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High Human Immunodeficiency Virus Incidence and Prevalence and Associated Factors Among Adolescent Sexual Minority Males—3 Cities, 2015

Alexandra B. Balaji[1], **Qian An**[1], **Justin C. Smith**[1,2,3], **Michael E. Newcomb**[4], **Brian Mustanski**[4], **Nikhil G. Prachand**[5], **Kathleen A. Brady**[6], **Sarah Braunstein**[7], and **Gabriela Paz-Bailey**[1] **for the National HIV Behavioral Surveillance for Young Men Who Have Sex with Men (NHBS-YMSM) Study Group**

[1]Division of HIV/AIDS Prevention, National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention, Centers for Disease Control and Prevention

[2]Department of Behavioral Sciences and Health Education, Rollins School of Public Health, Emory University, Atlanta, Georgia

[3]Oak Ridge Institute for Science and Education, Tennessee

[4]Institute for Sexual and Gender Minority Health and Wellbeing and Department of Medical Social Sciences, Northwestern University

[5]Office of Epidemiology, Chicago Department of Public Health, Illinois

[6]AIDS Activities Coordinating Office, Philadelphia Department of Public Health, Pennsylvania

[7]HIV Epidemiology and Field Services Unit, New York City Department of Health and Mental Hygiene

Abstract

Background—Much has been written about the impact of human immunodeficiency virus (HIV) among young (13–24) sexual minority men (SMM). Evidence for concern is substantial for emerging adult (18–24 years) SMM. Data documenting the burden and associated risk factors of HIV among adolescent SMM (<18 years) remain limited.

Methods—Adolescent SMM aged 13–18 years were recruited in 3 cities (Chicago, New York City, and Philadelphia) for interview and HIV testing. We used χ^2 tests for percentages of binary variables and 1-way analysis of variance for means of continuous variables to assess differences by race/ethnicity in behaviors. We calculated estimated annual HIV incidence density (number of

Correspondence: A. B. Balaji, Division of HIV/AIDS Prevention, National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention, Centers for Disease Control and Prevention, 1600 Clifton Road, NE, MS E-46, Atlanta, GA 30329 (dvi7@cdc.gov).

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HIV infections per 100 person-years [PY] at risk). We computed Fisher's exact tests to determine differences in HIV prevalence by selected characteristics.

Results—Of 415 sexually active adolescent SMM with a valid HIV test result, 25 (6%) had a positive test. Estimated annual HIV incidence density was 3.4/100 PY; incidence density was highest for blacks, followed by Hispanics, then whites (4.1, 3.2, and 1.1/100 PY, respectively). Factors associated with higher HIV prevalence included black race; ≥4 male partners, condomless anal sex, and exchange sex in the past 12 months; and a recent partner who was older, black, HIV-infected, or had ever been in jail or prison ($P < .05$).

Conclusions—HIV-related risk behaviors, prevalence, and estimated incidence density for adolescent SMM were high, especially for minority SMM. Our findings suggest that initiating intervention efforts early may be helpful in combating these trends.

Keywords

HIV incidence; HIV prevalence; HIV-related risk behaviors; adolescent sexual minority males

Young (13–24 years) sexual minority males (SMM)—those who identify as gay, bisexual, or who have sexual contact with persons of the same or both sexes—are disproportionally affected by human immunodeficiency virus (HIV) infection [1, 2]. The evidence for concern is substantial for the emerging adult segment of the young SMM population. In 2015, 81% of HIV diagnoses among young SMM were in those aged 20–24 years, and among all diagnoses of HIV among SMM, 22% were in this age group. The risk of HIV was even more notable for minority SMM [3]. There are also concerns about high HIV incidence among emerging adult SMM [4, 5]. In terms of the driving forces behind these statistics, there is a growing consensus that individual-level risk behaviors cannot adequately explain the HIV-related racial disparities observed. Rather, relationship and partner-level factors as well as sociocultural and structural determinants of health, including community, political, educational, and economic factors are now understood to play a key role in HIV risk [6–9].

