



COLORADO

Department of Public Health & Environment

Estimated HIV Incidence in Colorado: For reporting periods 2012-2013 and 2014-2015

Objective:

HIV incidence surveillance (HIS) is an expanded HIV/AIDS surveillance activity funded by the Centers for Disease Control and Prevention (CDC). The goal is to provide national and local population-based estimates of the number of new HIV infections per year.

Methods:

Incidence Surveillance applies the serological testing algorithm for recent HIV seroconversion (STARHS) using testing information collected on newly diagnosed HIV cases in Colorado. Leftover serum from the HIV positive diagnostic specimen is tested with a special assay, the STARHS assay, which is based on HIV antibody characteristics. The STARHS assay measures the probability that an individual was infected with HIV recently. A person's HIV testing and treatment history is gathered in conjunction with the completion of the HIV case report. Both the result of the antibody test and the testing and treatment history of each newly diagnosed person are components of the STARHS algorithm that is used to estimate HIV incidence.

HIS estimates the number of new HIV infections within a specified time period on a population-based level. The estimate is calculated using data that includes individual HIV test history and laboratory testing to determine recent and long-term infections among the entire Colorado population, on an annual basis.

How is an HIV incidence estimate different from new diagnoses of HIV disease?

HIV case reports in Colorado include people who test positive for HIV whose results were reported to the Colorado Department of Public Health and Environment (CDPHE). Annual reports of HIV prevalence include both recent and long-term infections.

HIS estimates the number of HIV infections within a given time frame more accurately than prevalence reports by accounting for cases not reported, new infections (incident infections), and excluding those likely infected with HIV in the past (long-standing infections).

CDPHE collects information on HIV testing and treatment history (TTH) to provide accurate and complete interpretation of the population-based STARHS algorithm. CDPHE also works closely with private, public, and hospital-based laboratories to acquire leftover diagnostic blood specimens which are used to test for

recent infection among the population using the STARHS assay.

Highlights of Analyses

All rates presented in this report are per 100,000 people in Colorado. This report describes comparisons of 2012-2013 and 2014-2015 estimates.

Overall

In Colorado, the estimated number of new HIV infections has increased during the time periods compared in this report. Comparing 2012-2013 to 2014-2015, the estimated number of new HIV infections increased with 693 new infections in 2012-2013 and 721 in 2014-2015, representing a 4.0 percent increase. The rate of new HIV infections remained the same at 6.7 per 100,000 people.

Sex

The estimated number of new HIV infections decreased among females. Comparing 2012-2013 to 2014-2015, the number of new HIV infections among females decreased 15.7 percent, from 102 in 2012-2013 to 86 in 2014-2015. In 2014-2015 the rate of new HIV infections among males (11.7) was 7.3 times that of females (1.6) (Table 1). For males, the number of new HIV infections increased 7.4 percent, from 591 in 2012-2013 to 635 in 2014-2015.

Race/ethnicity

Blacks/African Americans continue to be disproportionately affected by HIV infection. Blacks/African Americans have the highest overall rate of new HIV infections – 18.9 per 100,000 in 2014-2015. The rate of new HIV infections in Blacks/African Americans (18.9) was 4.0 times as high as the rate in Whites (4.7) (Table 1), and 1.9 times as high as the rate in Hispanic/Latinos (10.2).

Overall, Whites accounted for 48.5 percent of the new HIV infections in 2014-2015, followed by Hispanic/Latinos (33.1%) and Blacks/African Americans (11.5%).

The largest decrease in the rate of new HIV infections was observed for Blacks/African Americans whose rate dropped 34.8 percent from 2012-2013 to 2014-2015. The number of new HIV infections among Blacks/African Americans during this period dropped from 125 (rate of 29.0) to 83 (rate of 18.9) (Table 1).

Among Hispanics/Latinos, the number of new HIV infections increased from 187 (rate of 8.4) in 2012-13 to 239 (rate of 10.2) in 2014-15 (Table 1). This is a 21.4 percent increase in the rate.

Age at infection

Comparing 2012-2013 to 2014-2015, the estimated number of new HIV infections remained stable among the 25-34 age group and increased in the 13-24 age group. In 2014-2015, the number of new infections was highest among individuals aged 25-34 years (39.4%), followed by individuals aged 13-24 years (29.8%). In 2014-2015, the highest rate occurred among individuals aged 25-34 years (18.0) followed by individuals aged 13-24 years (12.3). Individuals aged 45 years and older had the lowest percent and rate (3.5% and 2.4, respectively) (Table 1).

