

BESURE 2019

HIV Infection, Risk, Prevention, and Testing Behaviors Among Heterosexually Active Adults at Increased Risk for HIV Infection

BALTIMORE HIV BEHAVIORAL SURVEILLANCE
REPORT



This Baltimore HIV Behavioral Surveillance Report is published by the Baltimore site of CDC's National HIV Behavioral Surveillance system and is designed to mirror with acknowledgment and permission the National HIV Behavioral Surveillance Special Report published by the Behavioral and Clinical Surveillance Branch of the Division of HIV/AIDS Prevention, National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention, Centers for Disease Control and Prevention (CDC), U.S. Department of Health and Human Services, Atlanta, Georgia.

This Baltimore HIV Surveillance Report is not copyrighted and may be used and copied without permission. Citation of the source is, however, appreciated.

Suggested citation

German D, Glick J, Sawyer A, Gribbin M, Flynn C. *HIV Infection Risk, Prevention, and Testing Behaviors among Heterosexually Active Adults at Increased Risk for HIV Infection—Baltimore HIV Behavioral Surveillance: Heterosexually Active Adults at Increased Risk for HIV Infection, 2019.*

<https://phpa.health.maryland.gov/OIDEOR/CHSE/pages/behavioral-surveillance.aspx>. Published November 2021. Accessed [date].

On the web

<http://www.besurebaltimore.com/related-articles>

<https://health.maryland.gov/phpa/OIDEOR/CHSE/Pages/behavioral-surveillance.aspx>

Corresponding author

Danielle German, Johns Hopkins Bloomberg School of Public Health,
Telephone: 410-502-8936; Fax: (410) 502-5385; e-mail: danielle.german@jhu.edu

Acknowledgments

This report was prepared by the following BESURE staff: Jennifer L. Glick, Anne Sawyer, Molly Gribbin, Danielle German, for the Baltimore HIV Behavioral Surveillance (BESURE) Study Group.

We thank the BESURE Study participants; our community partners; Maryland Department of Health (MDH) Laboratories Administration; and data collection, field operations, data management, project administration, and investigator teams over time.

Project staff: Miriam Alvarez, Anushka Aquil, Jeff Arias, James Burrell, Brenda Costley, Michaela Finley, Greg Frailey, Amelia Jackson, Antwine Jenkins, Sahkia Johnson, Sarah Linden, Stephanie Okechie, Kelci Reiss, Anne Sawyer (Data coordinator), Brittney Shapiro, Lou Spencer (Field team supervisor), Teddy Tinnell, Antione Tomlin, Latoya Washington, Bernetha Williams (Lead phlebotomist)

Project Principal Investigators: Colin Flynn (MDH), Danielle German (JHSPH)

Project Co-Investigators: Jennifer L. Glick (JHSPH), Molly Gribbin (MDH)

Funders: MDH, operated in collaboration with CDC

Maryland Department of Health Non-Discrimination Statement

The Maryland Department of Health (MDH) complies with applicable Federal civil right laws and does not discriminate on the basis of race, color, national origin, age, disability in its health programs and activities.

English

Help is available in your language: 410-767-5227 (TTY: 800-735-2258). These services are available for free.

Español/Spanish

Hay ayuda disponible en su idioma: 410-767-5227 (TTY: 800-735-2258). Estos servicios están disponibles gratis.

中文/Chinese

用您的语言为您提供帮助: 410-767-5227 (TTY: 800-735-2258). 这些服务都是免费的

Confidential information, referrals, and educational material on HIV infection

CDC-INFO

1-800-232-4636 (in English, en Español) 1-888-232-6348 (TTY)

<http://wwwn.cdc.gov/dcs/ContactUs/Form>

Maryland Department of Health

Free education and literature are available from 410-799-1940

<https://health.maryland.gov/phpa/Pages/AIDS-HIV.aspx>

Contents

Commentary	4
Technical Notes	7
References	9
Table 1. Selected characteristics of heterosexually active men and women—BESURE, 2019	11
Table 2. HIV prevalence among heterosexually active men and women—BESURE, 2019	12
Table 3. HIV testing among heterosexually active men and women —BESURE, 2019	13
Table 4. Setting of most recent HIV test among heterosexually active men and women who were tested for HIV in the 12 months before interview—BESURE, 2019	14
Table 5. Sexual behavior with female sex partners in the 12 months before interview among heterosexually active men—BESURE, 2019	15
Table 6. Sexual behavior with female sex partners in the 12 months before interview among heterosexually active men, by partner type— BESURE, 2019	16
Table 7. Sexual behavior with male sex partners in the 12 months before interview among heterosexually active women—BESURE, 2019	17
Table 8. Sexual behavior with male sex partners in the 12 months before interview among heterosexually active women, by partner type— BESURE, 2019	18
Table 9. Receipt of HIV prevention materials and services in the 12 months before interview among heterosexually active men and women—BESURE, 2019	19
Table 10. Diagnosis of sexually transmitted infections among heterosexually active men and women—BESURE, 2019	20
Table 11. Non-injection drug use in the 12 months before interview and binge drinking in the 30 days before interview among heterosexually active men and women—BESURE, 2019	21
Table 12. Additional outcomes among heterosexually active men and women—BESURE, 2019	22
Table 13. Receipt of HIV care and treatment among self-reported HIV-positive heterosexually active men and women—BESURE, 2019	23
Appendix: Measurement Notes	24

Commentary

Lowering the annual number of new HIV infections is a major HIV prevention goal [1]. This goal can be achieved by implementing three important strategies for reducing HIV infections: (1) intensifying HIV prevention efforts in communities where HIV is most heavily concentrated, including gay, bisexual, and other men who have sex with men (hereafter referred to as MSM); Black or African Americans (hereafter referred to as Black/African Americans); Hispanics or Latinos; and persons who inject drugs (PWID); (2) expanding efforts to prevent HIV infection by using a combination of effective, evidence-based, scalable approaches (including substance use treatment and access to sterile needles and syringes); and (3) educating the general public about the threat of HIV infection and how to prevent it. State and local health departments, as well as federal agencies, are expected to monitor progress toward HIV prevention goals [1].

The Centers for Disease Control and Prevention's (CDC's) National HIV Behavioral Surveillance (NHBS) serves as a key component of its high-impact prevention (HIP) approach to reducing the spread of HIV in the United States [2]. NHBS provides data for monitoring behaviors among populations at risk of acquiring or transmitting HIV infection and identifies the populations for whom scientifically proven, cost-effective, and scalable interventions are most appropriate. Monitoring key indicators among members of high-risk populations is critical to achieving the goals of the Ending the HIV Epidemic: A Plan for America initiative [3] and CDC's HIP approach. The new initiative is aimed at reducing new HIV infections by 90 percent by 2030 by implementing evidence-based strategies for specific populations in geographic areas most affected by HIV. NHBS also helps state and local health departments in areas with high HIV prevalence to monitor risk behaviors, HIV testing, use of prevention programs, and HIV prevalence in three populations at high risk for HIV infection: MSM, PWID, and heterosexually active men and women at increased risk for HIV infection [4, 5]. See technical notes for the definition of "increased risk for HIV infection."

In Baltimore, NHBS is operated as a partnership between Maryland Department of Health (MDH) and the Johns Hopkins Bloomberg School of Public Health (JHSPH). The project is locally known as BESURE, The Behavioral Surveillance Research study. BESURE is reflective of the Baltimore Metropolitan Statistical Area (MSA), which consists of Baltimore City, Baltimore, Anne Arundel, Carroll, Howard, Harford, and Queen Anne's counties.

This report summarizes findings from the fifth BESURE data collection among heterosexually (HET) active adults at increased risk for HIV infection, which was

conducted in 2019. Data from previous years of national data collection on this population have been published elsewhere [6–9]. Previous BESURE HET data is available [here](#) and by request from Principal Investigators. This report provides descriptive, unweighted data that can be used to describe HIV infection among heterosexually active men and women at increased risk for HIV infection and the percentages reporting specific risk behaviors, HIV testing, and participation in prevention programs. Monitoring these outcomes is useful for assessing risk behaviors and the use of prevention efforts over time and for identifying new HIV prevention opportunities for this population.

TABLE ORGANIZATION

The tables in this report are ordered by content and designed to align with those published by CDC to report national NHBS data. Tables 1 and 5–13 are stratified by HIV status; that is, data are presented separately for HIV-negative participants and HIV-positive participants (HIV status determined from BESURE HIV test result). A small percentage of the sample (< 1%) could not be classified by HIV status because they had no valid BESURE HIV test result; that is, they did not consent to the HIV test or had an indeterminate result. For data completeness, data from these participants are reported in a "No valid BESURE HIV test results" column (Table 1) or row (Tables 5–16b).