In contrast to what is known about emerging adult SMM, the data documenting the burden and associated risk factors of HIV among adolescent SMM remain extremely limited. The numbers and rates of diagnoses of HIV infection in this group are small. Among all HIV diagnoses attributed to male-to-male sex, just 5% were among those aged 13–19 years [3]. However, the timing of infection relative to diagnosis is often unclear; if asymptomatic, many individuals are not diagnosed until years after they are infected. The high prevalence of diagnoses of HIV infection among SMM aged 20–24 years suggests that at least some of these infections occurred during adolescence [10].

Although estimates of HIV incidence are an essential element for monitoring the epidemic, very few studies to date have included adolescent SMM. A notable exception comes from Garofalo et al [11], who conducted a longitudinal study of HIV risk among 450 SMM (aged 16–20 years at baseline) in Chicago. HIV incidence was 5.2/100 PY for participants aged 16–17 years and 3.8/100 PY for those aged 18–20 years. In addition, a study of SMM attending New York City sexually transmitted disease clinics reported that HIV incidence

was actually higher among males aged <20 years (5.7/100 PY) compared with other age groups [12]. In both studies, incidence was higher among minorities [11, 12].

The characteristics and behaviors associated with HIV risk and acquisition also remain largely unexplored for adolescent SMM. Research indicates that prevalence of risky sexual behavior is high [11, 13] and that this population is particularly vulnerable to risk associated with partner selection, partner characteristics, and other sociocultural and structural determinants [11, 13–15]. The 2015 National Youth Risk Behavior Survey highlighted the disparity in HIV-related risk behaviors among sexual minority students (grades 9–12) compared to heterosexual students. Among male students, the prevalence of having had sexual intercourse before age 13 years was higher and condom use at last sex was lower among those who had sexual contact with males than among those who had sexual contact with only females. Also, SMM students were more likely to have ever injected any illegal drug than their heterosexual counterparts [16].

Research with adolescent SMM is imperative to fully understand and address the HIV epidemic among SMM as a whole. It is insufficient to infer results of studies of older SMM to adolescent SMM [17–20]. In light of the shortage of research among adolescent SMM relative to other SMM, in 2015, the Centers for Disease Control and Prevention (CDC) conducted an HIV behavioral surveillance project, the National HIV Behavioral Surveillance for Young Men Who Have Sex with Men (NHBSYMSM), to ascertain the prevalence of risk behaviors and HIV infection among this population. In this paper, we describe the sociodemographic characteristics of the sample, examine racial-ethnic variations in sexual partnerships and HIV-related risk behaviors, and provide estimates of HIV incidence and HIV prevalence among this group of adolescent SMM.

METHODS

Three cities implemented NHBS-YMSM: Chicago, New York City, and Philadelphia. Participants were eligible to enroll in the study if they met the following criteria: (1) between the ages of 13 and 18 years; (2) birth sex male and currently living as a male; (3) a resident of the Metropolitan Statistical Area; (4) able to complete the survey in English or Spanish; (5) reported any sexual contact with another male or self-identified as gay or bisexual or indicated same-sex attraction.

One of the original objectives of the NHBS-YMSM was to determine the most effective and feasible sampling method(s) to reach adolescent SMM. Therefore, 3 sampling methods were used to recruit participants into the project: venue-based sampling in New York City only, respondent-driven sampling in all 3 participating cities, and Facebook sampling in Philadelphia and Chicago. Venue-based sampling is a sampling strategy that utilizes venues (eg, clubs, organizations, street locations) within the project area to obtain the desired sample [21]. Respondent-driven sampling is a chain recruitment method that begins with a set of “seeds” who recruit members of their social networks to participate in project activities, who in turn recruit other members of their social networks [22, 23]. Facebook sampling employs targeted banner ads to identify and recruit adolescent SMM into the study.

Regardless of the sampling method, all NHBS-YMSM consenting participants underwent an in-person eligibility screening and, if eligible, completed the behavioral assessment with a trained interviewer. Anonymous HIV testing was offered to all participants regardless of self-reported HIV infection status. HIV testing was performed on blood specimens with rapid or laboratory-based testing and confirmed with Western blot or immunofluorescence. A nonreactive rapid test was considered a definitive negative result; a reactive (preliminary positive) rapid test result was considered a definitive positive result only when confirmed by supplemental laboratory testing (eg, Western blot or immunofluorescence assay). HIV-infected participants were assisted by project staff members for linkage to medical care and other supportive services.

