0%	25	1.4%
Central	78	60.0%	45	34.6%	3	2.3%	130	7.2%
Southwest	94	66.7%	33	23.4%	9	6.4%	141	7.8%
Southeast	51	52.6%	43	44.3%	2	2.1%	97	5.3%
Missouri Correctional Facilities	14	21.9%	49	76.6%	1	1.6%	64	3.5%
MISSOURI TOTAL	**552**	**30.4%**	**1,156**	**63.6%**	**68**	**3.7%**	**1,817**	**100.0%**

*Row totals and percentages include cases in persons whose race/ethnicity is either unknown or not listed. Missouri totals include persons diagnosed in Missouri correctional facilities.
**Percentage of race in each area/region.
***Percentage of cases per area/region.
Note: Percentages may not total 100% due to rounding.

Of the 1,817 living cases among heterosexual contacts at the end of 2016, the largest proportion was diagnosed in St. Louis City (30%), and the next highest was Outstate Missouri (29%) (Table 17). There were differences in the proportion of living HIV disease cases among heterosexuals diagnosed in each geographic area by race/ethnicity. In Outstate, 62% of living cases attributed to heterosexual contact were white, whereas only 13% of living cases diagnosed in St. Louis City among heterosexual contact cases were white. The differences are likely due to variations in the general population of the geographic areas. Blacks/African Americans represented a larger proportion of living HIV disease cases among heterosexual contact cases (64%) compared to whites and Hispanics.

The St. Louis HIV Care Region represented 56% of all living cases among heterosexuals, and the Kansas City HIV Care Region comprised 19%. The proportion of white living cases among heterosexuals was highest in the Southwest HIV Care Region (67%) and lowest in the St. Louis HIV Care Region (20%). The proportion of black/African American living cases was highest in Missouri correctional facilities (77%) and lowest in the Southwest HIV Care Region (23%).

Table 18. Deaths* among HIV cases, by selected race and sex and mode of transmission, Missouri, 1982-2016

	White Males		Black/African American Males		White Females		Black/African American Females		Total**	
Mode of Transmission	**Cases**	**%**	**Cases**	**%**	**Cases**	**%**	**Cases**	**%**	**Cases**	**%**
MSM	246	64.1%	162	55.7%	0	0.0%	0	0.0%	427	51.4%
MSM/IDU	45	11.7%	18	6.2%	0	0.0%	0	0.0%	68	8.2%
IDU	35	9.1%	40	13.7%	9	22.0%	19	27.9%	110	13.2%
Heterosexual Contact	10	2.6%	26	8.9%	22	53.7%	34	50.0%	95	11.4%
No Indicated Risk (NIR)	41	10.7%	44	15.1%	10	24.4%	14	20.6%	122	14.7%
MISSOURI TOTAL* **	**384**	**100.0%**	**291**	**100.0%**	**41**	**100.0%**	**68**	**100.0%**	**831**	**100.0%**

*May or may not be due to HIV-related illnesses.
**Totals include cases in persons whose race/ethnicity is either unknown or not listed.
***Total numbers and percentages include 9 cases (1.1%) with a mode of transmission not indicated on the table, such as hemophilia/ coagulation disorder, blood transfusion or tissue recipient, etc. Totals include persons diagnosed in Missouri correctional facilities.
Note: Percentages may not total 100% due to rounding.

Table 19. Deaths* among stage 3 (AIDS) cases, by selected race and sex and mode of transmission, Missouri, 1982-2016

	White Males		Black/African American Males		White Females		Black/African American Females		Total**	
Mode of Transmission	**Cases**	**%**	**Cases**	**%**	**Cases**	**%**	**Cases**	**%**	**Cases**	**%**
MSM	3,396	77.5%	1,347	67.2%	0	0.0%	0	0.0%	4,956	66.3%
MSM/IDU	450	10.3%	216	10.8%	0	0.0%	0	0.0%	693	9.3%
IDU	188	4.3%	202	10.1%	81	27.2%	110	24.8%	630	8.4%
Heterosexual Contact	67	1.5%	99	4.9%	157	52.7%	267	60.3%	612	8.2%
No Indicated Risk (NIR)	125	2.9%	118	5.9%	32	10.7%	43	9.7%	346	4.6%
MISSOURI TOTAL* **	**4,382**	**100.0%**	**2,004**	**100.0%**	**298**	**100.0%**	**443**	**100.0%**	**7,476**	**100.0%**

*May or may not be due to stage 3 (AIDS)-related illnesses.
**Totals include cases in persons whose race/ethnicity is either unknown or not listed.
***Total numbers and percentages include 239 cases (3.2%) with a mode of transmission not indicated on the table, such as hemophilia/ coagulation disorder, blood transfusion or tissue recipient, etc. Totals include persons diagnosed in Missouri correctional facilities.
Note: Percentages may not total 100% due to rounding.

The number of deaths that have occurred among persons still classified as HIV cases at the time of death was small (831) in comparison to the number of deaths among persons classified as stage 3 (AIDS) (7,476) (Tables 18 and 19). The greatest proportion of deaths among HIV cases has occurred among white males (46%) (Table 18).

There were differences in the distribution of deaths among HIV cases by mode of transmission among the race/ ethnicity and sex categories. Among males, the majority of deaths occurred among cases attributed to MSM. Among female HIV cases, the largest number of deaths occurred among cases attributed to heterosexual contact. Similar patterns were observed for deaths among stage 3 (AIDS) cases (Table 19). The proportion of deaths among stage 3 (AIDS) cases with no indicated risk was smaller than that among HIV cases, likely because there was more time to obtain exposure category information.

Table 20. Newly diagnosed and living HIV and stage 3 (AIDS) cases with exposure category assignments, Missouri, 2016

Exposure Category	HIV Cases				Stage 3 (AIDS) Cases			
	2016*		Living		2016**		Living	
Adult/Adolescent								
MSM	286	73.7%	4,320	71.0%	79	64.8%	4,336	67.6%
MSM/IDU	10	2.6%	265	4.4%	6	4.9%	400	6.2%
IDU	16	4.1%	319	5.2%	6	4.9%	480	7.5%
Heterosexual Contact	75	19.3%	1,164	19.1%	31	25.4%	1,156	18.0%
Hemophilia/Coagulation Disorder	0	0.0%	8	0.1%	0	0.0%	32	0.5%
Blood Transfusion or Tissue Recipient	0	0.0%	2	0.0%	0	0.0%	7	0.1%
No Indicated Risk (NIR)	-----	-------	-----	-------	-----	-------	-----	-------
ADULT/ADOLESCENT SUBTOTAL	**388**	**† 100.0%**	**6,081**	**† 100.0%**	**122**	**100.0%**	**6,412**	**† 100.0%**
Pediatric (<13 years old)								
PEDIATRIC SUBTOTAL	**5**	**100.0%**	**76**	**100.0%**	**2**	**100.0%**	**37**	**100.0%**
TOTAL	**393**		**6,157**		**124**		**6,449**	

*HIV cases reported during 2016 which remained HIV cases at the end of the year.
**Does not include HIV cases diagnosed prior to 2016 that progressed to stage 3 (AIDS) in 2016.
†Includes one case with a confirmed "other" exposure category among persons newly diagnosed with HIV, three cases among persons living with HIV, and one case among persons living with stage 3 (AIDS).
Note: Percentages may not total 100% due to rounding.

The data in Table 20 have been adjusted to proportionately redistribute individuals with no indicated risk factor to known exposure categories based on sex and race/ethnicity. These data do not reflect the true counts of persons reported in each exposure category. Among both new and living HIV and stage 3 (AIDS) cases, MSM represented the greatest proportion of cases. Five new HIV cases and two new stage 3 (AIDS) cases were diagnosed among children less than 13 years of age in 2016.

The majority of HIV disease cases diagnosed in 2016 (89%) and those living with HIV disease (92%) were residents of a metropolitan area at the time of diagnosis (Table 21). For a list of counties classified as a metropolitan area, please refer to the Appendix. There were differences in the proportion of living HIV disease cases by sex based on the population of the area of residence. The proportion of males living with HIV disease was lower in less populated areas than in metropolitan areas. Whereas 83% of living HIV disease cases in metropolitan areas occurred among males, only 71% of living cases in nonmetropolitan areas were among males. There were differences in the distribution of living HIV disease cases by race/ethnicity based on the population of the area of residence. As the population of the area of residence decreased, the proportion of living cases that occurred among whites increased. Only 46% of living HIV disease diagnoses were among whites in metropolitan areas compared to 75% in nonmetropolitan areas. There were also differences based on the population of the area of residence in the distribution of new and living HIV disease cases by exposure category. As the population of the area of residence decreased, the proportion of new and living cases attributed to MSM generally decreased. Among those living with HIV disease, the proportion of cases diagnosed between 45 and 64 years of age generally increased as the population of the area of residence decreased.

Table 21. Newly diagnosed and living HIV disease* cases, by population of area of residence at time of diagnosis, by sex, by race/ethnicity, by exposure category, and by age at diagnosis, Missouri, 2016†

	Newly Diagnosed						Living					
	Metropolitan Area**		Micropolitan Area***		Nonmetropolitan Area****		Metropolitan Area**		Micropolitan Area***		Nonmetropolitan Area****	
	Cases	%	Cases	%	Cases	%	Cases	%	Cases	%	Cases	%
Sex												
Male	370	82.2%	25	69.4%	14	73.7%	9,304	83.1%	379	74.3%	290	71.4%
Female	80	17.8%	11	30.6%	5	26.3%	1,887	16.9%	131	25.7%	116	28.6%
Total	**450**	**100.0%**	**36**	**100.0%**	**19**	**100.0%**	**11,191**	**100.0%**	**510**	**100.0%**	**406**	**100.0%**
Race/Ethnicity												
White	162	36.0%	24	66.7%	19	100.0%	5,194	46.4%	348	68.2%	303	74.6%
Black/African American	243	54.0%	5	13.9%	0	0.0%	5,246	46.9%	130	25.5%	83	20.4%
Hispanic	33	7.3%	4	11.1%	0	0.0%	511	4.6%	21	4.1%	16	3.9%
Other/Unknown	12	2.7%	3	8.3%	0	0.0%	240	2.1%	11	2.2%	4	1.0%
Total	**450**	**100.0%**	**36**	**100.0%**	**19**	**100.0%**	**11,191**	**100.0%**	**510**	**100.0%**	**406**	**100.0%**
Exposure Category												
MSM	296	65.8%	16	44.4%	6	31.6%	7,238	64.7%	234	45.9%	180	44.3%
MSM/IDU	8	1.8%	3	8.3%	1	5.3%	489	4.4%	38	7.5%	21	5.2%
IDU	12	2.7%	2	5.6%	2	10.5%	531	4.7%	40	7.8%	37	9.1%
Heterosexual Contact	69	15.3%	8	22.2%	5	26.3%	1,541	13.8%	113	22.2%	99	24.4%
No Indicated Risk (NIR)	60	13.3%	5	13.9%	4	21.1%	1,257	11.2%	72	14.1%	56	13.8%
Other	0	0.0%	1	2.8%	0	0.0%	44	0.4%	3	0.6%	3	0.7%
Pediatric	5	1.1%	1	2.8%	1	5.3%	91	0.8%	10	2.0%	10	2.5%
Total	**450**	**100.0%**	**36**	**100.0%**	**19**	**100.0%**	**11,191**	**100.0%**	**510**	**100.0%**	**406**	**100.0%**
Age at Diagnosis												
<2	0	0.0%	0	0.0%	1	5.3%	45	0.4%	4	0.8%	5	1.2%
2-12	5	1.1%	1	2.8%	0	0.0%	34	0.3%	5	1.0%	3	0.7%
13-18	18	4.0%	3	8.3%	1	5.3%	301	2.7%	11	2.2%	13	3.2%
19-24	117	26.0%	8	22.2%	2	10.5%	1,807	16.1%	72	14.1%	37	9.1%
25-44	201	44.7%	18	50.0%	8	42.1%	7,115	63.6%	324	63.5%	229	56.4%
45-64	105	23.3%	6	16.7%	6	31.6%	1,823	16.3%	91	17.8%	115	28.3%
65+	4	0.9%	0	0.0%	1	5.3%	66	0.6%	3	0.6%	4	1.0%
Total	**450**	**100.0%**	**36**	**100.0%**	**19**	**100.0%**	**11,191**	**100.0%**	**510**	**100.0%**	**406**	**100.0%**

*Includes all individuals diagnosed with the HIV virus, regardless of current status (i.e., HIV or stage 3 (AIDS)).
†Does not include persons diagnosed in Missouri correctional facilities.
**A metropolitan area contains a core urban area with a population of at least 50,000. It also includes adjacent counties that have a high degree of social and economic integration with the core urban area. Based on 2013 US Census estimates. See Appendix for map of included counties.
***A micropolitan area contains a core urban area with a population between 10,000-49,999. It also includes adjacent counties that have a high degree of social and economic integration with the core urban area. Based on 2013 US Census estimates. See Appendix for map of included counties.
****An area that does not meet the population requirements for the metropolitan or micropolitan area. Based on 2013 US Census estimates. See Appendix for map of included counties.
Note: Percentages may not total 100% due to rounding.

Figure 10. Length of time between HIV and stage 3 (AIDS) diagnosis, by race/ethnicity, Missouri, 2007-2015

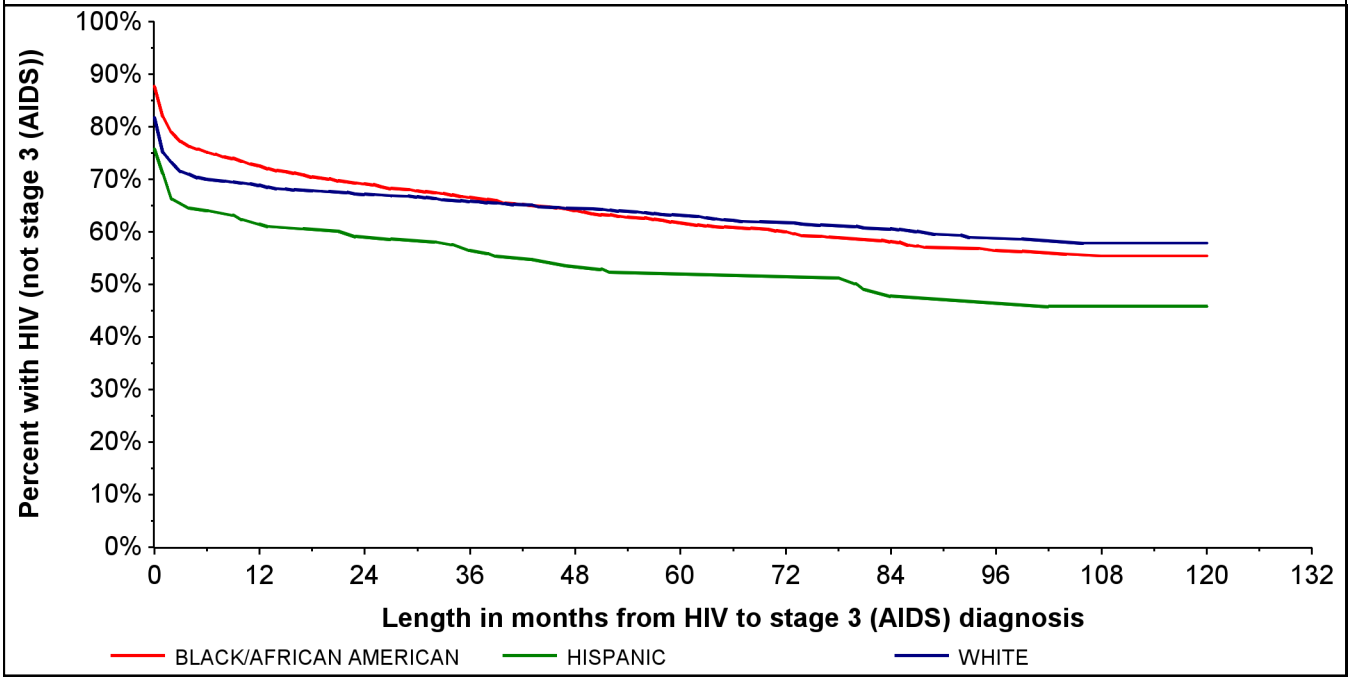
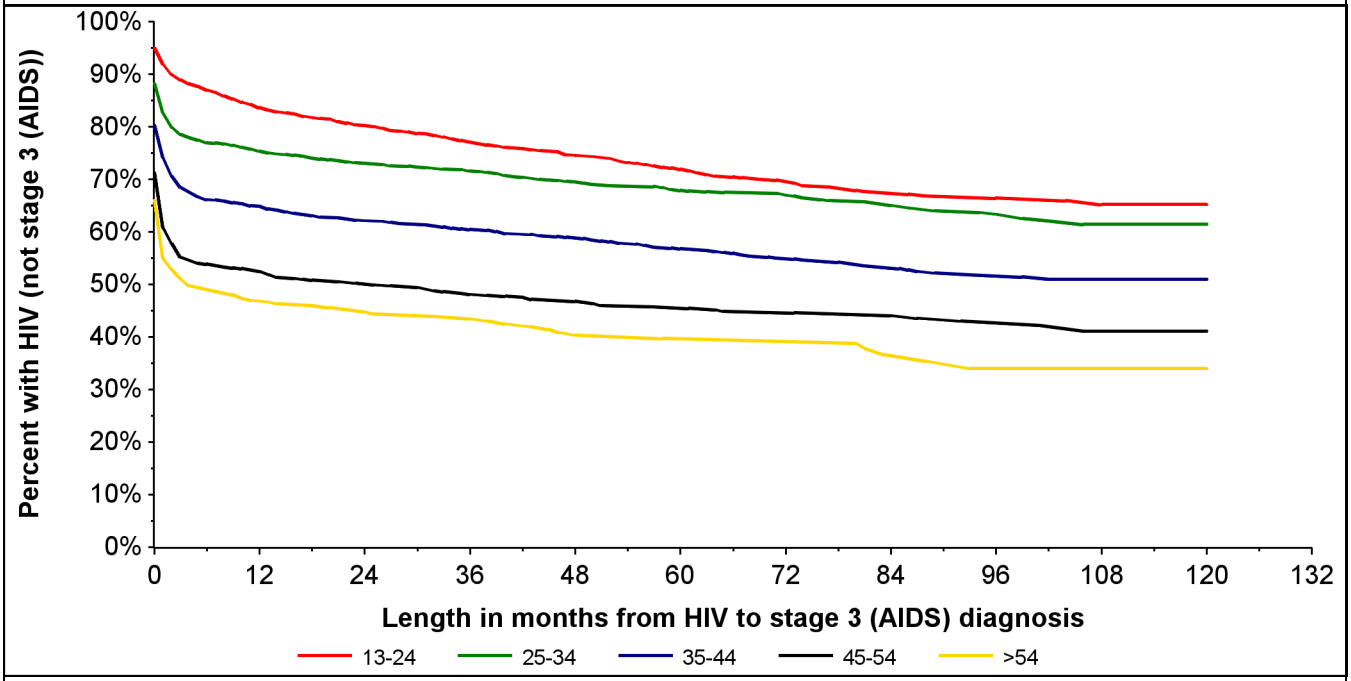


Figure 11. Length of time between HIV and stage 3 (AIDS) diagnosis, by age at diagnosis*, Missouri, 2007-2015



*Age at earliest diagnosis of HIV disease, regardless of disease progression.

A greater proportion of Hispanics progressed from HIV to stage 3 (AIDS) within 12 months of their HIV diagnosis compared to whites and blacks/African Americans (Figure 10). It is important to note that for all curves displayed, data in the later months should be interpreted with caution as they are based on small numbers.

Younger age was associated with slower progression from HIV to stage 3 (AIDS). The proportion of individuals progressing to stage 3 (AIDS) increased as age at diagnosis increased (Figure 11). Over time, the proportion of cases that progressed to stage 3 (AIDS) remained higher as the age at initial HIV diagnosis increased.