Unless otherwise noted in tables, measurement notes, or the following highlights, the period for all outcomes is in the 12 months before interview.

HIGHLIGHTS

Demographic Characteristics, HIV Prevalence, and HIV Testing

This report describes data from 310 heterosexually active individuals who participated in NHBS in 2019, of whom 59 percent were men; 41 percent were women; 17 percent were 18–29 years old; 87 percent were Black/African American; two percent were Hispanic/Latino, and 8 percent were White (Table 1). Of the participants, 89 percent had a household income at or below the federal poverty level, seven percent had no health insurance, 12 percent had not visited a health care provider in the past 12 months, and 26 percent had been homeless in the past 12 months.

In 2019, three percent of participants with a valid HIV test result tested positive for HIV (Table 2). Due to small cell sizes, data is not available about gender, race or age differences in HIV prevalence. Among participants who did not report a previous HIV-positive test result or who had received their first HIV-positive test result less

than 12 months before interview, 93 percent reported that they had ever been tested and 62 percent reported that they had been tested for HIV during the 12 months before interview (Table 3). By sex, 93 percent of females and 93 percent of males had ever been tested for HIV. In the past 12 months, 66 percent of females and 59 percent of males had been tested for HIV. By race/ethnicity, HIV testing in the past 12 months was as follows: Black/African American (62%), multiple races (60%), and White (54%).

CDC recommends HIV testing at least once for all persons aged 13–64 years as part of a routine clinical visit [11]. Among participants who were tested for HIV in the 12 months before interview, 84 percent reported that their most recent test was performed in a clinical setting (Table 4), which was less common with younger (18-24) and older (50+) age groups. By race/ethnicity, testing in a clinical setting was more common among white participants (93%) or Black/ African American (83%) participants.

Sexual Behaviors

Condomless vaginal and anal sex was reported by 88 percent and 26 percent of HIV- negative men, respectively. White HIV- negative men reported higher condomless sex than Black/African American HIV-negative men (Table 5). HIV negative men reported higher rates of condomless sex with main female partners (71%) than with casual female partners (47%; Table 6). Comparisons between HIV negative and positive men were not possible due to small cell sizes among HIV-positive men (Tables 5 & 6).

Condomless vaginal and anal sex was reported by 89 percent and 30 percent of HIV- negative women, respectively (Table 7). HIV- negative women reported higher rates of condomless sex with main male partners (78%) than with casual male partners (41%; Table 8). Comparisons between HIV negative and positive women were not possible due to small cell sizes among HIV-positive women (Tables 7 & 8). Although use of pre-exposure prophylaxis (PrEP) and HIV status of partners is unknown, it is important to note that correct and consistent condom use is one of many protection strategies against HIV, other sexually transmitted infections (STIs), and unplanned pregnancies [12]. The high percentages of heterosexually active men and women who engaged in condomless sex underscore the importance of leveraging a combination of effective, evidence-based, scalable prevention strategies, including condom access, achieving an undetectable viral load, increasing awareness and uptake of PrEP, risk- reduction counseling, and HIV testing [2,13].

HIV Prevention

Overall, 39 percent of participants received free condoms and 21 percent participated in an individual- or group-level conversation with an HIV counselor or outreach worker (Table 9). The percentages of both were highest for HIV-positive participants, 63 percent of whom reported receiving free condoms and 63 percent of whom reported participating in HIV counseling or outreach.

Only 35 percent of heterosexually active HIV-negative men or women had ever heard of PrEP. Women were less likely to be aware of PrEP than men (33% and 37%). Among racial/ethnic groups, Black/African American (35%) and White participants (32%) had similar PrEP awareness. The numbers were too sparse to understand PrEP use and associated disparities in this population. PrEP is an effective biobehavioral intervention for reducing HIV transmission, yet awareness and use are persistently low among heterosexually active men and women. Women are underrepresented in PrEP clinical trials and campaigns [14]; unfortunately, this underrepresentation may reinforce stereotypes that PrEP is intended only for gay/bisexual men [15]. Although clinical trials have shown that PrEP is effective in preventing HIV in heterosexual cisgender men and women since 2012 [16], this population may not perceive themselves as either at risk for HIV or as a candidate for PrEP [17]. Therefore, primary care physicians who provide basic healthcare and preventive services (e.g., family practitioners, gynecologists) may play a role in educating and prescribing PrEP to heterosexually active patients at risk for HIV. Researchers may ensure that PrEP clinical trials include women and heterosexual men.

Racial/ethnic disparities in PrEP use persist in other groups at risk for HIV infection [18]. Providers, community organizations, pharmaceutical companies, and advocates have the opportunity to ensure this pattern of disparities does not repeat itself for heterosexual women and men. In this sample, Hispanic/Latino participants reported the lowest PrEP awareness across all racial/ethnic groups. PrEP campaigns and providers may translate materials in Spanish and ensure that they communicate the benefits of PrEP to Hispanic/ Latino patients with cultural competency.

Sexually Transmitted Infections

Sexually transmitted infections (STIs) can increase the likelihood of acquiring and transmitting HIV [19]. The percentage of heterosexually active men and women who reported a diagnosis of any bacterial STI (chlamydia, gonorrhea, or syphilis) during the 12 months before interview was 6 percent overall, and five percent among HIV-negative persons. Among all groups, the most

commonly reported STI was chlamydia (3%; Table 10).

Substance Use

Non-injection drug use, including painkiller use, has been associated with HIV acquisition risk among heterosexuals [20]. In this sample of heterosexually active men and women who have never injected drugs, 20 percent of HIV-negative persons used prescription opioids during the 12 months before interview (Table 11). Non-injection opioid use can be a predictor of later injection opioid use, an HIV risk factor [21].

Additional Outcomes

Table 12 presents data on additional outcomes related to the risk of HIV transmission and acquisition among heterosexually active men and women. Exchange of sex for money or drugs has also been associated with HIV infection [22]. Many persons who exchange sex experience stigma and low access to care, which can present a challenge in preventing HIV. In 2019, 12 percent of HIV-negative women received and 20 percent of HIV-negative men gave money or drugs in exchange for sex with a casual opposite-sex partner.

Condomless sex with an HIV-discordant or unknown status partner at the most recent sexual encounter with an opposite-sex partner was reported by 37 percent of all participants. Two percent of HIV-negative participants reported experiencing sexual violence in the past 12 months. Overall, 11 percent of participants reported experiencing physical violence in the past 12 months. Proportions of physical violence were higher among HIV-negative participants who were 18–24 years old (29%), white (24%), or women (13%). Violence is a direct and indirect risk factor for HIV due to imbalanced power dynamics that can impact status disclosure, sexual risk behaviors, and exchange sex [23], as well as the syndemic of substance abuse, violence, and HIV infection [24].

Receipt of HIV Care

Early linkage to clinical care among persons with recently diagnosed HIV is a national goal [1]. Among persons who self-reported HIV, 83 percent reported ever visiting a healthcare provider for HIV care. The national goal is for 85 percent of persons with HIV to see a provider within one month after diagnosis [25]. Data was not available or too low to report for HIV care within more specific timeframes (one and six months) or currently using antiretroviral treatment (ART). ART adherence is critical for achieving an undetectable viral load, which means a person has effectively no risk of sexually transmitting HIV to HIV-negative partners [26].

Technical Notes

In accordance with the NHBS national protocol, BESURE conducts rotating cycles of biobehavioral surveys among MSM, PWID, and heterosexually active persons at increased risk of HIV infection [5]; data are collected in annual cycles from one risk group per year so that each population is surveyed once every three years. The same general eligibility criteria are used in each cycle: age 18 years or older, current residence in Baltimore MSA, no previous participation in BESURE during the current survey cycle, ability to complete the survey in either English or Spanish, and ability to provide informed consent. In addition to these basic NHBS eligibility criteria, participation in the 2019 BESURE HET cycle was limited to persons who 1) were aged < 60 years, 2) reported vaginal or anal sex with an opposite sex partner in the 12 months before interview, and 3) reported their gender as either male or female.

Further, participants are only included in this report if they met additional criteria: (1) Never injected any drugs other than those prescribed for them, or (2) male participants have never had oral or anal sex with another male.

A standardized questionnaire is used to collect information about behavioral risks for HIV infection, HIV testing, and use of HIV prevention services. The anonymous, in-person survey is administered by a trained interviewer using a portable computer. All participants are offered an anonymous HIV test, which is linked to the survey data through a unique survey identifier.

