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Incident and Prevalent Human Immunodeficiency Virus Infections Attributed to Sexual Transmission in the United States, 2018

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Abstract

Background: The Ending the HIV Epidemic: A Plan for America initiative aims to reduce new infections by 2030. Routine assessment of incident and prevalent HIV by transmission risk is essential for monitoring the impact of national, state, and local efforts to end the HIV epidemic.

Methods: Data reported to the National HIV Surveillance System were used to estimate numbers of incident and prevalent HIV infection attributed to sexual transmission in the United States in 2018. The first CD4 result after diagnosis and a CD4 depletion model were used to generate estimates by transmission category, sex at birth, age group, and race/ethnicity.

Results: In 2018, there were an estimated 32,600 (50% CI: 31,800, 33,400) incident and 984,000 (50% CI: 977,000, 990,900) prevalent HIV infections attributed to sexual transmission in the United States. Male-to-male sexual contact comprised 74.8% and 69.1% of incident and prevalent HIV infections, respectively. Persons aged 25–34 years comprised 39.6% (12,900; 50% CI: 12,400, 13,400) of incident infections; however, the number of prevalent infections was highest among persons 55 years and older [29.3%; 288,300 (50% CI: 285,600, 291,000)]. There were racial/ethnic differences in numbers of incident and prevalent infections among both men who have sex with men (MSM) and persons with HIV attributable to heterosexual contact.

Conclusions: In 2018, most incident sexually transmitted HIV infections occurred in MSM and the burden was disproportionate for persons aged 24–35 years, and Black/African American and Hispanic/Latino adults and adolescents. Efforts to increase use of effective biomedical and behavioral prevention methods must be intensified to reach the goal to end the HIV epidemic in the United States.

Short Summary

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Conflicts of Interest

The authors report no conflicts of interest.

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There were an estimated 32,600 incident and 984,000 prevalent human immunodeficiency virus infections attributed to sexual transmission in the United States in 2018.

Keywords

HIV; sexually transmitted; incidence; prevalence; CD4 model

Introduction

Human immunodeficiency virus (HIV) remains a major public health burden in the United States. The federal plan to End the HIV Epidemic (EHE) in the United States aims to reduce new HIV infections by at least 90% by 2030 and significant reductions in sexual transmission of the virus would have the greatest impact on reaching the goal (5,6). Routine assessment of incident and prevalent HIV is essential for monitoring the impact of national, state, and local efforts in the EHE initiative. The total numbers of incident and prevalent HIV infections in the United States in 2018 have been estimated at 36,400 and 1,173,900, respectively, however, estimates of sexually transmitted HIV infections presented by age and race/ethnicity are not routinely published (7). In this paper, we provide estimates of the number of incident and prevalent infections attributed to sexual transmission, by transmission category, sex at birth, race/ethnicity, and age group for the year 2018.

Materials and Methods

Data on HIV cases diagnosed during 2008–2018 and reported to the Centers for Disease Control and Prevention's (CDC) National HIV Surveillance System (NHSS) were used to estimate the number of incident sexually transmitted HIV infections in the United States in 2018. Reporting of the first CD4 test result after diagnosis of HIV infection is a required data element on the HIV case report form. The date of HIV infection was estimated for each person aged 13 years and older with HIV diagnosed during 2008–2018 using their first CD4 test result, either at or after diagnosis (but presumed before treatment), and a CD4 depletion model indicating disease progression or duration after infection (8–11). The number of persons with a CD4 test result was weighted to account for those without a CD4 test result. Weighting was based on the year of HIV diagnosis, sex at birth, race/ethnicity, transmission category, age at diagnosis, disease classification (whether the person living with HIV had disease that had never been classified as AIDS, died without ever having the disease classified as AIDS, or had disease that progressed to AIDS regardless of whether living or dead), and vital status at year-end 2018. The distribution of the time from HIV infection to diagnosis was used to estimate the number of incident HIV infections, which represents persons with diagnosed and undiagnosed infection. Prevalent infections, which represents counts of persons with diagnosed and undiagnosed HIV infections who were alive at the end of 2018, was estimated by subtracting cumulative deaths reported to NHSS from estimated cumulative infections as of 2018.

