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Behavioral and Clinical Characteristics of Persons with Diagnosed HIV Infection Medical Monitoring Project, United States 2016 Cycle (June 2016–May 2017)

National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention
Division of HIV/AIDS Prevention



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Revision note: The June 2019 revision of *Behavioral and Clinical Characteristics of Persons with Diagnosed HIV Infection—Medical Monitoring Project, United States, 2016 Cycle (June 2016–May 2017)*, HIV Surveillance Special Report 21, includes revised and corrected data on health insurance and selected sexual behaviors. Errors in estimates of health insurance types are corrected in Commentary and in Table 2. Errors in estimates of high-risk sex are corrected in Commentary and in Tables 18 and 22. Errors in estimates of condomless sex with a partner on preexposure prophylaxis (PrEP) are corrected in Commentary and in Table 18. Further information on the errors and corrections can be found at <https://www.cdc.gov/hiv/pdf/statistics/systems/mmp/cdc-hiv-MMP-surveillance-report-changes-2019-06-17.pdf>.

On the Web: <https://www.cdc.gov/hiv/library/reports/hiv-surveillance.html>.

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MMP project areas—<https://www.cdc.gov/hiv/statistics/systems/mmp/projectareas.html>

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Commentary

At year-end 2015, an estimated 991,289 persons in the United States and 6 dependent areas were living with diagnosed HIV infection [1]. In 2016, the number of new HIV diagnoses was 40,324 [1]. Although the National HIV Surveillance System (NHSS) collects information about persons with diagnosed HIV infection [2], other surveillance systems provide more detailed information about care seeking, health care use, use of ancillary services, and other behaviors [3]. In 2005, in response to an Institute of Medicine report outlining the need for representative data on persons living with HIV [4], the Centers for Disease Control and Prevention (CDC) implemented the Medical Monitoring Project (MMP), which from 2009 to 2014 collected data from a 3-stage probability sample of persons receiving HIV medical care [5]. In 2015, in response to recommendations stemming from an Institute of Medicine review of national HIV data systems [6], MMP sampling and weighting methods were revised to include all persons with diagnosed HIV infection regardless of HIV care status. This report is the second to publish MMP data collected by using these revised methods.

MMP is a cross-sectional, nationally representative, complex sample survey that assesses the clinical and behavioral characteristics of adults with diagnosed HIV infection in the United States and Puerto Rico. The 2016 MMP sample was selected in 2 consecutive stages: (1) United States and dependent areas and (2) adults aged ≥ 18 years with diagnosed HIV infection reported to NHSS as of December 31, 2015. A total of 23 project areas from 16 states and Puerto Rico were funded to conduct data collection for the 2016 cycle (Table 1).

This report presents unweighted frequencies and weighted prevalence estimates with 95% confidence intervals for selected characteristics. The estimates describe the characteristics of adults with diagnosed HIV infection who are living in the United States or Puerto Rico, hereafter referred to as *persons with diagnosed HIV* or *persons*. The period referenced is the 12 months before the participants' interviews and medical record abstractions unless otherwise noted. Statistical software (SAS, version 9.4) was used for analysis of weighted data [7]. Data are not reported

for estimates with a coefficient of variation ≥ 0.30 . Values with an absolute confidence interval width ≥ 0.30 , and values with an absolute confidence interval width between 0.05 and 0.30 and a relative confidence interval width $> 130\%$ are marked with an asterisk and should be interpreted with caution. No statistical tests were performed. Additional information on MMP is available at <https://www.cdc.gov/hiv/statistics/systems/mmp/>.

HIGHLIGHTS OF ANALYSES

Response Rates

All states and the 1 territory sampled for MMP participated. In total, 9,700 persons were sampled from NHSS and 4,038 participated (Table 1). Adjusted for eligibility, the response rate was 44% (data not shown in table).

Sociodemographic Characteristics

An estimated 75% of persons were male, 24% were female, and 1% were transgender (Table 2). Nearly half (46%) identified themselves as heterosexual or straight; 43% as lesbian or gay; 9% as bisexual; and 3% as another sexual orientation. An estimated 41% were black or African American, 30% were white, and 22% were Hispanic or Latino. Three-quarters (75%) were aged at least 40 years, and 63% had received an HIV diagnosis at least 10 years earlier. Over half (57%) had more than a high school education and 87% were born in a U.S. state or territory. The estimated prevalence of homelessness among all persons with diagnosed HIV was 8%. An estimated 98% had health insurance or coverage for antiretroviral therapy (ART) medications: 44% had coverage through the Ryan White HIV/AIDS Program, 44% had Medicaid, 37% had private health insurance, and 30% had Medicare. An estimated 47% had a disability, 43% were unemployed, and 42% had household incomes at or below the federal poverty threshold. An estimated 19% received Supplemental Security Income (SSI) and 25% received Social Security Disability Insurance (SSDI).

Clinical Characteristics

According to the CDC stage of disease classification for HIV infection [8], an estimated 54% of persons had ever had stage 3 (AIDS) disease (Table 3). An estimated 8% of persons had a geometric mean CD4 T-lymphocyte (CD4) count of 0–199 cells/ μ L. The estimated average geometric mean CD4 count among all persons was 629 cells/ μ L, and the median geometric mean CD4 count was 594 cells/ μ L (range, 3–2,374) (data not shown in table).

An estimated 73% of persons had an undetectable (<200 copies/mL) viral load at the most recent measurement, while 66% had undetectable viral loads at all measurements during the past 12 months (sustained viral suppression).

Use of Health Care Services

Overall, 97% had received outpatient HIV care during the past 12 months, and 98% had received outpatient HIV care during the past 24 months (Table 4). An estimated 80% were retained in care during the past 12 months, while 64% were retained in care during the past 24 months. An estimated 84% of persons had an ART prescription documented in the medical record during the 12 months before the interview. Of persons who met the clinical criteria for *Pneumocystis pneumonia* (PCP) prophylaxis, 43% had a prescription for PCP prophylaxis documented in the medical record. Of persons who met the clinical criteria for *Mycobacterium avium* complex (MAC) prophylaxis, 33% had a prescription for MAC prophylaxis documented in the medical record.

Among sexually active persons, an estimated 45% were tested for gonorrhea, 46% for chlamydia, 65% for syphilis, and 41% for all 3 sexually transmitted diseases (STDs) (Table 5).