Individuals were compensated for their participation in project activities, receiving approximately $25 for the behavioral assessment and $25 for HIV testing. NHBS-YMSM activities were approved by local institutional review boards in each participating city and approved by CDC. A waiver of documentation of informed consent was requested and received for all 3 locations. In addition, a waiver of parental permission for participants <18 years of age was requested and received in New York City (approved for 13–17 years of age), Philadelphia (approved for 14–17 years of age), and Chicago (approved for 16 and 17 years of age). The age categories included in the waiver of parental permission were determined by the local institutional review boards.

Data Analysis and Measures

Data were analyzed in aggregate as a convenience sample. Participants were included in this analysis if they had a completed, valid survey and reported ever having vaginal or anal sex with male or female partners (ie, sexually active). First, we described sociodemographic characteristics of adolescent SMM and examined racial-ethnic variations in sexual partnerships and HIV-related risk behaviors. During the NHBS-YMSM survey, participants were asked about characteristics of partnerships and behaviors that occurred over several time periods: ever in their life, during the past 12 months, and during the past 3 months. Participants were also asked about their 3 most recent sex partners in the past 3 months. If a participant had not had sex with anyone in the past 3 months, he was asked about the last person he had sex with in the past 12 months. For the current analysis, we utilized the information about the most recent sex partners to examine whether a participant had at least 1 sexual partnership (among 3 possible partnerships) with the characteristic or behavior of interest. Financial instability was assessed with the question, “was there a time when there was not enough money in your house for rent, food, or utilities such as gas, electric, or phone?” Exchange sex was defined as exchanging sex for something such as money or drugs. Partner concurrency was defined as the respondent or their partner probably or definitely having sex with other people during the time of a sexual relationship. We computed percentages for binary variables and means, standard errors, and ranges for continuous variables. We determined the statistically significant differences ($P < .05$) between the racial/ethnic groups using χ^2 test for percentages of binary variables and 1-way analysis of variance for means of continuous variables.

Next, we derived estimates of annual HIV incidence density [4, 24], among participants who reported ever having anal sex with a male partner and had a valid NHBS-YMSM positive or negative NHBS-YMSM HIV test result (n = 371), by including the number who tested positive for HIV infection as the numerator and the total number of person-years at risk as the denominator. Person-years at risk was calculated by subtracting age at first anal sex with a male from first positive HIV test (for persons who reported having previously been diagnosed with HIV infection) or current age minus age at first anal sex with a male (for all others). About 20% of sexually active adolescent SMM who reported anal sex with a male were missing the age at first anal sex. Multiple imputation based on age, race, and ethnicity was used to impute the missing age at first anal sex for these participants. Using this method, we calculated estimated annual incidence density for the entire group, as well as by racial/ethnic group (black, Hispanic, white/other; note that participants of white and other races were grouped together). Finally, we present HIV prevalence overall and by selected characteristics among the adolescent SMM who had a valid positive or negative NHBS-YMSM HIV test result. We computed Fisher's exact tests to determine statistically significant differences ($P < .05$).

RESULTS

The NHBS-YMSM total sample consisted of 569 participants with valid and complete interviews; of these, 453 (80%) reported being sexually active. Among sexually active participants, mean age was 16.7 years, 42% identified as black, 38% as Hispanic, and 16% as white, and 4% reported other or multiple race groups. Almost half (45%) grew up in a 2-parent household. Of the sample, 26% reported household financial instability during the past 12 months and 30% reported ever being kicked out of the house or running away. The majority of the adolescent men identified as gay (64%) or bisexual (33%). More than half (60%) had ever been tested for HIV and 54% had done so in the past 12 months. Ninety percent reported visiting a healthcare provider in the past 12 months (Table 1).