Uncertainty in the estimates was expressed using 50% confidence intervals, the parametric equivalent of using the 25^{th} and 75^{th} percentiles of the empirical frequency distributions of sets of simulated outcomes as endpoints for uncertainty intervals. To account for model

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uncertainty, estimates were rounded to the nearest 100 when greater than 1,000 and to the nearest 10 when less than or equal to 1,000. Relative standard errors (RSEs) were calculated and used to determine the reliability of estimates. Reliability categories are as follows: (1) RSE of <30%, estimate meets the standard of reliability; (2) RSE of 30%–50%, estimate meets a lower standard of reliability and is displayed but should be interpreted with caution; (3) RSE of >50%, estimate is statistically unreliable and not displayed.

CD4 test results for persons with documentation of antiretroviral therapy (ART) use in the case record or who had a viral load result <200 prior to their first CD4 test result were excluded from the CD4 model. CD4 results for these persons were treated as missing and accounted for through weighting. Transmission category is presented based on sex at birth and is determined by applying a hierarchy to reported risk factors and selecting the most likely transmission mode that led to HIV acquisition (12). The exception is the dual risk male-to-male sexual contact *and* injection drug use which makes up its own separate transmission category. Males (based on sex at birth) with male-to-male sexual contact *and* injection drug as their assigned transmission category were not included in this analysis due to the inclusion of a nonsexual risk behavior in the dual category. Approximately 20% of HIV infection cases among persons with HIV diagnosed during 2008–2018 were reported to the CDC without an identified risk factor. Multiple imputation was used to account for cases with missing transmission category values (12,13). This paper limits data presentation to numbers rather than rates due to the lack of population data for risk groups (heterosexuals, men who have sex with men) needed to calculate rates of sexually transmitted infections.

Results

Tables 1, 2, and 3 provide estimates of the number of incident and prevalent HIV infections attributed to sexual transmission in 2018, overall and by transmission category, sex at birth, race ethnicity, and age group. Data by race/ethnicity are provided for Black/African American, Hispanic/Latino, and White adults and adolescents who account for 95% of all incident HIV infections (7). Data for persons of other races/ethnicities are included in the totals but are not provided in the tables due to small numbers that resulted in unstable estimates.

Incidence

In the United States, there was an estimated total of 32,600 (50% CI: 31,800, 33,400) new sexually transmitted HIV infections among persons aged 13 years and older in 2018 (Table 1). Most (82.5%) new infections were among males (26,900; 50% CI: 26,200, 27,600); 5,700 (50% CI: 5,400, 6,000) were among females. Persons aged 25–34 years comprised the largest percentage (39.6%) of all new sexually transmitted HIV infections in 2018, at 12,900 (50% CI: 12,400, 13,400); 11,200 (50% CI: 10,700, 11,700) of these were among males and 1,700 (50% CI: 1,500, 1,800) were among females.

Transmission attributed to male-to-male sexual contact comprised most sexually transmitted HIV infections in 2018 accounting for 74.8% (24,400; 50% CI: 23,700, 25,100) (Table 2). By race/ethnicity, Black/African American (9,400; 50% CI: 9,000, 9,800) and Hispanic/Latino (8,000; 50% CI: 7,600, 8,500) men who have sex with men (MSM) accounted for

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71.3% of new infections among MSM. By age group, among MSM, the largest percentage of new infections were among males age 25–34, accounting for 43.0% (10,500; 50% CI: 10,100, 11,000) of infections. MSM in this age group comprised the largest percentage of new infections among each race/ethnicity in 2018, accounting for 46.8% of new infections among Black/African American MSM (4,400; 50% CI: 4,100, 4,700), 43.8% among Hispanic/Latino MSM (3,500; 50% CI: 3,200, 3,800), and 35.1% among White MSM (2,000; 50% CI: 1,900, 2,200).

Transmission attributed to heterosexual contact accounted for 25.2% of sexually transmitted HIV infections in the United States in 2018 at 8,200 (50% CI: 7,800, 8,600) (Table 3). Most (69.5%) new infections attributed to heterosexual contact were among females (5,700; 50% CI: 5,400, 6,000); 2,500 (50% CI: 2,300, 2,700) were among males. Among females, by race/ethnicity, the largest percentage of new infections attributable to heterosexual contact was among Black/African American females (61.4%) (3,500; 50% CI: 3,300, 3,700), and percentages were similar for Hispanic/Latino (17.5%) (1,000; 50% CI: 900, 1,100) and White (16.0%) (910; 50% CI: 800, 1,000) females. Most estimates of incident infections attributed to heterosexual contact for males did not meet the standard of reliability when assessed by race/ethnicity. Overall, by age group, the highest estimated number of new infections attributed to heterosexual contact was among persons age 25–34 years (2,300; 50% CI: 2,100, 2,500).