The largest decrease in the number of new HIV infections occurred among the 45 and older age group, from

125 in 2012-2013 to 100 in 2014-2015, a 20 percent decrease.

Transmission category

Men who have sex with men (MSM) continue to bear the heaviest burden of HIV infection in Colorado. The estimated number of new HIV infections among MSM increased by 26.9 percent from 2012-2013 to 2014-2015. In 2012-2013, the number of new HIV infections among MSM was 416 which increased to 528 new HIV infections in 2014-2015. The estimated number of new HIV infections attributed to heterosexual contact decreased 53.5 percent, from 157 in 2012-2013 to 73 in 2014-2015.

In 2014-2015, the majority of new HIV infections were attributed to male-to-male sexual contact (73.2% overall and 83.1% among males). Heterosexual contact contributed to the smallest number of new HIV infections with 73 (10.1%) in 2014-2015. The estimated number of new HIV infections among persons whose transmission category was injection drug use remained stable from 120 in 2012-2013 to 119 in 2014-2015.

Note

Tables present the number and rate of new HIV infections overall stratified by sex, race/ethnicity, age, and transmission category among males and females, and present stratified data for the three largest race/ethnicity groups. Additional stratifications for small race/ethnicity groups are not presented due to instability of estimates resulting from small numbers of diagnoses and limited data on HIV testing and antiretroviral use history and recency of HIV infection.

References

- Colorado State Demography Office 2012-2014 Population estimates [entire data set]. October 2015.
<https://demography.dola.colorado.gov/>. Requested December 4, 2015.
- U.S. Census Bureau. 2015 Population estimates [entire data set]. June 23, 2016.
<http://www.census.gov/popest/data/index.html>. Accessed June 26, 2016.

| Table 1. Estimated incidence of HIV infection, by year of infection and selected characteristics, 2012–2013 and 2014–2015—Colorado | | | | | | | | | | |
|---|------------------|-------|-----------------------|------|-----------------------|------------------|-------|-----------------------|------|-----------------------|
| | 2014-2015 | | | | | 2012-2013 | | | | |
| | No. | % | (95% CI) ^a | Rate | (95% CI) ^a | No. | % | (95% CI) ^a | Rate | (95% CI) ^a |
| Total^b | 721 | 100% | (532, 910) | 6.7 | (4.9, 8.4) | 693 | 100% | (502, 885) | 6.7 | (4.8, 8.5) |
| Sex | | | | | | | | | | |
| Male | 635 | 88.1% | (460, 810) | 11.7 | (8.5, 15.0) | 591 | 85.3% | (426, 757) | 11.3 | (8.2, 14.5) |
| Female | 86 | 11.9% | (25, 147) | 1.6 | (0.5, 2.7) | 102 | 14.7% | (17, 187) | 2.0 | (0.3, 3.6) |
| Race/Ethnicity | | | | | | | | | | |
| White | 350 | 48.5% | (230, 469) | 4.7 | (3.1, 6.3) | 349 | 50.4% | (224, 474) | 4.8 | (3.1, 6.5) |
| Black | 83 | 11.5% | (33, 132) | 18.9 | (7.5, 30.0) | 125 | 18.0% | (46, 204) | 29.0 | (10.7, 47.3) |
| Hispanic/Latino ^c | 239 | 33.1% | (137, 341) | 10.2 | (5.9, 14.6) | 187 | 27.0% | (104, 270) | 8.4 | (4.7, 12.1) |
| Age at Infectio | | | | | | | | | | |
| 13-24 | 215 | 29.8% | (126, 305) | 12.3 | (7.2, 17.4) | 171 | 24.7% | (89, 254) | 10.1 | (5.3, 15.1) |
| 25-34 | 284 | 39.4% | (180, 388) | 18.0 | (11.4, 24.6) | 272 | 39.2% | (165, 379) | 18.2 | (11.0, 25.4) |
| 35-44 | 122 | 16.9% | (56, 187) | 8.3 | (3.8, 12.8) | 125 | 18.0% | (53, 196) | 8.7 | (3.7, 13.6) |
| 45+ | 100 | 13.9% | (40, 160) | 2.4 | (1.0, 3.8) | 125 | 18.0% | (46, 204) | 3.1 | (1.2, 5.1) |
| Transmissio | | | | | | | | | | |
| n Category | | | | | | | | | | |
| MSM | 528 | 73.2% | (372, 685) | --- | --- | 416 | 60.0% | (297, 535) | --- | --- |
| IDU | 119 | 16.5% | (53, 185) | --- | --- | 120 | 17.3% | (38, 201) | --- | --- |
| Heterosexual ^d /Other ^e | 73 | 10.1% | (19, 128) | --- | --- | 157 | 22.7% | (48, 266) | --- | --- |