The mean age of first anal sex with a male was 15 years and 82% had ever had anal sex with a male partner. In the past 12 months, 51% reported condomless anal sex with a male and 38% had ≥4 oral or anal male sex partners. Black adolescent SMM were more likely than white/other adolescent SMM to have ever had anal sex with a male partner (86% vs 74%), to have engaged in exchange sex in the past 12 months (7% vs 1%), to report sexual concurrency within a recent relationship (55% vs 40%), and to have a lower mean age of first vaginal or anal sex with a female partner (13.6 years vs 15.1 years) and less likely to report alcohol or drugs before or during last sex (23% vs 34%). Black adolescent SMM were more likely than Hispanic adolescent men to have an older partner (73% vs 60%). Black adolescent SMM were more likely than Hispanic and white/other adolescent SMM to have a black partner (76% vs 25% and 11%, respectively), and had a lower mean age of first oral sex with a male partner (14.0 years vs 14.6 years and 15.2 years, respectively). Both black adolescent SMM and Hispanic adolescent SMM were more likely than white/other SMM to have a partner who had ever been in prison or jail (20% and 16% vs 6%, respectively), whereas black and Hispanic SMM were less likely than white adolescent SMM to report sex within 1 week of meeting a new partner (24% and 19% vs 42%, respectively). Black adolescent SMM and Hispanic adolescent SMM had a lower mean age of first anal sex with

a male partner (14.6 years and 15.0 years) compared with white/other adolescent SMM (15.9 years) (Tables 2 and 3).

Overall, the estimated annual HIV incidence density was 3.4/100 PY. Incidence was 4.1/100 PY for blacks, 3.2/100 PY for Hispanics, and 1.1/100 PY for white/other (Figure 1). Table 4 examines characteristics associated with being HIV infected among 415 adolescent SMM who had a valid positive or negative NHBS-YMSM HIV test result. Of these, 25 (6%) were HIV infected. HIV prevalence was higher among black than white/other SMM (9% vs 1%) and among participants from Philadelphia as compared with Chicago (12% vs 4%). HIV prevalence was higher among adolescent SMM who reported ≥4 male partners (14% vs 4%), condomless anal sex with a male partner (10% vs 2%), and exchange sex (32% vs 5%) in the past 12 months compared to those who did not. Examining recent sexual partnerships, HIV prevalence was higher among adolescents who had at least 1 older partner (6% vs 1%), black partner (10% vs 3%), HIV-infected partner (25% vs 5%), and a partner who had ever been in jail or prison (15% vs 4%). Also HIV prevalence was higher among those who had sex within a week of meeting their sex partner (11% vs 4%).

DISCUSSION

Overall, HIV prevalence and estimated incidence density for adolescent SMM in this study were high, driven primarily by the rates for black and Hispanic participants. Both individual behavior and partner characteristics were associated with being HIV infected. Similar to previous research [11, 14, 16], reported prevalence of several key HIV-related risk behaviors, including condomless anal sex with a male partner in the past 12 months, ≥4 oral or anal male sex partners in the past 12 months, and sexual concurrency with at least 1 recent partner, was high across all racial/ethnic groups in our sample.

We did find some racial/ethnic differences in HIV-related risk behaviors. Black adolescent SMM reported an earlier age of sexual debut, which provides an extended window of risk opportunity and could be a possible contributing factor in the disproportionate HIV rates by race/ethnicity [25, 26]. Black adolescent SMM were also more likely than their white/other adolescent SMM counterparts to have ever had anal sex with a male partner, have engaged in exchange sex in the past 12 months, and report sexual concurrency within a recent relationship. Consistent with previous literature [5, 27, 28], we also found differences in sexual partner characteristics and sexual network factors by race/ethnicity. In particular, black adolescent SMM were more likely than the other groups to have a black partner. Previous studies have proposed that the background prevalence rates in the population paired with racially homogenous sexual networks is a contributing factor to why HIV rates are disproportionately high among black SMM [8, 28, 29]. White/other adolescent SMM were more likely than black adolescent SMM to report alcohol or drugs before or during last sex and were more likely than both black and Hispanic SMM to report sex within 1 week of meeting a new partner. Although these behaviors place white/other adolescent SMM at risk for HIV and other sexually transmitted infections, the lower HIV prevalence in their partner pool may lower the impact of these risks for HIV acquisition.

This study has several limitations. First, the study is a convenience sample and the analyses do not account for the sampling design. Participants may not be representative of all SMM 13–18 years of age, and data are not weighted. Second, data were self-reported and may have associated biases. Third in the calculation of PY at risk for incidence density, we used age at diagnosis to approximate age at HIV infection, which likely inflates the denominator by increasing the estimate of years at risk. However, as this is a young population, we expect the amount of inflation to be small. On the other hand, only participants who reported ever having anal sex with a male partner were included for calculating PY at risk; if this behavior was misreported, we could have underestimated the denominator.