An estimated 38% of persons were seen in an emergency department at least once, and 4% were seen at least 5 times (Table 6). An estimated 17% of persons were admitted to a hospital for an illness at least once.

Self-reported ART Medication Use and Adherence

An estimated 92% of persons were currently taking ART based on self-report (Table 7). Among the estimated 3% of persons without a history of ART use, 53% had never taken ART because a health care provider advised a delay in treatment. Among the estimated 4% of persons with a history of ART use who

were not currently taking ART, 38% were not taking ART due to money or insurance problems, and 31% were not taking ART because they felt it would make them feel sick or harm them.

Among persons taking ART, 59% took all of their ART doses in the past 30 days (Table 8). Among persons taking ART, 70% had never been troubled by ART side effects during the past 30 days; 16% had rarely been troubled. The most common reasons given for not taking one's most recently missed ART dose were forgetting (39%) and a change in one's daily routine or being out of town (26%).

Clinical Characteristics by Subgroups

The estimated prevalence of ART prescription documented in a medical record was 84% among males and 85% among females (Table 9). An estimated 83% of blacks or African Americans were prescribed ART, compared with 85% of Hispanics or Latinos and 85% of whites. The estimated prevalence of ART prescription was 84% among persons aged 18 to 29 years and 87% among those aged 50 years or older.

The estimated prevalence of sustained viral suppression was 67% among males and 61% among females. An estimated 61% of blacks or African Americans had sustained viral suppression, compared with 66% of Hispanics or Latinos and 73% of whites. The estimated prevalence of sustained viral suppression was 53% among persons aged 18 to 29 years and 71% among those aged 50 years or older.

Depression and Substance Use

The estimated prevalence of major or other depression in the past 2 weeks based on the Patient Health Questionnaire (PHQ-8) algorithm [9] was 22%, including 11% with major depression (Table 10). Based on the total PHQ-8 symptom score (see the appendix), an estimated 17% of persons had moderate or severe depression. The estimated prevalence of mild, moderate, or severe anxiety in the past 2 weeks based on the Generalized Anxiety Disorder Scale (GAD-7) [10] was 26%, including 9% with severe anxiety.

The estimated prevalence of current smoking was 35%: 29% of persons smoked daily, 3% weekly, 1% monthly, and 2% less than monthly (Table 11). The estimated prevalence of alcohol use was 65%: 7% of persons drank alcohol daily, 21% weekly, 13% monthly, and 25% less than monthly (Table 12). An

estimated 16% of persons engaged in binge drinking during the past 30 days.

An estimated 30% of persons used noninjection drugs for nonmedical purposes (Table 13). In total, an estimated 26% used marijuana, 7% used poppers (amyl nitrite), 5% used methamphetamines, 5% used cocaine, and 3% used prescription opioids. An estimated 3% of persons used injection drugs for nonmedical purposes (Table 14). In total, an estimated 2% injected methamphetamines and 1% injected heroin.

Gynecologic and Reproductive Health

Among females, 71% reported receiving a Papanicolaou (Pap) test (Table 15). An estimated 29% of females reported being pregnant at least once since testing positive for HIV infection.

Sexual Behavior

An estimated 34% of men had receptive anal sex with men, 32% had insertive anal sex with men, and 18% had vaginal sex (Table 16). An estimated 40% of men did not have vaginal or anal sex. Among women, 50% had vaginal sex, and 50% did not have vaginal or anal sex. Among transgender persons, 69% had vaginal or anal sex (Table 17). An estimated 60% of transgender women had vaginal or anal sex with men.

Among men who had sex with men, an estimated 6% engaged in high-risk sex, compared with 3% of men who had sex only with women and 7% of women who had sex with men (Table 18). In terms of prevention strategies among sexually active persons, an estimated 66% of men who had sex with men engaged in sex while sustainably virally suppressed, 65% had condom-protected sex, 12% had condomless sex with a partner on preexposure prophylaxis (PrEP), and 60% had sex with an HIV-positive partner. Among sexually active men who had sex only with women, 69% engaged in sex while sustainably virally suppressed, 69% had condom-protected sex, 3% had condomless sex with a partner on PrEP, and 28% had sex with an HIV-positive partner. Among sexually active women who had sex with men, 61% engaged in sex while sustainably virally suppressed, 57% had condom-protected sex, and 26% had sex with an HIV-positive partner.

Met and Unmet Need for Ancillary Services

An estimated 56% of persons received dental care; 52% received HIV case management services; 45% received medicine through the AIDS Drug Assistance Program (ADAP); and 38% received services through the Supplemental Nutrition Assistance Program (SNAP) or Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) (Table 19). An estimated 25% of persons had unmet needs for dental care; 13% for SNAP or WIC; 12% for shelter or housing services; 9% for mental health services; 9% for meal or food services; 8% for HIV case management services; 7% for transportation assistance; 7% for HIV peer group support; and 6% for patient navigation services.

Intimate Partner Violence and Sexual Violence

An estimated 26% of persons had ever been physically hurt by a romantic or sexual partner, including 4% who experienced this in the past 12 months (Table 20). An estimated 17% of persons had ever been threatened with harm or physically forced to have unwanted sex, including 1% who experienced this in the past 12 months.

Prevention Activities

An estimated 52% of persons received counseling from a physician, nurse, or other health care worker about HIV and STD risk reduction; 33% had a one-on-one conversation with an outreach worker, a counselor, or a prevention program worker about prevention; and 13% participated in a small-group session (excluding discussions with friends) to discuss the prevention of HIV and other STDs (Table 21). An estimated 50% of persons received free condoms from various organizations.

Division of HIV/AIDS Prevention National Indicators

The estimated prevalence of homelessness among persons who received outpatient HIV care in the past 12 months was 8% (Table 22). The median HIV stigma score (see the appendix) among all persons was 39. An estimated 6% of persons engaged in high-risk sex.

POPULATION OF INFERENCE

For the 2016 Medical Monitoring Project (MMP) data collection cycle (data collected June 1, 2016–May 31, 2017), the population of inference was adults with diagnosed HIV (aged ≥ 18 years) living in the United States and Puerto Rico as of December 31, 2015.