Note. Rates are per 100,000 population. 2012-2014 population estimates by the Colorado State Demography Office. 2015 population estimate by the U.S. Census Bureau released 6/23/16. Rates are not calculated by transmission category because of the lack of denominator data.

a CI = Confidence Interval. Confidence intervals reflect random variability affecting model uncertainty but may not reflect model- assumption uncertainty; thus, they should be interpreted with caution.

b Because column totals for estimated numbers were calculated independently of the values for the subpopulations, the values in each column may not sum to the column total. Similarly, because column percentages were computed using these independently calculated totals, the percentages in each column may not sum to 100%.

c Hispanics/Latinos can be of any race.

d Heterosexual contact with a person known to have, or to be at high risk for, HIV infection.

e Includes hemophilia, blood transfusion, perinatal exposure, and risk factor not reported or not identified.

Figure 1. Estimated number of new HIV infections with associated 95% confidence intervals among persons aged 13 years and older - Colorado, 2012-2015

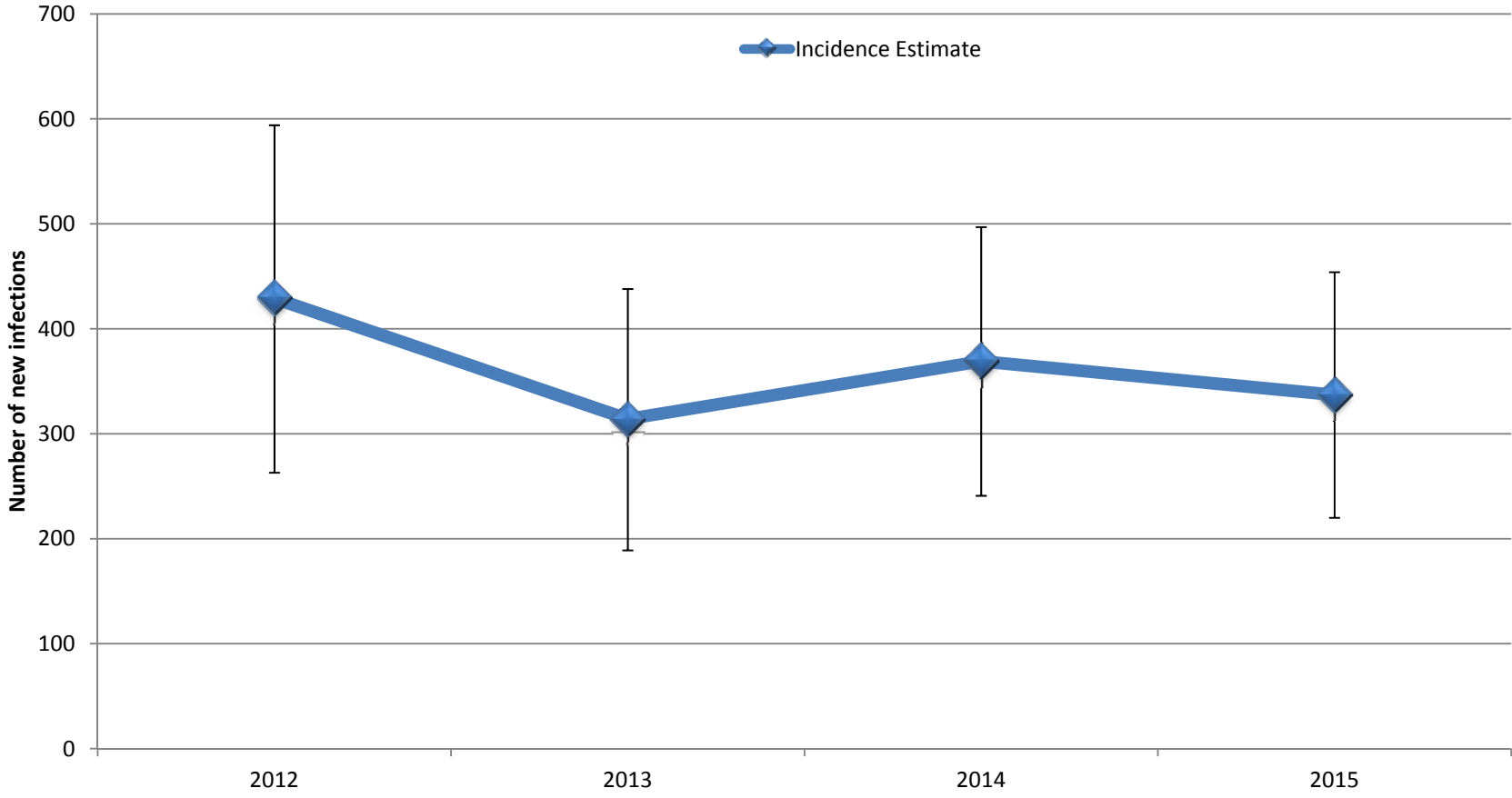


Figure 2. Percent of Colorado HIV Incidence Estimate by Race/Ethnicity, 2014-2015