Figure 12. Length of time between HIV and stage 3 (AIDS) diagnosis, by mode of transmission, Missouri, 2007-2015

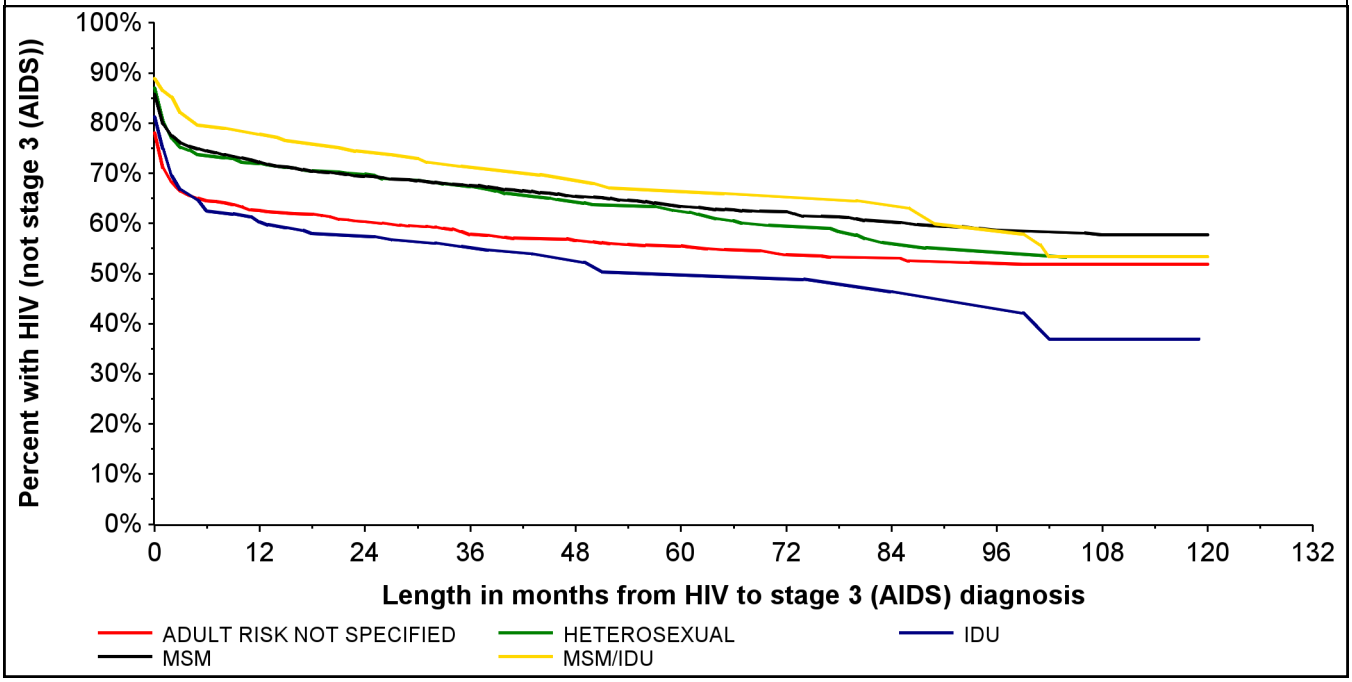
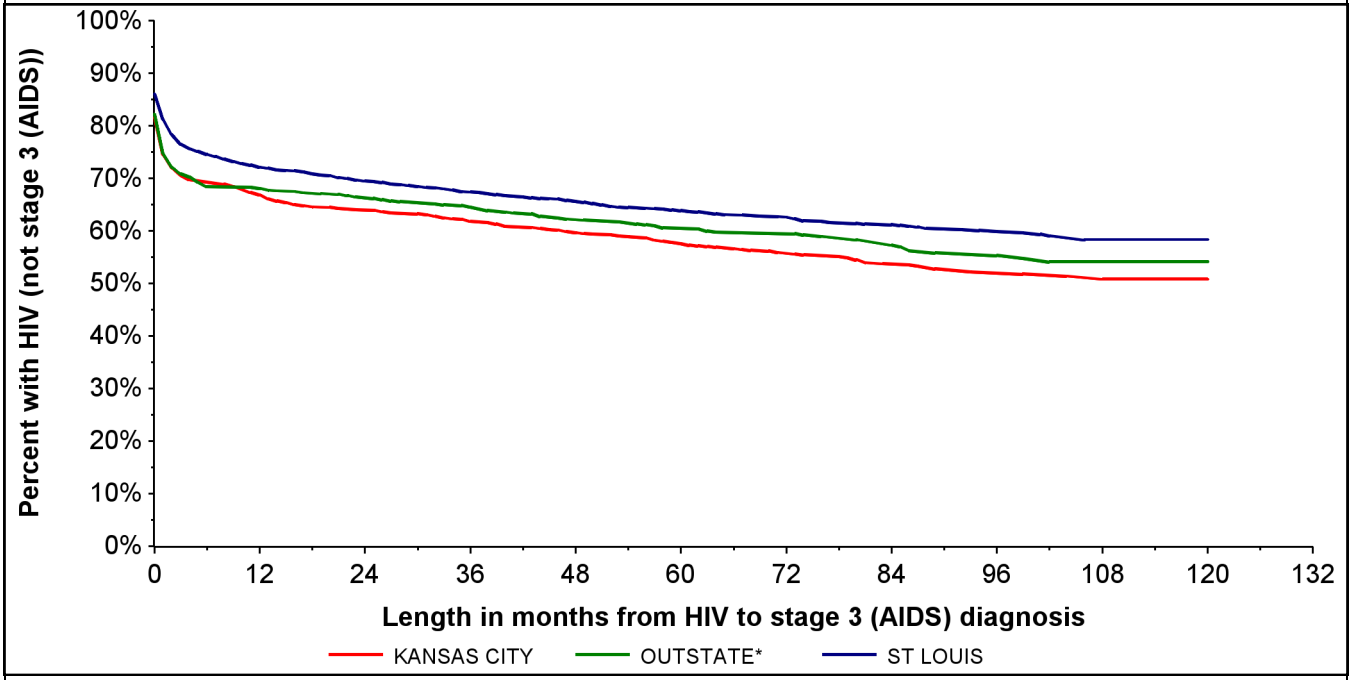


Figure 13. Length of time between HIV and stage 3 (AIDS) diagnosis, by HIV care region*, Missouri, 2007-2015



*Outstate includes the Central, Northwest, Southeast, and Southwest HIV Care Regions

A greater proportion of IDU progressed from HIV to stage 3 (AIDS) within 12 months of their HIV diagnosis compared to individuals from all other exposure categories (Figure 12). At 96 months after the initial HIV diagnosis, the proportion of cases that progressed to stage 3 (AIDS) remained higher for IDU compared with other exposure categories.

There were differences in the progression from HIV to stage 3 (AIDS) by HIV care region (Figure 13). The proportion of individuals that progressed to stage 3 (AIDS) over time was generally greater for the Kansas City HIV Care Region and all Outstate HIV Care Regions combined compared to the St. Louis HIV Care Region. Differences observed among the regions may be attributed in part to differences in the routine monitoring and reporting of CD4 counts and other active surveillance techniques.

Figure 14. Length of time between HIV diagnosis and death, by race/ethnicity, Missouri, 2007-2015

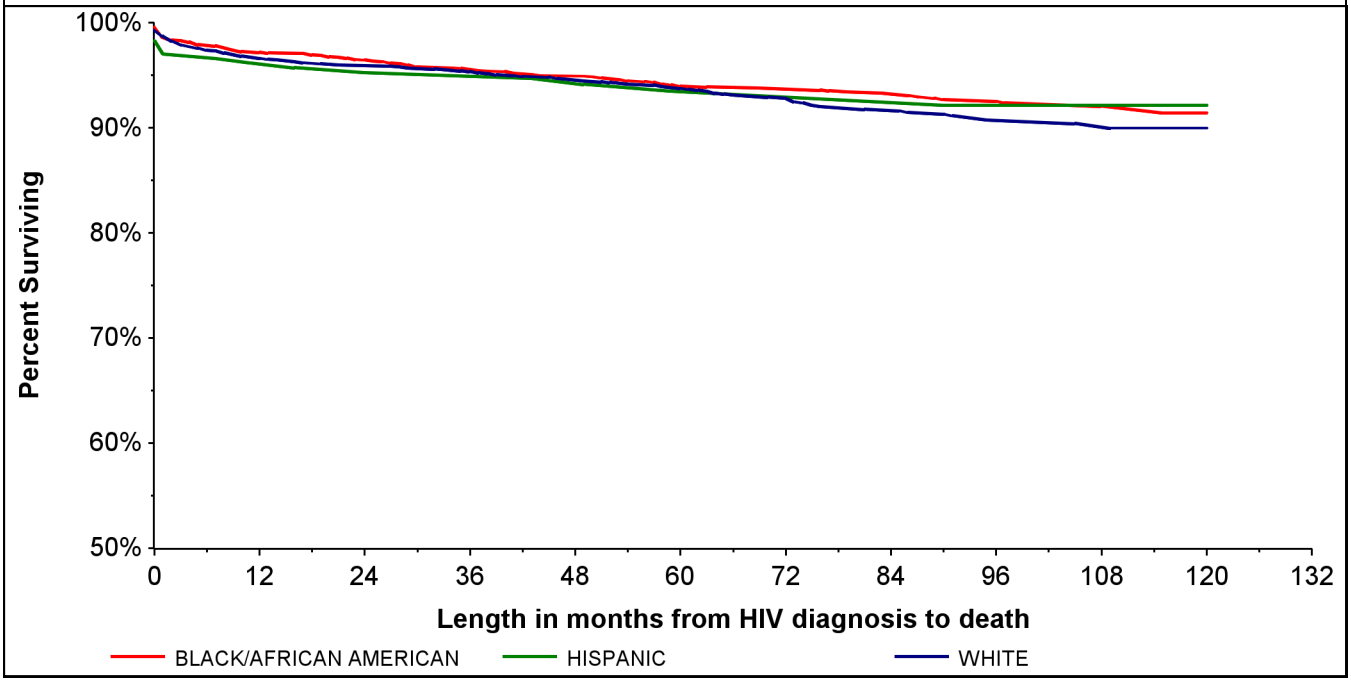
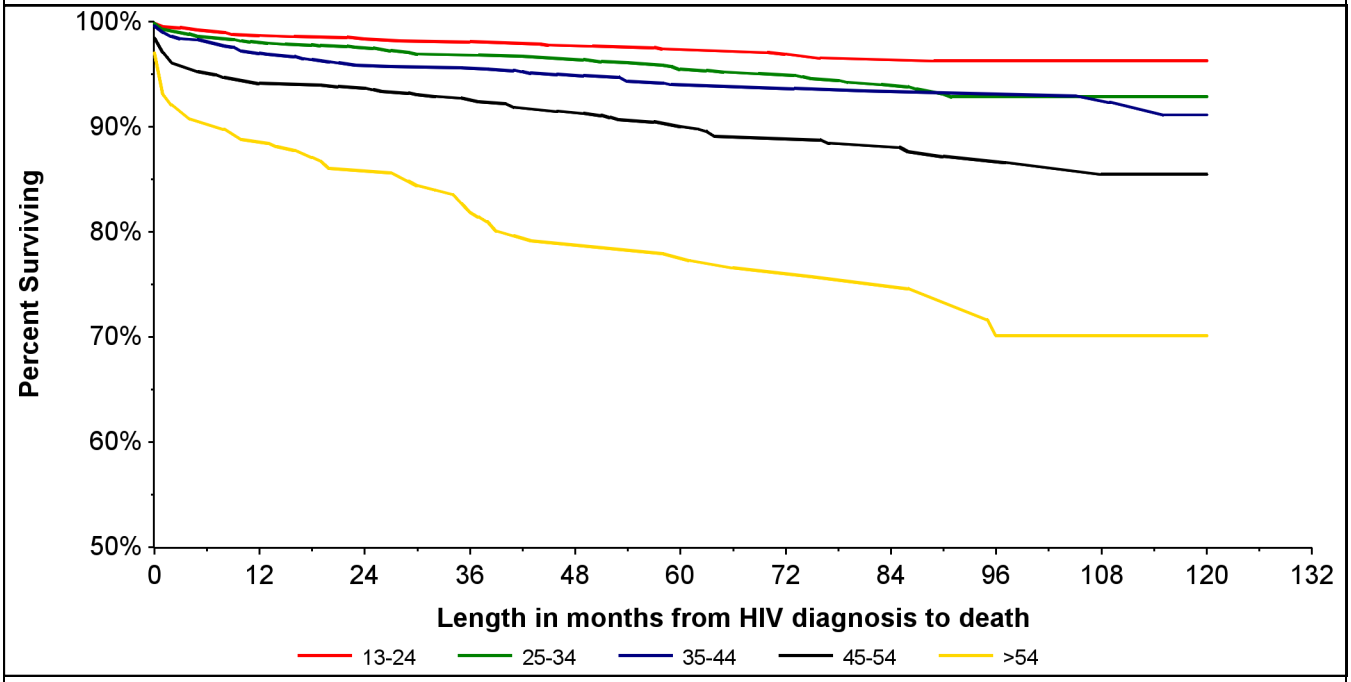


Figure 15. Length of time between HIV diagnosis and death, by age at diagnosis*, Missouri, 2007-2015



*Age at earliest diagnosis of HIV disease, regardless of disease progression.

The length of time between the initial HIV diagnosis and reported death was similar by race/ethnicity (Figure 14). Five years following the initial HIV diagnosis, 93% of all individuals were still living.

Over time, the proportion of cases that were deceased was higher as the age at initial HIV diagnosis increased (Figure 15). For example, 72 months following the initial diagnosis, nearly 98% of individuals diagnosed between 13 and 24 years of age were still living, compared to only 76% of individuals diagnosed at greater than 54 years of age.

Figure 16. Length of time between HIV diagnosis and death, by mode of transmission, Missouri, 2007-2015

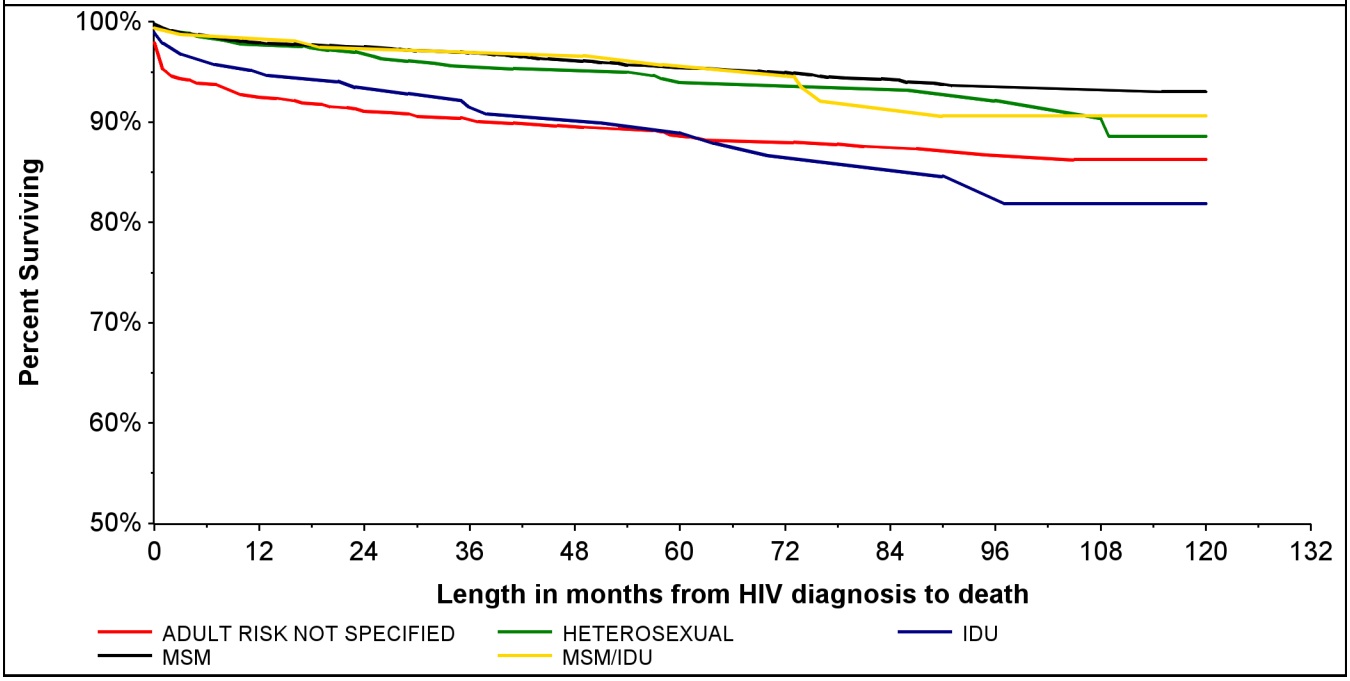
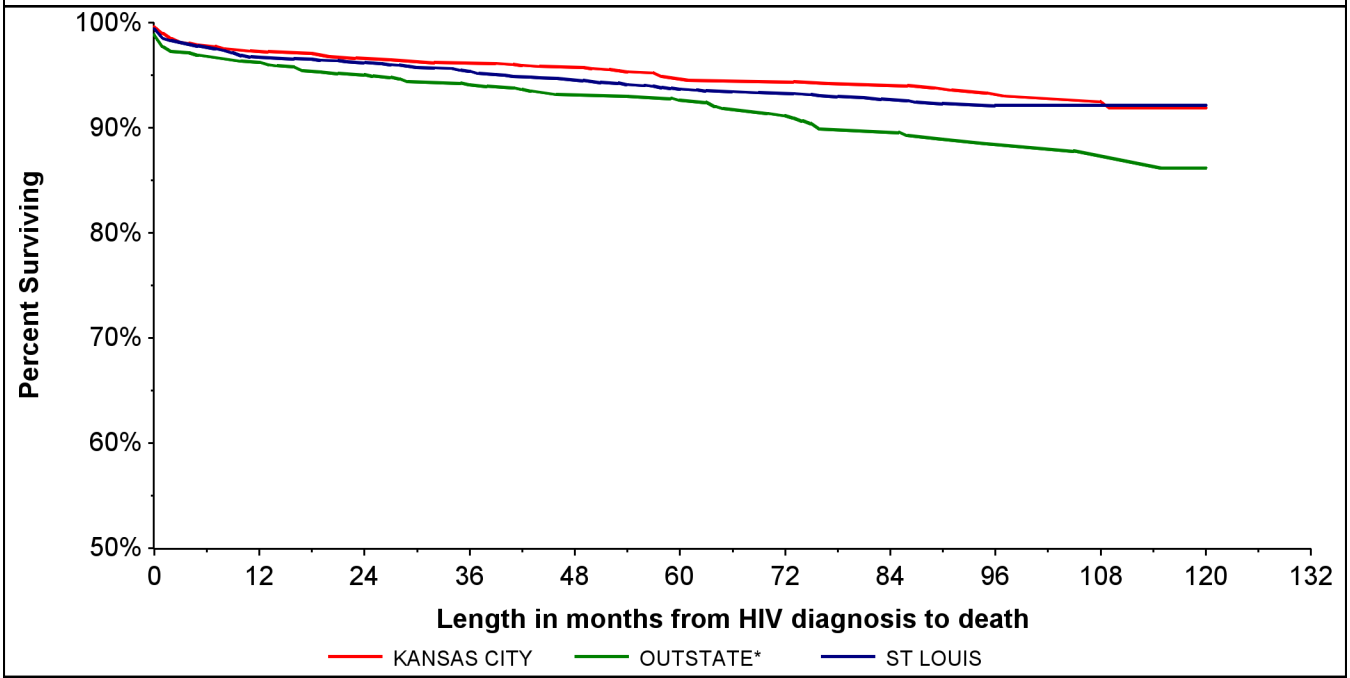


Figure 17. Length of time between HIV diagnosis and death, by HIV care region*, Missouri, 2007-2015



*Outstate includes the Central, Northwest, Southeast, and Southwest HIV care regions

A greater proportion of IDU and those with no reported risk were deceased within 36 months of their HIV diagnosis compared to individuals from all other exposure categories (Figure 16). Differences in survival persisted over time.

There were not significant differences in survival following HIV diagnosis by HIV care region (Figure 17). At 24 months following the initial HIV diagnosis, the proportion still living was 97% for the Kansas City HIV Care Region and the St. Louis HIV Care Region, and 95% for the Outstate HIV Care Regions combined.

Table 22. Initial CD4 and viral load values† among adults and adolescents newly diagnosed with HIV disease, Missouri, 2014-2015

Viral Load (copies/mL)	CD4 Count (cells/µL)											
	No Test		<200		200-350		351-500		>500		Total	
	N	%*	N	%*	N	%*	N	%*	N	%*	N	%**
No Test	75	8.0%	7	0.7%	1	0.1%	12	1.3%	24	2.6%	119	12.7%
0-10,000	21	2.2%	12	1.3%	27	2.9%	49	5.2%	113	12.1%	222	23.7%
10,001-100,000	36	3.8%	73	7.8%	82	8.8%	72	7.7%	89	9.5%	352	37.6%
>100,000	9	1.0%	131	14.0%	33	3.5%	41	4.4%	29	3.1%	243	26.0%
Total	**141**	**15.1%**	**223**	**23.8%**	**143**	**15.3%**	**174**	**18.6%**	**255**	**27.2%**	**936**	**100.0%**

†Within 12 months of the initial HIV diagnosis
*% of table total
**% of column total

Of persons newly diagnosed with HIV disease between 2014 and 2015, 8% did not have a CD4 or a viral load laboratory result reported to DHSS within 12 months of diagnosis (Table 22). Nearly 24% of persons diagnosed between 2014 and 2015 had an initial CD4 count of less than 200 cells/µL. This indicates that a sizable proportion of individuals were being diagnosed at a later stage of disease progression and likely were unaware of their infection for at least several years. This suggests greater emphasis is needed to establish routine HIV testing, so individuals are diagnosed within a shorter time period after becoming infected.

Table 23. Percent of adults and adolescents receiving at least one CD4 within 12 months of their HIV diagnosis and the median initial CD4 count, Missouri, 2014-2015

	Number	% with CD4 within 12 months of HIV diagnosis	Median of initial CD4 counts (cells/ µL)
HIV Status			
HIV (not stage 3 (AIDS))	685	80.4%	473
Concurrent HIV and stage 3 (AIDS) diagnosis	192	99.5%	46
Stage 3 (AIDS) >1 month after HIV diagnosis	59	89.8%	182
Sex			
Male	786	84.9%	384
Female	150	85.3%	322
Race/Ethnicity			
White	393	87.8%	381
Black/African American	462	81.8%	381
Hispanic	41	87.8%	315
Other/Unknown	40	90.0%	334
Exposure Category			
MSM	610	86.4%	399
MSM/IDU	31	93.5%	466
IDU	39	87.2%	262
HRH	156	80.8%	315
Other	0	--	--
NIR	100	79.0%	236
Age at HIV Diagnosis			
13-18	30	70.0%	513
19-24	248	86.7%	450
25-44	467	84.4%	387
45-64	176	86.9%	167
65+	15	80.0%	134

The percent of adults and adolescents receiving at least one CD4 within 12 months of their HIV diagnosis and the median initial CD4 count varied by race/ethnicity, exposure category, and age at HIV diagnosis (Table 23). There was no significant difference in the percent of females (85%) compared to males (85%) with at least one CD4 within 12 months of initial diagnosis. The initial median CD4 count tended to be greater for males (384 cells/μL) compared to females (322 cells/μL). A greater proportion of Hispanics and whites tended to have a CD4 count within 12 months of diagnosis compared to blacks/African Americans, with Hispanics and whites having an equal proportion (88%). Among those with a CD4 count within 12 months of diagnosis, the initial median CD4 count tended to be lower among Hispanics (315 cells/μL). Among exposure categories, MSM/IDU and IDU cases had a higher proportion of adults and adolescents receiving an initial CD4 within 12 months of diagnosis compared to persons with other known exposure categories. The initial median CD4 tended to be lowest among individuals with no identified risk compared to all other exposure categories. The median initial CD4 count tended to decrease as the age at HIV diagnosis increased. These data may be beneficial when determining groups that should be targeted for new testing initiatives to identify individuals earlier in their disease progression.

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Key Highlights: What are the indicators of HIV disease infection risk in Missouri?

Primary and Secondary (P&S) Syphilis

- The number of reported P&S syphilis cases increased from 2015 (307 cases) to 2016 (400 cases). Increases were seen in the St. Louis, Southeast, and Southwest HIV Care Regions.
- The rate of reported cases was highest in St. Louis City (27 per 100,000).
- Blacks/African Americans were disproportionately impacted, with a case rate 7.6 times as high as the rate among whites.