The findings from this study, including the early onset of sexual activity, high rates of HIV-related risk behavior, and elevated HIV prevalence and estimated incidence density, suggest that effective HIV prevention strategies, including “test and treat” and preexposure prophylaxis (PrEP), may be helpful in reducing HIV risk among adolescent SMM. Unfortunately, there is currently a dearth of HIV prevention interventions that focus on this population specifically, and to date, PrEP is not approved for use below the age of 18 [11, 30]. Therefore, it is imperative that future HIV prevention research examine interventions that not only include adolescent SMM but do so in a way that encompasses the developmental needs of the adolescent life stage [31–33].

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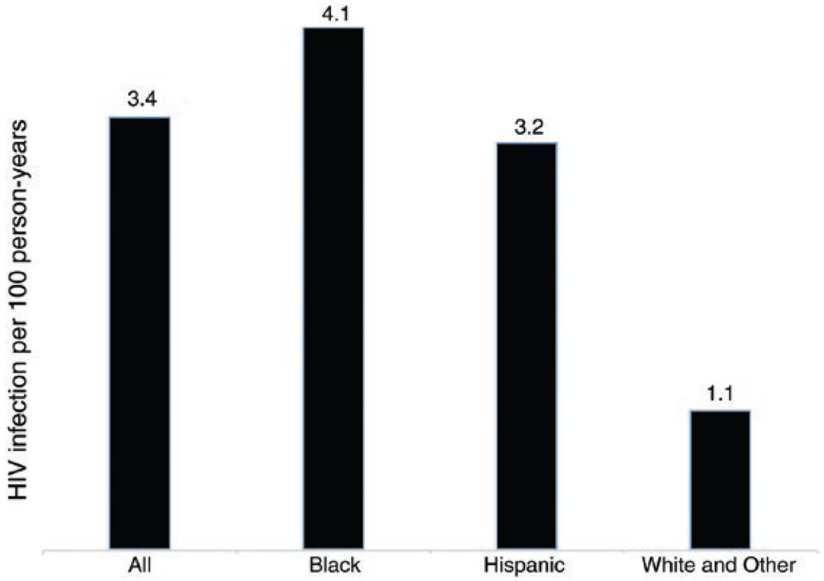

Figure 1.

Estimated human immunodeficiency virus (HIV) incidence density among adolescent sexual minority males, National HIV Behavioral Surveillance for Young Men Who Have Sex with Men (NHBS-YMSM), 2015. Analyses among participants who reported ever having anal sex with a male partner and had a valid positive or negative, NHBS-YMSM test result. Other race includes persons who indicated American Indian/Alaska Native, Asian, Native Hawaiian/Pacific Islander, multiple races, or other race. Estimated HIV incidence density was 3.4 per person-years (PY) at risk (24 HIV infections among 702 PY), 4.1/100 PY among black (15 infections among 367 PY), 3.2/100 PY among Hispanic (8 HIV infections among 247 PY), and 1.1/100 PY among white and other adolescent males (1 HIV infection among 87 PY). Abbreviation: HIV, human immunodeficiency virus.

Table 1

Selected Characteristics of Sexually Active[a] Adolescent Sexual Minority Males, National Human Immunodeficiency Virus Behavioral Surveillance for Young Men Who Have Sex with Men, 2015

Characteristic	No. (N = 453)	%
Age, y		
13–15	44	10
16–17	267	59
18	142	31
Race/ethnicity		
Black	188	42
Hispanic	174	38
White	71	16
Other[b]	19	4
Family structure[c]		
2 parents	204	45
Single parent	194	43
Other relatives	41	9
Other living situation	14	3
Household financial instability[d], past 12 mo		
No	335	74
Yes	116	26
Ever kicked out of the house or run away		
No	319	70
Yes	134	30
Sexual identity		
Gay	287	64
Bisexual	148	33
Heterosexual	13	3
Binge drinking[e], past 30 d		
No	319	71
Yes	133	29
Marijuana use, past 12 mo		
No	213	47
Yes	240	53
Stimulant use[f], past 12 mo		
No	387	85
Yes	66	15
Ever injection drug use		
No	450	99

Characteristic	No. (N = 453)	%
Yes	3	1
Health insurance		
No	25	6
Yes	421	94
Visited healthcare provider, past 12 mo		
No	45	10
Yes	408	90
Ever had oral sex with a male partner		
No	29	6
Yes	424	94
Ever tested for HIV		
No	182	40
Yes	270	60
Tested for HIV, past 12 mo		
No	208	46
Yes	243	54
City		
Chicago	190	42
New York City	176	39
Philadelphia	87	19
Recruitment method[g]		
Venue-based sampling	130	29
Respondent-driven sampling	241	53
Facebook sampling	82	18
Total	453	100

Numbers might not add to total because of missing data. Abbreviation: HIV, human immunodeficiency virus.