Prevalence

There were an estimated 984,000 (50% CI: 977,000, 990,900) total persons aged 13 years and older living with sexually transmitted HIV in the United States at the end of 2018 (Table 1). Nearly 80% were male (775,600; 50% CI: 769,200, 781,900); an estimated 208,400 (50% CI: 205,600, 211,200) were female. Persons aged 55 years and older comprised the largest percentage (29.3%) of all persons living with sexually transmitted HIV infection in 2018, at 288,300 (50% CI: 285,600, 291,000); 224,300 (50% CI: 221,900, 226,700) of these were among males and 64,000 (50% CI: 62,800, 65,300) were among females.

MSM accounted for the majority (69.1%) of persons living with sexually transmitted HIV infections in 2018 at 679,800 (50% CI: 673,900, 685,700) (Table 2). Among MSM, the largest percentage living with sexually transmitted HIV by race/ethnicity was for White MSM (35.6%) (241,800; 50% CI: 238,500, 245,000), followed by Black/African American MSM (32.2%) (218,600; 50% CI: 215,200, 222,000), and Hispanic/Latino MSM (25.4%) (173,000; 50% CI: 169,900, 176,200). By age group, the largest percentage of MSM living with HIV were age 55 years and older accounting for 27.1% (184,500; 50% CI: 182,400, 186,500), followed by men age 45–54 years (164,100; 50% CI: 162,200, 166,000). The age distribution of MSM living with HIV varied by race/ethnicity, with the largest percentage among men age 25–34 years occurring in Black/African American MSM (34.0%) (74,300; 50% CI: 72,500, 76,200) and Hispanic/Latino MSM (26.5%) (45,800; 50% CI: 44,100, 47,500). The largest percentage (42.5%) of White MSM living with HIV infection were age 55 years and older (102,700; 50% CI: 101,200, 104,200).

Transmission attributed to heterosexual contact accounted for 30.9% of persons living with sexually transmitted HIV infections in 2018 at 304,200 (50% CI: 300,500, 307,900) (Table

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3). Most (68.5%) persons living with HIV infection attributed to heterosexual contact were female (208,400; 50% CI: 205,600, 211,200); 95,800 (50% CI: 93,400, 98,200) were male. Among females, by race/ethnicity, the largest percentage of persons living with HIV attributable to heterosexual contact was among Black/African American females (61.9%) (129,100; 50% CI: 126,800, 131,300), and percentages were similar for Hispanic/Latino females (17.8%) (37,000; 50% CI: 35,800, 38,100) and White females (14.4%) (30,000; 50% CI: 28,900, 31,100). Among males, by race/ethnicity, the largest percentage of persons living with HIV infection attributable to heterosexual contact was among Black/African American males (61.5%) (58,900; 50% CI: 57,100, 60,800), followed by Hispanic/Latino males (20.3%) (19,400; 50% CI: 18,300, 20,500), and White males (13.2%) (12,600; 50% CI: 11,700, 13,600). By age group, the largest percentage (34.2%) (103,900; 50% CI: 102,100, 105,600) of persons living with HIV infection attributed to heterosexual contact were persons age 55 years and older overall and for each displayed race/ethnicity.

Discussion

There were an estimated 32,600 incident and 984,000 prevalent HIV infections attributed to sexual transmission in the United States in 2018. MSM, men and women age 25–34 years, and Black/African American and Hispanic/Latino adults and adolescents accounted for the largest percentages of incident infections. Likewise, MSM and Black/African American men and women accounted for the largest percentages of prevalent infections, however, by age, there were a higher number of prevalent infections among men and women age 55 years or older. Estimates of incident and prevalent HIV infections can be used to understand the burden of infection to inform the development and enhancement of HIV prevention programs. These findings highlight substantial gaps in preventing sexual transmission of HIV in various populations and underscore the need to target expanded efforts to populations with the greatest burden to significantly reduce incident infections.