Early Latent Syphilis

- The number of early latent syphilis cases increased from 2015 (247 cases) to 2016 (276 cases). Increases were seen in all HIV care regions except for the Northwest HIV Care Region.
- The rate of reported cases was highest in St. Louis City (20 per 100,000).
- Males represented the majority (84%) of reported early latent syphilis cases.
- The case rate was 6.6 times as high among blacks/African Americans compared to whites.

Gonorrhea

- The number of reported gonorrhea cases increased from 2015 (8,942 cases) to 2016 (11,479 cases). Increases were seen in all HIV care regions except for the Central HIV Care Region.
- The rate of reported cases was highest in St. Louis City (750 per 100,000).
- A larger proportion of reported gonorrhea cases was diagnosed between 15 and 19 years of age among black/African American females (42%) compared to white females (16%), black/African American males (34%), and white males (8%).

Chlamydia

- The number of reported chlamydia cases increased from 2015 (28,948 cases) to 2016 (30,843 cases). Increases were seen in all HIV care regions.
- The rate of reported cases was highest in St. Louis City (1,279 per 100,000).
- A larger proportion of reported chlamydia cases was diagnosed between 15 and 19 years of age among white females (41%) compared to black/African American females (35%), black/African American males (16%) and white males (9%).

Hepatitis B

- The number of reported hepatitis B cases in Missouri decreased from 2015 (704 cases) to 2016 (562 cases).
- The rate of reported cases was highest in St. Louis City (27 per 100,000).
- Among females, the largest numbers of cases were 30 to 39 years of age, while among males the largest numbers of cases were 40 to 49 years of age.

Hepatitis C

- The number of reported hepatitis C cases in Missouri decreased from 2015 (7,803 cases) to 2016 (5,088 cases). Please note that this is not likely due to a true decrease in morbidity but is more likely attributed to a change in case definition and data collection methods. Please see the Technical Notes section for more information.
- The rate of reported cases was highest in Butler County (233 per 100,000).
- Among females, the largest numbers of cases were 20 to 29 years of age, while among males the largest numbers of cases were 50 to 59 years of age.

HIV, STD, Hepatitis, and Tuberculosis (TB) disease Co-infections

- There were 670 persons living with HIV who were reported with at least one other STD in 2016.
- Of the 676 early syphilis cases reported in 2016, 31% were among individuals living with HIV. Only 3% of gonorrhea cases and 1% of chlamydia cases reported in 2016 were among individuals living with HIV.
- The St. Louis HIV Care Region represented 77% of all living HIV cases reported with multiple STD co-infections in 2016.
- Although blacks/African Americans represented only 46% of living HIV disease cases, they represented 67% of individuals diagnosed with an STD co-infection.
- Of the 12,606 individuals living with HIV disease, 73 were reported with a hepatitis co-infection in 2016.
- Three percent (3%) of chronic hepatitis B cases and 1% of chronic hepatitis C cases reported in 2016 were among persons living with HIV disease.
- Of the 12,606 individuals living with HIV disease, two were reported with TB disease in 2016.

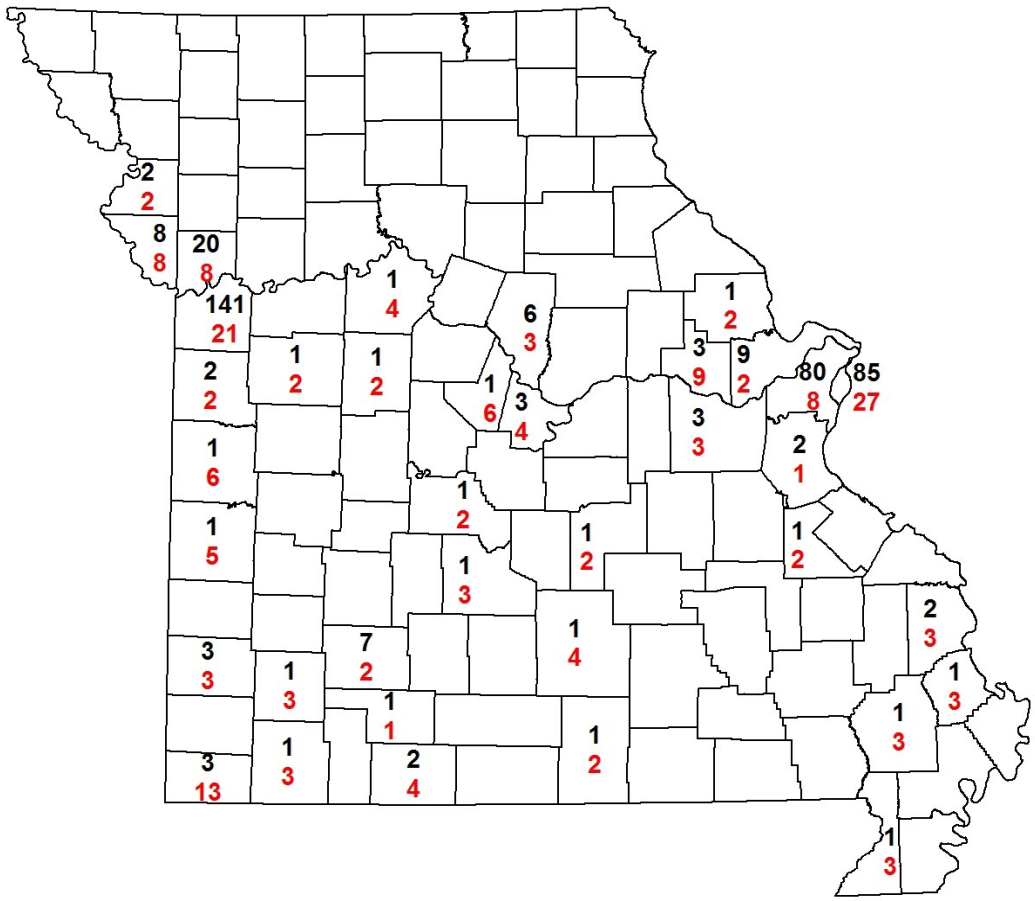
Table 24. Reported P&S syphilis cases and rates, by sex, HIV care region, and race*, Missouri, 2016

	Male			Female			Total	
	Cases	%	Rate**	Cases	%	Rate**	Cases	Rate**
Missouri								
White	146	43.7%	6.1	28	42.4%	1.1	174	3.6
Black/African American	162	48.5%	48.2	30	45.5%	8.1	192	27.2
Other/Unknown*	26	7.8%	--	8	12.1%	--	34	--
Total	**334**	**100.0%**	**11.2**	**66**	**100.0%**	**2.1**	**400**	**6.6**
St. Louis HIV Care Region								
White	43	26.9%	5.7	7	30.4%	0.9	50	3.2
Black/African American	110	68.8%	59.1	13	56.5%	5.8	123	30.0
Other/Unknown*	7	4.4%	--	3	13.0%	--	10	--
Total	**160**	**100.0%**	**15.6**	**23**	**100.0%**	**2.1**	**183**	**8.6**
Kansas City HIV Care Region								
White	73	53.7%	17.3	15	42.9%	3.4	88	10.2
Black/African American	46	33.8%	52.5	15	42.9%	15.2	61	32.7
Other/Unknown*	17	12.5%	--	5	14.3%	--	22	--
Total	**136**	**100.0%**	**23.3**	**35**	**100.0%**	**5.7**	**171**	**14.3**
Northwest HIV Care Region								
White	1	50.0%	1.0	0	--	0.0	1	0.5
Black/African American	1	50.0%	17.9	0	--	0.0	1	11.8
Other/Unknown*	0	0.0%	--	0	--	--	0	--
Total	**2**	**100.0%**	**1.8**	**0**	**--**	**0.0**	**2**	**0.9**
Central HIV Care Region								
White	8	66.7%	2.1	1	33.3%	0.3	9	1.2
Black/African American	3	25.0%	12.3	2	66.7%	9.8	5	11.2
Other/Unknown*	1	8.3%	--	0	0.0%	--	1	--
Total	**12**	**100.0%**	**2.7**	**3**	**100.0%**	**0.7**	**15**	**1.7**
Southwest HIV Care Region								
White	16	88.9%	3.1	5	100.0%	1.0	21	2.0
Black/African American	1	5.6%	6.7	0	0.0%	0.0	1	4.0
Other/Unknown*	1	5.6%	--	0	0.0%	--	1	--
Total	**18**	**100.0%**	**3.1**	**5**	**100.0%**	**0.9**	**23**	**2.0**
Southeast HIV Care Region								
White	5	83.3%	2.3	0	--	0.0	5	1.1
Black/African American	1	16.7%	5.8	0	--	0.0	1	3.1
Other/Unknown*	0	0.0%	--	0	--	--	0	--
Total	**6**	**100.0%**	**2.4**	**0**	**--**	**0.0**	**6**	**1.2**

*Includes cases identified with Hispanic ethnicity.
**Per 100,000 population based on 2015 DHSS population estimates.
Note: Percentages may not total 100% due to rounding.

A total of 400 P&S syphilis cases were reported in 2016 (Table 24). This number represented an increase from the 307 P&S syphilis cases reported in 2015. The majority of cases (84%) were reported among males. The rate of P&S syphilis cases among males was highest in the Kansas City HIV Care Region (23.3), followed by the St. Louis HIV Care Region (15.6). Forty-six percent (46%) of all P&S syphilis cases were reported in the St. Louis HIV Care Region and 43% were reported in the Kansas City HIV Care Region. The rate of reported P&S syphilis cases was higher for blacks/African Americans compared to whites in all regions.

Figure 18. Reported P&S syphilis cases* and rates, by county, Missouri, 2016**



*Case counts are in black.
**Case rates are in red, per 100,000 population based on 2015 DHSS population estimates.

P&S syphilis cases were concentrated in metropolitan areas (Figure 18). There were 78 counties that did not report any P&S syphilis cases in 2016. St. Louis City had the highest rate of reported P&S syphilis cases at 27 per 100,000 persons. This means that for every 100,000 persons living in St. Louis City, there were 27 reported with P&S syphilis in 2016.

Figure 19. Reported P&S syphilis cases, by race and sex and age group at diagnosis, Missouri, 2016

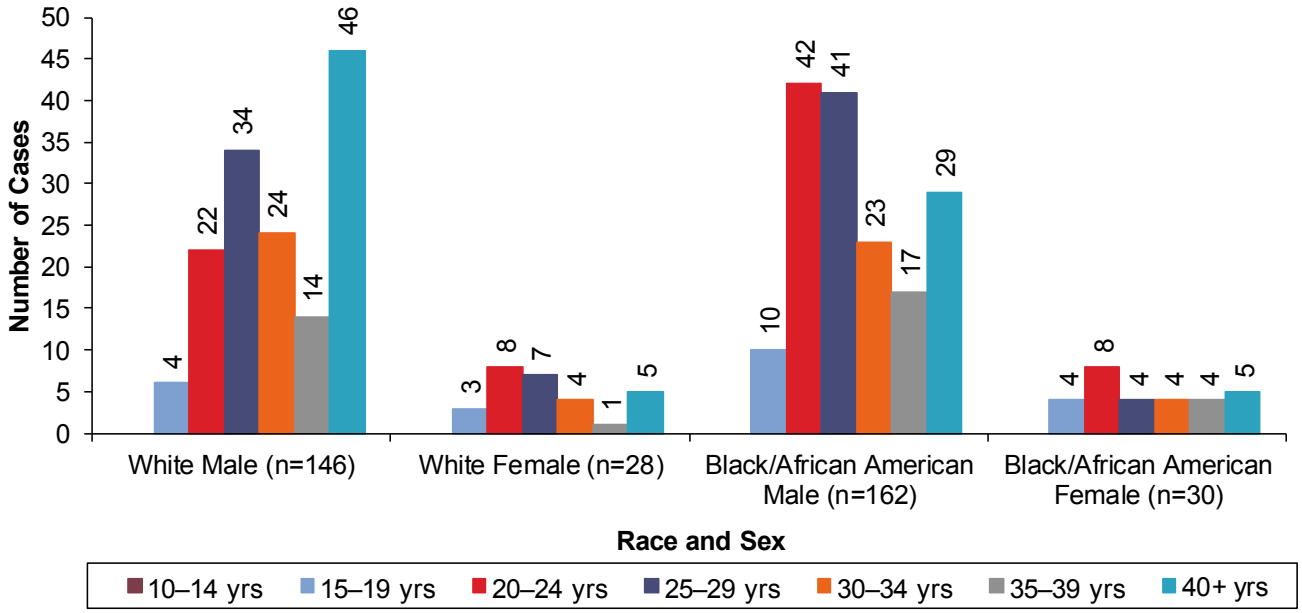
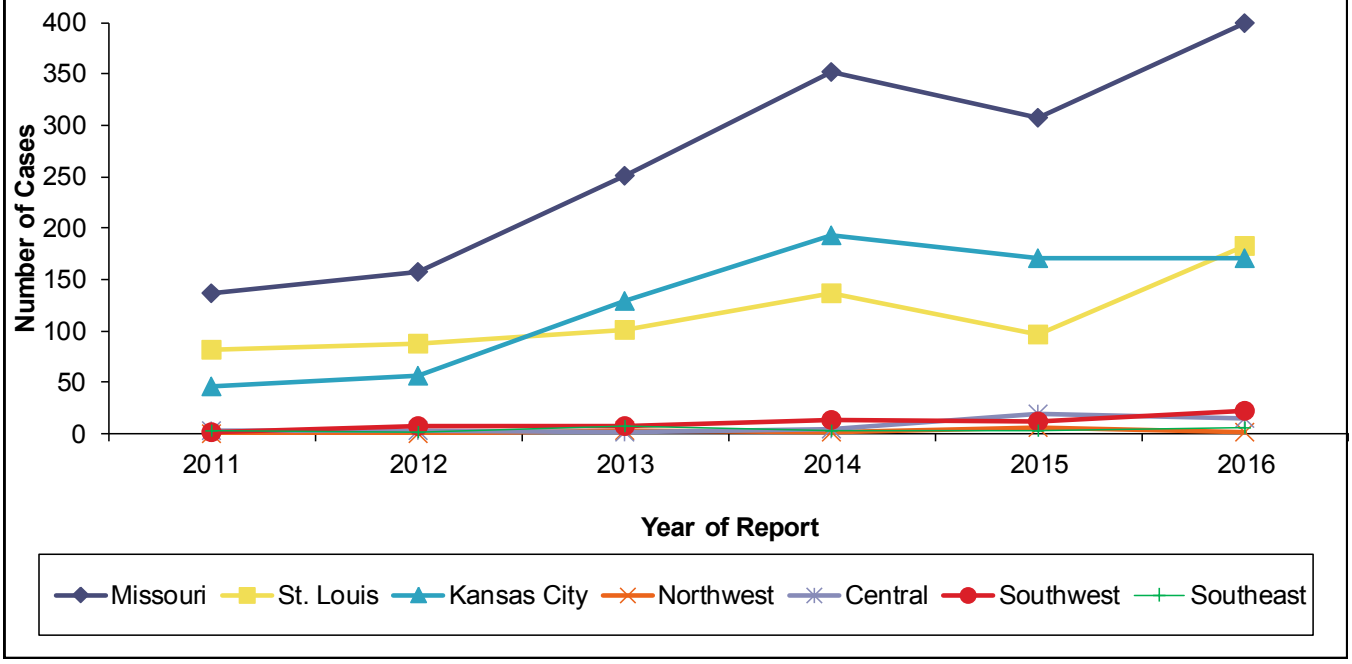


Figure 20. Reported P&S syphilis cases, by HIV care region and year of report, Missouri, 2011-2016



The largest numbers of P&S syphilis cases were reported among black/African American males (162) and white males (146) (Figure 19). The number of reported cases increased from 2015 to 2016 among all race/ethnicity and sex categories presented. There were differences in the distribution of reported cases by age at diagnosis among the race/ethnicity and sex categories. Among white males, the largest numbers of cases were reported among individuals 40 or more years of age at the time of diagnosis. Among white females, black/African American males, and black/African American females, the largest numbers of cases were reported among individuals 20 to 24 years of age.

The trend in the number of reported P&S syphilis cases in Missouri has fluctuated from 2011 to 2016, with increases seen from 2011 to 2014, followed by a decrease from 2014 to 2015 and then an increase from 2015 to 2016 (Figure 20). The number of reported P&S syphilis cases increased from 2015 to 2016 in the St. Louis HIV Care Region (96 to 183), the Southwest HIV Care Region (12 to 23), and the Southeast HIV Care Region (3 to 6). The number of reported P&S syphilis cases decreased or remained the same from 2015 to 2016 in the remaining HIV care regions.

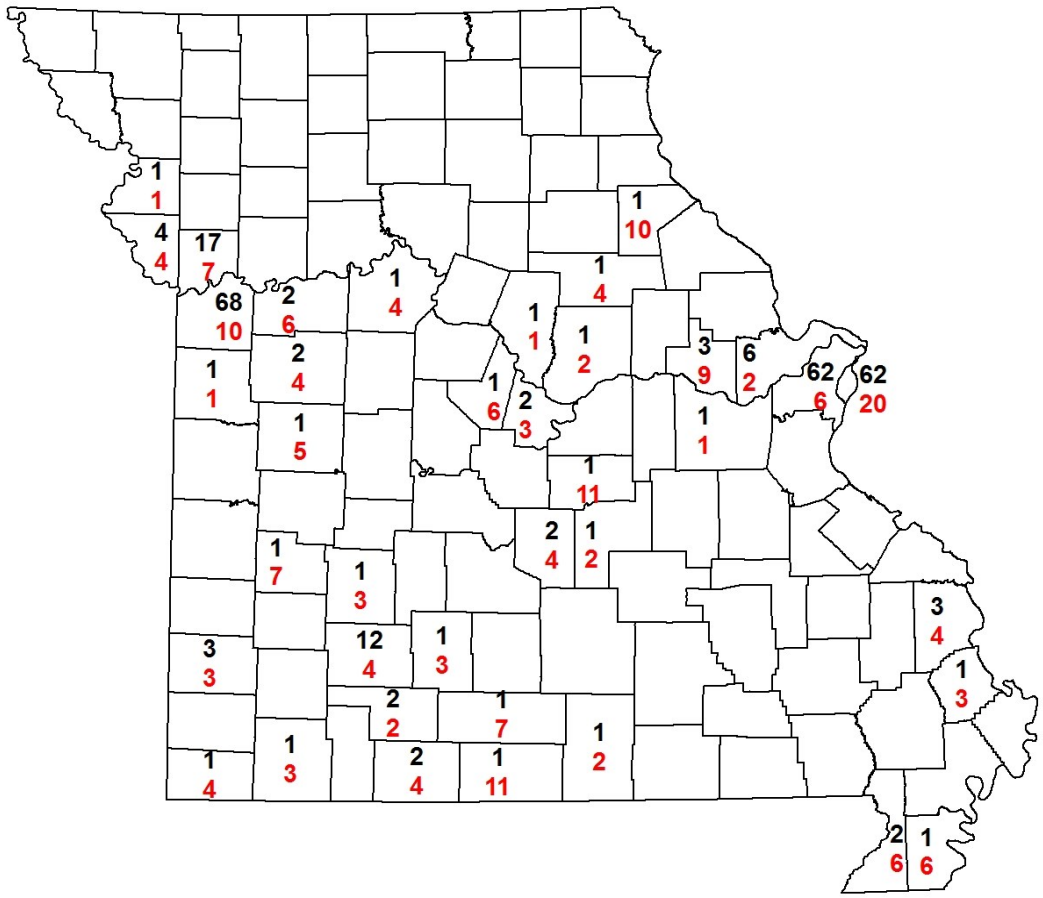
Table 25. Reported early latent syphilis cases and rates, by sex, HIV care region and race*, Missouri, 2016

	Male			Female			Total	
	Cases	%	Rate**	Cases	%	Rate**	Cases	Rate**
Missouri								
White	107	46.1%	4.5	20	45.5%	0.8	127	2.6
Black/African American	103	44.4%	30.7	18	40.9%	4.9	121	17.1
Other/Unknown*	22	9.5%	--	6	13.6%	--	28	--
Total	**232**	**100.0%**	**7.8**	**44**	**100.0%**	**1.4**	**276**	**4.5**
St. Louis HIV Care Region								
White	37	30.8%	4.9	4	28.6%	0.5	41	2.7
Black/African American	77	64.2%	41.3	9	64.3%	4.0	86	21.0
Other/Unknown*	6	5.0%	--	1	7.1%	--	7	--
Total	**120**	**100.0%**	**11.7**	**14**	**100.0%**	**1.3**	**134**	**6.3**
Kansas City HIV Care Region								
White	37	55.2%	8.8	13	52.0%	2.9	50	5.8
Black/African American	20	29.9%	22.8	8	32.0%	8.1	28	15.0
Other/Unknown*	10	14.9%	--	4	16.0%	--	14	--
Total	**67**	**100.0%**	**11.5**	**25**	**100.0%**	**4.1**	**92**	**7.7**
Northwest HIV Care Region								
White	1	100.0%	1.0	0	--	0.0	1	0.5
Black/African American	0	0.0%	0.0	0	--	0.0	0	0.0
Other/Unknown*	0	0.0%	--	0	--	--	0	--
Total	**1**	**100.0%**	**0.9**	**0**	**--**	**0.0**	**1**	**0.4**
Central HIV Care Region								
White	6	60.0%	1.6	2	100.0%	0.5	8	1.0
Black/African American	3	30.0%	12.3	0	0.0%	0.0	3	6.7
Other/Unknown*	1	10.0%	--	0	0.0%	--	1	--
Total	**10**	**100.0%**	**2.3**	**2**	**100.0%**	**0.5**	**12**	**1.4**
Southwest HIV Care Region								
White	23	82.1%	4.5	1	50.0%	0.2	24	2.3
Black/African American	1	3.6%	6.7	0	0.0%	0.0	1	4.0
Other/Unknown*	4	14.3%	--	1	50.0%	--	5	--
Total	**28**	**100.0%**	**4.8**	**2**	**100.0%**	**0.3**	**30**	**2.6**
Southeast HIV Care Region								
White	3	50.0%	1.4	0	0.0%	0.0	3	0.7
Black/African American	2	33.3%	11.7	1	100.0%	6.8	3	9.4
Other/Unknown*	1	16.7%	--	0	0.0%	--	1	--
Total	**6**	**100.0%**	**2.4**	**1**	**100.0%**	**0.4**	**7**	**1.4**

*Includes cases identified with Hispanic ethnicity.
**Per 100,000 population based on 2015 DHSS population estimates.
Note: Percentages may not total 100% due to rounding.