[a] Participants who ever had anal or vaginal sex.

[b] Includes persons who indicated American Indian/Alaska Native, Asian, Native Hawaiian/Pacific Islander, or other race.

[c] Family structure for most of respondent's childhood. Two parents could be biological, adoptive, or a stepparent and biological/adoptive parent; single parent could be biological or adoptive; other living situation could include foster parent(s), another adult only, such as a stepparent, or other living situation such as a group home.

[d] In the past 12 months, was there a time where there was not enough money in your house for rent, food, or utilities such as gas, electric, or phone?

[e] Five or more alcoholic drinks in 1 sitting.

[f] Cocaine, ecstasy, poppers (amyl nitrate), or methamphetamine.

[g] Venue-based sampling was conducted in New York City; respondent-driven sampling was conducted in Chicago, New York City, and Philadelphia; and Facebook sampling was conducted in Chicago and Philadelphia.

Table 2

Sexual Partnerships and Human Immunodeficiency Virus (HIV)–Related Risk Behaviors Among Sexually Active[a] Adolescent Sexual Minority Males, by Race/Ethnicity, National HIV Behavioral Surveillance for Young Men Who Have Sex With Men, 2015

	Total		Black		Hispanic		White/Other[b]	
	(N = 453)		(n = 188)		(n = 174)		(n = 91)	
Characteristic	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
Ever had vaginal or anal sex with a female partner								
No	285	63	114	61	108	62	63	70
Yes	168	37	74	39	66	38	27	30
Ever had anal sex with a male partner								
No	82	18	26	14	33	19	23	26
Yes	371	82	162	86[c]	141	81	67	74[c]
Condomless anal sex with a male partner, past 12 mo								
No	222	49	94	50	80	46	48	53
Yes	231	51	94	50	94	54	42	47
≥4 male partners[d], past 12 mo								
No	283	62	117	62	109	63	57	63
Yes	170	38	71	38	65	37	34	37
Exchange sex[e], past 12 mo								
No	434	96	175	93	169	97	89	99
Yes	19	4	13	7[c]	5	3	1	1[c]
Exclusive receptive anal sex with male partners, past 3 mo								

Characteristic	Total (N = 453)		Black (n = 188)		Hispanic (n = 174)		White/Other[b] (n = 91)	
	No.	%	No.	%	No.	%	No.	%
No	274	67	105	62	111	71	57	70
Yes	135	33	64	38	46	29	25	31
3 most recent partners[f]								
Older partner[g]								
No	121	33	35	27	63	40	23	30
Yes	247	67	95	73[h]	96	60[h]	55	71
Black partner								
No	254	56	45	24	130	75	79	89
Yes	197	44	143	76[c,h]	43	25[h]	10	11[c]
HIV-infected partner								
No	440	97	180	96	170	98	89	99
Yes	13	3	8	4	4	2	1	1
Partner of unknown HIV status								
No	286	63	122	65	114	66	49	54
Yes	167	37	66	35	60	35	41	46
Met partner online[i]								
No	280	62	120	64	105	60	55	62
Yes	172	38	68	36	69	40	34	38

Characteristic	Total (N = 453)		Black (n = 188)		Hispanic (n = 174)		White/Other[b] (n = 91)	
	No.	%	No.	%	No.	%	No.	%
Sexual concurrency[j]								
No	227	50	85	45	88	51	54	60
Yes	226	50	103	55[c]	86	49	36	40[c]
Partner ever injected drugs								
No	416	92	172	92	159	91	84	93
Yes	37	8	16	9	15	9	6	7
Alcohol or drugs before or during last sex								
No	336	74	145	77	131	75	59	66
Yes	117	26	43	23[c]	43	25	31	34[c]
Partner ever in jail or prison								
No	382	84	150	80	146	84	85	94
Yes	71	16	38	20[c]	28	16[k]	5	6[c,k]
Serious partner[l]								
No	186	41	77	41	65	37	43	48
Yes	267	59	111	59	109	63	47	52
Sex within a week of meeting								
No	336	74	142	76	141	81	52	58
Yes	117	26	46	24[c]	33	19[k]	38	42[c,k]

Numbers might not add to total because of missing data. Abbreviation: HIV, human immunodeficiency virus.