Activities for BESURE were approved by CDC [27] and by the Johns Hopkins University and Maryland Department of Health institutional review boards (IRBs).

SAMPLING METHOD

Participants in the 2019 NHBS cycle were recruited by using respondent-driven sampling (RDS) [29, 30]. Recruitment started with a limited number of initial participants who were chosen by referrals from people who knew the local population of interest or through outreach to areas where the population of interest could be found. Initial participants who completed the eligibility screener and were deemed eligible were administered the survey, and those who completed the survey were asked to recruit up to 5 persons whom they knew personally. Those persons, in turn, completed the survey and were asked to recruit others by using a system of coded coupons. This recruitment process continued until the sample size was reached or the sampling period ended. Participants received

incentives for participating in the survey and for recruiting others.

To reach the population of heterosexually active men and women at increased risk for HIV infection, initial participants were recruited from census tracts in which at least 25 percent of residents live below the U.S. Census Bureau's poverty threshold [31]. Poverty rates for census tracts were used from the 2013–2017 American Community Survey [32].

DATA COLLECTION

Persons who brought a valid coupon to a BESURE field site were escorted to a private area for eligibility screening. For those who met eligibility requirements, trained interviewers obtained informed consent and conducted face-to-face interviews, which took approximately 40 minutes and consisted of questions concerning participants' demographic characteristics, HIV testing history, sexual and substance use behaviors, HCV testing and diagnosis of hepatitis C virus infection, STI testing and diagnosis, and use of HIV prevention services and programs. In exchange for the time spent taking part in the interview, participants received \$50.

HIV testing was performed for participants who consented; blood specimens were collected for rapid testing in the field and supplemental laboratory-based testing. A non-reactive rapid test result was considered HIV-negative if supported by supplemental laboratory-based testing; a reactive rapid test result was considered HIV-positive if supported by supplemental laboratory-based testing. In exchange for participating in HIV testing, participants received \$25. Participants also received \$15 for participating in STI testing, including gonorrhea, and chlamydia, and an additional \$10 for returning to receive their STI test results.

Participants who agreed to recruit others received an additional incentive of \$10 for each recruit (up to 5) who completed the interview. The goal was to interview 500 heterosexually active adults.

DATA ANALYSIS

This surveillance report presents descriptive data; no statistical tests were performed. In addition, these data are cross-sectional; we did not attempt to infer causal relationships. Small numbers, and percentages based on these numbers, should be interpreted with caution because the numbers are considered unreliable.

Data for this report are not weighted. The purpose of this report is to provide a detailed summary of surveillance

data collected as part of the BESURE 2019 cycle; unweighted data provide an efficient and transparent way to do so. Further, unweighted analysis allows for detailed reporting of outcomes among small subgroups of the population of interest.

Five hundred and sixty-four persons were recruited to participate. Of those, 72 were excluded from the survey because they did not meet BESURE eligibility criteria. An additional 12 eligible persons were excluded from this report because of previous participation or survey responses of questionable validity. Finally, an additional 170 eligible persons were excluded from this report who had any history of injection drug use, had any history of male-male sex, or were not classified as low income (as defined above).

The full analysis sample for this report includes 2019 BESURE cycle participants who consented to and completed the survey (n=310, Table 1). Additional inclusion criteria were applied for certain analyses; details of each analysis sample can be found in the footnotes of each table.

DATA SUPPRESSION

In order to protect the confidentiality of BESURE study participants, data are suppressed in the following instances: 1) All data describing less than five people; 2) If any cell is suppressed, additional cells are also suppressed as necessary to prevent back calculation of the suppressed cell(s).

SUPPLEMENTAL MATERIAL

Infographic: HIV infection risk, prevention, and testing behaviors among heterosexually active persons at increased risk for HIV infection — National HIV Behavioral Surveillance, Baltimore MD, 2019

References

1. National HIV/AIDS strategy for the United States: Updated to 2020. <https://files.hiv.gov/s3fs-public/nhas-update.pdf>. Published July 2015. Accessed December 21, 2020.
2. CDC. High-Impact HIV Prevention: CDC's approach to reducing HIV infections in the United States. <http://go.usa.gov/p9xw>. Accessed December 21, 2020.
3. Fauci AS, Redfield RR, Sigounas G, Weahkee MD, Giroir BP. Ending the HIV epidemic: A plan for the United States [editorial]. *JAMA* 2019;321(9):844–845. doi:10.1001/jama.2019.1343
4. DiNenno EA, Oster AM, Sionean C, Denning P, Lansky A, Piloting a system for behavioral surveillance among heterosexuals at increased risk of HIV in the United States. *Open AIDS J* 2012;6(suppl 1):169–176. doi:10.2174/1874613601206010169
5. Gallagher KM, Sullivan PS, Lansky A, Onorato IM. Behavioral surveillance among people at risk for HIV infection in the U.S.: The National HIV Behavioral Surveillance system. *Public Health Rep* 2007;122(suppl 1):32–38.
6. CDC. Characteristics associated with HIV infection among heterosexuals in urban areas with high AIDS prevalence—24 cities, United States, 2006–2007. *MMWR* 2011;60(31):1045–1049.
7. Sionean, C, Le BC, Hageman K, et al. HIV risk, prevention, and testing behaviors among heterosexuals at increased risk for HIV infection—National HIV Behavioral Surveillance system, 21 U.S. cities, 2010. *MMWR* 2014;64(SS-14):1–39.
8. CDC. *HIV infection, risk, prevention, and testing behaviors among heterosexuals at increased risk for HIV infection—National HIV Behavioral Surveillance system, 20 U.S. cities, 2013*. HIV Special Surveillance Report 13. <https://www.cdc.gov/hiv/pdf/library/reports/surveillance/cdc-hiv-surveillance-special-report-number-13.pdf>. Published August 2015. Accessed December 21, 2020.
9. CDC. *HIV infection, risk, prevention, and testing behaviors among heterosexuals at increased risk of HIV infection—National HIV Behavioral Surveillance, 17 U.S. cities, 2016*. HIV Surveillance Special Report 19. <https://www.cdc.gov/hiv/pdf/library/reports/surveillance/cdc-hiv-surveillance-special-report-number-19.pdf>. Published April 2018. Accessed December 21, 2020.
10. National Center for Education Statistics. The condition of education 2020. Report 2020144. <https://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2020144>. Published May 20, 2020. Accessed December 21, 2020.
11. CDC [Branson B, Handsfield HH, Lampe MA, et al]. Revised recommendations for HIV testing of adults, adolescents, and pregnant women in health-care settings. *MMWR* 2006;55(RR-14):1–17.
12. Weller S, Davis-Beaty K. Condom effectiveness in reducing heterosexual HIV transmission. *Cochrane Database Syst Rev* 2002;(1). doi:10.1002/14651858.CD003255
13. CDC, US Public Health Service. Preexposure prophylaxis for the prevention of HIV infection in the United States—2017 update: A clinical practice guideline. <https://www.cdc.gov/hiv/pdf/risk/prep/cdc-hiv-prep-guidelines-2017.pdf>. Published March 2018. Accessed December 21, 2020.
14. Bailey JL, Molino ST, Vega AD, Badowski M. A review of HIV pre-exposure prophylaxis: The female perspective. *Infect Dis Ther* 2017;6(3):363–382. doi:10.1007/s40121-017-0159-9
15. Calabrese SK, Underhill K, Earnshaw VA, et al. Framing HIV pre-exposure prophylaxis (PrEP) for the general public: How inclusive messaging may prevent prejudice from diminishing public support. *AIDS Behav* 2016;20(7):1499–1513. doi:10.1007/s10461-016-1318-9
16. Baeten JM, Donnell D, Ndase P, et al. Antiretroviral prophylaxis for HIV prevention in heterosexual men and women. *N Engl J Med* 2012;367(5):399–410. doi:10.1056/NEJMoa1108524
17. Amico KR, Ramirez C, Caplan MR, et al.