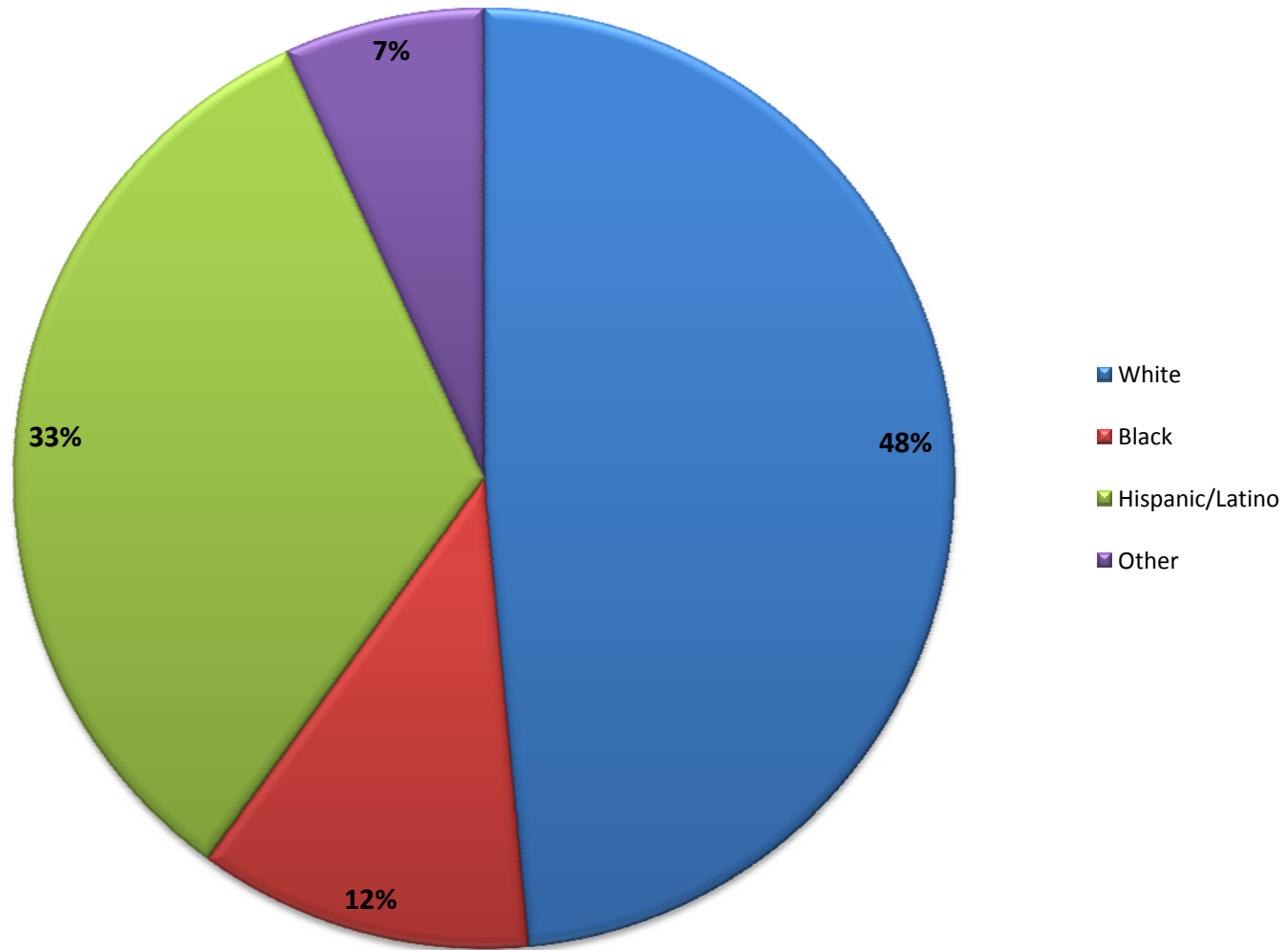


Figure 3. Percent of Colorado HIV Incidence Estimate by Age at Infection, 2014-2015