A total of 276 early latent syphilis cases were reported in 2016, compared to 247 cases reported in 2015 (Table 25). The majority of cases (84%) were reported among males. The rate of early latent syphilis cases was highest in the Kansas City HIV Care Region (7.7), followed by the St. Louis HIV Care Region (6.3). Forty-nine percent (49%) of all early latent syphilis cases were reported in the St. Louis HIV Care Region and 33% were reported in the Kansas City HIV Care Region. The rate of reported early latent syphilis cases was higher for blacks/African Americans compared to whites in all regions that reported cases among blacks/African Americans.

Figure 21. Reported early latent syphilis cases* and rates, by county, Missouri, 2016**



*Case counts are in black.
**Case rates are in red, per 100,000 population based on 2015 DHSS population estimates.

Early latent syphilis cases were concentrated in metropolitan areas (Figure 21). There were 76 counties that did not report any early latent syphilis cases in 2016. Jackson County had the highest number of reported early latent syphilis cases (68). St. Louis City had the highest rate of reported early latent syphilis cases (20 per 100,000). This means that for every 100,000 persons living in St. Louis City, there were 20 reported with early latent syphilis in 2016.

Figure 22. Reported early latent syphilis cases, by race and sex and age group at diagnosis, Missouri, 2016

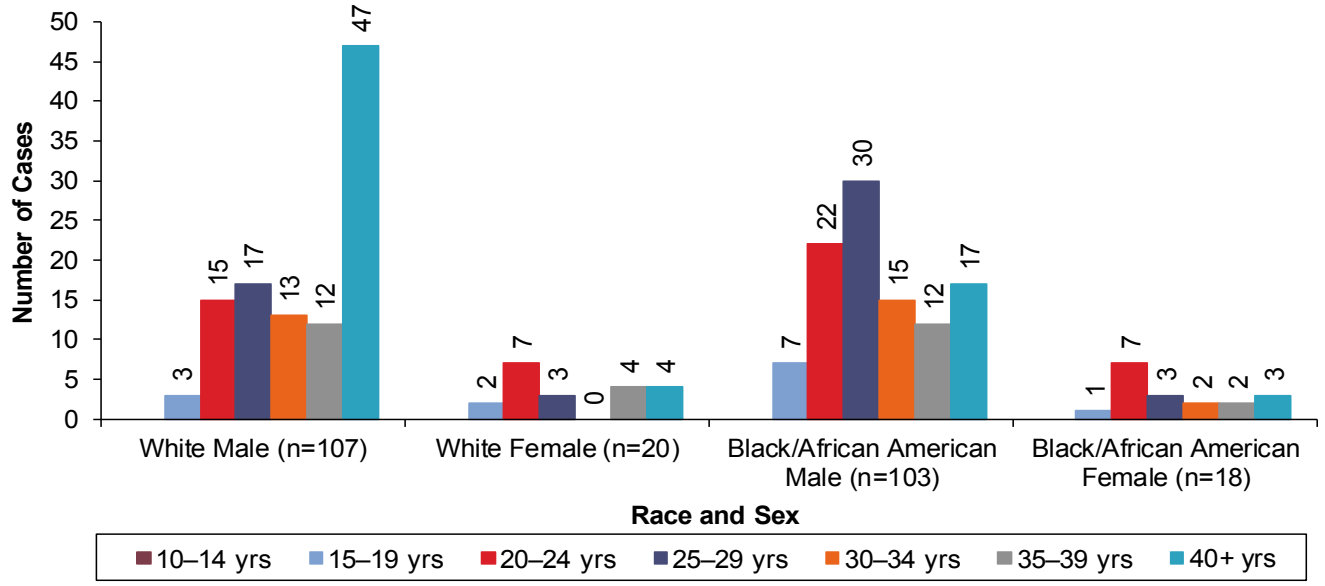
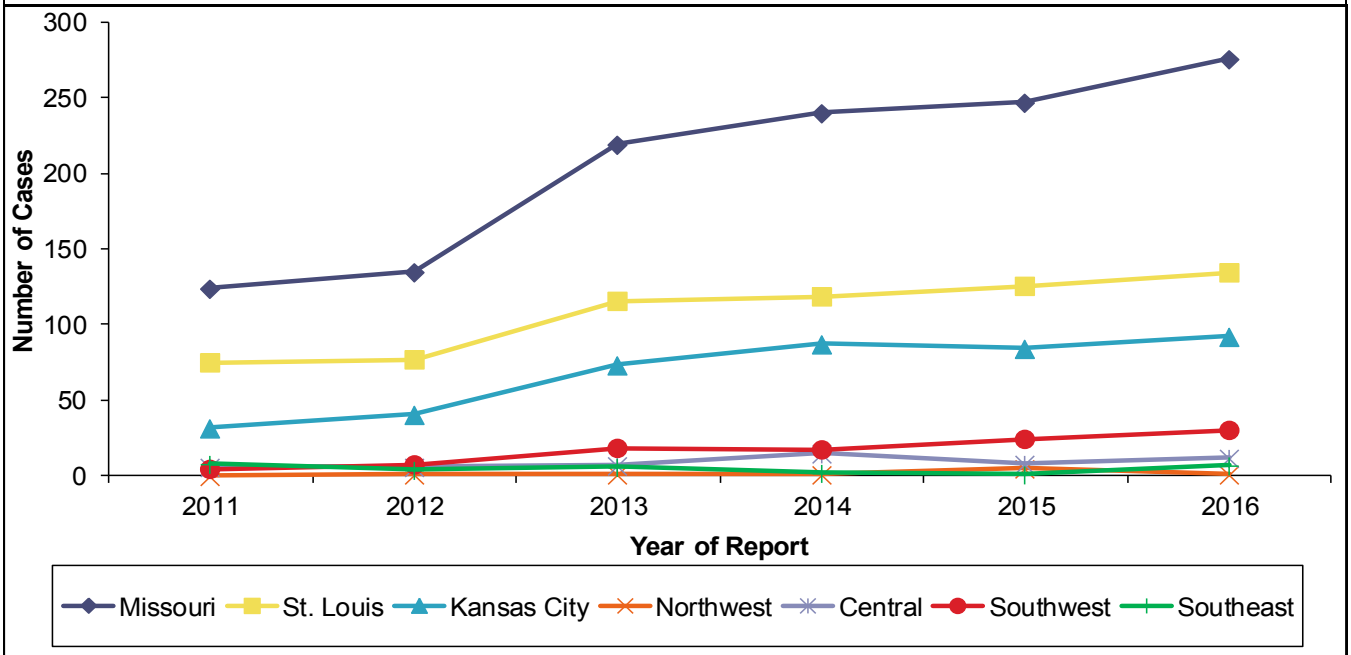


Figure 23. Reported early latent syphilis cases by HIV care region and year of report, Missouri, 2011-2016



The largest numbers of early latent syphilis cases were reported among white males (107) and black/African American males (103) (Figure 22). The number of reported cases increased among males but decreased among females. From 2015 to 2016 the number of early latent syphilis cases among black/African American males increased from 75 to 103 cases. Among white males, the largest numbers of cases were reported among individuals 40 or more years of age at the time of diagnosis. Among black/African American males, cases were greatest among those 25 to 29 years of age.

The number of reported early latent syphilis cases in Missouri steadily increased from 2011 to 2016 (Figure 23). The number of reported early latent syphilis cases increased from 2015 to 2016 in all HIV care regions with the exception of the Northwest HIV Care Region, where there was a decrease of four cases (5 to 1).

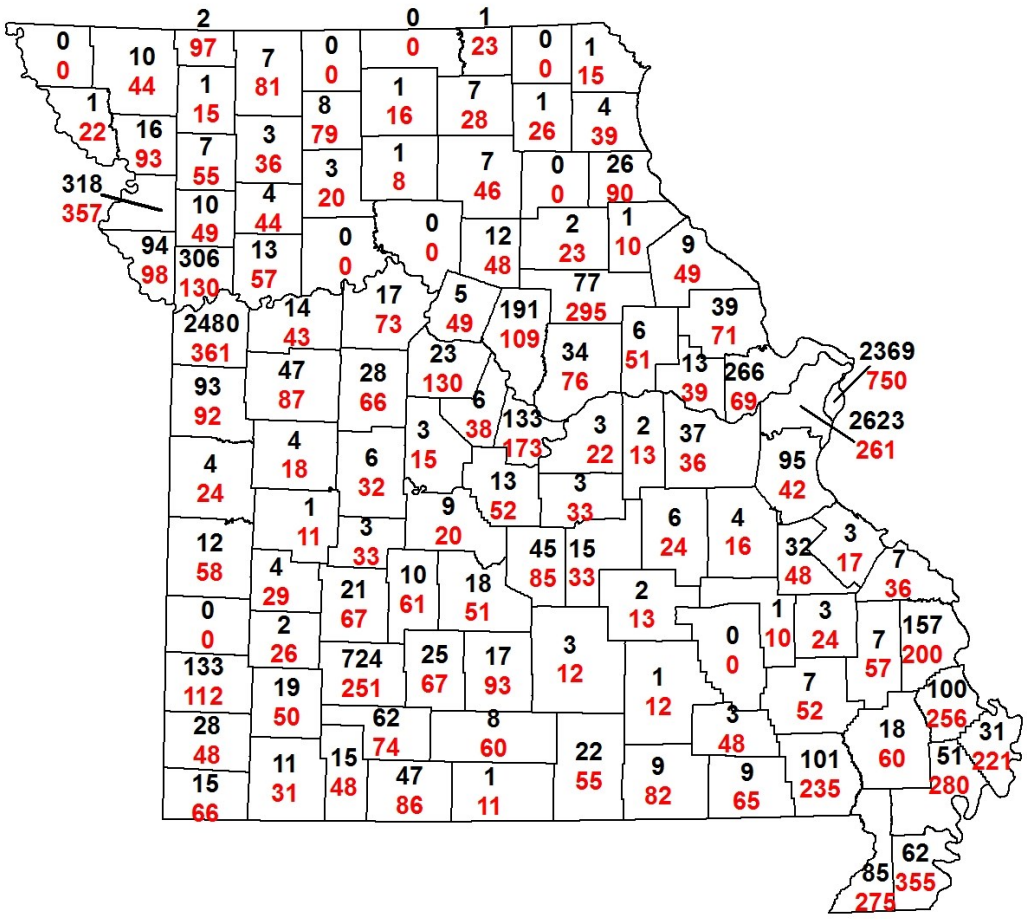
Table 26. Reported gonorrhea cases and rates, by sex, HIV care region and race*, Missouri, 2016

	Male			Female			Total	
	Cases	%	Rate**	Cases	%	Rate**	Cases	Rate**
Missouri								
White	1,693	27.1%	70.9	1,730	33.1%	70.1	3,423	70.5
Black/African American	3,620	57.9%	1077.8	2,794	53.4%	755.3	6,414	908.8
Other/Unknown*	938	15.0%	--	704	13.5%	--	1,642	--
Total	**6,251**	**100.0%**	**209.4**	**5,228**	**100.0%**	**168.7**	**11,479**	**188.7**
St. Louis HIV Care Region								
White	369	11.9%	48.9	288	12.2%	36.6	657	42.6
Black/African American	2,269	73.5%	1218.2	1,733	73.6%	776.3	4,002	977.3
Other/Unknown*	450	14.6%	--	333	14.1%	--	783	--
Total	**3,088**	**100.0%**	**301.5**	**2,354**	**100.0%**	**214.9**	**5,442**	**256.8**
Kansas City HIV Care Region								
White	444	27.6%	105.2	413	29.4%	93.6	857	99.3
Black/African American	915	57.0%	1044.4	802	57.1%	812.6	1,717	921.6
Other/Unknown*	247	15.4%	--	189	13.5%	--	436	--
Total	**1,606**	**100.0%**	**275.3**	**1,404**	**100.0%**	**228.7**	**3,010**	**251.4**
Northwest HIV Care Region								
White	119	64.0%	119.8	156	80.4%	153.3	275	136.7
Black/African American	37	19.9%	664.0	19	9.8%	658.8	56	662.3
Other/Unknown*	30	16.1%	--	19	9.8%	--	49	--
Total	**186**	**100.0%**	**165.2**	**194**	**100.0%**	**174.0**	**380**	**169.5**
Central HIV Care Region								
White	157	46.2%	41.0	219	63.1%	56.0	376	48.6
Black/African American	118	34.7%	483.9	78	22.5%	383.9	196	438.4
Other/Unknown*	65	19.1%	--	50	14.4%	--	115	--
Total	**340**	**100.0%**	**77.5**	**347**	**100.0%**	**78.5**	**687**	**78.0**
Southwest HIV Care Region								
White	490	69.0%	96.0	454	80.6%	86.6	944	91.2
Black/African American	115	16.2%	771.3	40	7.1%	400.7	155	622.7
Other/Unknown*	105	14.8%	--	69	12.3%	--	174	--
Total	**710**	**100.0%**	**122.8**	**563**	**100.0%**	**96.2**	**1,273**	**109.4**
Southeast HIV Care Region								
White	114	35.5%	52.1	200	54.6%	89.2	314	70.9
Black/African American	166	51.7%	969.3	122	33.3%	825.6	288	902.7
Other/Unknown*	41	12.8%	--	44	12.0%	--	85	--
Total	**321**	**100.0%**	**129.5**	**366**	**100.0%**	**146.0**	**687**	**137.8**

*Includes cases identified with Hispanic ethnicity.
**Per 100,000 population based on 2015 DHSS population estimates.
Note: Percentages may not total 100% due to rounding.

A total of 11,479 gonorrhea cases were reported in 2016 (Table 26). This represented a 28% increase in the number of reported cases compared to 2015 (8,942 cases). The majority of cases (54%) were reported among males. Forty-seven percent (47%) of all gonorrhea cases were reported in the St. Louis HIV Care Region and 26% were reported in the Kansas City HIV Care Region. The Southwest HIV Care Region had the third largest number of gonorrhea cases reported. The rate of reported gonorrhea cases was higher for blacks/African Americans compared to whites in all regions.

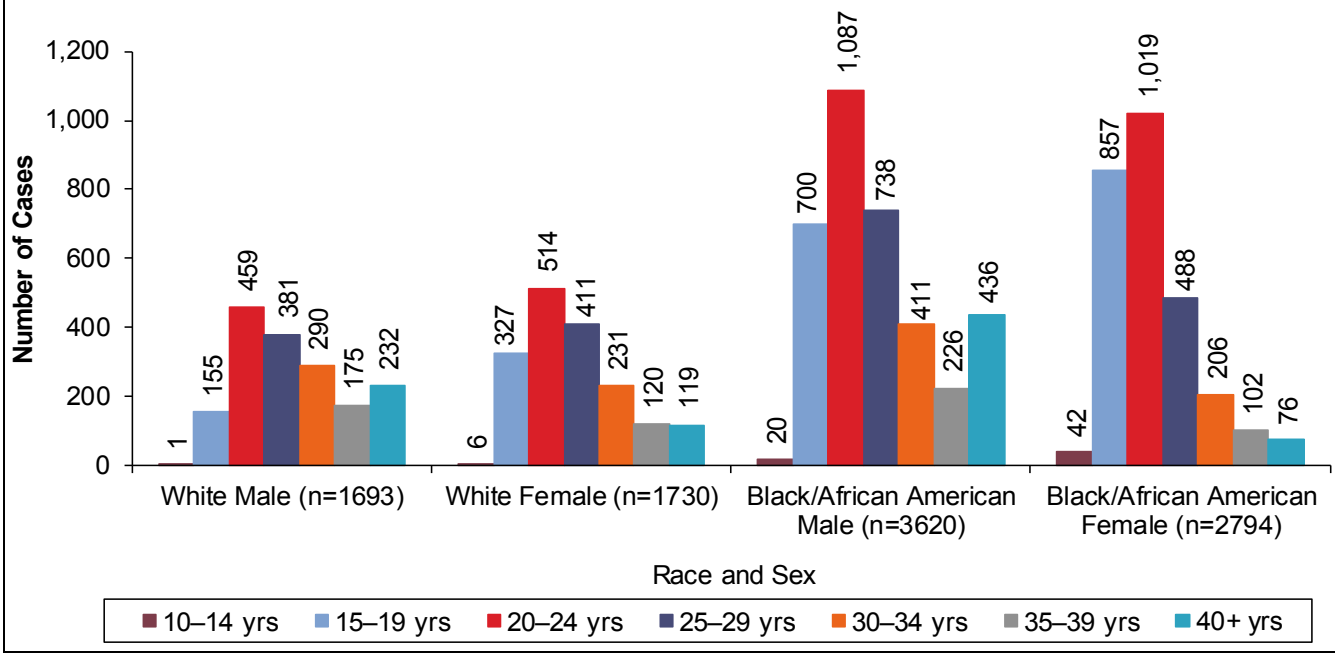
Figure 24. Reported gonorrhea cases* and rates, by county, Missouri, 2016**



*Case counts are in black.
**Case rates are in red, per 100,000 population based on 2015 DHSS population estimates.

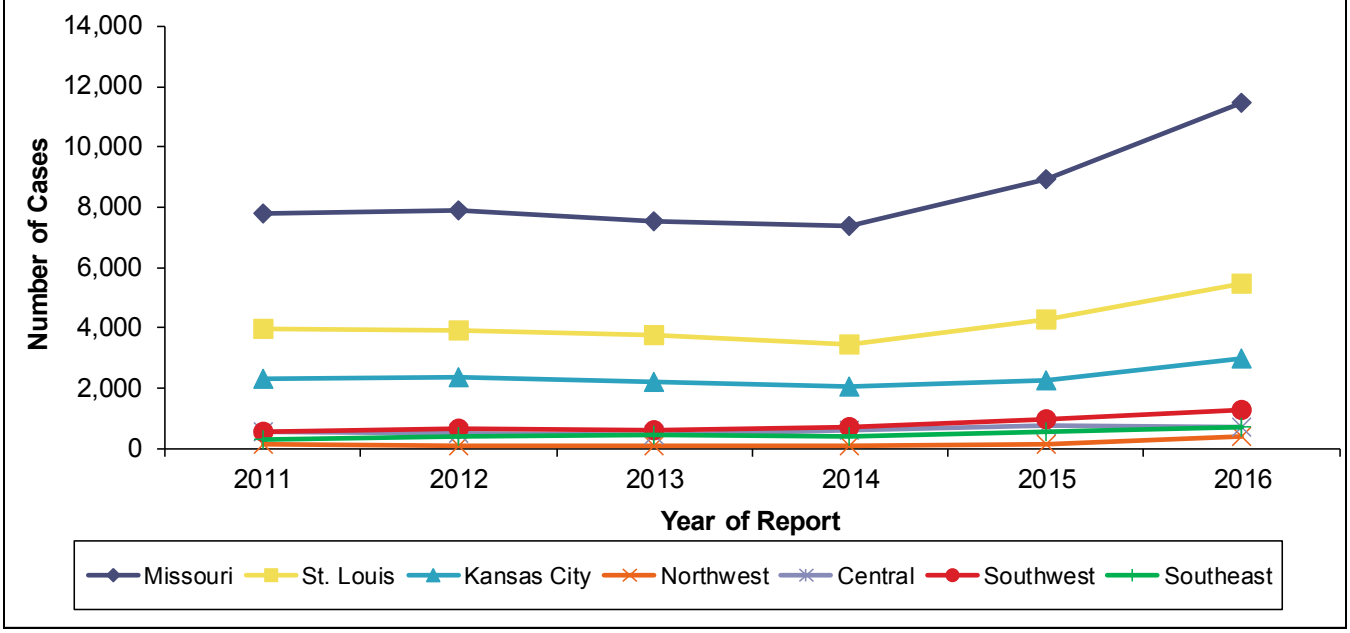
Gonorrhea cases reported in St. Louis City, St. Louis County, and Jackson County represented 65% of all reported cases in 2016 (Figure 24). There were nine counties that did not report any gonorrhea cases in 2016. St. Louis County had the highest number of reported gonorrhea cases (2,623). St. Louis City had the highest rate of reported gonorrhea cases at 750 per 100,000 persons. This means that for every 100,000 persons living in St. Louis City, there were 750 reported with gonorrhea in 2016.

Figure 25. Reported gonorrhea cases, by race and sex and age group at diagnosis, Missouri, 2016



Note: Totals include persons diagnosed at <10 years of age or whose age at diagnosis is unknown.

Figure 26. Reported gonorrhea cases by HIV care region and year of report, Missouri, 2011-2016



The largest numbers of gonorrhea cases were reported among black/African American males (3,620) and black/African American females (2,794) (Figure 25). The number of reported cases increased from 2015 to 2016 among all race/ethnicity and sex categories presented. Among all race/ethnicity and sex categories presented, the largest numbers of cases were reported among individuals 20 to 24 years of age at the time of diagnosis. A greater proportion of gonorrhea cases among white males (14%) and black/African American males (12%) was diagnosed among individuals 40 or more years of age compared to female cases.

The number of reported gonorrhea cases in Missouri increased from 2011 to 2012, decreased through 2014, and then increased through 2016 (Figure 26). The number of reported gonorrhea cases was higher in 2016 than 2015 in all HIV care regions except for the Central HIV Care Region.