- Perspectives of U.S. women participating in a candidate PrEP study: Adherence, acceptability, and future use intentions. *J Int AIDS Soc* 2019;22(3):e25247. doi:10.1002/jia2.25247
18. Finlayson T, Cha S, Xia M, et al. Changes in HIV pre-exposure prophylaxis awareness and use among men who have sex with men—20 urban areas, 2014 and 2017. *MMWR* 2018;68(27):597–603.
 19. Fleming DT, Wasserheit JN. From epidemiological synergy to public health policy and practice: The contribution of other sexually transmitted diseases to sexual transmission of HIV infection. *Sex Transm Infect* 1999;75(1):3–17.
 20. Neaigus A, Miller M, Gyarmathy VA, Friedman SR. HIV heterosexual sexual risk from injecting drug users among HIV-seronegative noninjecting heroin users. *Subst Use Misuse* 2011;46(2-3):208–217. doi:10.3109/10826084.2011.521473
 21. Surratt H, Kurtz S, Cicero T. Alternate routes of administration and risk for HIV among prescription opioid abusers. *J Addict Dis* 2011;30(4):334–341. doi:10.1080/10550887.2011.609805
 22. Jenness SM, Kobrak P, Wendel T, Neaigus A, Murrill CS, Hagan H. Patterns of exchange sex and HIV infection in high-risk heterosexual men and women. *J Urban Health* 2011;88(2):329–341. doi:10.1007/s11524-010-9534-5
 23. Maman S, Campbell JC, Sweat MD, Gielen AC. The intersections of HIV and violence: Directions for future research and interventions. *Soc Sci Med* 2000;50(4):459–478. doi:10.1016/s0277-9536(99)00270-1
 24. Meyer JP, Springer SA, Altice FL. Substance abuse, violence, and HIV in women: A literature review of the syndemic. *J Women's Health* 2011;20(7):991–1006. doi:10.1089/jwh.2010.2328
 25. CDC. Understanding the HIV care continuum. <https://www.cdc.gov/hiv/pdf/library/factsheets/cdc-hiv-care-continuum.pdf>. Published July 2019. Accessed December 21, 2020.
 26. CDC. Evidence of HIV treatment and viral suppression in preventing the sexual transmission of HIV. <https://www.cdc.gov/hiv/pdf/risk/art/cdc-hiv-art-viral-suppression.pdf>. Published December 2020. Accessed December 21, 2020.
 27. Protection of Human Subjects, CFR 45, Part 46. <http://www.hhs.gov/ohrp/humansubjects/guidance/45cfr46.html>. Revised January 2009. Accessed December 21, 2020.
 28. CDC. *HIV Surveillance Report, 2016*; vol. 28. <http://www.cdc.gov/hiv/library/reports/hiv-surveillance.html>. Published November 2017. Accessed December 21, 2020.
 29. Heckathorn DD. Respondent-driven sampling II: Deriving valid population estimates from chain-referral samples of hidden populations. *Soc Probl* 2002;49(1):11–34. doi:10.1525/sp.2002.49.1.11
 30. Lansky A, Abdul-Quader AS, Cribbin M, et al. Developing an HIV behavioral surveillance system for injecting drug users: The National HIV Behavioral Surveillance system. *Public Health Rep* 2007;122(suppl 1):48–55.
 31. U.S. Census Bureau. Poverty: Glossary. <https://www.census.gov/topics/income-poverty/poverty/about/glossary.html>. Revised May 2016. Accessed December 21, 2020.
 32. U.S. Census Bureau. Five-year trends available for median household income, poverty rates and computer and internet use. <https://www.census.gov/newsroom/press-releases/2018/2013-2017-ac5-year.html>. Published December 6, 2018. Accessed December 21, 2020.
 33. U.S. Department of Health and Human Services. Annual update of the HHS poverty guidelines. <https://www.govinfo.gov/content/pkg/FR-2018-01-18/pdf/2018-00814.pdf>. *Federal Register* 2018;83(12):2642–2644. Published January 18, 2018. Accessed December 21, 2020.

Table 1. Selected characteristics of heterosexually active men and women—BESURE, 2019

	HIV-negative ^a		HIV-positive ^b		No valid BESURE HIV test result ^c		Total	
	No.	%	No.	%	No.	%	No.	%
Sex								
Male	178	59.3	***	***	***	***	183	59.0
Female	122	40.7	***	***	***	***	127	41.0
Age at interview (yr)								
18–24	24	8.0	--	--	--	--	25	8.1
25–29	28	9.3	***	***	--	--	28	9.0
30–39	76	25.3	***	***	--	--	77	24.8
40–49	65	21.7	5	62.5	***	***	67	21.6
≥50	107	35.7	***	***	***	***	113	36.5
Race/ethnicity								
Black/African American	260	86.7	***	***	***	***	269	86.8
Hispanic/Latino ^d	5	1.7	--	--	--	--	5	1.6
White	25	8.3	***	***	--	--	26	8.4
Multiple races	10	3.3	--	--	--	--	10	3.2
Education								
Less than high school	99	33.0	***	***	--	--	102	32.9
High school diploma or equivalent	149	49.7	***	***	***	***	155	50.0
Some college or technical degree	46	15.3	***	***	--	--	47	15.2
College degree or more	6	2.0	--	--	--	--	6	1.9
Household income^e								
At or below the federal poverty level	268	89.3	***	***	***	***	277	89.4
Above the federal poverty level	32	10.7	***	***	--	--	33	10.6
Health insurance								
Yes	276	92.0	8	100.0	***	***	285	91.9
No	21	7.0	--	--	***	***	22	7.1
Unknown	***	***	--	--	--	--	3	1.0
Visited a health care provider, past 12 months								
Yes	264	88.0	***	***	***	***	273	88.1
No	36	12.0	***	***	--	--	37	11.9
Homeless,^f past 12 months								
Yes	79	26.3	***	***	--	--	81	26.1
No	221	73.7	***	***	***	***	229	73.9
Incarcerated,^g past 12 months								
Yes	33	11.0	***	***	--	--	35	11.3
No	267	89.0	***	***	***	***	275	88.7
Total	300	100.0	8	100.0	2	100.0	310	100.0

Note. “Past 12 months” refers to the 12 months before interview.

^a Participants with a valid negative BESURE HIV test result.

^b Participants with a reactive rapid BESURE HIV test result supported by supplemental laboratory-based testing.

^c Participants who did not have a valid positive or negative BESURE HIV test result, including those who did not consent to the HIV test or had an indeterminate laboratory result.

^d Hispanics/Latinos can be of any race.

^e Poverty level is based on household income and household size.

^f Living on the street, in a shelter, in a single-room–occupancy hotel, or in a car.

^g Having been held in a detention center, jail, or prison for more than 24 hours.

*** Cells containing fewer than five have been suppressed.

Table 2. HIV prevalence among heterosexually active men and women—BESURE, 2019

	Male			Female			Full sample		
	HIV-positive ^a		Total	HIV-positive ^a		Total	HIV-positive ^a		Total
	No.	%	No.	No.	%	No.	No.	%	No.
Age at interview (yr)									
18–24	--	--	11	--	--	13	--	--	24
25–29	--	--	15	--	--	13	--	--	28
30–39	--	--	43	***	***	34	***	***	77
40–49	--	--	41	***	***	26	***	***	67
≥50	***	***	72	***	***	40	5	4.5	112
Race/ethnicity									
Black/African American	***	***	157	***	***	110	***	***	267
Hispanic/Latino ^b	--	--	2	--	--	3	--	--	5
White	***	***	15	--	--	11	***	***	26
Multiple races	--	--	8	--	--	2	--	--	10
Total	***	***	182	***	***	126	8	2.6	308

Note. Data include all participants with a valid BESURE HIV test result.

^a Participants with a reactive rapid BESURE HIV test result supported by supplemental laboratory-based testing.

^b Hispanics/Latinos can be of any race.

*** Cells containing fewer than five have been suppressed

Table 3. HIV testing among heterosexually active men and women — BESURE, 2019

	Ever tested		Tested in past 12 months ^a		Total No.
	No.	%	No.	%	
Sex					
Male	168	92.8	106	58.6	181
Female	114	92.7	81	65.9	123
Age at interview (yr)					
18–24	20	80.0	15	60.0	25
25–29	22	78.6	14	50.0	28
30–39	74	97.4	54	71.1	76
40–49	63	96.9	37	56.9	65
≥50	103	93.6	67	60.9	110
Race/ethnicity					
Black/African American	246	93.5	163	62.0	263
Hispanic/Latino ^b	***	***	***	***	5
White	23	88.5	14	53.8	26
Multiple races	***	***	***	***	10
Total	282	92.8	187	61.5	304

Note. CDC recommends that all persons who inject drugs be tested for HIV at least annually. Data include all participants who did not report a previous HIV-positive test result and participants who received their first HIV-positive test result less than 12 months before interview.

^a “Past 12 months” refers to the 12 months before interview.

^b Hispanics/Latinos can be of any race.