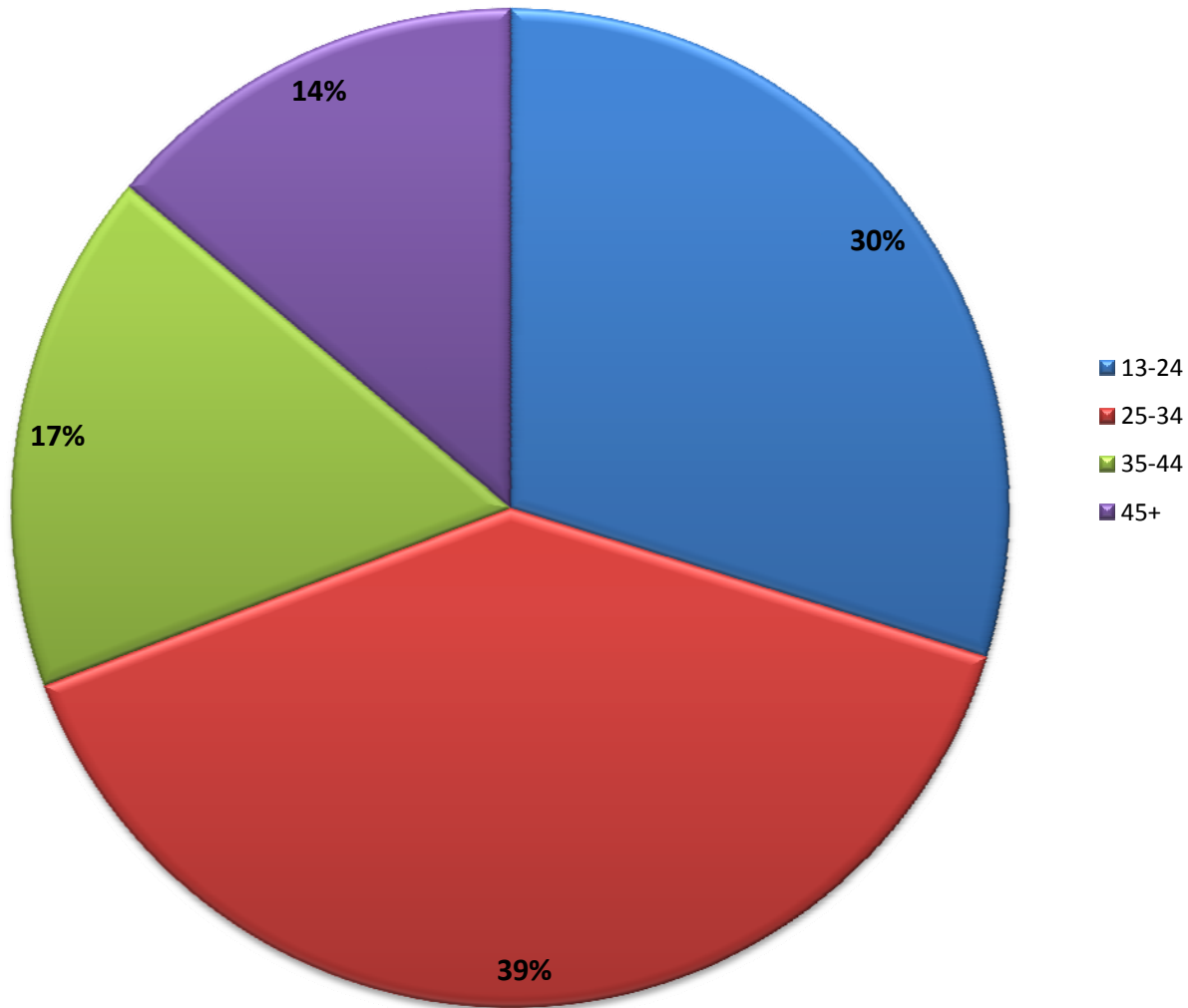
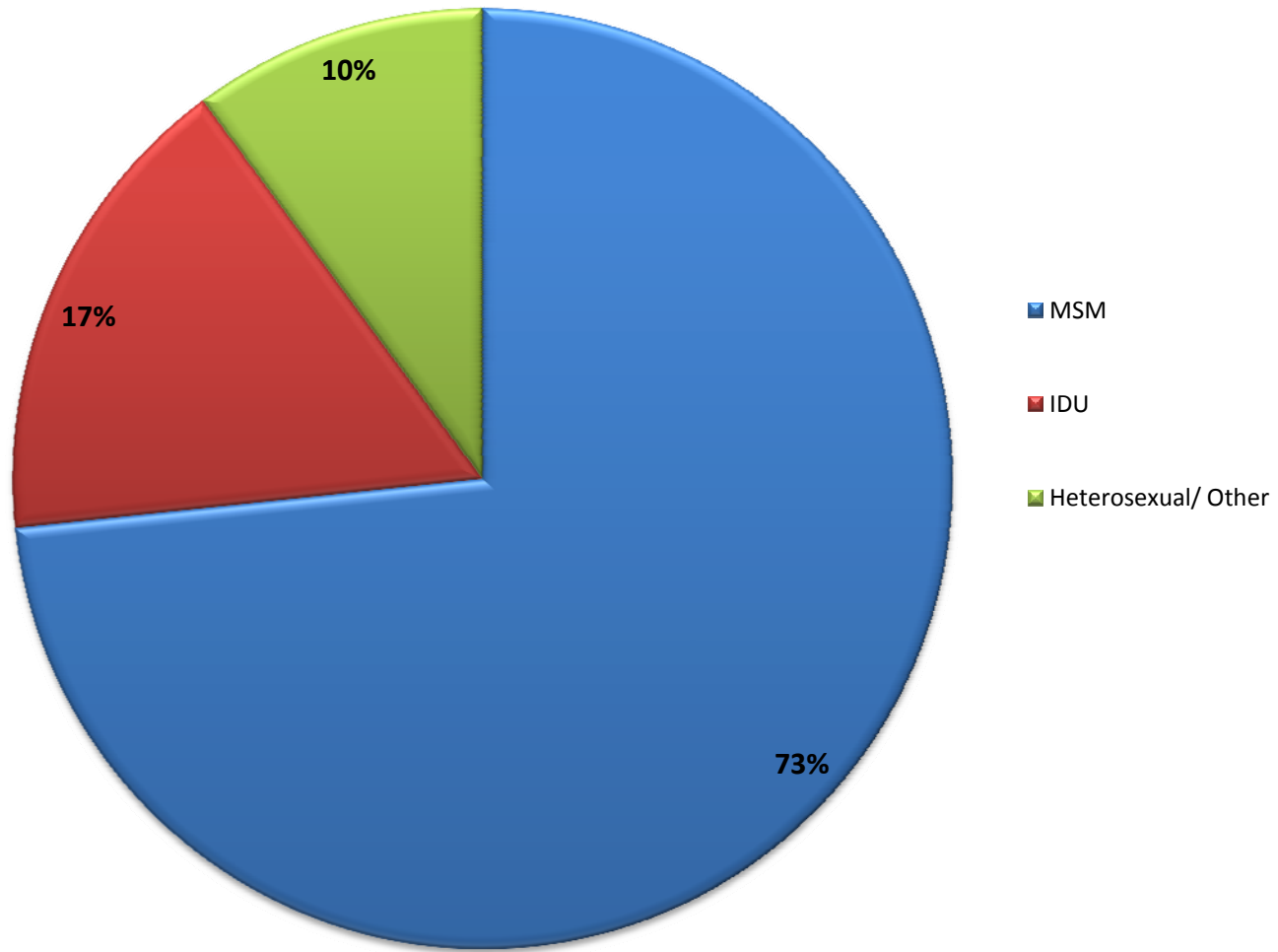


Figure 4. Percent of Colorado HIV Incidence Estimate by Transmission Category, 2014-2015



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Electronic versions of this and other HIV-related reports are available on the internet at:

<https://https://www.colorado.gov/pacific/cdphe/stihiv-data-and-trends>

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