A total of 23 areas were funded to conduct data collection for the 2016 cycle: California (including the separately funded jurisdictions of Los Angeles County and San Francisco), Delaware, Florida, Georgia, Illinois (including the separately funded jurisdiction of Chicago), Indiana, Michigan, Mississippi, New Jersey, New York (including the separately funded jurisdiction of New York City), North Carolina, Oregon, Pennsylvania (including the separately funded jurisdiction of Philadelphia), Puerto Rico, Texas (including the separately funded jurisdiction of Houston), Virginia, and Washington.

DATA COLLECTION

Persons with diagnosed HIV were sampled for MMP using data from the National HIV Surveillance System (NHSS). Sampled persons were recruited to participate in person, by telephone, or by mail. To be eligible for MMP, the person had to be, as of December 31, 2015: living with diagnosed HIV infection, aged ≥ 18 years, and residing in an MMP project area. The participant eligibility criteria were the same in all participating project areas.

A trained interviewer conducted either a computer-assisted telephone interview or an in-person interview. English and Spanish versions of the questionnaire were used in the 2016 cycle (June 2016–May 2017). Persons who agreed to participate were interviewed over the telephone or in a private location (e.g., at home or in a clinic). The interview (approximately 45 minutes) included questions about demographics, health care use, met and unmet needs for ancillary services, sexual behavior, depression and anxiety, gynecologic and reproductive history (females only), drug and alcohol use, and use of prevention services. Participants were given a token of appreciation of approximately \$50 in cash or the equivalent for participation; reimbursement amounts differed by project area according to local considerations.

After the interview, MMP staff abstracted clinical data from the medical records of participants at the health care facility identified by the participant as his or her usual place of HIV care. Abstracted information included diagnoses of AIDS-defining conditions, prescription of antiretroviral therapy (ART) medications, laboratory results, and health care use in the 24 months before the interview.

For further technical details, please see the appendix.

References

1. CDC. *HIV Surveillance Report 2016*; vol. 28. <https://www.cdc.gov/hiv/library/reports/hiv-surveillance.html>. Published November 2017. Accessed January 11, 2019.
2. Nakashima AK, Fleming PL. HIV/AIDS surveillance in the United States, 1981–2001. *J Acquir Immune Defic Syndr* 2003;32(suppl 1):S68–S85.
3. McNaghten AD, Wolfe MI, Onorato I, et al. Improving the representativeness of behavioral and clinical surveillance for persons with HIV in the United States: the rationale for developing a population-based approach. *PLoS One* 2007;2(6):e550.
4. Institute of Medicine. *Measuring What Matters: Allocation, Planning and Quality Assessment for the Ryan White CARE Act*. Washington, DC: National Academies Press; 2004. <https://www.nap.edu/read/10855>. Published November 7, 2003. Accessed January 11, 2019.
5. CDC. *Behavioral and Clinical Characteristics of Persons Receiving Medical Care for HIV Infection—Medical Monitoring Project, United States, 2010*. HIV Surveillance Special Report 9. <https://www.cdc.gov/hiv/library/reports/hiv-surveillance.html>. Published October 2014. Accessed January 11, 2019.
6. Institute of Medicine. *Monitoring HIV Care in the United States: Indicators and Data Systems*. Washington, DC: National Academies Press; 2012. doi:10.17226/13225.
7. SAS Institute Inc. SAS version 9.4. Cary, NC: SAS Institute; 2011.
8. CDC [Selik RM, Mokotoff ED, Branson B, Owen SM, Whitmore S, Hall HI]. Revised surveillance case definition for HIV infection—United States, 2014. *MMWR* 2014;63(RR-03):1–10. https://www.cdc.gov/mmwr/indrr_2014.html. Accessed January 11, 2019.
9. Kroenke K, Strine TW, Spitzer RL, et al. The PHQ-8 as a measure of current depression in the general population. *J Affect Disord* 2009;114(1–3):163–173.
10. Spitzer RL, Kroenke K, Williams JB, Löwe B. A brief measure for assessing generalized anxiety disorder: the GAD-7. *Arch Intern Med* 2006;166(10):1092–1097.

Table 1. Participants, by project area—Medical Monitoring Project, United States, 2016

Project area	No. sampled	No. participating	% participating^a	% of total
California (excluding Los Angeles County and San Francisco)	500	221	44.2	5.5
Chicago, IL	400	161	40.3	4.0
Delaware	400	176	44.0	4.4
Florida	800	333	41.6	8.2
Georgia	500	207	41.4	5.1
Houston, TX	400	159	39.8	3.9
Illinois (excluding Chicago)	200	74	37.0	1.8
Indiana	400	161	40.3	4.0
Los Angeles County, CA	400	170	42.5	4.2
Michigan	400	171	42.8	4.2
Mississippi	400	159	39.8	3.9
New Jersey	500	201	40.2	5.0
New York (excluding New York City)	200	71	35.5	1.8
New York City, NY	800	331	41.4	8.2
North Carolina	400	159	39.8	3.9
Oregon	400	202	50.5	5.0
Pennsylvania (excluding Philadelphia)	200	71	35.5	1.8
Philadelphia, PA	400	166	41.5	4.1
Puerto Rico	400	152	38.0	3.8
San Francisco, CA	400	195	48.8	4.8
Texas (excluding Houston)	400	178	44.5	4.4
Virginia	400	158	39.5	3.9
Washington	400	162	40.5	4.0
Total	9,700	4,038	41.6	100

Note. Percentages might not sum to 100 because of rounding.

^a Not adjusted for eligibility.