*** Cells containing fewer than five have been suppressed.

Table 4. Setting of most recent HIV test among heterosexually active men and women who were tested for HIV in the 12 months before interview—BESURE, 2019

	Clinical setting ^a		Nonclinical setting ^b		Total No.
	No.	%	No.	%	
Sex					
Male	85	80.2	17	16.0	106
Female	72	88.9	6	7.4	81
Age at interview (yr)					
18–24	12	80.0	***	***	***
25–29	12	85.7	***	***	***
30–39	46	85.2	5	9.3	54
40–49	33	89.2	***	***	***
≥50	54	80.6	10	14.9	67
Race/ethnicity					
Black/African American	135	82.8	***	***	***
Hispanic/Latino ^c	***	***	--	--	***
White	13	92.9	***	***	***
Multiple races	***	***	--	--	***
Total	157	84.0	23	12.3	187

Abbreviation: HMO, health maintenance organization [footnotes only].

Note. Data report setting of most recent HIV test. Data include participants who reported an HIV test during the 12 months before interview. Percentages may not add to 100 because of missing data and “Other” locations, which could not be classified as clinical/nonclinical settings.

^a Clinical settings include private doctor’s office (including HMO), emergency department, hospital (inpatient), public health clinic or community health center, family planning or obstetrics clinic, correctional facility, or drug treatment program.

^b Nonclinical settings include HIV counseling and testing site, HIV street outreach program, mobile unit, syringe services program, or home.

^c Hispanics/Latinos can be of any race.

*** Cells containing fewer than five have been suppressed.

Table 5. Sexual behavior with female sex partners in the 12 months before interview among heterosexually active men—BESURE, 2019

	With female sex partners								Total males No.
	Vaginal sex		Condomless vaginal sex		Anal sex		Condomless anal sex		
	No.	%	No.	%	No.	%	No.	%	
HIV-negative^b	177	99.4	157	88.2	53	29.8	46	25.8	178
Age at interview (yr)									
18–24	11	100.0	11	100.0	***	***	***	***	11
25–29	15	100.0	12	80.0	***	***	***	***	15
30–39	43	100.0	39	90.7	15	34.9	13	30.2	43
40–49	41	100.0	35	85.4	13	31.7	12	29.3	41
≥50	67	98.5	60	88.2	20	29.4	18	26.5	68
Race/ethnicity									
Black/African American	153	99.4	134	87.0	41	26.6	34	22.1	154
Hispanic/Latino ^c	***	***	***	***	--	--	--	--	***
White	14	100.0	14	100.0	10	71.4	10	71.4	14
Multiple races	8	100.0	7	87.5	***	***	***	***	8
HIV-positive^d	***	***	***	***	***	***	***	***	***
Age at interview (yr)^e									
≥50	***	***	***	***	***	***	***	***	***
Race/ethnicity^e									
Black/African American	***	***	***	***	***	***	--	--	***
No valid BESURE HIV test result^f	***	***	***	***	***	***	***	***	***
Total	182	99.5	160	87.4	55	30.1	47	25.7	183

a Participants who reported oral, vaginal, or anal sex with at least 1 female partner and oral or anal sex with at least 1 male partner in the 12 months before interview.

b Participants with a valid negative BESURE HIV test result.

c Hispanics/Latinos can be of any race.

d Participants with a reactive rapid BESURE HIV test result supported by supplemental laboratory-based testing.

e Categories with no data have been omitted from the table.

f Participants who did not have a valid positive or negative BESURE HIV test result, including those who did not consent to the HIV test or had an indeterminate laboratory result.

*** Cells containing fewer than five have been suppressed.

Table 6. Sexual behavior with female sex partners in the 12 months before interview among heterosexually active men, by partner type— BESURE, 2019

	Main female partner				Casual female partner				Main and casual female partners- sex of any type ^a		Total males No.
	Vaginal or anal sex		Condomless vaginal or anal sex		Vaginal or anal sex		Condomless vaginal or anal sex		No.	%	
	No.	%	No.	%	No.	%	No.	%			
HIV-negative^b	135	75.8	126	70.8	113	63.5	84	47.2	72	40.4	178
Age at interview (yr)											
18–24	10	90.9	9	81.8	6	54.5	***	***	5	45.5	11
25–29	7	46.7	7	46.7	13	86.7	***	***	5	33.3	15
30–39	37	86.0	34	79.1	24	55.8	22	51.2	18	41.9	43
40–49	31	75.6	30	73.2	26	63.4	16	39.0	16	39.0	41
≥50	50	73.5	46	67.6	44	64.7	32	47.1	28	41.2	68
Race/ethnicity											
Black/African American	120	77.9	113	73.4	95	61.7	70	45.5	63	40.9	154
Hispanic/Latino ^c	***	***	***	***	***	***	***	***	***	***	***
White	10	71.4	8	57.1	10	71.4	9	64.3	6	42.9	14
Multiple races	***	***	***	***	6	75.0	***	***	***	***	8
HIV-positive^d	***	***	***	***	***	***	***	***	***	***	***
Age at interview (yr) ^e											
≥50	***	***	***	***	***	***	***	***	***	***	***
Race/ethnicity^e											
Black/African American	***	***	--	--	***	***	***	***	***	***	***
White	***	***	***	***	--	--	--	--	--	--	***
No valid BESURE HIV test result^f	***	***	--	--	***	***	--	--	***	***	***
Total	138	75.4	127	69.4	117	63.9	86	47.0	74	40.4	183

^a Participants who reported oral, vaginal, or anal sex with at least one female main partner and at least one female casual partner in the 12 months before interview.

^b Participants with a valid negative BESURE HIV test result.

^c Hispanics/Latinos can be of any race.

^d Participants with a reactive rapid BESURE HIV test result supported by supplemental laboratory-based testing.

^e Categories with no data have been omitted from the table.

^f Participants who did not have a valid positive or negative BESURE HIV test result, including those who did not consent to the HIV test, had an indeterminate laboratory result, or reported a previous HIV-positive test result but had a negative BESURE HIV test result.

*** Cells containing fewer than five have been suppressed.

Table 7. Sexual behavior with male sex partners in the 12 months before interview among heterosexually active women—BESURE, 2019

	Vaginal sex		Condomless vaginal sex		Anal sex		Condomless anal sex		Total females
	No.	%	No.	%	No.	%	No.	%	No.
HIV-negative^a	121	99.2	109	89.3	38	31.1	36	29.5	122
Age at interview (yr)									
18 - 24	13	100.0	12	92.3	***	***	***	***	13
25 - 29	13	100.0	12	92.3	***	***	***	***	13
30 - 39	33	100.0	32	97.0	16	48.5	15	45.5	33
40 - 49	24	100.0	22	91.7	***	***	***	***	24
>=50	38	97.4	31	79.5	13	33.3	12	30.8	39
Race/ethnicity									
Black/African American	105	99.1	94	88.7	32	30.2	31	29.2	106
Hispanic/Latino ^b	***	***	***	***	***	***	***	***	***
White	11	100.0	10	90.9	***	***	***	***	11
Multiple races	***	***	***	***	--	--	--	--	***
HIV-positive^d	***	***	***	***	--	--	--	--	***
Age at interview (yr)^c	***	***							***
30–39	***	***	--	--	--	--	--	--	***
40–49	***	***	--	--	--	--	--	--	***
≥50			***	***	--	--	--	--	
Race/ethnicity^c	***	***							***
Black/African American	***	***	***	***	--	--	--	--	***
No valid BESURE HIV test result^e	***	***	***	***	***	***	***	***	***
Total	126	99.2	111	87.4	39	30.7	37	29.1	127

^a Participants with a valid negative BESURE HIV test result.

^b Hispanics/Latinos can be of any race.

^c Categories with no data have been omitted from the table.

^d Participants with a reactive rapid BESURE HIV test result supported by supplemental laboratory-based testing.

^e Participants who did not have a valid positive or negative BESURE HIV test result, including those who did not consent to the HIV test, had an indeterminate laboratory result, or reported a previous HIV-positive test result but had a negative BESURE HIV test result.