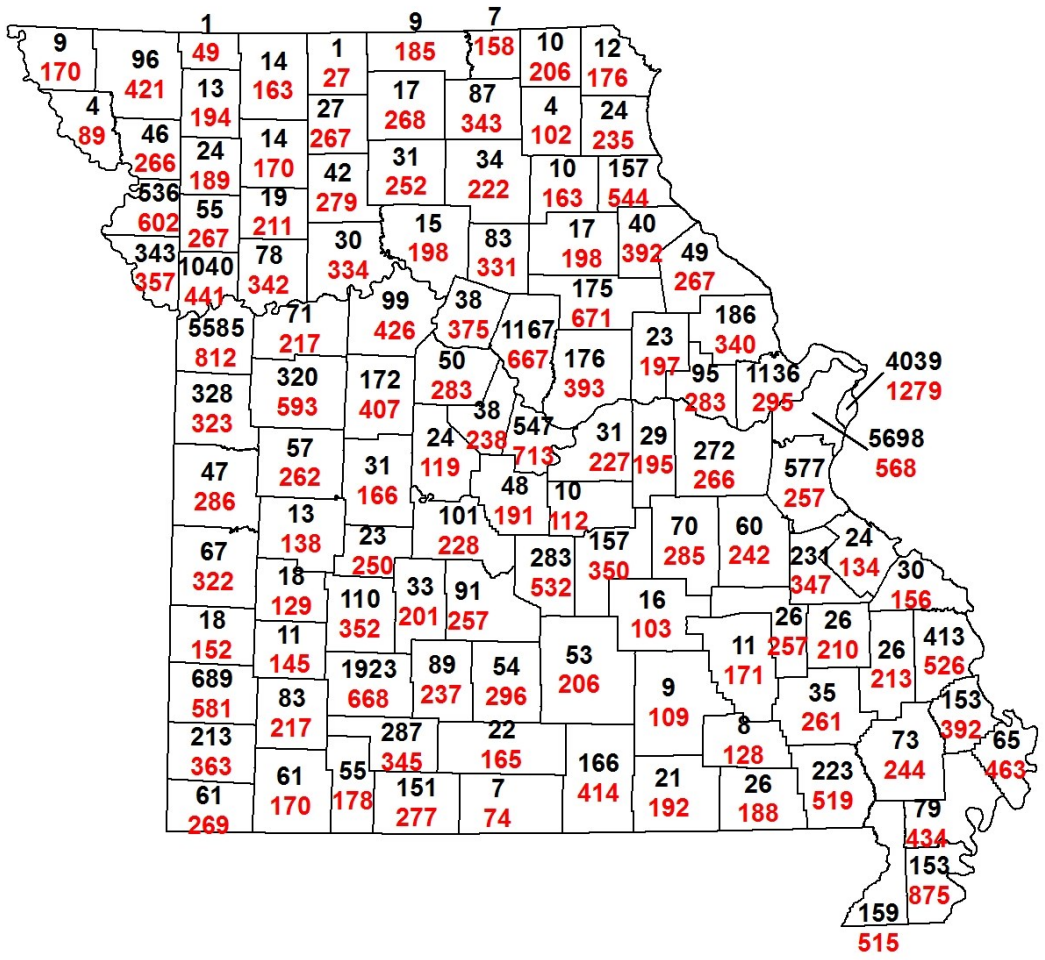
Table 27. Reported chlamydia cases and rates, by sex, HIV care region and race*, Missouri, 2016

	Male			Female			Total	
	Cases	%	Rate**	Cases	%	Rate**	Cases	Rate**
Missouri								
White	3,649	36.2%	152.8	8,954	43.1%	362.6	12,603	259.5
Black/African American	4,348	43.1%	1294.6	7,398	35.6%	2000.0	11,746	1664.3
Other/Unknown*	2,089	20.7%	--	4,405	21.2%	--	6,494	--
Total	**10,086**	**100.0%**	**337.9**	**20,757**	**100.0%**	**669.9**	**30,843**	**507.0**
St. Louis HIV Care Region								
White	852	20.9%	113.0	1,780	22.4%	226.2	2,632	170.8
Black/African American	2,326	57.1%	1248.8	4,259	53.7%	1907.8	6,585	1608.1
Other/Unknown*	896	22.0%	--	1,890	23.8%	--	2,786	--
Total	**4,074**	**100.0%**	**397.8**	**7,929**	**100.0%**	**724.0**	**12,003**	**566.3**
Kansas City HIV Care Region								
White	679	27.7%	160.8	1,756	34.8%	398.0	2,435	282.0
Black/African American	1,184	48.2%	1351.4	2,159	42.8%	2187.6	3,343	1794.4
Other/Unknown*	592	24.1%	--	1,130	22.4%	--	1,722	--
Total	**2,455**	**100.0%**	**420.9**	**5,045**	**100.0%**	**822.0**	**7,500**	**626.5**
Northwest HIV Care Region								
White	183	64.9%	184.2	470	79.1%	461.9	653	324.7
Black/African American	51	18.1%	915.3	40	6.7%	1387.0	91	1076.2
Other/Unknown*	48	17.0%	--	84	14.1%	--	132	--
Total	**282**	**100.0%**	**250.4**	**594**	**100.0%**	**532.7**	**876**	**390.9**
Central HIV Care Region								
White	591	51.2%	154.2	1,687	64.0%	431.7	2,278	294.3
Black/African American	346	30.0%	1419.0	467	17.7%	2298.3	813	1818.7
Other/Unknown*	217	18.8%	--	481	18.3%	--	698	--
Total	**1,154**	**100.0%**	**263.1**	**2,635**	**100.0%**	**596.2**	**3,789**	**430.3**
Southwest HIV Care Region								
White	1,096	68.7%	214.6	2,416	75.8%	460.8	3,512	339.3
Black/African American	248	15.5%	1663.4	178	5.6%	1783.0	426	1711.4
Other/Unknown*	252	15.8%	--	594	18.6%	--	846	--
Total	**1,596**	**100.0%**	**276.0**	**3,188**	**100.0%**	**544.5**	**4,784**	**411.0**
Southeast HIV Care Region								
White	248	47.2%	113.3	845	61.9%	376.9	1,093	246.6
Black/African American	193	36.8%	1126.9	295	21.6%	1996.3	488	1529.6
Other/Unknown*	84	16.0%	--	226	16.5%	--	310	--
Total	**525**	**100.0%**	**211.7**	**1,366**	**100.0%**	**545.1**	**1,891**	**379.3**

*Includes cases identified with Hispanic ethnicity.
**Per 100,000 population based on 2015 DHSS population estimates.
Note: Percentages may not total 100% due to rounding.

A total of 30,843 chlamydia cases were reported in 2016 (Table 27). This represented a 7% increase in cases reported from 2015 (28,948 cases). The majority of cases (67%) were reported among females. The rate of chlamydia cases among females was highest in the Kansas City HIV Care Region (822), followed by the St. Louis HIV Care Region (724). Thirty-nine percent (39%) of all chlamydia cases were reported in the St. Louis HIV Care Region and 24% were reported in the Kansas City HIV Care Region. The Southwest HIV Region had the third largest number of chlamydia cases reported. The rate of reported chlamydia cases was higher for blacks/African Americans compared to whites in all regions.

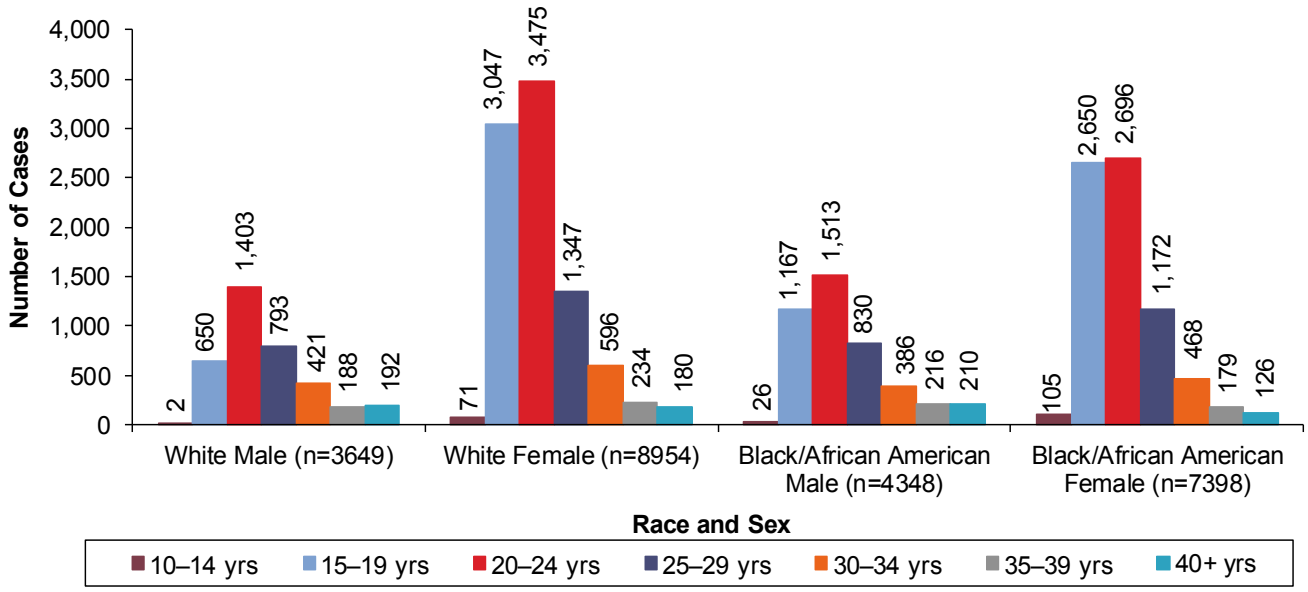
Figure 27. Reported chlamydia cases* and rates, by county, Missouri, 2016**



*Case counts are in black.
**Case rates are in red, per 100,000 population based on 2015 DHSS population estimates.

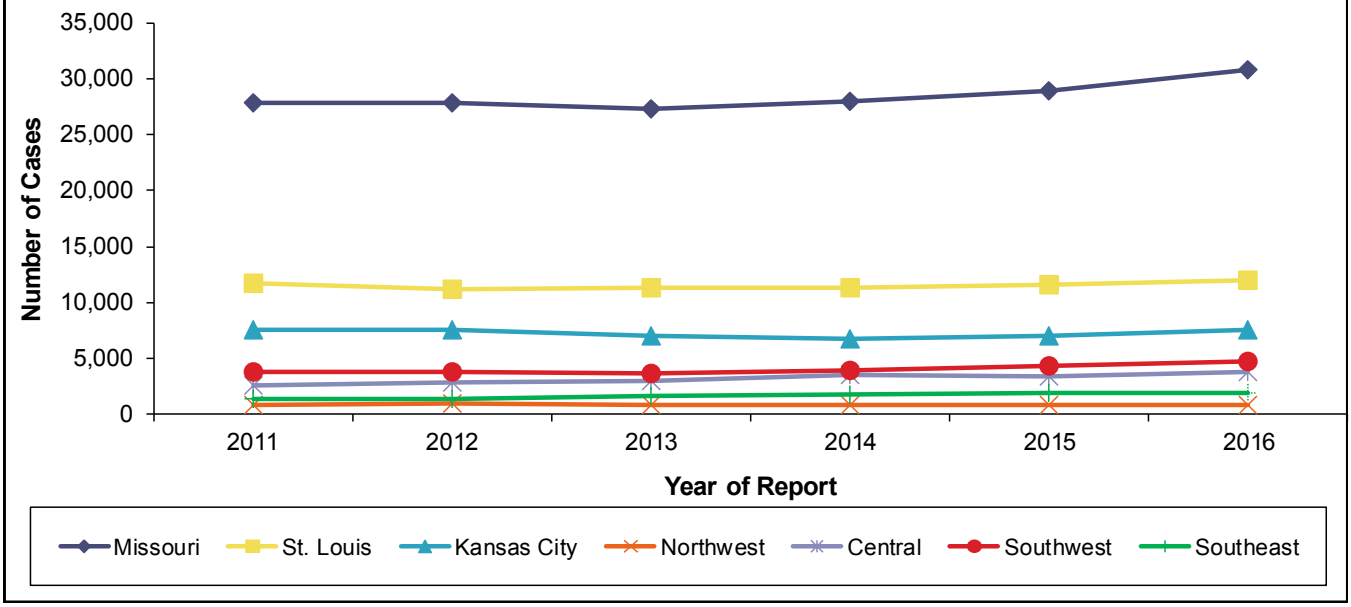
Chlamydia cases reported in St. Louis City, St. Louis County, and Jackson County represented 50% of all reported chlamydia cases in 2016 (Figure 27), although these areas represent only 33% of Missouri's general population. All counties reported at least one chlamydia case in 2016. St. Louis County had the highest number of reported cases in 2016 (5,698). St. Louis City had the highest rate of reported chlamydia cases at 1,279 per 100,000 persons. This means that for every 100,000 persons living in St. Louis City, there were 1,279 reported with chlamydia in 2016.

Figure 28. Reported chlamydia cases, by race and sex and age group at diagnosis, Missouri, 2016



Note: Totals include persons diagnosed at <10 years of age or whose age at diagnosis is unknown.

Figure 29. Reported chlamydia cases, by HIV care region and year of report, Missouri, 2011-2016



The largest numbers of chlamydia cases were reported among white females (8,954) and black/African American females (7,398) (Figure 28). The number of reported cases increased from 2015 to 2016 among all race/ethnicity and sex categories presented. Among all race/ethnicity and sex categories presented, the largest numbers of cases were reported among individuals 20 to 24 years of age at the time of diagnosis. The proportion of reported cases among individuals 15 to 19 years of age at the time of diagnosis was highest among white females (41%) and black/African American females (35%).

The number of reported chlamydia cases in Missouri increased from 2010 to 2011, decreased slightly through 2013, and then increased through 2016 (Figure 29). The number of reported chlamydia cases increased from 2015 to 2016 in all HIV care regions.

Table 28. Reported hepatitis B† cases and rates, by sex, HIV care region and race*, Missouri, 2016

	Male			Female			Total	
	Cases	%	Rate**	Cases	%	Rate**	Cases	Rate**
Missouri								
White	78	28.1%	3.3	58	20.4%	2.3	136	2.8
Black/African American	49	17.6%	14.6	49	17.3%	13.2	98	13.9
Other/Unknown*	151	54.3%	--	177	62.3%	--	328	--
Total	**278**	**100.0%**	**9.3**	**284**	**100.0%**	**9.2**	**562**	**9.2**
St. Louis HIV Care Region								
White	21	21.2%	2.8	18	15.4%	2.3	39	2.5
Black/African American	26	26.3%	14.0	31	26.5%	13.9	57	13.9
Other/Unknown*	52	52.5%	--	68	58.1%	--	120	--
Total	**99**	**100.0%**	**9.7**	**117**	**100.0%**	**10.7**	**216**	**10.2**
Kansas City HIV Care Region								
White	4	6.7%	0.9	8	11.8%	1.8	12	1.4
Black/African American	9	15.0%	10.3	12	17.6%	12.2	21	11.3
Other/Unknown*	47	78.3%	--	48	70.6%	--	95	--
Total	**60**	**100.0%**	**10.3**	**68**	**100.0%**	**11.1**	**128**	**10.7**
Northwest HIV Care Region								
White	4	40.0%	4.0	1	11.1%	1.0	5	2.5
Black/African American	1	10.0%	17.9	0	0.0%	0.0	1	11.8
Other/Unknown*	5	50.0%	--	8	88.9%	--	13	--
Total	**10**	**100.0%**	**8.9**	**9**	**100.0%**	**8.1**	**19**	**8.5**
Central HIV Care Region								
White	15	42.9%	3.9	10	37.0%	2.6	25	3.2
Black/African American	4	11.4%	16.4	5	18.5%	24.6	9	20.1
Other/Unknown*	16	45.7%	--	12	44.4%	--	28	--
Total	**35**	**100.0%**	**8.0**	**27**	**100.0%**	**6.1**	**62**	**7.0**
Southwest HIV Care Region								
White	19	36.5%	3.7	15	32.6%	2.9	34	3.3
Black/African American	4	7.7%	26.8	0	0.0%	0.0	4	16.1
Other/Unknown*	29	55.8%	--	31	67.4%	--	60	--
Total	**52**	**100.0%**	**9.0**	**46**	**100.0%**	**7.9**	**98**	**8.4**
Southeast HIV Care Region								
White	15	68.2%	6.9	6	35.3%	2.7	21	4.7
Black/African American	5	22.7%	29.2	1	5.9%	6.8	6	18.8
Other/Unknown*	2	9.1%	--	10	58.8%	--	12	--
Total	**22**	**100.0%**	**8.9**	**17**	**100.0%**	**6.8**	**39**	**7.8**

†Includes confirmed and probable case classifications of hepatitis B acute, hepatitis B chronic, hepatitis B prenatal, and hepatitis B perinatal.
*Includes cases identified with Hispanic ethnicity.
**Per 100,000 population based on 2015 DHSS population estimates.
Note: Percentages may not total 100% due to rounding.

Of the 562 hepatitis B cases reported in 2016, 40 were reported with acute hepatitis B, 418 with chronic hepatitis B, and 104 with prenatal hepatitis B (Table 28). There were no perinatal hepatitis B cases reported in 2016. The number of reported hepatitis B cases in Missouri decreased by 142 cases from 2015 (704) to 2016 (562). The number of individuals reported with hepatitis B decreased from 2015 to 2016 in all HIV care regions except for the Northwest and Southeast HIV Care Regions. The rate of reported hepatitis B cases was highest in the Kansas City HIV Care Region (11). Overall, 51% of reported cases were females, although variations in the ratio of male-to-female cases existed among the HIV care regions. The large proportion of cases with unknown race/ethnicity information makes it difficult to interpret differences in reported infections by race/ethnicity.

Figure 30. Reported hepatitis B cases* and rates, by jurisdiction, Missouri, 2016**

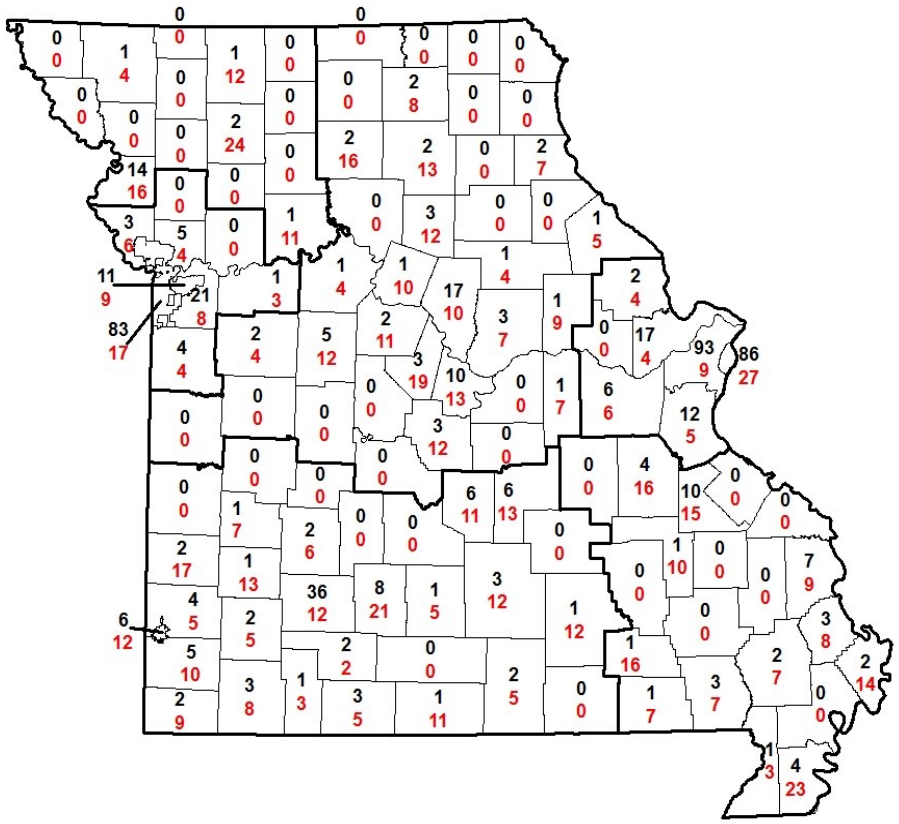
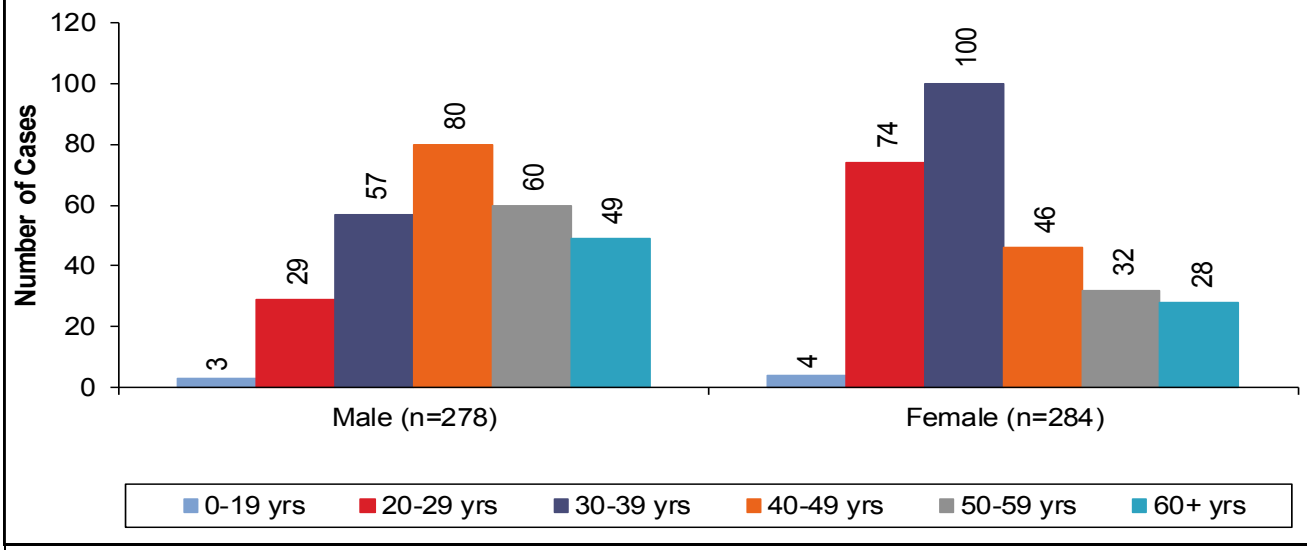


Figure 31. Reported hepatitis B cases, by sex and age group at diagnosis, Missouri, 2016



Note: Totals include persons whose age at diagnosis is unknown.