In the United States, the burden of HIV is greatest among MSM for which the high number of incident infections likely reflects the high number of prevalent infections in the population (1,4). By age group, incident infections in 2018 were highest among MSM age 25–34 years and recent studies have highlighted increases in both diagnoses and new HIV infections in this age group (4, 14). Racial/ethnic disparities were also apparent, particularly for Black/African American and Hispanic/Latino MSM, who combined accounted for more than two-thirds of incident infections among MSM. Higher numbers of incident infections in these populations may be due to smaller percentages being promptly linked to care after diagnosis, prescribed antiretroviral therapy (ART), or virally suppressed compared with other groups of MSM (15,16). In addition, individual, social, and structural factors such as stigma, poverty, education level, and health insurance coverage may contribute to disparities (16, 17–19). Prevention efforts must be intensified for all MSM, and particularly populations for which the number of new infections is increasing and racial ethnic populations for which disparities persist (7,14,15). Prevention strategies should include provision of preexposure prophylaxis (PrEP) to MSM at risk for HIV acquisition, routine HIV testing for sexually active MSM, and increased access to HIV medical care and ART to achieve viral suppression (16, 17, 19–22).

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Although heterosexual contact accounted for a smaller percentage of incident and prevalent infections, in some instances, the magnitude of the racial/ethnic differences was larger than those among MSM. Overall, Black/African American adults and adolescents accounted for 60% of incident infections attributed to heterosexual contact in 2018, and although recent studies have found disparities between Black/African American women and women of other groups to be decreasing, Black/African American women have overall HIV incidence rates thirteen times that for White women and more than four times that for Hispanic women (7). Smaller percentages accessing HIV medical care and treatment, in addition to socioeconomic factors and other social determinants of health that impact the Black/African American population, may contribute to higher numbers of incident infections in Black/African American heterosexuals compared to other populations (16,18,19). Routine screening and open discussion of HIV risk must become standard of care for heterosexual patients, as low perceived risk for HIV acquisition by both patients and providers may result in lack of testing and offering of primary prevention tools, such as use of condoms and uptake of PrEP, which are effective in preventing transmission among people at increased risk for HIV infection (20,21, 23–26).

Persons age 55 years and older comprised the largest percentage of prevalent sexually transmitted HIV infections in 2018. Many older persons living with HIV are unaware of their infection, and when HIV is diagnosed, are more likely be in an advanced stage of disease (7,16). With older persons often misperceived as being at low risk for acquiring HIV, routine provider-initiated screening is needed to accurately assess risk factors and prevent incident infection in the population (27–29).

The findings in this report are subject to at least eight limitations. First, CD4-based estimation of HIV incidence and prevalence relies on the accuracy of the CD4 depletion model to determine diagnosis delay (10). Although CD4 model parameters were derived based on cohorts with high rates of subtype B that are suitable for the U.S. HIV population, they are not based solely on cohorts in the United States. Second, estimation of incident infections relies on the assumption that persons received no treatment before their first CD4 test. Persons with a CD4 test but not within 3 months of diagnosis may have received treatment before the first CD4 test reported to the surveillance system and hence their first CD4 result does not reflect natural (i.e., untreated) depletion. Among persons with HIV diagnosed during 2014–2018, 92.4% had a CD4 result within 3 months of diagnosis. The CD4 counts of persons with evidence of previous antiretroviral therapy use or viral suppression are excluded from the analysis, minimizing the impact of prior treatment on the depletion model. Third, estimates may be impacted by the inclusion of initial CD4 counts for persons with acute HIV infection (8). HIV may cause a sharp drop in CD4 count within the first few weeks or months after infection. This is followed by a small recovery and increase in CD4 count, then a second slower decline in the number of CD4 cells over time. At the population level, this initial drop-off effect will generally be minor because few infected individuals are tested during that short period. The initial drop will cause an overestimate of time since infection, and hence increase the estimated diagnosis delay time slightly. Fourth, CD4 data may not have been complete. Although reporting the first CD4 test result after diagnosis of HIV infection is a required data element on the HIV case report form, there is not always a CD4 result available close to diagnosis for various reasons,

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such as persons not being linked to care. Fifth, data adjustments (e.g., multiple imputation for missing values of transmission category, weighting to account for cases without a CD4 test) are assumed to be unbiased. Sixth, estimates were generated on the assumption that a person's HIV infection, diagnosis, and death all occurred in the United States. Seventh, the distribution of diagnosis delay is assumed to be relatively stable (no significant change over time). If HIV testing increases each year, this might result in an overestimation of diagnosis delay and, similarly, an overestimation incident infection. Finally, given that transmission categories assigned for HIV based on a hierarchy, there are likely persons who inject drugs and MSM who inject drugs whose infections were sexually acquired and not accounted for in this analysis (4).