*** Cells containing fewer than five have been suppressed.

Table 8. Sexual behavior with male sex partners in the 12 months before interview among heterosexually active women, by partner type— BESURE, 2019

	Main male partner				Casual male partner				Main and casual male partners- sex of any type ^a		Total females No.
	Vaginal or anal sex		Condomless vaginal or anal sex		Vaginal or anal sex		Condomless vaginal or anal sex		No.	%	
	No.	%	No.	%	No.	%	No.	%			
HIV-negative^b	106	86.9	95	77.9	58	47.5	50	41.0	43	35.2	122
Age at interview (yr)											
18–24	13	100.0	12	92.3	6	46.2	***	***	***	***	13
25–29	11	84.6	9	69.2	5	38.5	***	***	***	***	13
30–39	30	90.9	29	87.9	17	51.5	13	39.4	14	42.4	33
40–49	20	83.3	19	79.2	11	45.8	11	45.8	7	29.2	24
≥50	32	82.1	26	66.7	19	48.7	17	43.6	13	33.3	39
Race/ethnicity											
Black/African American	93	87.7	83	78.3	50	47.2	42	39.6	38	35.8	106
Hispanic/Latino ^c	***	***	***	***	***	***	***	***	***	***	***
White	9	81.8	8	72.7	5	45.5	5	45.5	***	***	11
Multiple races	***	***	***	***	***	***	***	***	--	--	***
HIV-positive^e	***	***	***	***	***	***	--	--	***	***	***
Age at interview (yr)^d											
30–39	--	--	--	--	***	***	--	--	--	--	***
40–49	***	***	--	--	--	--	--	--	***	***	***
≥50	***	***	***	***	--	--	--	--	--	--	***
Race/ethnicity^d											
Black/African American	***	***	***	***	***	***	--	--	***	***	***
No valid BESURE HIV test result^e	***	***	***	***	--	--	--	--	--	--	***
Total	110	86.6	97	76.4	59	46.5	50	39.4	44	34.6	127

^a Participants who reported oral, vaginal, or anal sex with at least one male main partner and at least one male casual partner in the 12 months before interview.

^b Participants with a valid negative BESURE HIV test result.

^c Hispanics/Latinos can be of any race.

^d Categories with no data have been omitted from the table.

^e Participants with a reactive rapid BESURE HIV test result supported by supplemental laboratory-based testing.

^f Participants who did not have a valid positive or negative BESURE HIV test result, including those who did not consent to the HIV test, had an indeterminate laboratory result, or reported a previous HIV-positive test result but had a negative BESURE HIV test result.

*** Cells containing fewer than five have been suppressed.

Table 9. Receipt of HIV prevention materials and services in the 12 months before interview among heterosexually active men and women—BESURE, 2019

	Free condoms ^a		Individual- or group- level intervention ^b		PrEP awareness ^c		PrEP use ^d		Total No.
	No.	%	No.	%	No.	%	No.	%	
	HIV-negative^e	114	38.0	59	19.7	106	35.3	***	
Sex									
Male	72	40.4	36	20.2	66	37.1	***	***	178
Female	42	34.4	23	18.9	40	32.8	--	--	122
Age at interview (yr)									
18–24	12	50.0	***	***	12	50	--	--	24
25–29	9	32.1	***	***	13	46.4	--	--	28
30–39	24	31.6	11	14.5	25	32.9	--	--	76
40–49	28	43.1	14	21.5	21	32.3	***	***	65
≥50	41	38.3	28	26.2	35	32.7	--	--	107
Race/ethnicity									
Black/African American	100	38.5	53	20.4	92	35.4	***	***	260
Hispanic/Latino ^f	***	***	***	***	***	***	--	--	5
White	10	40.0	***	***	8	32.0	--	--	25
Multiple races	***	***	***	***	***	***	--	--	10
HIV-positive^g	5	62.5	5	62.5	--	--	--	--	8
Sex									
Male	***	***	***	***	--	--	--	--	***
Female	***	***	***	***	--	--	--	--	***
Age at interview (yr)^h									
30–39	--	--	***	***	--	--	--	--	***
40–49	***	***	***	***	--	--	--	--	***
≥50	***	***	***	***	--	--	--	--	5
Race/ethnicity^h									
Black/African American	***	***	5	71.4	--	--	--	--	7
White	***	***	--	--	--	--	--	--	***
No valid BESURE HIV test resultⁱ	***	***	***	***	--	--	--	--	***
Total	120	38.7	65	21.0	106	34.2	***	***	310

Abbreviations: SSPs, syringe services programs; PrEP, preexposure prophylaxis.

^a Excludes condoms received from friends, relatives, or sex partners.

^b Individual-level intervention defined as a one-on-one conversation with an outreach worker, a counselor, or a prevention program worker about ways to prevent HIV. Group-level intervention defined as a small-group discussion that is part of an organized session about ways to prevent HIV; excludes informal discussions with friends. Conversations that were part of obtaining an HIV test were excluded.

^c Ever heard of PrEP, an antiretroviral medicine taken for months or years by a person who is HIV-negative to reduce the risk of getting HIV.

^d Took PrEP at any point in the 12 months before interview to reduce the risk of getting HIV.

^e Participants with a valid negative BESURE HIV test result.

^f Hispanics/Latinos can be of any race.

^g Participants with a reactive rapid BESURE HIV test result supported by a second rapid test or supplemental laboratory-based testing.

^h Categories with no data have been omitted from the table.

ⁱ Participants who did not have a valid positive or negative BESURE HIV test result, including those who did not consent to the HIV test or had an indeterminate laboratory result.

*** Cells containing fewer than five have been suppressed.

Table 10. Diagnosis of sexually transmitted infections among heterosexually active men and women—BESURE, 2019

	Diagnosis during the 12 months preceding interview								Diagnosis, ever				Total No.
	Any bacterial STI ^a		Chlamydia		Gonorrhea		Syphilis		Genital warts		Genital herpes		
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	
HIV-negative^b	16	5.3	10	3.3	8	2.7	***	***	***	***	11	3.7	300
Sex													
Male	8	4.5	***	***	***	***	***	***	--	--	***	***	178
Female	8	6.6	***	***	***	***	***	***	***	***	***	***	122
Age at interview (yr)													
18–24	***	***	***	***	***	***	***	***	--	--	***	***	24
25–29	***	***	.	.	***	***	***	***	--	--	--	--	28
30–39	***	***	***	***	***	***	--	--	***	***	5	6.6	76
40–49	***	***	***	***	***	***	***	***	***	***	***	***	65
≥50	6	5.6	***	***	***	***	***	***	***	***	***	***	107
Race/ethnicity													
Black/African American	14	5.4	9	3.5	7	2.7	***	***	***	***	***	***	260
Hispanic/Latino ^c	--	--	--	--	--	--	--	--	--	--	***	***	5
White	***	***	--	--	***	***	--	--	--	--	--	--	25
Multiple races	***	***	***	***	--	--	--	--	--	--	--	--	10
HIV-positive^d	***	***	--	--	***	***	--	--	--	--	--	--	8
Sex													
Male	--	--	--	--	--	--	--	--	--	--	--	--	***
Female	***	***	--	--	***	***	--	--	--	--	--	--	***
Age at interview (yr)^e													
30–39	***	***	--	--	***	***	--	--	--	--	--	--	***
40–49	--	--	--	--	--	--	--	--	--	--	--	--	***
≥50	--	--	--	--	--	--	--	--	--	--	--	--	5
Race/ethnicity^e													
Black/African American	***	***	--	--	***	***	--	--	--	--	--	--	7
White	--	--	--	--	--	--	--	--	--	--	--	--	***
No valid BESURE HIV test result^f	--	--	--	--	--	--	--	--	--	--	--	--	***
Total	17	5.5	10	3.2	9	2.9	***	***	***	***	11	3.5	310

Abbreviations: STI, sexually transmitted infection

^aAny bacterial STI includes having received a diagnosis of gonorrhea, chlamydia, or syphilis in the 12 months before interview.^bParticipants with a valid negative BESURE HIV test result.^cHispanics/Latinos can be of any race.^dParticipants with a reactive rapid BESURE HIV test result supported by supplemental laboratory-based testing.^eCategories with no data have been omitted from the table.^fParticipants who did not have a valid positive or negative BESURE HIV test result, including those who did not consent to the HIV test, had an indeterminate laboratory result, or reported a previous HIV-positive test result but had a negative BESURE HIV test result.

*** Cells containing fewer than five have been suppressed.

Table 11. Non-injection drug use in the 12 months before interview and binge drinking in the 30 days before interview among heterosexually active men and women—BESURE, 2019

	Used drug	
	No.	%
HIV-negative^a		
Binge drinking (past 30 days) ^b	68	22.7
Any non-injection drugs (excludes binge drinking)	191	63.7
Cocaine	36	12.0
Crack	52	17.3
Downers ^c	41	13.7
Ecstasy	32	10.7
Heroin	81	27.0
Marijuana	131	43.7
Methamphetamine	6	2.0
Prescription opioids ^d	60	20.0
HIV-positive^{e f}		
Any non-injection drugs (excludes binge drinking)	6	75
Cocaine	***	***
Crack	***	***
Downers ^c	***	***
Heroin	***	***
Marijuana	***	***
Prescription opioids ^d	***	***

Disclaimer: The use of trade names is for identification only and does not imply endorsement by the Johns Hopkins Bloomberg School of Public Health or the Maryland Department of Health.