St. Louis County had the greatest number of reported hepatitis B cases (93), followed by St. Louis City (86) (Figure 30). There were 47 jurisdictions that did not report any hepatitis B cases in 2016.

There were differences in the age distribution of reported hepatitis B cases by sex (Figure 31). Among males, the largest numbers of reported cases were among individuals 40 to 49 years of age. The largest numbers of cases among females were individuals 30 to 39 years of age at diagnosis.

Table 29. Reported hepatitis C† cases and rates, by sex, HIV care region and race*, Missouri, 2016

	Male			Female			Total‡	
	Cases	%	Rate**	Cases	%	Rate**	Cases	Rate**
Missouri								
White	1,177	37.0%	49.3	932	48.8%	37.7	2,109	43.4
Black/African American	506	15.9%	150.7	196	10.3%	53.0	702	99.5
Other/Unknown*	1,495	47.0%	--	782	40.9%	--	2,277	--
Total	**3,178**	**100.0%**	**106.5**	**1,910**	**100.0%**	**61.6**	**5,088**	**83.6**
St. Louis HIV Care Region								
White	324	26.7%	43.0	248	39.4%	31.5	572	37.1
Black/African American	387	31.9%	207.8	158	25.1%	70.8	545	133.1
Other/Unknown*	504	41.5%	--	223	35.5%	--	727	--
Total	**1,215**	**100.0%**	**118.6**	**629**	**100.0%**	**57.4**	**1,844**	**87.0**
Kansas City HIV Care Region								
White	131	25.0%	31.0	100	34.5%	22.7	231	26.8
Black/African American	57	10.9%	65.1	29	10.0%	29.4	86	46.2
Other/Unknown*	337	64.2%	--	161	55.5%	--	498	--
Total	**525**	**100.0%**	**90.0**	**290**	**100.0%**	**47.2**	**815**	**68.1**
Northwest HIV Care Region								
White	64	61.0%	64.4	55	67.1%	54.1	119	59.2
Black/African American	5	4.8%	89.7	2	2.4%	69.3	7	82.8
Other/Unknown*	36	34.3%	--	25	30.5%	--	61	--
Total	**105**	**100.0%**	**93.2**	**82**	**100.0%**	**73.5**	**187**	**83.4**
Central HIV Care Region								
White	159	46.5%	41.5	115	54.0%	29.4	274	35.4
Black/African American	18	5.3%	73.8	3	1.4%	14.8	21	47.0
Other/Unknown*	165	48.2%	--	95	44.6%	--	260	--
Total	**342**	**100.0%**	**78.0**	**213**	**100.0%**	**48.2**	**555**	**63.0**
Southwest HIV Care Region								
White	351	52.9%	68.7	306	61.8%	58.4	657	63.5
Black/African American	20	3.0%	134.1	2	0.4%	20.0	22	88.4
Other/Unknown*	292	44.0%	--	187	37.8%	--	479	--
Total	**663**	**100.0%**	**114.6**	**495**	**100.0%**	**84.5**	**1,158**	**99.5**
Southeast HIV Care Region								
White	148	45.1%	67.6	108	53.7%	48.2	256	57.8
Black/African American	19	5.8%	110.9	2	1.0%	13.5	21	65.8
Other/Unknown*	161	49.1%	--	91	45.3%	--	252	--
Total	**328**	**100.0%**	**132.3**	**201**	**100.0%**	**80.2**	**529**	**106.1**

†Includes confirmed and probable case classifications of hepatitis C acute and hepatitis C chronic.
*Includes cases identified with Hispanic ethnicity.
‡Includes persons with unknown or other sex.
**Per 100,000 population based on 2015 DHSS population estimates.
Note: Percentages may not total 100% due to rounding.

Of the 5,088 hepatitis C cases reported in 2016, 24 were reported with acute hepatitis C and 5,064 with chronic hepatitis C. The number of reported hepatitis C cases in Missouri decreased by 2,715 cases from 2015 (7,803) to 2016 (5,088) (Table 29). However, the decrease is not likely due to a true decrease in morbidity but is more likely due to data collection methods and the inability for Missouri's current reportable disease surveillance system to account for hepatitis C case definition changes. Please see the Technical Notes section for more information. The number of persons reported with hepatitis C decreased from 2015 to 2016 in all HIV care regions. Overall, the rate of reported hepatitis C cases was highest in the Southeast HIV Care Region (106). In Missouri overall, 62% of the reported cases were males. The large proportion of cases with unknown race/ethnicity information makes it difficult to interpret differences in reported infections by race/ethnicity.

Figure 32. Reported hepatitis C cases* and rates, by jurisdiction, Missouri, 2016**

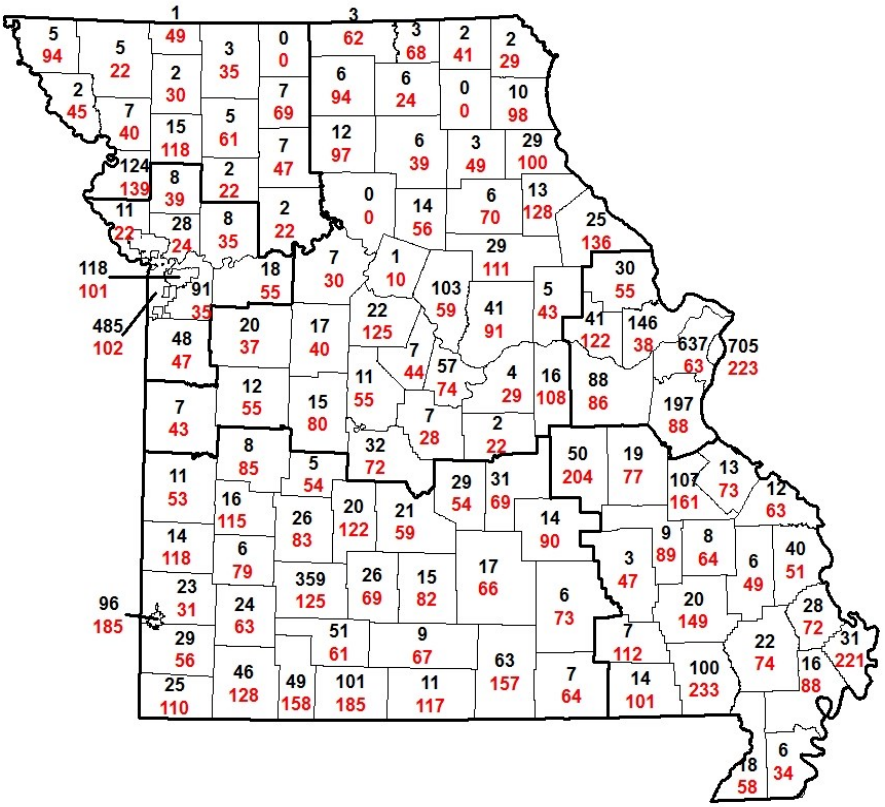
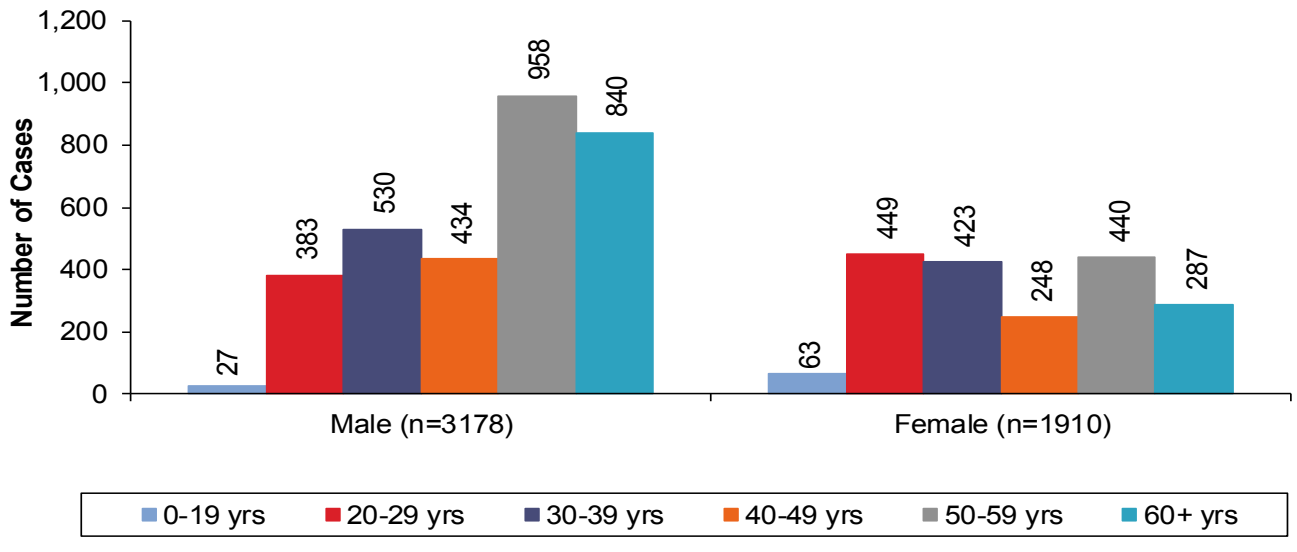


Figure 33. Reported hepatitis C cases, by sex and age group at diagnosis, Missouri, 2016



Note: Totals include persons whose age at diagnosis is unknown.

St. Louis City had the greatest number of reported hepatitis C cases with 705 (Figure 32). The second largest number of hepatitis C cases was reported in St. Louis County (637). All but three counties reported at least one hepatitis C case in 2016.

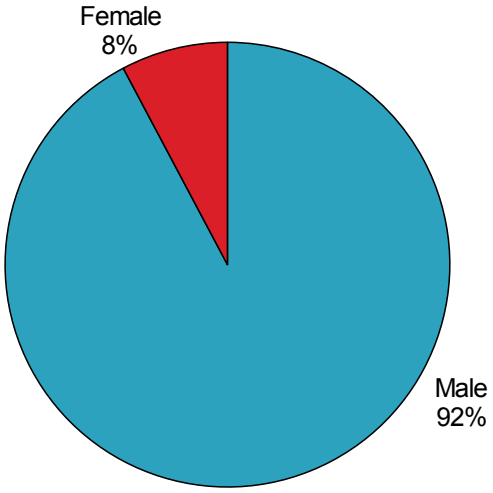
Among males, the largest numbers of reported hepatitis C cases were between 50 and 59 years of age. Among females, the largest numbers of reported cases were between 20 and 29 years of age, closely followed by individuals between 50 and 59 years of age (Figure 33).

Table 30. HIV and STD co-infections, by HIV diagnosis year and type of co-infection, Missouri, 2016

Co-infection	Diagnosed with HIV Prior to 2016		Diagnosed with HIV in 2016		Total	
	N	%	N	%	N	%
Chlamydia	137	24.8%	26	22.2%	163	24.3%
Gonorrhea	165	29.8%	38	32.5%	203	30.3%
Syphilis*	110	19.9%	17	14.5%	127	19.0%
Chlamydia and Gonorrhea	80	14.5%	16	13.7%	96	14.3%
Chlamydia and Syphilis*	12	2.2%	2	1.7%	14	2.1%
Gonorrhea and Syphilis*	26	4.7%	9	7.7%	35	5.2%
Chlamydia, Gonorrhea, and Syphilis*	23	4.2%	9	7.7%	32	4.8%
Total	**553**	**100.0%**	**117**	**100.0%**	**670**	**100.0%**

*Represents early syphilis, which only includes diagnoses of primary, secondary, and early latent syphilis.
Note: Percentages may not total 100% due to rounding.

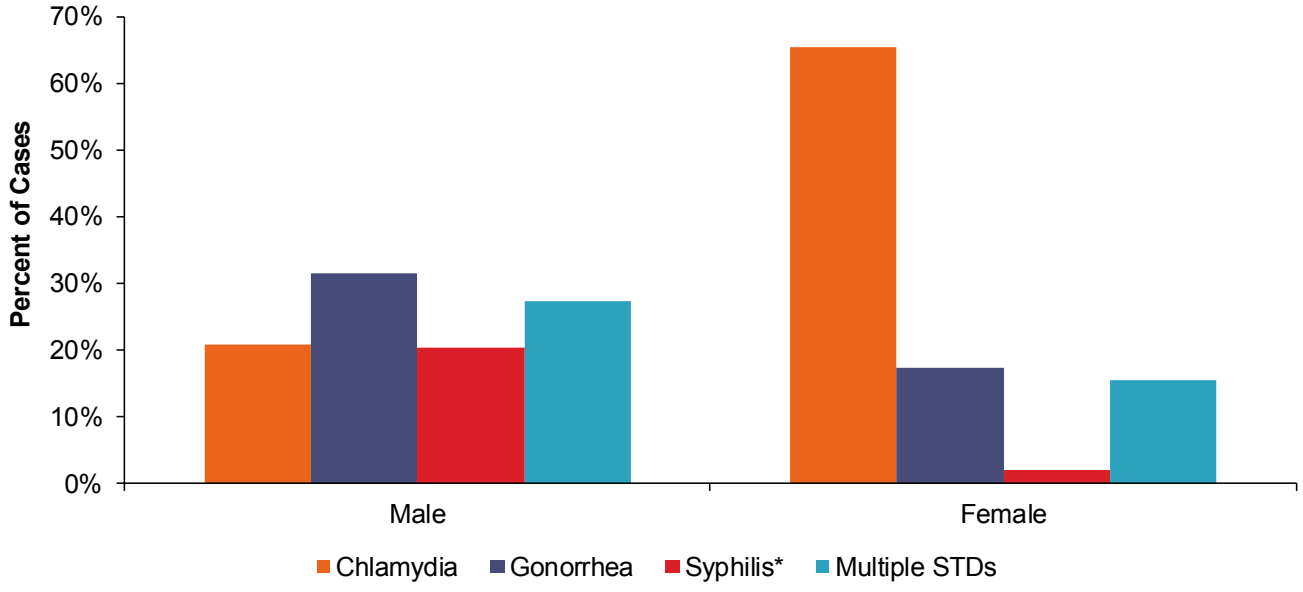
Figure 34. HIV and STD co-infections by sex, Missouri, 2016



Of the 12,606 individuals living with HIV disease, 670 were reported with an STD co-infection in 2016 (Table 30). The majority of those reported with an STD co-infection were diagnosed with HIV prior to 2016 (83%). The largest numbers of HIV co-infections were with gonorrhea alone and chlamydia alone. The proportion of reported STD infections in 2016 that were living with HIV varied by infection type. Only 3% of gonorrhea cases and 1% of chlamydia cases reported in 2016 were among individuals living with HIV. Of the 676 early syphilis cases reported in 2016, 31% were among individuals living with HIV.

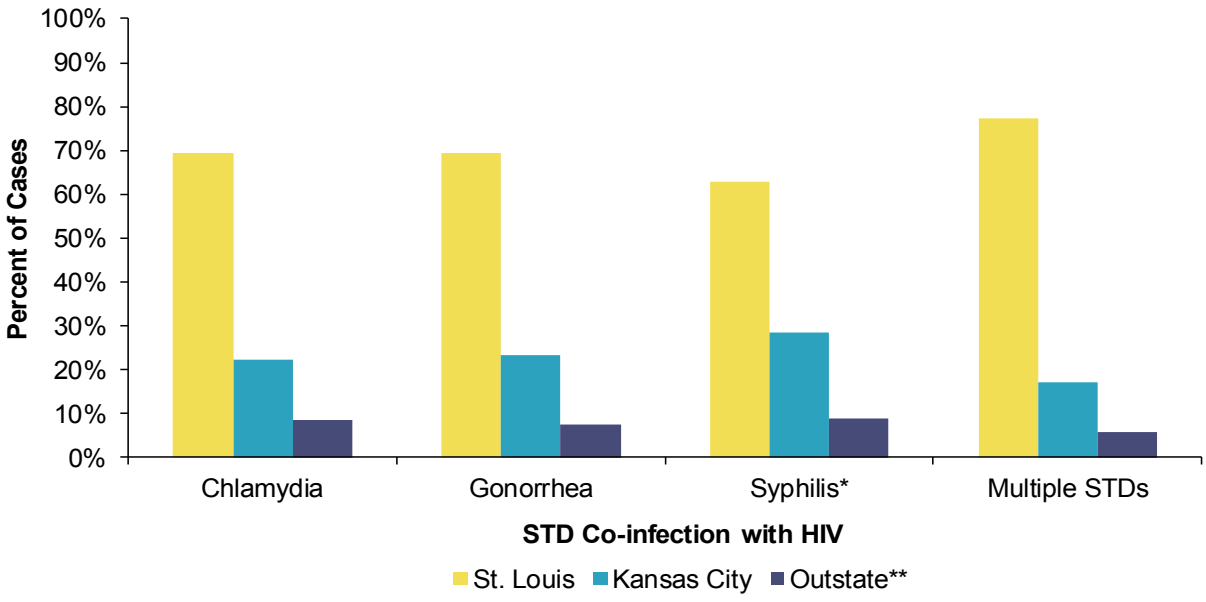
Of the 670 reported STD co-infection cases, 92% were among males (Figure 34).

Figure 35. HIV and STD co-infections, by sex and type of co-infection, Missouri, 2016



*Represents early syphilis, which only includes diagnoses of primary, secondary, and early latent syphilis.

Figure 36. HIV and STD co-infections, by HIV care region of STD diagnosis and type of co-infection, Missouri, 2016

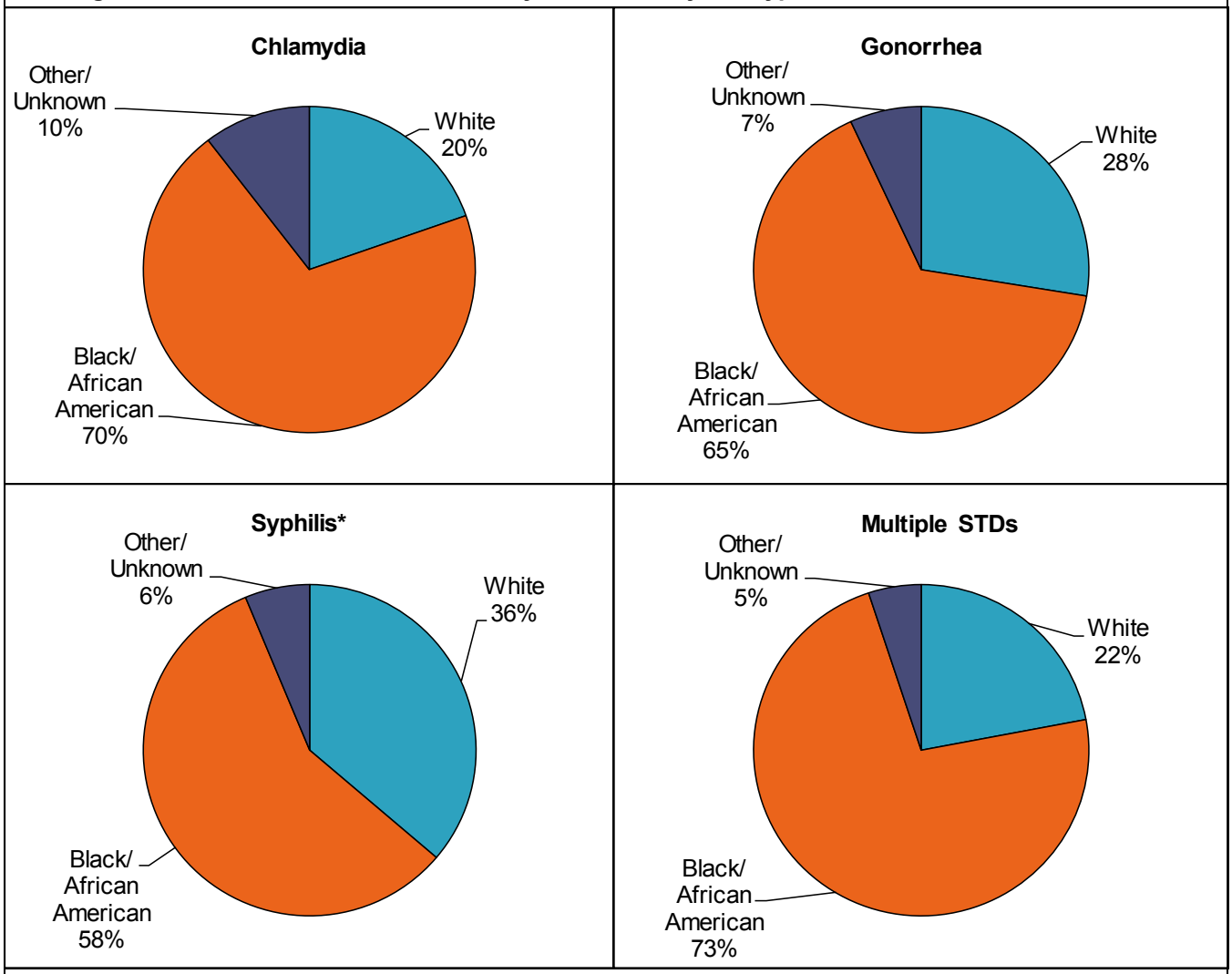


*Represents early syphilis, which only includes diagnoses of primary, secondary, and early latent syphilis.
**Includes those diagnosed in the Central, Northwest, Southeast, and Southwest HIV Care Regions.

There were differences in the distribution of STD co-infection types by sex (Figure 35). Among females living with HIV who were reported with an STD co-infection in 2016, 65% were co-infected with chlamydia, 17% with gonorrhea, 15% with multiple STDs, and 2% with early syphilis. Among males living with HIV and reported with an STD co-infection in 2016, 31% were co-infected with gonorrhea, 27% with multiple STDs, 31% with chlamydia, and 20% with early syphilis.

Among all HIV and STD co-infection types, the greatest proportion of cases was diagnosed in the St. Louis HIV Care Region (Figure 36). Among those living with HIV who were reported with chlamydia in 2016, 69% were residents of the St. Louis HIV Care Region when diagnosed with chlamydia. The St. Louis HIV Care Region represented 70% of all living HIV cases reported with gonorrhea in 2016, 63% of those with early syphilis, and 77% of those with multiple STD co-infections. In St. Louis, STD co-infection with HIV was highest for multiple STDs, while in Kansas City and Outstate, STD co-infection with HIV was highest for early syphilis.