[a] Participants who ever had anal or vaginal sex.

[b] Includes persons who indicated American Indian/Alaska Native, Asian, Native Hawaiian/Pacific Islander, multiple races, or other race.

[c] Indicates significantly different values ($P < .05$) between black non-Hispanic and white non-Hispanic/other participants.

[d] Had oral or anal sex.

[e] Had sex in exchange for something such as money or drugs.

[f] Participants were asked about their 3 most recent sex partners in the past 3 months. If the participant did not have sex with anyone in the past 3 months, they were asked about the last person he had sex with in the past 12 months. The "yes" category indicates that a participant had at least 1 sexual partnership (among a possible 3 partnerships) with the characteristic or behavior of interest.

[g] Due to mandated reporting requirements, Philadelphia did not ask about partner's age. Chicago and New York City asked whether the partner was younger, older, or the same age as the participant.

[h] Indicates significantly different values ($P < .05$) between black non-Hispanic and Hispanic participants.

[i] Met partner on the internet or through a mobile app (eg, Grindr, Jack'd, Scruff).

[j] During the time of a sexual relationship, the participant was having sex with other people and/or the partner was probably or definitely having sex with other people.

[k] Indicates significantly different values ($P < .05$) between Hispanic and white non-Hispanic/other participants.

[l] A male with whom the participant has dated for a while and feels close to and may call a boyfriend or partner.

Table 3

Sexual Partnerships and Human Immunodeficiency Virus (HIV)-Related Risk Behaviors Among Sexually Active[a] Adolescent Sexual Minority Males, by Race/Ethnicity, National HIV Behavioral Surveillance for Young Men Who Have Sex with Men, 2015

	Total				Black				Hispanic				White/Other[b]			
	(N = 453)				(n = 188)				(n = 174)				(n = 91)			
Characteristic	**No.**	**Mean**	**(Range)**	**SD**	**No.**	**Mean**	**(Range)**	**SD**	**No.**	**Mean**	**(Range)**	**SD**	**No.**	**Mean**	**(Range)**	**SD**
Age at first oral sex with a male partner	343	14.5	(4–18)	2.3	123	14.0[c,d]	(4–18)	2.6	147	14.6[d]	(4–18)	2.0	73	15.2[c]	(8–18)	2.1
Age at first vaginal or anal sex with a female partner	139	14.1	(6–18)	2.1	56	13.6[c]	(6–18)	2.5	58	14.3	(10–18)	1.7	25	15.1[c]	(12–18)	1.5
Age at first anal sex with a male partner	298	15.0	(6–18)	2.1	111	14.6[c]	(6–18)	2.4	127	15.0[e]	(6–18)	2.0	60	15.9[e]	(12–18)	1.5
No. of male anal sex partners, past 12 mo	452	3.8	(0–250)	12.7	187	3.9	(0–40)	5.8	174	3.7	(0–250)	19.0	91	3.7	(0–37)	6.4
No. of condomless male anal sex partners, past 12 mo	452	1.2	(0–22)	2.4	187	1.4	(0–22)	2.7	174	1.1	(0–12)	1.8	91	1.3	(0–17)	2.6
No. of anal sex acts, past 3 mo	371	7.3	(0–205)	17.2	151	7.3	(0–205)	20.4	142	7.8	(0–120)	16.7	78	6.4	(0–46)	10.2
No. of condomless sex acts, past 3 mo	304	7.7	(0–145)	16.8	125	7.0	(0–145)	18	119	8.4	(0–120)	17.8	60	7.9	(0–60)	11.4

Numbers might not add to total because of missing data. Abbreviation: SD, standard deviation.

[a] Participants who ever had anal or vaginal sex.

[b] Includes persons who indicated American Indian/Alaska Native, Asian, Native Hawaiian/Pacific Islander, multiple races, or other race.