Note. Denominator is the total number of participants in the category; HIV-negative participants: n = 300; HIV-positive participants: n = 8; participants without a valid BESURE HIV test result: n = 2. Responses are not mutually exclusive; percentages may not add to 100.

^a Participants with a valid negative BESURE HIV test result.

^b Defined as 5 or more drinks within about 2 hours (males) or 4 or more drinks within about 2 hours (females) in the 30 days before interview.

^c Benzodiazepines, such as Valium, Ativan, or Xanax.

^d Painkillers, such as Oxycontin, Vicodin, morphine, or Percocet.

^e Participants with a reactive rapid BESURE HIV test result supported by a second rapid test or supplemental laboratory-based testing.

^f Categories with no data have been omitted from the table

*** Cells containing fewer than five have been suppressed.

Table 12. Additional outcomes among heterosexually active men and women—BESURE, 2019

	Number of opposite sex partners Median (Q1–Q3)	Exchange sex ^a		Condomless sex with an HIV-discordant partner at last sex ^b		Sexual violence ^c		Physical violence ^d		Total No.
		No.	%	No.	%	No.	%	No.	%	
		HIV-negative^e	2(1-3)	51	17	112	37.3	6	2	
Sex										
Male	2(1-3)	36	20.2	66	37.1	***	***	17	9.6	178
Female	1(1-3)	15	12.3	46	37.7	***	***	16	13.1	122
Age at interview (yr)										
18–24	2(1-4)	***	***	11	45.8	***	***	7	29.2	24
25–29	2(1-3)	***	***	12	42.9	***	***	***	***	28
30–39	2(1-3)	9	11.8	32	42.1	***	***	10	13.2	76
40–49	2(1-4)	13	20.0	18	27.7	***	***	7	10.8	65
≥50	2(1-3)	25	23.4	39	36.4	***	***	***	***	107
Race/ethnicity										
Black/African American	2(1-3)	45	17.3	97	37.3	***	***	25	9.6	260
Hispanic/Latino ^g	3(3-7)	***	***	***	***	***	***	***	***	5
White	2(1-4)	5	20.0	10	40.0	--	--	6	24.0	25
Multiple races	2(1-3)	--	--	***	***	--	--	***	***	10
HIV-positive^h	2(1-2)	***	***	***	***	--	--	--	--	8
Sex										
Male	2(2-11)	***	***	--	--	--	--	--	--	***
Female	1(1-2)	--	--	***	***	--	--	--	--	***
Age at interview (yr)ⁱ										
30–39	1(1-1)	--	--	--	--	--	--	--	--	***
40–49	2(1-2)	--	--	***	***	--	--	--	--	***
≥50	2(1-2)	***	***	***	***	--	--	--	--	5
Race/ethnicity^j										
Black/African American	2(1-2)	***	***	***	***	--	--	--	--	7
White	1(1-1)	--	--	--	--	--	--	--	--	***
No valid BESURE HIV test result^j	2(1-3)	--	--	--	--	--	--	--	--	***
Total	2(1-3)	52	16.8	114	36.8	6	1.9	33	10.6	310

Abbreviations: Q, quartile; m [footnotes only].

Note. BESURE sexual behavior questions assume anatomy based on reported sex (male or female).

^a For females, “exchange sex” refers to receiving money or drugs from a male casual partner in exchange for sex. For males, “exchange sex” refers to giving money or drugs to a female casual partner in exchange for sex, or giving or receiving money or drugs from a male casual partner in exchange for sex.

^b “Condomless sex” refers to whether the participant reported engaging in vaginal or anal sex without a condom at any time during his or her most recent sexual encounter with an opposite-sex partner.

“HIV-discordant partner” refers to a partner of different or unknown HIV status.

^c Sexual violence is defined as being forced or pressured to have vaginal, oral, or anal sex when he or she did not want to in the past 12 months before interview.

^d Physical violence is defined as being slapped, punched, shoved, kicked, shaken, or otherwise physically hurt in the past 12 months before interview.

^e Participants with a valid negative BESURE HIV test result.

^g Hispanics/Latinos can be of any race.

^h Participants with a reactive rapid BESURE HIV test result supported by supplemental laboratory-based testing.

ⁱ Categories with no data have been omitted from the table.

^j Participants who did not have a valid positive or negative BESURE HIV test result, including those who did not consent to the HIV test or had an indeterminate laboratory result.

*** Cells containing fewer than five have been suppressed.

Table 13. Receipt of HIV care and treatment among self-reported HIV-positive heterosexually active men and women—BESURE, 2019

	Visited health care provider about HIV								Total No.
	Ever		Within 1 month after diagnosis		During past 6 months		Currently taking anti-HIV medicines		
	No.	%	No.	%	No.	%	No.	%	
Sex									
Male	***	***	***	***	***	***	***	***	***
Female	***	***	***	***	***	***	***	***	***
Age at interview (yr)^a									
30–39	***	***	--	--	--	--	***	***	***
40–49	***	***	***	***	***	***	--	--	***
≥50	***	***	***	***	***	***	***	***	***
Race/ethnicity^a									
Black/African American	5	83.3	***	***	***	***	***	***	6
Total	5	83.3	***	***	***	***	***	***	6

Note. Data include all participants who reported having ever received an HIV-positive test result (which may include those who did not have a valid BESURE HIV test result, positive or negative, or who did not consent to the HIV test). "Past 6 months" refers to the six months before interview.

a Categories with no data have been omitted from the table.

*** Cells containing fewer than five have been suppressed.

Appendix: Measurement Notes

SOCIODEMOGRAPHIC CHARACTERISTICS

- Gender: Male or female. Participants who did not identify themselves as male or female were not eligible for interview.
- Age: Calculated from the reported date of birth; age categories were chosen for epidemiologic relevance and consistency of reporting across all three National HIV Behavioral Surveillance (NHBS) populations.
- Race/ethnicity: Participants reported one or more race categories (American Indian or Alaska Native, Asian, Black/African American, Native Hawaiian or other Pacific Islander, and White). Hispanic/Latino ethnicity was asked separately; participants reporting Hispanic/Latino ethnicity were considered Hispanic/Latino, regardless of reported race. Participants reporting multiple races (but not Hispanic/Latino ethnicity) were classified as multiracial.
- Education: Highest level of education completed.
- Household income: Participants were asked about their combined monthly or yearly household income (in US\$) from all sources for the calendar year before interview. Poverty was determined by using the U.S. Department of Health and Human Services poverty guidelines for 2018. These guidelines are issued yearly for the United States and are one indicator used for determining eligibility for many federal and state programs. The 2018 guidelines [1] were used for participants interviewed in 2019. Participants were asked to identify the range of their income by selecting from a list of income ranges and the number of dependents on that income. If the participant's income range and household size resulted in an ambiguous determination of poverty level, the participant's household income was assumed to be the low-point of the income range.
- Low income: Participants were classified as low-income if their income was 150 percent of the federal poverty level multiplied by a geographical adjustment, which was calculated as the ratio of the U.S. Census supplemental poverty measure threshold for the NHBS city's MSA [2] to the U.S. Census official poverty measure thresholds [3]. The geographic adjustment for Baltimore was 1.2.
- Health insurance: Currently having some form of health insurance.
- Homeless: Living on the street, in a shelter, in a single-room-occupancy hotel, or in a car at any time during the 12 months before interview.
- Incarcerated: Having been held in a detention center, jail, or prison, for more than 24 hours during the 12 months before interview.
- City: Throughout this report, eligible MSAs and

divisions are referred to by the name of the principal city. State and local health departments eligible to participate in NHBS are among those whose

jurisdictions included an MSA or a specified division within an MSA with high prevalence of HIV. This report presents 2019 data in 23 MSAs (see list at the end of the report), which represented approximately 59 percent of all HIV diagnoses in urban areas with a population of at least 500,000 in 2016.

HIV STATUS

HIV testing was performed for participants who consented to testing; blood or oral specimens were collected for either rapid testing in the field or laboratory-based testing.