These estimates underscore the disproportionate burden of sexually transmitted HIV on several populations in the United States. With more than 1 million people living with HIV in the United States, targeted application of the EHE strategies to test, treat, and prevent are imperative for impacting transmission (30). An estimated 15% of persons with HIV are unaware of their infection, making HIV testing and linkage to care and treatment essential for identifying persons in the early stages of disease (7). CDC recommends testing of persons 13–64 years at least once in their lifetime, annual testing for people at high risk, and more frequent testing for sexually active MSM and heterosexuals with multiple sex partners (20). Prompt initiation and maintenance of treatment is recommended for all persons with HIV, as viral suppression results in effectively no risk of sexual transmission (1). The removal of structural and social barriers to access to care and treatment are needed to reduce racial/ethnic disparities in HIV. The EHE initiative provides a unique opportunity to intensify federal, state, and local HIV prevention efforts to increase access to HIV care and treatment and reduce HIV-related disparities and health inequities, resulting in improved health outcomes for all people living with HIV.

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Table 1.

Estimated numbers of incident and prevalent HIV infections attributed to sexual transmission[a], by sex at birth and age group, 2018, United States

	Incident				Prevalent			
	No.	**RSE**	**50% CI**		**No.**	**RSE**	**50% CI**	
Male (age ≥ 13)								
13–24	6,300	8.2	6,000	6,600	39,900	6.1	38,200	41,500
25–34	11,200	6.2	10,700	11,700	171,600	2.6	168,600	174,600
35–44	4,700	9.6	4,400	5,000	147,700	2.3	145,300	150,000
45–54	2,800	12.3	2,500	3,000	192,100	1.7	190,000	194,300
≥55	1,900	14.6	1,800	2,100	224,300	1.6	221,900	226,700
Subtotal	26,900	4.0	26,200	27,600	775,600	1.2	769,200	781,900
Female (age ≥ 13)								
13–24	900	17.8	790	1,000	5,500	15.3	4,900	6,000
25–34	1,700	13.1	1,500	1,800	28,300	5.7	27,200	29,400
35–44	1,300	14.8	1,200	1,400	50,000	3.4	48,900	51,200
45–54	990	16.9	880	1,100	60,500	2.8	59,400	61,700
≥55	850	18.3	750	960	64,000	2.9	62,800	65,300
Subtotal	5,700	7.1	5,400	6,000	208,400	2.0	205,600	211,200
Both sexes								
13–24	7,200	7.5	6,800	7,600	45,400	5.7	43,600	47,100
25–34	12,900	5.6	12,400	13,400	199,900	2.4	196,700	203,100
35–44	6,000	8.2	5,600	6,300	197,700	1.9	195,100	200,300
45–54	3,800	10.1	3,500	4,000	252,700	1.4	250,200	255,100
≥55	2,800	11.6	2,600	3,000	288,300	1.4	285,600	291,000
Total	**32,600**	**3.5**	**31,800**	**33,400**	**984,000**	**1.1**	**977,000**	**990,900**

RSE, relative standard error; CI, confidence interval

[a]Male-to-male sexual contact or heterosexual contact.

Data by transmission category have been statistically adjusted to account for missing risk-factor information.

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Table 2.

Estimated numbers of incident and prevalent HIV infections among men who have sex with men, by race/ethnicity and age group, 2018, United States