Table 2. Persons living with diagnosed HIV infection, by selected characteristics—Medical Monitoring Project, United States, 2016

	No. ^a	% ^b	95% CI ^c
Gender			
Male	2,930	74.8	72.2–77.4
Female	1,045	23.8	21.1–26.6
Transgender ^d	59	1.4	0.9–1.9
Sexual orientation			
Lesbian or gay	1,677	42.7	39.0–46.5
Heterosexual or straight	1,896	46.2	42.0–50.3
Bisexual	343	8.6	7.3–9.9
Other	97	2.5	1.9–3.1
Race/ethnicity			
American Indian/Alaska Native	19	0.6	0.3–0.9
Asian	36	0.9	0.6–1.3
Black/African American	1,722	41.2	32.1–50.4
Hispanic/Latino ^e	830	22.0	13.6–30.4
Native Hawaiian/Other Pacific Islander	—	—	—
White	1,221	29.9	24.4–35.5
Multiple races	201	5.2	3.9–6.5
Age at time of interview (yr)			
18–24	94	2.4	1.8–3.0
25–29	221	6.3	5.3–7.2
30–34	292	7.7	6.7–8.8
35–39	337	8.9	7.5–10.3
40–44	402	10.3	9.3–11.4
45–49	600	14.8	13.5–16.0
50–54	741	17.3	16.0–18.6
55–59	612	14.8	13.3–16.3
60–64	421	9.9	9.1–10.8
≥65	318	7.5	6.3–8.8
Education			
Less than high school	724	17.2	14.8–19.6
High school diploma or GED	1,029	25.6	23.7–27.4
More than high school	2,273	57.2	53.9–60.6
Country or territory of birth			
United States or U.S. territory	3,458	86.5	84.8–88.2
Foreign born	540	13.5	11.8–15.2
Time since HIV diagnosis (yr)			
<5	604	15.7	14.2–17.2
5–9	845	21.7	19.8–23.5
≥10	2,572	62.6	60.6–64.7
Homeless at any time, past 12 months^f			
Yes	353	8.4	7.4–9.5
No	3,677	91.6	90.5–92.6
Incarcerated >24 hours, past 12 months			
Yes	198	5.2	4.3–6.2
No	3,829	94.8	93.8–95.7
Health insurance or coverage for antiretroviral medications, past 12 months^g			
Yes	3,958	98.2	97.6–98.9
No	42	1.8	1.1–2.4
Type of health insurance or coverage for antiretroviral medications, past 12 months			
Ryan White			
Yes	1,890	44.2	41.9–46.5
No	2,051	55.8	53.5–58.1
Medicaid			
Yes	1,844	43.7	40.6–46.8
No	2,136	56.3	53.2–59.4
Private health insurance			
Yes	1,406	36.5	33.8–39.2
No	2,538	63.5	60.8–66.2

Table 2. Persons living with diagnosed HIV infection, by selected characteristics—Medical Monitoring Project, United States, 2016 (cont)

	No. ^a	% ^b	95% CI ^c
Medicare			
Yes	1,222	30.4	27.9–33.0
No	2,720	69.6	67.0–72.1
Other public insurance			
Yes	—	—	—
No	—	—	—
Tricare/CHAMPUS or Veterans Administration			
Yes	131	4.5	3.2–5.8
No	3,803	95.5	94.2–96.8
Insurance type unknown^h			
Yes	24	0.5	0.3–0.8
No	3,914	99.5	99.2–99.7
Any disabilityⁱ			
Yes	1,879	46.5	43.8–49.2
No	2,146	53.5	50.8–56.2
Received Supplemental Security Income (SSI), past 12 months			
Yes	828	18.6	16.2–20.9
No	3,161	81.4	79.1–83.8
Received Social Security Disability Insurance (SSDI), past 12 months			
Yes	1,014	25.1	22.2–28.1
No	2,959	74.9	71.9–77.8
Went without food due to lack of money, past 12 months			
Yes	865	21.2	19.6–22.9
No	3,164	78.8	77.1–80.4
Employment status^j			
Employed	1,813	46.0	43.6–48.5
Unemployed	1,783	43.2	40.5–45.9
Student	78	2.1	1.5–2.7
Retired	352	8.6	7.6–9.7
Combined yearly household income (US\$)^k			
0–19,999	2,022	52.0	48.0–56.0
20,000–39,999	812	22.2	20.5–23.9
40,000–74,999	510	14.5	12.6–16.5
≥75,000	403	11.3	9.0–13.5
Poverty guidelines^l			
Above poverty threshold	2,113	57.9	53.5–62.3
At or below poverty threshold	1,633	42.1	37.7–46.5
Total	4,038	100	

Abbreviations: CI, confidence interval; GED, general educational development; CHAMPUS, Civilian Health and Medical Program of the Uniformed Services; US\$, U.S. dollar; HHS, Department of Health and Human Services [footnotes only].

Note. Numbers might not add to total because of missing data. Percentages might not sum to 100 because of rounding.

Excluded are values with a coefficient of variation ≥ 0.30 , “don’t know” responses, and skipped (missing) responses.

^a Numbers are unweighted.

^b Percentages are weighted percentages.

^c CIs incorporate weighted percentages.

^d Persons were classified as transgender if sex at birth and gender reported by the person were different, or if the person chose “transgender” in response to the question about self-identified gender.

^e Hispanics or Latinos might be of any race. Persons are classified in only 1 race/ethnicity category.

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

^g Persons could select more than 1 response for health insurance or coverage for antiretroviral medications.

^h Unknown insurance type means that the person had insurance or coverage for antiretroviral medications, but the type of insurance or coverage could not be determined.

ⁱ Includes physical, mental, and emotional disabilities.

^j Employed includes employed for wages, self-employed, or homemaker.

^k Income from all sources, before taxes, in the last calendar year.

^l Poverty guidelines as defined by HHS; the 2015 guidelines were used for persons interviewed in 2016 and the 2016 guidelines were used for persons interviewed in 2017. More information regarding HHS poverty guidelines can be found at <https://aspe.hhs.gov/frequently-asked-questions-related-poverty-guidelines-and-poverty>.

**Table 3. Stage of disease, CD4 counts, and viral suppression during the 12 months before the interview—
Medical Monitoring Project, United States, 2016**

	No. ^a	% ^b	95% CI ^c
HIV infection stage 3 (AIDS)^d			
Yes	2,332	54.3	52.6–55.9
No	1,695	45.7	44.1–47.4
Geometric mean CD4 count (cells/μL)			
0–199	296	8.2	7.1–9.3
200–349	436	12.0	10.8–13.3
350–499	650	18.5	17.1–19.8
≥500	2,079	61.3	59.0–63.7
Lowest CD4 count (cells/μL), past 12 months			
0–49	101	2.7	2.1–3.4
50–199	292	8.2	7.2–9.2
200–349	553	15.1	13.1–17.1
350–499	690	19.8	18.2–21.3
≥500	1,848	54.2	51.6–56.9
Viral suppression			
Most recent viral load documented undetectable or <200 copies/mL	3,139	72.8	69.8–75.9
Most recent viral load documented detectable, ≥200 copies/mL, or missing/unknown	899	27.2	24.1–30.2
Sustained viral suppression			
All viral load measurements documented undetectable or <200 copies/mL	2,812	65.5	62.9–68.1
Any viral load ≥200 copies/mL or missing/unknown	1,226	34.5	31.9–37.1
Total	4,038	100	

Abbreviations: CD4, CD4 T-lymphocyte count (cells/μL); CI, confidence interval; CDC, the Centers for Disease Control and Prevention [footnotes only].