- HIV-negative: Participants with a valid negative NHBS HIV test result.
- HIV-positive: Participants with a reactive rapid NHBS HIV test result supported by a second rapid test or supplemental laboratory-based testing.
- No valid NHBS HIV test result: Participants who did not have a valid positive or negative NHBS HIV test result, including those who did not consent to the HIV test, had an indeterminate laboratory result, had discordant rapid test results, or reported a previous HIV-positive test result but had a negative NHBS HIV test result.

HIV TESTING

- Ever tested: Having had an HIV test during one's lifetime.
- Tested in past 12 months: Having had an HIV test during the 12 months before interview.
- Clinical setting: Participants reported the location of their most recent HIV test—private doctor's office (including health maintenance organizations), emergency room, hospital (inpatient), public health clinic or community health center, family planning or obstetrics clinic, correctional facility (jail or prison), or drug treatment program.
- Nonclinical setting: Participants reported the location of their most recent HIV test—HIV counseling and testing site, HIV street outreach program or mobile unit, syringe services program, or home.
- Other locations: "Other" locations could not be classified and are excluded from the clinical/non-clinical setting classification.

SEXUAL BEHAVIORS

- Any sex: Includes vaginal, oral, or anal sex.
- Vaginal sex: Penis inserted into a partner's vagina.
- Oral sex: Mouth on a partner's vagina or penis.
- Anal sex: Penis inserted into a female partner's anus.
- Condomless sex: Vaginal or anal sex during which a condom is not used.
- Main partner: Person with whom the participant has sex and to whom he or she feels most committed (e.g., girlfriend/boyfriend, wife/husband, significant other, or life partner).
- Casual partner: Person with whom the participant has sex, but to whom he or she does not feel committed or whom he or she does not know very well.

HIV PREVENTION

- Free condoms: Received free condoms during the 12 months before interview, excluding those given by a friend, relative, or sex partner.
- Individual- or group-level intervention: Defined as either one-on-one conversations with an outreach worker, a counselor, or a prevention program worker about ways to prevent HIV, excluding conversations as part of an HIV test, or participating in any organized session that involves a small group of people discussing ways to prevent HIV infections, excluding informal discussions with friends.
- PrEP awareness: Ever heard of PrEP, an antiretroviral medicine taken by a person who is HIV- negative to reduce their risk of HIV.
- PrEP use: Took PrEP at any point in the 12 months before interview to reduce the risk of getting HIV.

SEXUALLY TRANSMITTED INFECTIONS

- Chlamydia: Received a diagnosis of chlamydia during the 12 months before interview.
- Gonorrhea: Received a diagnosis of gonorrhea during the 12 months before interview.
- Syphilis: Received a diagnosis of syphilis during the 12 months before interview.
- Any bacterial STI: Received a diagnosis of chlamydia, gonorrhea, or syphilis during the 12 months before interview.
- Genital warts: Received a diagnosis of genital warts during one's lifetime.
- Genital herpes: Received a diagnosis of genital herpes during one's lifetime.

NONINJECTION SUBSTANCE USE

Participants were asked about their use of alcohol in the 30 days before interview and their use of non-injection drugs (excluding those prescribed for them) during the 12 months before interview. Participants

were considered to have used a substance if they reported using that substance with any frequency other than "never."

- Binge drinking: Consumed 5 or more alcoholic drinks in about 2 hours (males) or 4 or more alcoholic drinks in about 2 hours (females) during the 30 days before interview.
- Cocaine: Used powder cocaine during the 12 months before interview.
- Crack: Used crack cocaine during the 12 months before interview.
- Downers: Used downers (benzodiazepines), such as Klonopin, Valium, Ativan, or Xanax, during the 12 months before interview.
- Ecstasy: Used X or ecstasy during the 12 months before interview.
- Heroin: Smoked or snorted heroin during the 12 months before interview.
- Marijuana: Used marijuana during the 12 months before interview.
- Methamphetamine: Used methamphetamines (i.e., meth, crystal meth, speed, or crank) during the 12 months before interview.
- Prescription opioids: Used pain killers, such as OxyContin, Vicodin, morphine, or Percocet, during the 12 months before interview.
- Any non-injection drug: Used any non-injection drug, excluding alcohol, during the 12 months before interview.

ADDITIONAL OUTCOMES

Table 12 includes outcomes that were of particular interest at the time of publication, but were not included in the other tables.

- Number of opposite sex partners: Median number of opposite sex partners during the 12 months before interview; first and third quartiles (25th and 75th percentiles) are also reported.
- Exchange sex among casual partners: For females, "exchange sex" refers to receiving money or drugs from a male casual partner in exchange for sex. For males, "exchange sex" refers to giving money or drugs to a female casual partner in exchange for sex
- Condomless sex with an HIV-discordant partner at last sex: A composite measure based on self-reported HIV status of the participant (positive, negative, or unknown), the participant's reported HIV status of his or her most recent opposite-sex partner (positive, negative, or unknown), and whether the participant reported engaging in vaginal or anal sex without a condom at any time during his or her last sexual encounter with the partner. A partner was considered to be of discordant HIV status if the participant reported he or she did not know the HIV status of at least one member of the

partnership (the participant or the partner) or if one member of the partnership was known to be HIV-positive while the other was known to be HIV-negative. The result of the NHBS HIV test completed after the interview was not factored into this measure.

- Sexual violence is defined as anyone forcing or pressuring the participant to have oral, vaginal, or anal sex when they did not want to during the 12 months before interview.
- Physical violence is defined as being slapped, punched, shoved, kicked, shaken, or otherwise physically hurt during the 12 months before interview.

RECEIPT OF HIV CARE

Participants who reported having received a positive HIV test result before interview were asked about their receipt of HIV care. Specifically, participants were asked: the date of their first HIV-positive test result; if they had ever visited a doctor, nurse, or other health care provider for a medical evaluation or care related to their HIV infection; the date of their first visit to a health care provider for HIV care after learning they had HIV; the date of their most recent visit to a health care provider for HIV care; and whether they were currently taking any antiretroviral treatment (ART).

- Visited health care provider about HIV, ever: Having ever visited a health care provider for their HIV infection.
- Visited health care provider about HIV, within

one month after diagnosis: Having visited a healthcare provider for their HIV infection within one month after the date of his or her first HIV-positive test result.

- Visited health care provider about HIV, in the past six months: Having visited a health care provider for HIV care in the six months before date of interview.
- Currently taking antiretroviral medications: Taking antiretroviral HIV medicines at the time of interview.

REFERENCES

1. [U.S. Department of Health and Human Services. Annual update of the HHS poverty guidelines. https://www.govinfo.gov/content/pkg/FR-2018-01-18/pdf/2018-00814.pdf. Federal Register 2018;83\(12\):2642–2644. Published January 18, 2018. Accessed December 21, 2020.](https://www.govinfo.gov/content/pkg/FR-2018-01-18/pdf/2018-00814.pdf)
2. [U.S. Census Bureau. Table of supplemental poverty measure thresholds by metro area for 2017. https://www.census.gov/content/census/en/library/publications/2018/demo/p60-265.html. Revised September 2018. Accessed December 21, 2020.](https://www.census.gov/content/census/en/library/publications/2018/demo/p60-265.html)
3. [U.S. Census Bureau. Table of poverty thresholds for 2017 by size of family and number of children. https://www.census.gov/data/tables/time-series/demo/income-poverty/historical-poverty-thresholds.html. Revised August 2020. Accessed December 21, 2020.](https://www.census.gov/data/tables/time-series/demo/income-poverty/historical-poverty-thresholds.html)

HIV Infection Risk, Prevention, and Testing Behaviors Among Heterosexually Active Persons



National HIV Behavioral Surveillance • 2019

Baltimore • MD

310 heterosexually active low-income persons were interviewed

3% were **HIV-positive**

Increasing access to health insurance and health care is a vital step in improving health, including HIV prevention.



7% did not have health insurance



12% had not visited a health care provider in the past 12 months

Pre-exposure prophylaxis (or PrEP) is a pill that, when taken daily, can protect someone from getting HIV.

Among HIV-negative persons interviewed:



Correct and consistent condom use reduces the risk of HIV and other sexually transmitted infections.

28% of men and **16%** of women had condomless sex with a casual partner



CDC recommends that everyone be tested for HIV at least once.



93% had ever been tested for HIV

NHBS collects data to guide HIV prevention efforts at local and national levels by characterizing and monitoring HIV risk behaviors and use of testing and other prevention services among people at highest risk for HIV infection. Read full report: <https://www.cdc.gov/hiv/pdf/library/reports/surveillance/cdc-hiv-surveillance-special-report-number-26.pdf>