	Incident				Prevalent			
	No.	**RSE**	**50% CI**		**No.**	**RSE**	**50% CI**	
Black/African American								
13–24	2,900	11.7	2,700	3,200	20,700	8.2	19,500	21,800
25–34	4,400	9.6	4,100	4,700	74,300	3.7	72,500	76,200
35–44	1,200	18.6	1,000	1,300	42,200	4.0	41,100	43,400
45–54	550	27.3	450	650	41,700	3.4	40,700	42,600
≥55	350 *	34.7	270	430	39,700	3.7	38,700	40,700
Subtotal	9,400	6.6	9,000	9,800	218,600	2.3	215,200	222,000
Hispanic/Latino [a]								
13–24	1,900	16.2	1,700	2,100	10,600	12.7	9,700	11,500
25–34	3,500	11.8	3,200	3,800	45,800	5.5	44,100	47,500
35–44	1,600	17.5	1,400	1,800	42,200	4.6	40,800	43,500
45–54	720	26.2	590	840	42,900	3.6	41,800	43,900
≥55	340 *	38.1	250	420	31,600	4.0	30,800	32,500
Subtotal	8,000	7.8	7,600	8,500	173,000	2.7	169,900	176,200
White								
13–24	940	18.3	830	1,100	5,000	16.1	4,400	5,500
25–34	2,000	12.4	1,900	2,200	30,200	5.9	29,000	31,400
35–44	1,100	16.8	990	1,200	36,100	4.4	35,000	37,100
45–54	870	19.1	760	980	67,800	2.6	66,700	69,000
≥55	680	21.6	580	780	102,700	2.2	101,200	104,200
Subtotal	5,700	7.5	5,400	5,900	241,800	2.0	238,500	245,000
All [b]								
13–24	6,100	8.3	5,700	6,400	38,500	6.2	36,900	40,100
25–34	10,500	6.3	10,100	11,000	162,100	2.7	159,200	165,000
35–44	4,100	10.1	3,800	4,400	130,700	2.4	128,500	132,800
45–54	2,300	13.3	2,000	2,500	164,100	1.7	162,200	166,000
≥55	1,400	16.5	1,300	1,600	184,500	1.6	182,400	186,500
Total	**24,400**	**4.1**	**23,700**	**25,100**	**679,800**	**1.3**	**673,900**	**685,700**

RSE, relative standard error; CI, confidence interval

(*) Estimates with an RSE of 30%–50% should be used with caution and are followed by an asterisk.

Data by transmission category have been statistically adjusted to account for missing risk-factor information.

[a] Hispanic/Latino can be of any race.

[b] Includes American Indian/Alaska Native, Asian, Native Hawaiian Other Pacific Islander, and persons of multiple races.

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Table 3.

Estimated numbers of incident and prevalent HIV infections attributed to heterosexual contact, by race/ethnicity, sex at birth, and age, 2018, United States

	Incident				Prevalent			
	No.	**RSE**	**50% CI**		**No.**	**RSE**	**50% CI**	
Black/African American								
Male								
13–24	…	…	…	…	940 *	43.8	660	1,200
25–34	390 *	33.9	300	480	5,900	15.7	5,300	6,500
35–44	310 *	38.8	230	390	9,900	10.0	9,200	10,500
45–54	310 *	38.7	230	390	17,100	6.4	16,300	17,800
≥55	340 *	36.6	260	420	25,200	5.6	24,200	26,100
Subtotal	1,500	17.5	1,300	1,700	58,900	4.6	57,100	60,800
Female								
13–24	590	21.7	500	670	3,600	18.6	3,100	4,000
25–34	980	16.8	870	1,100	18,000	7.0	17,200	18,900
35–44	790	18.7	690	890	31,600	4.2	30,700	32,600
45–54	590	21.5	510	680	37,300	3.5	36,500	38,200
≥55	580	21.8	500	670	38,400	3.8	37,500	39,400
Subtotal	3,500	8.8	3,300	3,700	129,100	2.6	126,800	131,300
Both sexes								
13–24	720	20.7	4,700	5,300	4,500	17.3	4,000	5,100
25–34	1,400	15.4	620	820	23,900	6.5	22,900	25,000
35–44	1,100	17.2	1,200	1,500	41,500	4.0	40,400	42,600
45–54	900	19.4	970	1,200	54,400	3.1	53,300	55,600
≥55	920	19.3	780	1,000	63,600	3.2	62,300	65,000
Subtotal	5,000	8.1	800	1,000	188,000	2.3	185,100	190,900
Hispanic/Latino [a]								
Male								
13–24	…	…	…	…	…	…	…	…
25–34	…	…	…	…	2,000 *	31.1	1,600	2,400
35–44	…	…	…	…	4,500	16.6	4,000	5,000
45–54	…	…	…	…	6,000	12.2	5,500	6,400
≥55	…	…	…	…	6,700	11.1	6,200	7,200
Subtotal	520 *	36.3	390	640	19,400	8.6	18,300	20,500
Female								
13–24	150 *	44.9	100	190	880 *	38.8	650	1,100
25–34	300 *	31.7	230	360	4,600	14.4	4,100	5,000