Source of disease stage information: CDC. Revised surveillance case definitions for HIV infection among adults, adolescents, and children aged <18 months and for HIV infection and AIDS among children aged 18 months to <13 years—United States, 2008. *MMWR* 2008;57(RR-10):1–12.

Note. CD4 counts and viral load measurements are from medical record abstraction.

Numbers might not add to total because of missing data. Percentages might not sum to 100 because of rounding.

Excluded are values with a coefficient of variation ≥0.30, “don’t know” responses, and skipped (missing) responses.

^a Numbers are unweighted.

^b Percentages are weighted percentages.

^c CIs incorporate weighted percentages.

^d HIV infection, stage 3 (AIDS): documentation of an AIDS-defining condition or either a CD4 count of <200 cells/μL or a CD4 percentage of total lymphocytes of <14. Documentation of an AIDS-defining condition supersedes a CD4 count or percentage that would not, by itself, be the basis for a stage 3 (AIDS) classification.

Table 4. Receipt and quality of care—Medical Monitoring Project, United States, 2016

	No. ^a	% ^b	95% CI ^c
Ever received outpatient HIV care^d			
Yes	—	—	—
No	—	—	—
Received outpatient HIV care, past 12 months^d			
Yes	3,997	97.2	96.1–98.3
No	38	2.8	1.7–3.9
Received outpatient HIV care, past 24 months^d			
Yes	4,012	98.4	97.6–99.2
No	20	1.6	0.8–2.4
Retained in care, past 12 months^e			
Yes	3,389	80.1	77.6–82.5
No	560	19.9	17.5–22.4
Retained in care, past 24 months^e			
Yes	2,720	64.0	61.1–67.0
No	1,225	36.0	33.0–38.9
Prescribed ART, past 12 months^f			
Yes	3,575	84.0	80.7–87.3
No	262	16.0	12.7–19.3
Prescribed PCP prophylaxis, past 12 months^g			
Yes	146	43.3	36.1–50.6
No	197	56.7	49.4–63.9
Prescribed MAC prophylaxis, past 12 months^h			
Yes	25	32.5	19.9–45.0
No	60	67.5	55.0–80.1
Received influenza vaccination, past 12 months			
Yes	3,155	78.3	76.2–80.3
No	824	21.7	19.7–23.8
Total	4,038	100	

Abbreviations: CI, confidence interval; ART, antiretroviral therapy; PCP, *Pneumocystis pneumonia*; MAC, *Mycobacterium avium* complex; CD4, CD4 T-lymphocyte count (cells/ μ L) [footnotes only].

Note. CD4 counts, viral load measurements, prophylaxes, and vaccinations are from medical record abstraction. Measurement period is the 12 months before the interview unless otherwise noted.

Numbers might not add to total because of missing data. Percentages might not sum to 100 because of rounding.

Excluded are values with a coefficient of variation ≥ 0.30 , “don’t know” responses, and skipped (missing) responses.

^a Numbers are unweighted.

^b Percentages are weighted percentages.

^c CIs incorporate weighted percentages.

^d Outpatient HIV care was defined as any documentation of the following: encounter with an HIV care provider, viral load test result, CD4 test result, HIV resistance test or tropism assay, ART prescription, PCP prophylaxis, or MAC prophylaxis.

^e Two elements of outpatient HIV care at least 90 days apart in each 12-month period.

^f ART prescription documented in medical record; persons with no medical record abstraction were considered to have no documentation of ART prescription.

^g Among persons with CD4 cell count <200 cells/ μ L.

^h Among persons with CD4 cell count <50 cells/ μ L.

**Table 5. Sexually transmitted disease testing during the 12 months before the interview, by sexual activity—
Medical Monitoring Project, United States, 2016**

	Total population			Sexually active ^a persons only		
	No. ^b	% ^c	95% CI ^d	No. ^b	% ^c	95% CI ^d
Gonorrhea^e						
Yes, received test	1,646	39.8	36.1–43.5	1,061	45.4	41.7–49.1
No test documented	2,207	60.2	56.5–63.9	1,142	54.6	50.9–58.3
Chlamydia^f						
Yes, received test	1,646	40.0	36.3–43.6	1,061	45.6	42.0–49.3
No test documented	2,207	60.0	56.4–63.7	1,142	54.4	50.7–58.0
Syphilis^g						
Yes, received test	2,450	60.4	58.3–62.5	1,490	64.6	61.6–67.5
No test documented	1,403	39.6	37.5–41.7	713	35.4	32.5–38.4
Gonorrhea, chlamydia, and syphilis						
Yes, received all 3 tests	1,469	35.7	32.2–39.2	958	41.3	37.5–45.1
Fewer than 3 tests documented	2,384	64.3	60.8–67.8	1,245	58.7	54.9–62.5
Total	4,038	100		2,293	100	

Abbreviations: CI, confidence interval; DFA, direct fluorescent antibody [footnotes only]; EIA, enzyme immunoassay [footnotes only]; ELISA, enzyme-linked immunoassay [footnotes only]; FTA-ABS, fluorescent treponemal antibody absorbed [footnotes only]; MHA-TP, microhemagglutination assay for antibody to *Treponema pallidum* [footnotes only]; NAAT, nucleic acid amplification test [footnotes only]; RPR, rapid plasma reagin [footnotes only]; TP-PA, *T. pallidum* particle agglutination [footnotes only]; TPHA, *T. pallidum* hemagglutination assay [footnotes only]; VDRL, Venereal Disease Research Laboratory [footnotes only].

Note. Information on laboratory testing for sexually transmitted diseases was based on medical records abstraction.

Numbers might not add to total because of missing data. Percentages might not sum to 100 because of rounding.