[c] Indicates significantly different values ($P < .05$) between black non-Hispanic and white non-Hispanic/other participants.

[d] Indicates significantly different values ($P < .05$) between black non-Hispanic and Hispanic participants.

[e] Indicates significantly different values ($P < .05$) between Hispanic and white non-Hispanic/other participants.

Table 4

Human Immunodeficiency Virus (HIV) Infection[a] Among Sexually Active[b] Adolescent Sexual Minority Males, by Selected Characteristics, National HIV Behavioral Surveillance for Young Men Who Have Sex with Men, 2015

		HIV-Infected		
Characteristic	**Total No. (n = 415)**	**No.**	**%**	***P* Value**
Age, y				
13–15	37	2	5	.9
16–17	245	14	6	
18	133	9	7	
Race/ethnicity				
Black	172	15	9	.05[c]
Hispanic	160	9	6	
White/other[d]	82	1	1	
Household financial instability[e], past 12 mo				
No	307	17	6	.48
Yes	106	8	8	
City				
Chicago	187	8	4	.06[f]
New York City	143	7	5	
Philadelphia	85	10	12	
Sexual identity				
Gay or bisexual	399	24	6	.3
Heterosexual	11	1	9	
Anal sex before age 13 y				
No	167	12	7	.41
Yes	248	13	5	
≥4 male partners[g], past 12 mo				
No	291	13	4	.01
Yes	81	11	14	
Condomless anal sex with a male partner, past 12 mo				
No	173	4	2	.003
Yes	218	21	10	
Exchange sex[h], past 12 mo				
No	396	19	5	<.0001
Yes	19	6	32	
3 most recent partners[i]				
Female partner				

Characteristic	Total No. (n = 415)	HIV-Infected		
		No.	%	*P* Value
No	367	23	6	.75
Yes	48	2	4	
Older partner[j]				
No	105	1	1	.04
Yes	227	14	6	
Black partner				
No	227	7	3	.01
Yes	186	18	10	
HIV-infected partner				
No	403	22	5	.03
Yes	12	3	25	
Partner of unknown HIV status				
No	260	17	7	.67
Yes	155	8	5	
Met partner online[k]				
No	250	11	4	.09
Yes	164	14	9	
Sexual concurrency[l]				
No	200	8	4	.1
Yes	215	17	8	
No	382	21	5	.13
Yes	33	4	12	
Alcohol or drugs before or during last sex				
No	307	14	5	.06
Yes	108	11	10	
Partner ever in jail or prison				
No	348	15	4	.003
Yes	67	10	15	
Serious partner[m]				
No	166	9	5	.83
Yes	249	16	6	
Sex within a week of meeting				
No	301	12	4	.01
Yes	114	13	11	

Numbers might not add to total because of missing data. Abbreviation: HIV, human immunodeficiency virus.

[a]Participants who had a valid positive or negative National HIV Behavioral Surveillance for Young Men Who Have Sex with Men test result are included in this analysis.

[b]Participants who ever had anal or vaginal sex.

[c] Indicates significantly different values ($P < .05$) between black non-Hispanic and white non-Hispanic/other participants.

[d] Includes persons who indicated American Indian/Alaska Native, Asian, Native Hawaiian/Pacific Islander, multiple races, or other race.

[e] In the past 12 months, was there a time where there was not enough money in your house for rent, food, or utilities such as gas, electric, or phone?

[f] Indicates significantly different values ($P < .05$) between Chicago and Philadelphia.

[g] Had oral or anal sex.

[h] Had sex in exchange for something such as money or drugs.

[i] Participants were asked about their 3 most recent sex partners in the past 3 months. If the participant did not have sex with anyone in the past 3 months, they were asked about the last person he had sex with in the past 12 months. The “yes” category indicates that a participant had at least 1 sexual partnership (among a possible 3 partnerships) with the characteristic or behavior of interest.

[j] Due to mandated reporting requirements, Philadelphia did not ask about partner’s age. Chicago and New York City asked whether the partner was young, older, or the same age as the participant.

[k] Met partner on the internet or through a mobile app (eg, Grindr, Jack’d, Scruff).

[l] During the time of a sexual relationship, the participant was having sex with other people and/or the partner was probably or definitely having sex with other people.

[m] A male with whom the participant has dated for a while and feels close to and may call a boyfriend or partner.