Figure 37. HIV and STD co-infections by race/ethnicity and type of co-infection, Missouri, 2016



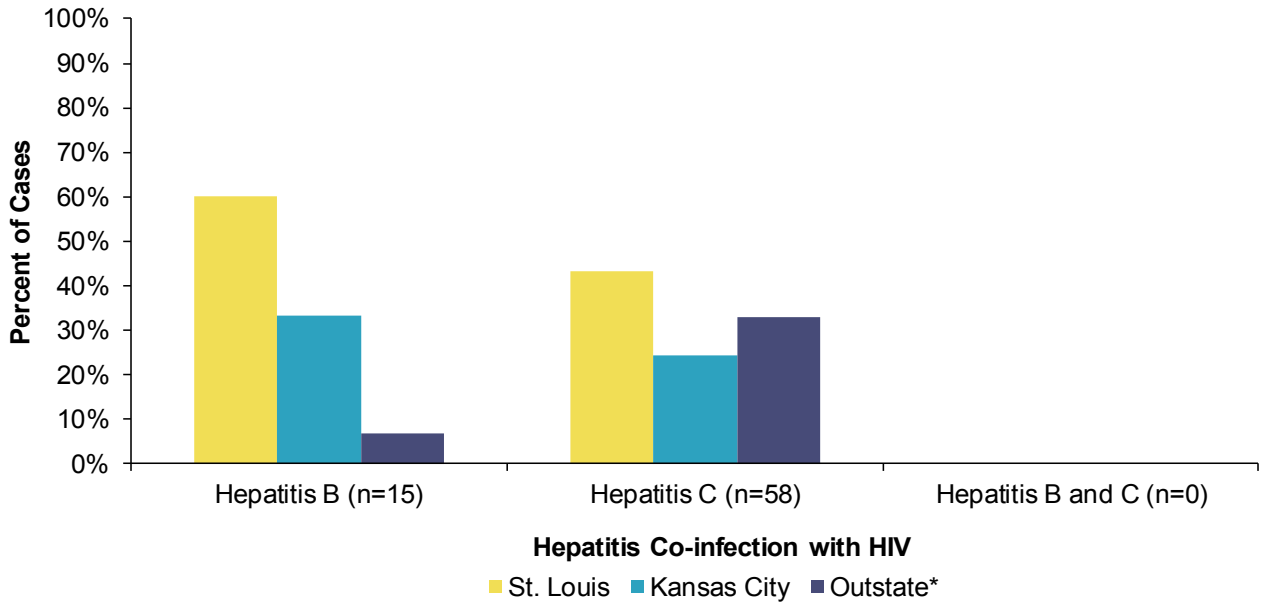
*Only includes diagnoses of primary, secondary, and early latent syphilis.

There were differences in the distribution of race/ethnicity among HIV and STD co-infections depending on the type of STD diagnosed (Figure 37). The proportion of co-infection cases attributed to blacks/African Americans was highest among those co-infected with multiple STDs (73%), followed by those co-infected with chlamydia (70%). In all instances, people of color were disproportionately represented in the proportion of co-infections that were reported. Although blacks/African Americans represented only 46% of living HIV disease cases, they represented 67% of individuals diagnosed with an STD co-infection.

Table 31. HIV and hepatitis co-infections, by HIV diagnosis year and type of co-infection, Missouri, 2016

Co-infection	Diagnosed with HIV Prior to 2016 N	Diagnosed with HIV in 2016 N	Total Co-infections N
Acute Hepatitis B	0	0	0
Chronic Hepatitis B	15	0	15
Prenatal Hepatitis B	0	0	0
Perinatal Hepatitis B	0	0	0
Acute Hepatitis C	0	0	0
Chronic Hepatitis C	44	14	58
Chronic Hepatitis B & C	0	0	0
Total	**59**	**14**	**73**

Figure 38. HIV and hepatitis co-infections, by HIV care region of hepatitis diagnosis and type of co-infection, Missouri, 2016

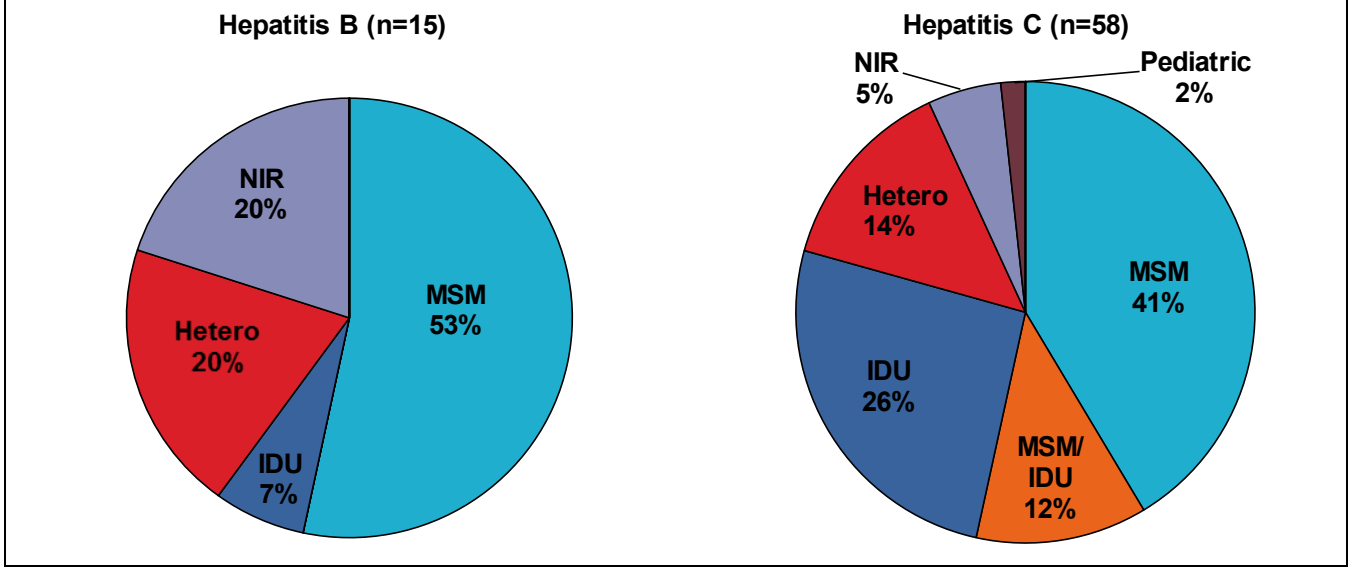


*Includes those diagnosed in the Central, Northwest, Southeast, and Southwest HIV Care Regions.

Of the 12,606 individuals living with HIV disease, 73 were reported with a hepatitis co-infection in 2016 (Table 31). The majority of those reported with a hepatitis co-infection were diagnosed with HIV prior to 2016 (81%). The largest number of HIV co-infections was with chronic hepatitis C. The proportion of reported hepatitis infections in 2016 that were living with HIV varied by infection type. Of the 418 chronic hepatitis B cases reported in 2016, 3% were among individuals living with HIV. Only 1% of chronic hepatitis C cases reported in 2016 were among individuals living with HIV.

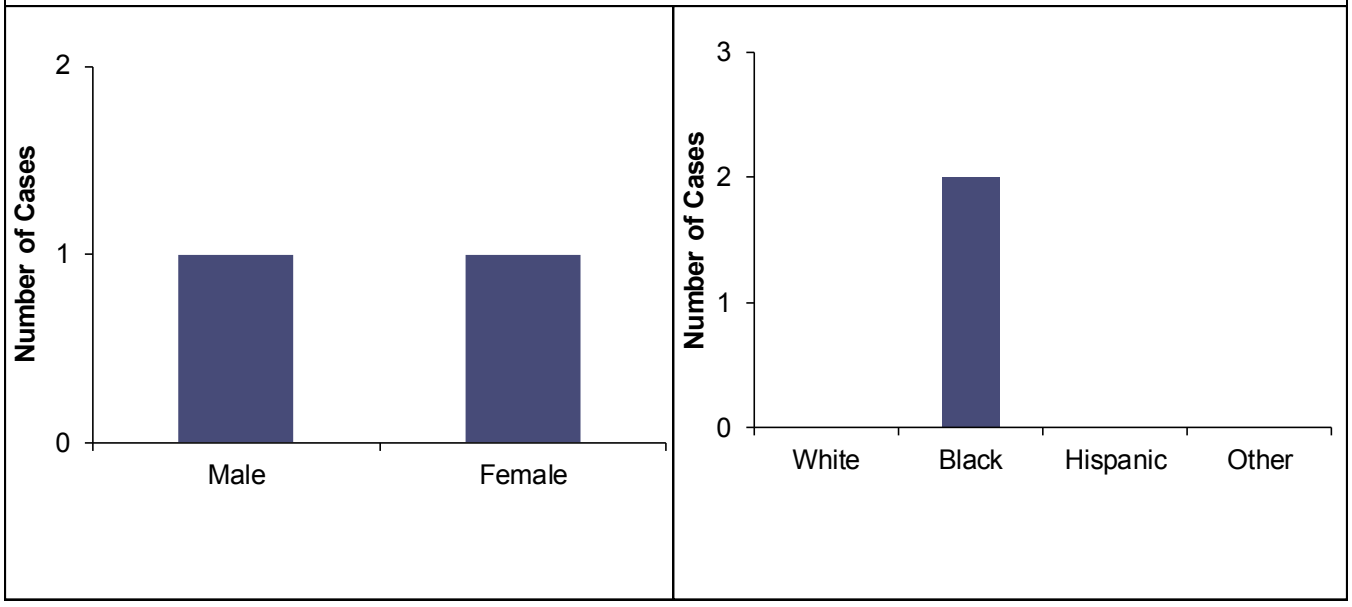
Among persons living with HIV disease that were reported with only a hepatitis B infection in 2016, the greatest proportion were residing in the St. Louis HIV Care Region (60%) at the time of the hepatitis diagnosis (Figure 38). Among HIV-positive persons reported with only a hepatitis C infection in 2016, the greatest proportion were residing in the St. Louis HIV Care Region (43%) at the time of the hepatitis diagnosis. The proportion of HIV-positive persons reported with only a hepatitis C infection in the Outstate regions increased from 22% in 2015 to 33% in 2016.

Figure 39. HIV and hepatitis co-infections by HIV exposure category and type of co-infection, Missouri, 2016



Among persons living with HIV disease and reported with only a hepatitis B infection in 2016, 53% were among MSM (Figure 39). Among hepatitis C co-infection cases, 41% were attributed to MSM, and 26% were attributed to IDU. There were no persons living with HIV disease who were co-infected with both hepatitis B and C in 2016.

Figure 40. HIV and TB disease co-infections by sex, by race, Missouri, 2016



Among the 12,606 persons living with HIV disease, two were reported to be diagnosed with TB disease in 2016. Of those co-infected with TB disease in 2016, both of the co-infections were among persons diagnosed with HIV disease prior to 2016. Both co-infections were reported among persons 45 to 54 years of age at the end of 2016. Both co-infections were among blacks/Africans Americans (Figure 40).

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Key Highlights: What are the HIV service utilization patterns of individuals with HIV disease in Missouri, and what are the number and characteristics of the individuals who know they are HIV positive but who are not in care?

Magnitude of the Problem

- Overall, 67% of Missourians living with HIV disease had their primary care medical needs met (i.e., evidence of a CD4 lymphocyte or viral load test or diagnosis with an opportunistic infection in 2016).
- Persons enrolled in HIV medical case management were significantly more likely to have their primary care medical needs met. Of the 12,606 persons living with HIV disease in Missouri, 5,118 (41%) were enrolled in medical case management at some point in 2016. Ninety percent (90%) of individuals in case management had their primary care medical needs met in 2016.
- Persons living with HIV who were subcategorized as stage 3 (AIDS) cases in 2016 were more likely to have their medical needs met (73%) compared to persons subcategorized as HIV cases (61%). Similar patterns were seen regardless of whether the individuals were enrolled in HIV medical case management.
- Enrollment in HIV medical case management and current diagnostic status (i.e., HIV or stage 3 (AIDS)) were important factors influencing unmet need.

Where

- Overall, the proportion of individuals with a met need was greatest in the Northwest HIV Care Region (75%), and lowest in the Kansas City HIV Care Region (64%).
- Among those enrolled in HIV medical case management, the proportion with a met need ranged from 90% in the Central, St. Louis, and Kansas City HIV Care Regions to 94% in the Southwest HIV Care Region.
- For those not enrolled in HIV medical case management, the proportion with a met need ranged from 46% in the Southwest HIV Care Region to 63% in the Northwest HIV Care Region.

Who

Sex

- Overall, there were no differences observed in unmet need by sex, after controlling for factors such as enrollment in HIV medical case management, and current diagnostic status (i.e., HIV or stage 3 (AIDS)).

Race/Ethnicity

- Unmet need tended to be greater among populations of color, although factors such as case management and diagnostic status influenced the relationship between race and unmet need.
- Among persons diagnosed from 2013 to 2015 who were enrolled in case management, the likelihood of entering care was lower for blacks/African Americans than other races.

Age

- There were differences in unmet need by current age among individuals enrolled in HIV medical case management. Unmet need was greatest among individuals 19 to 24 years of age (19%).
- There were differences in unmet need by current age among individuals not enrolled in HIV medical case management. Unmet need was greatest among individuals 45 to 64 years of age (50%).

Exposure Category

- Unmet need by exposure category varied depending upon enrollment in medical case management and current diagnosis status. Among those enrolled in case management, unmet need was greatest among IDU (54%).

Table 32. The impact of HIV case management on access to primary medical care, by HIV care region* and race/ethnicity among individuals living with HIV disease as of December 31, 2016

Region	Total HIV Population		Enrolled in Case Management		Not Enrolled in Case Management	
	Met Need** N (%)	Unmet Need*** N (%)	Met Need** N (%)	Unmet Need*** N (%)	Met Need** N (%)	Unmet Need*** N (%)
St. Louis Region						
White	1,603 (66.0%)	824 (34.0%)	641 (90.9%)	64 (9.1%)	962 (55.9%)	760 (44.1%)
Black/African American	2,408 (70.1%)	1,026 (29.9%)	1,519 (89.3%)	182 (10.7%)	889 (51.3%)	844 (48.7%)
Hispanic	98 (58.0%)	71 (42.0%)	56 (90.3%)	6 (9.7%)	42 (39.3%)	65 (60.7%)
Other/Unknown	85 (73.9%)	30 (26.1%)	51 (91.1%)	5 (8.9%)	34 (57.6%)	25 (42.4%)
Total	**4,194 (68.3%)**	**1,951 (31.7%)**	**2,267 (89.8%)**	**257 (10.2%)**	**1,927 (53.2%)**	**1,694 (46.8%)**
Kansas City Region						
White	1,191 (64.1%)	668 (35.9%)	540 (90.9%)	54 (9.1%)	651 (51.5%)	614 (48.5%)
Black/African American	985 (65.2%)	526 (34.8%)	637 (88.1%)	86 (11.9%)	348 (44.2%)	440 (55.8%)
Hispanic	154 (57.9%)	112 (42.1%)	85 (92.4%)	7 (7.6%)	69 (39.7%)	105 (60.3%)
Other/Unknown	77 (77.8%)	22 (22.2%)	32 (94.1%)	2 (5.9%)	45 (69.2%)	20 (30.8%)
Total	**2,407 (64.4%)**	**1,328 (35.6%)**	**1,294 (89.7%)**	**149 (10.3%)**	**1,113 (48.6%)**	**1,179 (51.4%)**
Northwest Region						
White	79 (78.2%)	22 (21.8%)	39 (95.1%)	2 (4.9%)	40 (66.7%)	20 (33.3%)
Black/African American	27 (73.0%)	10 (27.0%)	13 (86.7%)	2 (13.3%)	14 (63.6%)	8 (36.4%)
Hispanic	1 (20.0%)	4 (80.0%)	0 (N/A)	0 (N/A)	1 (20.0%)	4 (80.0%)
Other/Unknown	1 (100.0%)	0 (0.0%)	1 (100.0%)	0 (0.0%)	0 (N/A)	0 (N/A)
Total	**108 (75.0%)**	**36 (25.0%)**	**53 (93.0%)**	**4 (7.0%)**	**55 (63.2%)**	**32 (36.8%)**
Central Region						
White	306 (68.8%)	139 (31.2%)	162 (89.5%)	19 (10.5%)	144 (54.5%)	120 (45.5%)
Black/African American	134 (62.9%)	79 (37.1%)	80 (90.9%)	8 (9.1%)	54 (43.2%)	71 (56.8%)
Hispanic	16 (48.5%)	17 (51.5%)	11 (78.6%)	3 (21.4%)	5 (26.3%)	14 (73.7%)
Other/Unknown	5 (62.5%)	3 (37.5%)	3 (100.0%)	0 (0.0%)	2 (40.0%)	3 (60.0%)
Total	**461 (66.0%)**	**238 (34.0%)**	**256 (89.5%)**	**30 (10.5%)**	**205 (49.6%)**	**208 (50.4%)**
Southwest Region						
White	566 (72.5%)	215 (27.5%)	361 (94.8%)	20 (5.2%)	205 (51.3%)	195 (48.8%)
Black/African American	60 (48.0%)	65 (52.0%)	33 (86.8%)	5 (13.2%)	27 (31.0%)	60 (69.0%)
Hispanic	36 (52.2%)	33 (47.8%)	23 (95.8%)	1 (4.2%)	13 (28.9%)	32 (71.1%)
Other/Unknown	17 (63.0%)	10 (37.0%)	11 (91.7%)	1 (8.3%)	6 (40.0%)	9 (60.0%)
Total	**679 (67.8%)**	**323 (32.2%)**	**428 (94.1%)**	**27 (5.9%)**	**251 (45.9%)**	**296 (54.1%)**
Southeast Region						
White	167 (72.0%)	65 (28.0%)	100 (88.5%)	13 (11.5%)	67 (56.3%)	52 (43.7%)
Black/African American	99 (71.2%)	40 (28.8%)	55 (93.2%)	4 (6.8%)	44 (55.0%)	36 (45.0%)
Hispanic	3 (50.0%)	3 (50.0%)	1 (100.0%)	0 (0.0%)	2 (40.0%)	3 (60.0%)
Other/Unknown	4 (80.0%)	1 (20.0%)	1 (100.0%)	0 (0.0%)	3 (75.0%)	1 (25.0%)
Total	**273 (71.5%)**	**109 (28.5%)**	**157 (90.2%)**	**17 (9.8%)**	**116 (55.8%)**	**92 (44.2%)**
Statewide (MO)****						
White	4,034 (67.0%)	1,984 (33.0%)	1,896 (91.4%)	178 (8.6%)	2,138 (54.2%)	1,806 (45.8%)
Black/African American	3,930 (68.1%)	1,838 (31.9%)	2,438 (89.0%)	301 (11.0%)	1,492 (49.3%)	1,537 (50.7%)
Hispanic	316 (56.2%)	246 (43.8%)	178 (91.3%)	17 (8.7%)	138 (37.6%)	229 (62.4%)
Other/Unknown	192 (74.4%)	66 (25.6%)	102 (92.7%)	8 (7.3%)	90 (60.8%)	58 (39.2%)
Total	**8,472 (67.2%)**	**4,134 (32.8%)**	**4,614 (90.2%)**	**504 (9.8%)**	**3,858 (51.5%)**	**3,630 (48.5%)**

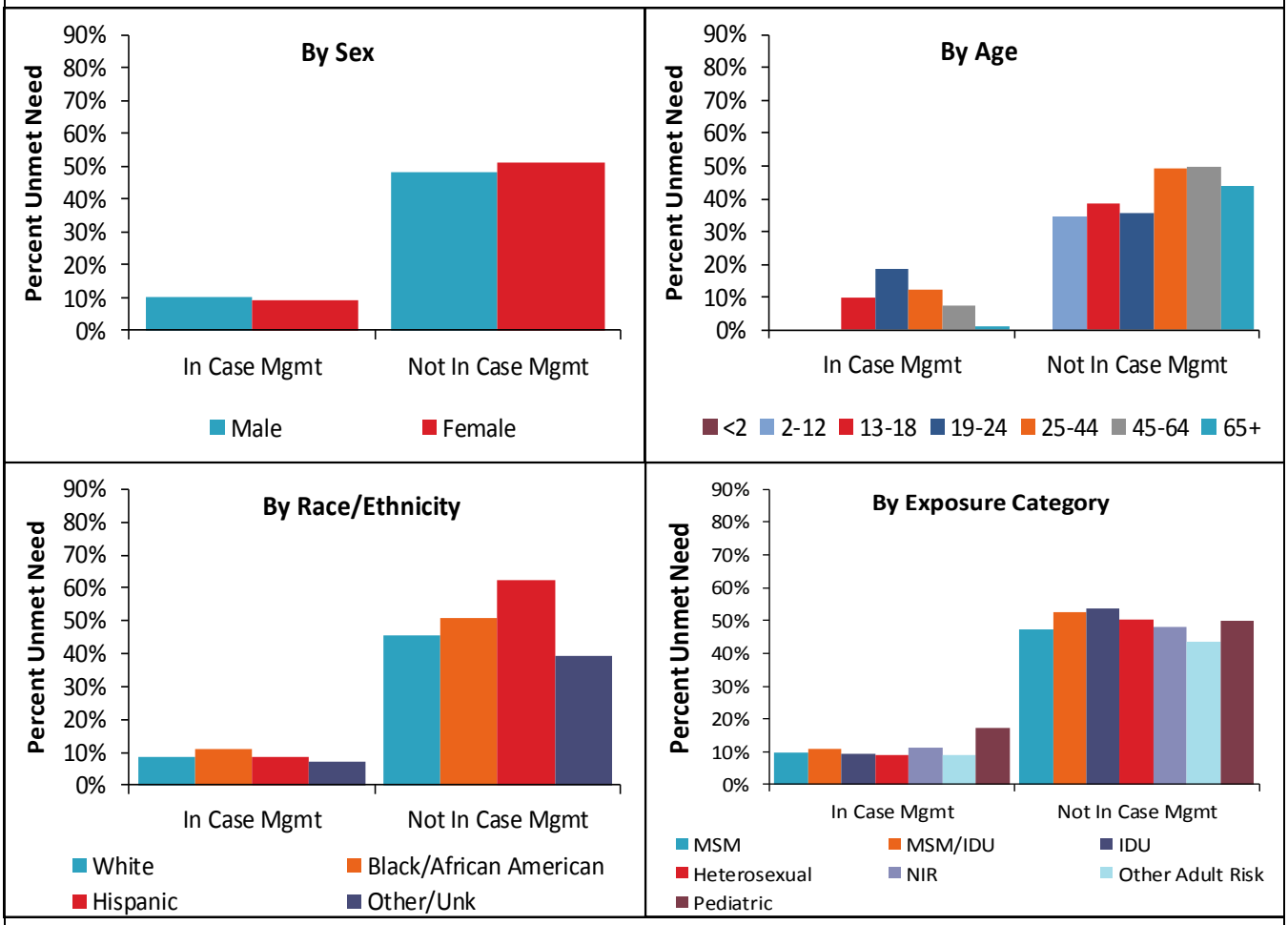
*Includes all individuals still living whose most recent diagnosis (i.e., HIV or stage 3 (AIDS)) occurred in the region. Does not reflect the number of individuals currently living in the region.
**Evidence of a CD4+ T-lymphocyte or viral load laboratory test result or diagnosis with an opportunistic infection in the current year.
*** No evidence of a CD4+ T-lymphocyte or viral load laboratory test result or diagnosis with an opportunistic infection in the current year.
****Statewide figures include living individuals whose most recent diagnosis occurred in a correctional facility or is unknown.
Note: Percentages may not total to 100% due to rounding.