Excluded are values with a coefficient of variation ≥ 0.30 , “don’t know” responses, and skipped (missing) responses.

^a Sexual activity was reported in the interview component of the Medical Monitoring Project and was defined as anal or vaginal intercourse.

^b Numbers are unweighted.

^c Percentages are weighted percentages.

^d CIs incorporate weighted percentages.

^e Testing for *Neisseria gonorrhoeae* was defined as documentation of a result from culture, gram stain, EIA, NAAT, or nucleic acid probe.

^f *Chlamydia trachomatis* testing was defined as a result from culture, DFA, EIA or ELISA, NAAT, or nucleic acid probe.

^g Syphilis testing was defined as a result from nontreponemal syphilis tests (RPR or VDRL), treponemal syphilis tests (TPHA, TP-PA, MHA-TP, or FTA-ABS tests), or dark-field microscopy.

**Table 6. Emergency department and hospital admission during the 12 months before the interview—
Medical Monitoring Project, United States, 2016**

	No. ^a	% ^b	95% CI ^c
Number of visits to emergency department			
0	2,494	62.3	59.8–64.7
1	709	17.4	16.0–18.8
2–4	658	16.8	15.4–18.1
≥5	149	3.6	2.7–4.5
Number of hospital admissions			
0	3,299	82.8	80.6–85.0
1	407	10.2	8.9–11.6
2–4	249	5.7	4.5–6.9
≥5	57	1.3	0.9–1.7
Total	4,038	100	

Abbreviation: CI, confidence interval.

Note. Numbers might not add to total because of missing data. Percentages might not sum to 100 because of rounding.

Excluded are values with a coefficient of variation ≥ 0.30 , “don’t know” responses, and skipped (missing) responses.

^a Numbers are unweighted.

^b Percentages are weighted percentages.

^c CIs incorporate weighted percentages.

Table 7. Antiretroviral therapy (ART) use—Medical Monitoring Project, United States, 2016

	No. ^a	% ^b	95% CI ^c
Ever taken ART			
Yes	3,929	96.6	95.7–97.5
No	90	3.4	2.5–4.3
Currently taking ART			
Yes	3,812	92.3	91.1–93.5
No	206	7.7	6.5–8.9
Reasons for never taking ART^d			
Health care provider never discussed taking ART with person			
Yes	16	25.4	15.4–35.4
No	61	74.6	64.6–84.6
Health care provider said person should not start taking ART			
Yes	39	53.4	41.3–65.5
No	38	46.6	34.5–58.7
Money or insurance problems			
Yes	14	27.8	14.0–41.6
No	62	72.2	58.4–86.0
Person doesn't believe he/she needs ART			
Yes	24	31.6	17.6–45.7
No	53	68.4	54.3–82.4
Person thinks ART would make him/her feel sick or harm him/her			
Yes	20	29.3	15.0–43.6
No	57	70.7	56.4–85.0
Person decided not to take ART for some other reason			
Yes	26	36.2	24.1–48.3
No	51	63.8	51.7–75.9
Reasons for not currently taking ART, among those persons with a history of ART use^d			
Health care provider never discussed restarting ART with person			
Yes	19	22.6	12.0–33.1
No	97	77.4	66.9–88.0
Health care provider said person should not take ART			
Yes	—	—	—
No	—	—	—
Money or insurance problems			
Yes	38	38.3	28.3–48.2
No	77	61.7	51.8–71.7
Person doesn't believe he/she needs ART			
Yes	27	25.7	13.7–37.8
No	88	74.3	62.2–86.3
Person thinks ART would make him/her feel sick or harm him/her			
Yes	36	31.0	19.3–42.8
No	79	69.0	57.2–80.7
Person decided not to take ART for some other reason			
Yes	45	32.5	22.1–42.8
No	71	67.5	57.2–77.9
Total	4,038	100	

Abbreviation: CI, confidence interval.

Note. Numbers might not add to total because of missing data. Percentages might not sum to 100 because of rounding.

Excluded are values with a coefficient of variation ≥ 0.30 , “don't know” responses, and skipped (missing) responses.

^a Numbers are unweighted.

^b Percentages are weighted percentages.

^c CIs incorporate weighted percentages.

^d Persons could select more than 1 response for reasons not taking ART.

Table 8. Antiretroviral therapy (ART) adherence among persons taking ART—Medical Monitoring Project, United States, 2016

	No. ^a	% ^b	95% CI ^c
ART adherence in the past 30 days			
How many days did you miss at least 1 dose of any of your HIV medicines?			
0	2,239	58.5	56.3–60.7
1–2	974	26.4	24.5–28.2
3–5	380	10.0	9.1–10.9
6–10	120	2.9	2.1–3.6
11+	86	2.3	1.6–3.0
How well did you do at taking your HIV medicines in the way you were supposed to?			
Very poor	43	1.2	0.7–1.8
Poor	48	1.2	0.8–1.7
Fair	186	4.8	4.0–5.5
Good	517	13.3	11.7–14.8
Very good	1,027	27.6	25.8–29.5
Excellent	1,986	51.9	49.8–53.9
How often did you take your HIV medicines in the way you were supposed to?			
Never	—	—	—
Rarely	30	0.9	0.4–1.3
Sometimes	72	1.6	1.2–2.0
Usually	195	5.3	3.9–6.6
Almost always	886	23.1	21.3–25.0
Always	2,600	68.4	66.3–70.5
How often were you troubled by ART side effects?			
Never	2,649	69.5	67.2–71.9
Rarely	591	16.2	14.4–17.9
About half the time	206	5.3	4.7–6.0
Most of the time	158	4.1	3.4–4.9
Always	176	4.8	3.8–5.8
Reasons for last missed ART dose^d			
Had a problem getting a prescription, a refill, insurance coverage, or paying for HIV medicines			
Yes	661	17.9	16.2–19.5
No	3,103	82.1	80.5–83.8
In the hospital or too sick to take HIV medicine			
Yes	250	6.5	5.7–7.2
No	3,510	93.5	92.8–94.3
Fell asleep early or overslept			
Yes	852	23.6	21.9–25.4
No	2,910	76.4	74.6–78.1
Change in your daily routine or were out of town			
Yes	979	26.0	23.0–28.9
No	2,783	74.0	71.1–77.0
Had side effects from your HIV medicines			
Yes	261	7.1	6.1–8.1
No	3,500	92.9	91.9–93.9
Felt depressed or overwhelmed			
Yes	410	10.7	9.5–11.8
No	3,352	89.3	88.2–90.5
Was drinking or using drugs			
Yes	226	5.6	4.6–6.6
No	3,536	94.4	93.4–95.4
Forgot to take HIV medicines			
Yes	1,458	39.1	36.8–41.4
No	2,304	60.9	58.6–63.2
Did not feel like taking HIV medicines			
Yes	301	8.4	7.3–9.6
No	3,460	91.6	90.4–92.7
Total	3,812	100	

Abbreviation: CI, confidence interval.