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	Incident				Prevalent			
	No.	RSE	50% CI		No.	RSE	50% CI	
35–44	270 *	33.4	210	330	8,800	8.0	8,300	9,300
45–54	170 *	41.6	120	220	10,800	6.4	10,300	11,200
≥55	130 *	47.5	90	170	12,000	6.0	11,500	12,400
Subtotal	1,000	17.1	900	1,100	37,000	4.6	35,800	38,100
Both sexes								
13–24	190 *	44.9	130	240	1,100 *	37.8	850	1,400
25–34	430 *	31.2	340	520	6,600	13.9	6,000	7,200
35–44	410 *	32.2	320	500	13,300	7.7	12,600	14,000
45–54	290 *	39.5	210	370	16,700	6.0	16,000	17,400
≥55	220 *	45.2	150	290	18,600	5.6	17,900	19,300
Subtotal	1,500	16.7	1,400	1,700	56,400	4.3	54,800	58,000
White								
Male								
13–24	…	…	…	…	…	…	…	…
25–34	…	…	…	…	1,200 *	41.5	850	1,500
35–44	…	…	…	…	1,800	28.7	1,400	2,100
45–54	…	…	…	…	3,500	16.5	3,100	3,900
≥55	…	…	…	…	6,000	12.3	5,500	6,500
Subtotal	410 *	37.1	310	510	12,600	11.1	11,700	13,600
Female								
13–24	130 *	46.0	90	170	710 *	42.1	510	910
25–34	300	29.8	240	370	3,900	15.9	3,500	4,300
35–44	200 *	36.8	150	250	6,400	9.8	6,000	6,800
45–54	170 *	39.9	120	220	8,900	7.4	8,400	9,300
≥55	…	…	…	…	10,200	7.0	9,700	10,600
Subtotal	910	17.3	800	1,000	30,000	5.4	28,900	31,100
Both sexes								
13–24	160 *	45.0	110	210	860 *	41.2	620	1,100
25–34	430	28.7	340	510	5,100	15.6	4,500	5,600
35–44	310 *	34.6	240	380	8,200	10.0	7,600	8,700
45–54	250 *	38.2	180	310	12,400	7.1	11,800	12,900
≥55	170 *	47.4	120	230	16,200	6.4	15,500	16,900
Subtotal	1,300	16.5	1,200	1,500	42,600	5.0	41,200	44,100
All [b]								
Male								

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	Incident				Prevalent			
	No.	**RSE**	**50% CI**		**No.**	**RSE**	**50% CI**	
13–24	210 *	49.0	140	280	1,400 *	38.0	1,000	1,800
25–34	670	27.7	550	800	9,500	13.1	8,700	10,400
35–44	580 *	30.2	470	700	17,000	8.1	16,100	17,900
45–54	520 *	31.5	410	630	28,000	5.2	27,000	29,000
≥55	510 *	31.5	410	620	39,800	4.5	38,600	41,000
Subtotal	2,500	14.4	2,300	2,700	95,800	3.7	93,400	98,200
Female								
13–24	900	17.8	790	1,000	5,500	15.3	4,900	6,000
25–34	1,700	13.1	1,500	1,800	28,300	5.7	27,200	29,400
35–44	1,300	14.8	1,200	1,400	50,000	3.4	48,900	51,200
45–54	990	16.9	880	1,100	60,500	2.8	59,400	61,700
≥55	850	18.3	750	960	64,000	2.9	62,800	65,300
Subtotal	5,700	7.1	5,400	6,000	208,400	2.0	205,600	211,200
Both sexes								
13–24	1,100	17.1	980	1,200	6,900	14.5	6,200	7,600
25–34	2,300	12.2	2,100	2,500	37,800	5.4	36,400	39,200
35–44	1,900	13.8	1,700	2,100	67,000	3.3	65,600	68,500
45–54	1,500	15.5	1,400	1,700	88,600	2.5	87,100	90,100
≥55	1,400	16.5	1,200	1,500	103,900	2.5	102,100	105,600
Total	**8,200**	**6.6**	**7,800**	**8,600**	**304,200**	**1.8**	**300,500**	**307,900**

RSE, relative standard error; CI, confidence interval

(*)Heterosexual contact with a person known to have, or to be at high risk for, HIV infection. Data by transmission category have been statistically adjusted to account for missing risk-factor information. Estimates with an RSE of 30%–50% are followed by an asterisk and should be used with caution. Estimates with an RSE of > 50% are not shown and are replaced by an ellipsis (…).

[a]Hispanic/Latino can be of any race.

[b]Includes American Indian/Alaska Native, Asian, Native Hawaiian Other Pacific Islander, and persons of multiple races.