Of the 12,606 persons living with HIV at the end of 2016, 67% had evidence of met primary care medical needs (i.e., met need) in 2016 (Table 32). The primary care medical need was considered to be met if an individual had a CD4 lymphocyte or viral load laboratory test, or diagnosis of an opportunistic infection in 2016 that was reported to DHSS. There were differences in the proportion of individuals with met needs depending on whether the individual was enrolled in HIV medical case management in 2016. A significantly greater proportion of those enrolled in HIV medical case management had a met need (90%) in 2016 compared to those not enrolled (52%). Several factors may contribute to the differences observed. First, case management assists clients to locate and access medical care by referral. Second, case management clients receive health education and counseling to understand the nature of routine medical care. Third, case management assists clients in identifying appropriate payer sources to fund routine medical care. Finally, it is possible that those not enrolled in case management were less likely to be currently living in Missouri, and therefore indicators of primary medical care would not be reported to DHSS. The data were presented based on individuals whose most recent diagnosis occurred in Missouri, not those known to be currently living in Missouri, as accurate data on current residence are difficult to collect.

There were differences in the proportion of individuals with a met need by HIV care region. It is important to note that data presented by HIV care region represent those who currently have a met need that were most recently diagnosed with HIV or stage 3 (AIDS) in the selected HIV care region. It does not necessarily reflect where individuals are currently living and receiving care. Overall, the proportion of individuals with a met need was greatest in the Northwest HIV Care Region (75%), and lowest in the Kansas HIV Care Region (64%). The pattern was slightly different among the regions depending on whether individuals were enrolled in HIV medical case management. For those not enrolled in HIV medical case management, the proportion with a met need ranged from 46% in the Southwest HIV Care Region to 63% in the Northwest HIV Care Region.

There were differences in the proportion of persons with a met need by race/ethnicity. Statewide, met need was lower among Hispanics (56%) compared to all other race/ethnicity groups presented. Within each region and depending on whether the individuals were enrolled in HIV medical case management, the patterns by race/ethnicity varied slightly. Among individuals not enrolled in case management, the proportion of blacks/African Americans with a met need was lower in all HIV care regions compared to whites, and the proportion of Hispanics with a met need was also lower in all HIV care regions compared to whites.

Figure 41. Percent of individuals living with HIV having an unmet* primary medical care need in 2016, by enrollment in HIV case management and selected characteristics



*No evidence of a CD4+ T-lymphocyte or viral load laboratory test result or diagnosis with an opportunistic infection in the current year.

Figure 41 examines the proportion of cases with unmet need depending on whether the individuals were enrolled in HIV medical case management for selected characteristics. There were no differences in the proportion of individuals with unmet needs between the sexes, regardless of whether enrolled in HIV medical case management. There were differences in the proportion of individuals with unmet needs by current age among those not enrolled in case management. Unmet need was greatest among individuals 45 to 64 years of age (50%). Those 2 to 12 years of age had the lowest proportion of unmet need. There were also differences in the proportion of individuals with unmet needs by current age among those enrolled in case management. Unmet need was greatest among 19 to 24 year olds (19%). There were differences in the proportion of individuals with unmet needs by race/ethnicity among those not enrolled in case management and among those enrolled in case management. Among those not enrolled in case management, unmet need was greatest among Hispanics (62%) and lowest among those of other or unknown race (39%) and whites (46%). Among those enrolled in case management, unmet need was greatest among blacks/African Americans (11%). There were differences in the proportion of individuals with unmet needs by exposure category among those not enrolled in case management and among those enrolled in case management. Among those not enrolled in case management, unmet need was greatest among IDU (54%), followed closely by MSM/IDU (53%). The proportion of unmet need was lowest among individuals with a risk other than those presented (44%). Among those enrolled in case management, unmet need was greatest among those with pediatric exposure (17%). There were not significant differences in the proportions of the remaining exposure categories for those not enrolled in case management.

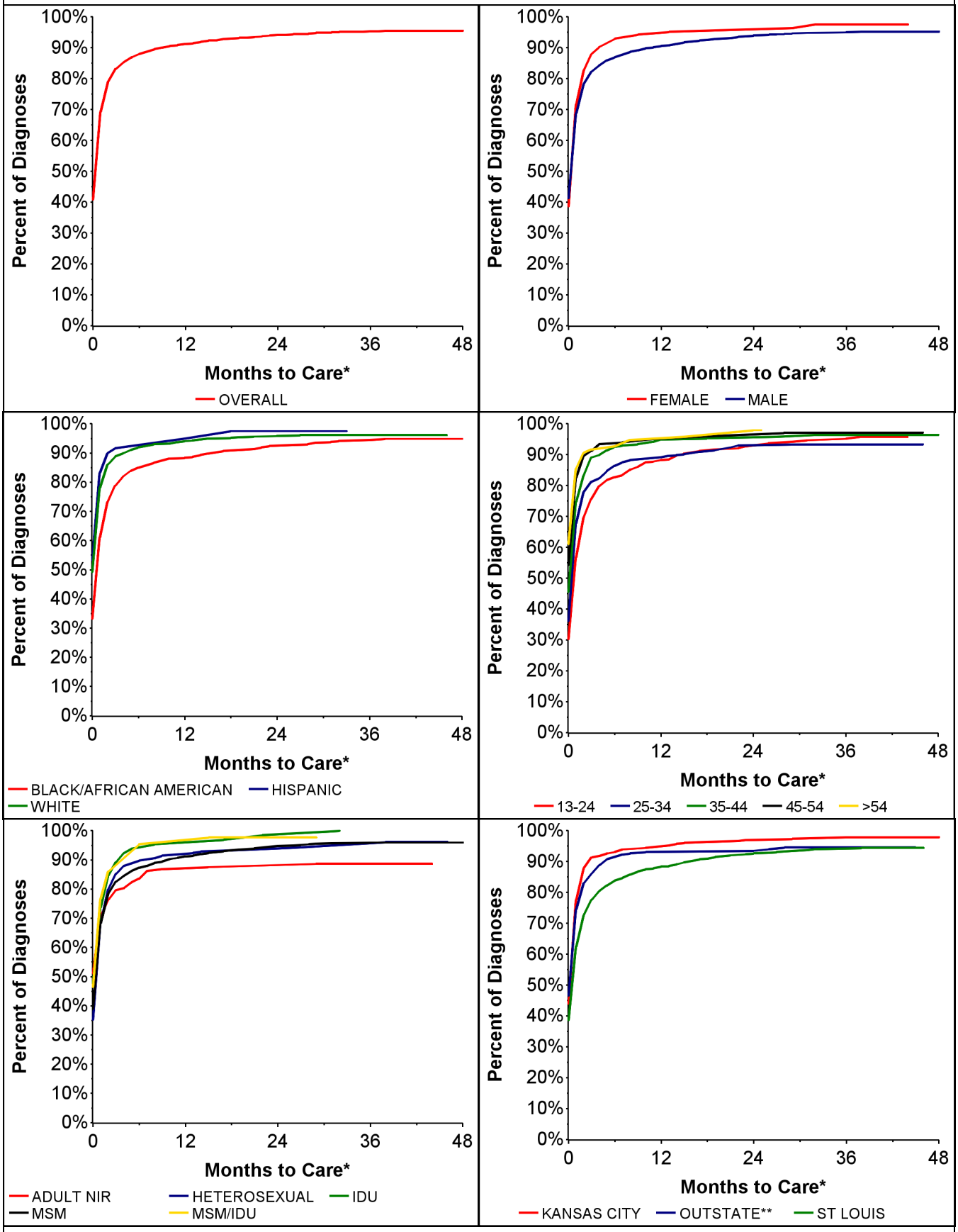
Table 33 examines the proportion of cases reported with unmet need based on current status (i.e., HIV or stage 3 (AIDS)) and selected characteristics. Overall, the proportion of those with an unmet need was greater for those classified as HIV cases compared to stage 3 (AIDS) cases. The same trend was observed regardless of whether individuals were enrolled in HIV medical case management.

Table 33. Percent of individuals living with HIV having an unmet* primary medical care need, by current status, enrollment in HIV case management, and selected characteristics, Missouri, 2016**

	Total Population		Enrolled in Case Management		Not Enrolled in Case Management	
	HIV Cases with Unmet Need* % (N)	Stage 3 (AIDS) Cases with Unmet Need* % (N)	HIV Cases with Unmet Need* % (N)	Stage 3 (AIDS) Cases with Unmet Need* % (N)	HIV Cases with Unmet Need* % (N)	Stage 3 (AIDS) Cases with Unmet Need* % (N)
Sex						
Male	39.8% (2,011)	27.2% (1,460)	13.4% (234)	7.5% (171)	53.8% (1,777)	41.9% (1,289)
Female	36.1% (399)	24.4% (264)	10.8% (54)	7.7% (45)	56.9% (345)	43.6% (219)
Race/Ethnicity						
White	38.0% (1,122)	28.1% (862)	11.4% (106)	6.3% (72)	50.2% (1,016)	41.1% (790)
Black/African American	39.7% (1,113)	24.5% (725)	14.0% (167)	8.7% (134)	58.6% (946)	41.8% (591)
Hispanic	47.2% (128)	40.5% (118)	12.0% (10)	6.3% (7)	62.8% (118)	62.0% (111)
Other/Unknown	37.0% (47)	14.5% (19)	12.2% (5)	4.3% (3)	48.8% (42)	25.8% (16)
Current Age‡						
<2	-- (0)	0.0% (0)	-- (0)	-- (0)	-- (0)	0.0% (0)
2-12	26.7% (8)	50.0% (1)	0.0% (0)	0.0% (0)	32.0% (8)	100.0% (1)
13-18	40.0% (18)	0.0% (0)	11.1% (1)	0.0% (0)	47.2% (17)	0.0% (0)
19-24	27.6% (108)	23.9% (22)	16.5% (31)	25.0% (15)	37.7% (77)	21.9% (7)
25-44	35.9% (1,016)	26.2% (472)	14.5% (182)	9.7% (88)	53.0% (834)	43.0% (384)
45-64	43.9% (1,125)	27.0% (1,100)	10.0% (74)	6.2% (111)	57.6% (1,051)	43.2% (989)
65+	46.1% (135)	27.9% (129)	0.0% (0)	1.8% (2)	54.7% (135)	36.3% (127)
Exposure Category						
MSM	37.8% (1,466)	27.3% (1,092)	12.8% (180)	7.2% (123)	52.0% (1,286)	42.5% (969)
MSM/IDU	39.0% (94)	27.6% (102)	17.9% (21)	6.0% (11)	58.9% (73)	48.7% (91)
IDU	42.6% (115)	30.0% (124)	9.9% (8)	9.2% (19)	56.6% (107)	50.7% (105)
Heterosexual Contact	38.0% (337)	24.4% (227)	10.8% (42)	7.6% (35)	59.0% (295)	41.2% (192)
No Indicated Risk (NIR)	44.8% (353)	24.1% (161)	13.4% (31)	9.7% (27)	57.9% (322)	34.4% (134)
Other Adult Risk	66.7% (8)	26.3% (10)	100.0% (1)	0.0% (0)	63.6% (7)	35.7% (10)
Pediatric	48.7% (37)	21.6% (8)	27.8% (5)	5.9% (1)	55.2% (32)	35.0% (7)
Total	**39.1% (2,410)**	**26.7% (1,724)**	**12.8% (288)**	**7.5% (216)**	**54.2% (2,122)**	**42.2% (1,508)**

*No evidence of a CD4+ T-lymphocyte or viral load laboratory test result or diagnosis with an opportunistic infection in the current year.
**HIV case vs. stage 3 (AIDS) case.
‡Based on age as of December 31, 2016.
Note: Rows with the percent marked '- -' indicates that there were no living persons in the selected category.

Figure 42. Length of time in months to enter care* after initial HIV diagnosis among persons diagnosed between 2013 and 2015, by selected characteristics, Missouri



*Defined as first reported CD4 lymphocyte or viral load lab result reported to DHSS.
**Outstate includes the Central, Northwest, Southeast, and Southwest HIV Care Regions.
Source: eHARS

Figure 42 examines the length of time until first entry into care among persons newly diagnosed with HIV disease between 2013 and 2015. Entry into care was measured as the receipt of a CD4 lymphocyte or viral load laboratory result by DHSS. Overall, 91% of persons recently diagnosed had entered care by one year after diagnosis. Within four years of initial diagnosis, 96% had entered care. There was a difference in the proportion of new diagnoses entering care between males and females. Among females, 95% entered care within 12 months of diagnosis while only 90% of males entered care within 12 months of diagnosis. There were differences in the proportion of new diagnoses entering care by race/ethnicity. Over time, a significantly lower proportion of blacks/African Americans entered care compared to whites and Hispanics. At one year after diagnosis, only 88% of blacks/African Americans had entered care, compared to 95% of Hispanics and 94% of whites. There were differences in the proportion of new diagnoses entering care by age at diagnosis. Of persons diagnosed between the ages of 13 and 24, only 88% entered care within one year of diagnosis, compared to 95% of persons 55 years of age or older at the time of diagnosis. The proportion of individuals who entered care within one year of diagnosis increased as the age increased. There were differences over time in likelihood to enter care by exposure category. Among individuals with no identified risk, only 87% entered care within one year of diagnosis, compared to 95% of IDU. Among IDU, 100% entered care within 32 months of diagnosis. Differences in entry to care following diagnosis varied by HIV region of diagnosis. At one year after diagnosis, 95% of persons diagnosed in the Kansas City HIV Care Region, 93% of persons diagnosed in Outstate, and 88% of persons diagnosed in the St. Louis HIV Care Region entered care. Entry into care remained lower among those recently diagnosed in the St. Louis HIV Care Region over time. These data can be used to target populations for outreach efforts to assist with entry into HIV medical care among persons recently diagnosed.

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Glossary

Case rate
The frequency of a defined event in a specified population for a given time period, usually expressed as the number of cases per 100,000 people in a population. Case rate is calculated by dividing the number of cases in the population of interest by the total number of people in that population and then multiplying by 100,000 to get the rate per 100,000.

Case definition for stage 3 (AIDS)
All HIV-infected people six years of age and older who have fewer than 200 $CD4_+$ T cells per cubic millimeter of blood, all HIV-infected people between the ages of one and five who have fewer than 500 $CD4_+$ T cells per cubic millimeter of blood, and HIV-infected individuals under the age of one who have less than 750 $CD4_+$ T cells per cubic millimeter of blood (healthy adults usually have 800 to 1,200, with 1,000 being the average). In addition, the definition includes 26 clinical conditions that affect people with advanced HIV disease. Most of these conditions are opportunistic infections that generally do not affect healthy people. For additional information, visit http://www.cdc.gov/mmwr/preview/mmwrhtml/rr6303a1.htm?s_cid=rr6303a1_e.

$CD4_+$ T cell
A white blood cell with CD4 molecules on its surface. These cells play an important role in the human immune system. Sometimes referred to as "helper" cells, they orchestrate the body's response to certain microorganisms such as viruses. HIV virus particles attack and utilize these cells to multiply.

Cumulative number of cases
The number of all cases diagnosed with a particular condition, including living and deceased individuals in a specified area.

Date of diagnosis
The date a laboratory makes a diagnosis based on the chemical analysis of a specimen.

Epidemic
The occurrence in a community or region of cases of an illness, specified health-related behavior, or other health-related events clearly in excess of normal expectancy.

Highly active antiretroviral therapy (HAART)
A treatment protocol using a combination of antiretroviral drugs to suppress the HIV virus. These drugs consist of five basic classes depending on their method of suppression: reverse transcriptase (RT) inhibitors, protease inhibitors (PI), fusion inhibitors, entry inhibitors, and integrase inhibitors.

HIV case
An individual who has been infected with the human immunodeficiency virus (HIV) that is in the early stages of the disease process and has not met the case definition for stage 3 (AIDS).

HIV disease case
All individuals who have been infected with the human immunodeficiency virus (HIV). Cases can be sub-classified into either HIV cases or stage 3 (AIDS) cases.

Incidence
The number of new cases of a specified condition diagnosed within a given time. The calendar year is used in the *Profiles* to calculate incidence.

Incidence rate
The number of new cases diagnosed in a specified population for a given time period, usually expressed as the number of cases per 100,000 people in a population. Incidence rate is calculated by dividing the number of new cases in the population of interest by the total number of people in that population and then multiplying by 100,000 to get the rate per 100,000.

Modes of transmission
Also referred to as **exposure categories**, this term refers to the way in which an individual acquired the HIV virus. The most common modes of transmission are: men who have sex with men (MSM), heterosexual contact, injection drug use (IDU), men who have sex with men and practice injection drug use (MSM/IDU), hemophilia/coagulation disorder, and blood transfusion or tissue recipients.

Sexually Transmitted Infections
Sexually transmitted infections (STIs), commonly called **sexually transmitted diseases (STDs)** and once called venereal diseases, are among the most common infectious diseases in the United States today. They are a group of infections that are predominantly transmitted through sexual activity.

Sexually Transmitted Infections* and the Organisms Responsible

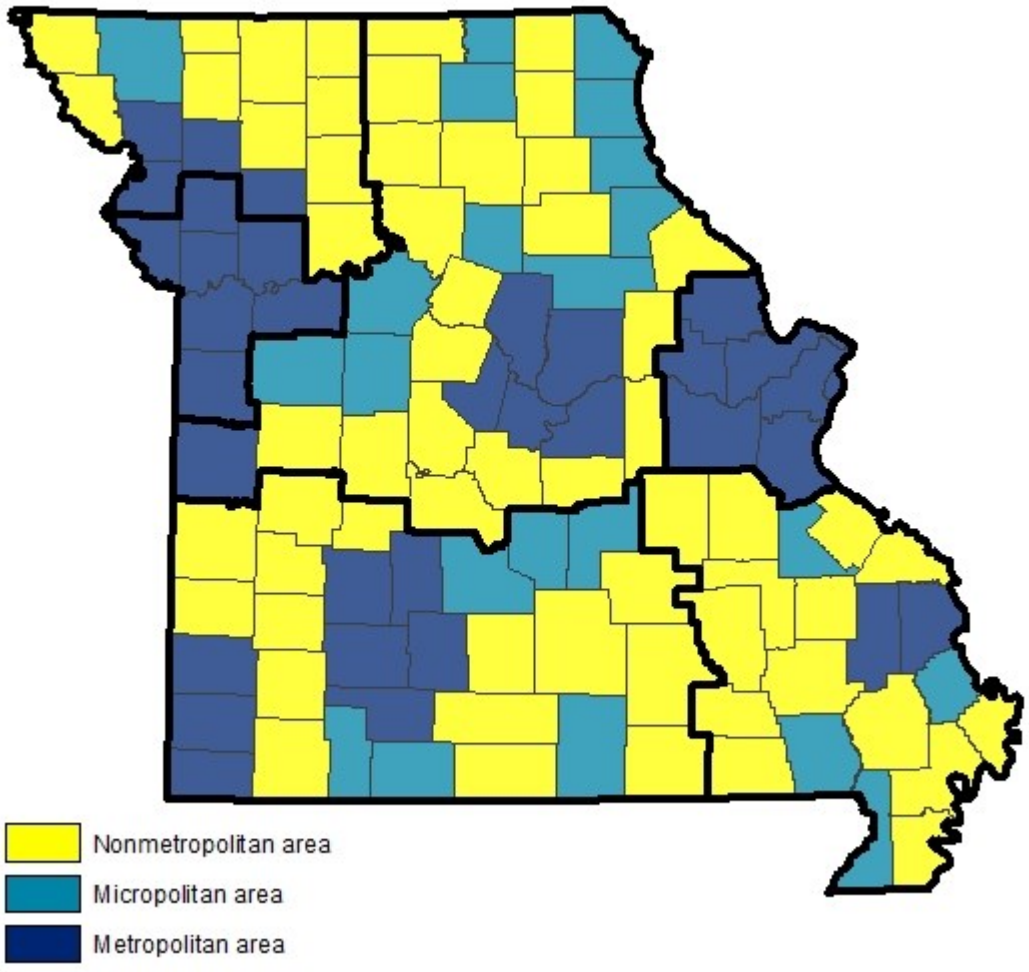
Disease	Organism
Acquired Immunodeficiency Syndrome (AIDS)	Human immunodeficiency virus
Chlamydial infections	Chlamydia trachomatis
Gonorrhea	Neisseria gonorrhoeae
Syphilis	Treponema pallidum

*Only includes infections detailed in the *Profiles*.

Stage 3 (AIDS) case
An individual who has been infected with human immunodeficiency virus (HIV) that is in the later stages of the disease process and has met the case definition for acquired immunodeficiency syndrome (AIDS).

Appendix

Metropolitan, Micropolitan, and Nonmetropolitan Areas by County



Source: Missouri Census Data Center, MABLE/Geocorr12. 2013 Metropolitan Divisions.