Note. Numbers might not add to total because of missing data. Percentages might not sum to 100 because of rounding.

Excluded are values with a coefficient of variation ≥ 0.30 , “don’t know” responses, and skipped (missing) responses.

^a Numbers are unweighted.

^b Percentages are weighted percentages.

^c CIs incorporate weighted percentages.

^d Persons could report more than 1 reason for missed last dose.

Table 9. Antiretroviral therapy (ART) prescription, ART dose adherence, sustained viral suppression, and geometric mean CD4 count, by subgroups—Medical Monitoring Project, United States, 2016

	Prescription of ART			ART dose adherence ^a			Sustained viral suppression ^b			Geometric mean CD4 count \geq 200		
	No. ^c	Row % ^d	95% CI ^e	No. ^c	Row % ^d	95% CI ^e	No. ^c	Row % ^d	95% CI ^e	No. ^c	Row % ^d	95% CI ^e
Gender												
Male	2,589	83.7	80.3–87.2	1,640	58.8	56.1–61.4	2,088	66.9	64.3–69.5	2,320	92.4	91.4–93.4
Female	928	84.8	81.1–88.6	573	58.8	56.1–61.6	682	61.3	56.4–66.2	796	89.9	87.5–92.3
Transgender ^f	54	79.7*	62.3–97.1	25	39.2	26.2–52.1	40	61.5	47.8–75.1	47	91.6	84.0–99.1
Sexual orientation												
Lesbian or gay	1,487	83.3	79.3–87.3	915	57.0	53.8–60.2	1,235	67.8	64.4–71.2	1,347	93.5	92.2–94.8
Heterosexual or straight	1,680	85.0	81.2–88.8	1,090	61.0	58.4–63.5	1,274	64.1	61.4–66.8	1,462	90.4	88.8–92.0
Bisexual	297	80.7	74.1–87.2	175	54.7	48.3–61.1	217	60.3	52.8–67.7	259	90.6	86.1–95.1
Other	89	87.5	76.7–98.3	53	56.0	42.4–69.7	71	71.9	58.0–85.8	78	94.3	89.3–99.3
Race/ethnicity												
American Indian/Alaska Native	16	74.4*	46.0–100	14	82.8*	62.9–100	16	74.1*	45.5–100	16	96.3	89.0–100
Asian	31	89.2	78.5–99.9	21	63.1*	46.3–79.9	28	81.6	69.3–93.8	31	96.7	90.2–100
Black/African American	1,515	83.0	78.9–87.2	889	55.5	52.5–58.5	1,115	60.6	56.9–64.3	1,305	89.3	87.5–91.0
Hispanic/Latino ^g	742	84.9	80.1–89.6	470	57.3	53.7–61.0	577	65.6	59.1–72.1	675	92.5	90.0–95.0
Native Hawaiian/Other Pacific Islander	6	100	—	—	—	—	5	75.7*	35.6–100	5	92.0	76.1–100
White	1,088	85.0	80.5–89.5	734	63.5	59.4–67.7	939	73.0	68.3–77.6	982	94.4	92.7–96.1
Multiple races	174	81.3	73.0–89.6	104	52.9	44.5–61.3	130	56.7	48.0–65.4	148	91.9	86.7–97.0
Age at time of interview (yr)												
18–29	280	83.5	75.6–91.3	112	41.2	33.0–49.5	181	52.5	45.6–59.4	256	93.7	91.0–96.3
30–39	539	79.0	73.7–84.2	294	50.1	45.1–55.1	390	58.0	53.1–62.9	487	91.9	90.0–93.7
40–49	876	82.1	76.2–87.9	543	57.6	53.7–61.5	694	64.2	58.6–69.8	770	91.6	89.9–93.3
\geq 50	1,880	86.7	84.4–89.0	1,290	64.2	61.6–66.7	1,547	70.9	68.6–73.3	1,652	91.6	89.8–93.3
Total	3,575	84.0	80.7–87.3	2,239	58.5	56.3–60.7	2,812	65.5	62.9–68.1	3,165	91.8	90.7–92.9

Abbreviations: CD4, CD4 T-lymphocyte count (cells/ μ L); CI, confidence interval.

Note. Numbers might not add to total because of missing data.

Excluded are values with a coefficient of variation \geq 0.30, “don’t know” responses, and skipped (missing) responses. Values with a denominator sample size $<$ 30, values with an absolute CI width \geq 0.30, and values with an absolute CI width of between 0.05 and 0.30 and a relative CI width $>$ 130% are marked with an asterisk and should be interpreted with caution.

^a In past 30 days, 100% adherence to ART doses.

^b All viral load measurements in the 12 months preceding the interview documented undetectable or $<$ 200 copies/mL.

^c Numbers are unweighted.

^d Percentages are weighted percentages.

^e CIs incorporate weighted percentages.

^f Persons were classified as transgender if sex at birth and gender reported by the person were different, or if the person chose “transgender” in response to the question about self-identified gender.

^g Hispanics or Latinos might be of any race. Persons are classified in only 1 race/ethnicity category.

Table 10. Depression and anxiety during the 2 weeks before the interview—Medical Monitoring Project, United States, 2016

	No. ^a	% ^b	95% CI ^c
Depression based on DSM-IV criteria^d			
No depression	3,129	78.2	76.1–80.2
Other depression	432	10.7	9.3–12.0
Major depression	425	11.2	9.9–12.5
Moderate or severe depression (PHQ-8 score ≥10)			
Yes	645	16.5	15.1–17.8
No	3,341	83.5	82.2–84.9
Anxiety^e			
No anxiety	3,007	74.2	72.3–76.2
Mild anxiety	283	7.5	6.4–8.5
Moderate anxiety	354	9.3	8.2–10.5
Severe anxiety	353	9.0	7.8–10.1
Total	4,038	100	

Abbreviations: CI, confidence interval; DSM-IV, *Diagnostic and Statistical Manual of Mental Disorders*, 4th edition; GAD-7, Generalized Anxiety Disorder 7-item Scale [footnotes only]; PHQ-8, Patient Health Questionnaire.

Note. Numbers might not add to total because of missing data. Percentages might not sum to 100 because of rounding.

Excluded are values with a coefficient of variation ≥0.30, “don’t know” responses, and skipped (missing) responses.

^a Numbers are unweighted.

^b Percentages are weighted percentages.

^c CIs incorporate weighted percentages.

^d Responses to the items on the PHQ-8 were used to define “major depression” and “other depression,” according to criteria from the DSM-IV. “Major depression” was defined as having at least 5 symptoms of depression; “other depression” was defined as having 2–4 symptoms of depression.

^e Responses to the GAD-7 were used to define “mild anxiety,” “moderate anxiety,” and “severe anxiety,” according to criteria from the DSM-IV. “Severe anxiety” was defined as having a score of ≥15; “moderate anxiety” was defined as having a score of 10–14; and “mild anxiety” was defined as having a score of 5–9.

Table 11. Tobacco and electronic cigarette use—Medical Monitoring Project, United States, 2016

	No. ^a	% ^b	95% CI ^c
Smoked ≥100 cigarettes (lifetime)			
Yes	2,300	57.0	54.9–59.0
No	1,708	43.0	41.0–45.1
Cigarette smoking status			
Never smoked	1,708	43.0	41.0–45.1
Former smoker	880	21.6	19.6–23.6
Current smoker	1,420	35.4	33.4–37.3
Frequency of current cigarette smoking			
Never	2,588	64.6	62.7–66.6
Daily	1,164	28.8	26.7–31.0
Weekly	125	3.3	2.5–4.1
Monthly	41	1.0	0.6–1.5
Less than monthly	90	2.2	1.7–2.6
Smoked ≥50 cigars, cigarillos, or little filtered cigars (lifetime)			
Yes	600	15.2	14.2–16.3
No	3,408	84.8	83.7–85.8
Cigars, cigarillos, or little filtered cigars smoking status			
Never smoked	3,408	84.8	83.8–85.8
Former smoker	302	7.8	6.8–8.7
Current smoker	297	7.4	6.4–8.5
Frequency of current cigars, cigarillos, or little filtered cigars smoking			
Never	3,710	92.6	91.5–93.6
Daily	99	2.5	1.9–3.2
Some days	72	1.6	1.2–2.0
Rarely	126	3.3	2.5–4.0
Electronic cigarette smoking status			
Never used electronic cigarettes	3,026	74.3	71.0–77.6
Used electronic cigarettes, but not in the past 30 days	801	20.8	17.9–23.7
Used electronic cigarettes in the past 30 days	186	4.9	4.0–5.8
Total	4,038	100	

Abbreviation: CI, confidence interval.

Note. Numbers might not add to total because of missing data. Percentages might not sum to 100 because of rounding.

Excluded are values with a coefficient of variation ≥ 0.30 , “don’t know” responses, and skipped (missing) responses.

^a Numbers are unweighted.

^b Percentages are weighted percentages.

^c CIs incorporate weighted percentages.

Table 12. Alcohol use during the 12 months before the interview—Medical Monitoring Project, United States, 2016

	No. ^a	% ^b	95% CI ^c
Any alcohol use^d			
Yes	2,577	64.9	62.0–67.9
No	1,433	35.1	32.1–38.0
Frequency of alcohol use			
Daily	271	6.5	5.3–7.8
Weekly	803	20.8	18.8–22.8
Monthly	504	13.0	11.2–14.7
Less than monthly	999	24.6	23.4–25.9
Never	1,433	35.1	32.1–38.0
Binge drinking, past 30 days^e			
Yes	621	16.0	13.5–18.4
No	3,364	84.0	81.6–86.5
Total	4,038	100	

Abbreviation: CI, confidence interval.

Note. Numbers might not add to total because of missing data. Percentages might not sum to 100 because of rounding.

Excluded are values with a coefficient of variation ≥ 0.30 , “don’t know” responses, and skipped (missing) responses.

^a Numbers are unweighted.

^b Percentages are weighted percentages.

^c CIs incorporate weighted percentages.

^d Persons who drank at least 1 alcoholic beverage during the 12 months before the interview. Alcoholic beverage was defined as a 12-ounce beer, 5-ounce glass of wine, or 1.5-ounce shot of liquor.

^e Persons who drank ≥ 5 alcoholic beverages in a single sitting (≥ 4 for women) during the 30 days before the interview.

Table 13. Noninjection drug use during the 12 months before the interview—Medical Monitoring Project, United States, 2016

	No. ^a	% ^b	95% CI ^c
Use of any noninjection drugs^d			
Yes	1,220	29.6	27.0–32.2
No	2,777	70.4	67.8–73.0
Noninjection drugs used^d			
Marijuana			
Yes	1,051	25.6	23.2–27.9
No	2,946	74.4	72.1–76.8
Crack			
Yes	122	2.9	2.1–3.6
No	3,874	97.1	96.4–97.9
Cocaine that is smoked or snorted			
Yes	209	5.4	4.6–6.3
No	3,786	94.6	93.7–95.4
Methamphetamine (e.g., crystal meth, tina, crank, ice)			
Yes	223	5.3	3.8–6.9
No	3,773	94.7	93.1–96.2
Amphetamine (e.g., speed, bennies, uppers)			
Yes	62	1.7	1.0–2.3
No	3,931	98.3	97.7–99.0
Club drugs (e.g., Ecstasy or X, ketamine or Special K, GHB or Liquid Ecstasy)			
Yes	134	3.3	2.3–4.3
No	3,863	96.7	95.7–97.7
Amyl nitrite (poppers)			
Yes	273	6.8	5.3–8.3
No	3,724	93.2	91.7–94.7
Prescription opioids (e.g., oxycodone, hydrocodone, Vicodin, Percocet)^e			
Yes	122	2.9	2.2–3.6
No	3,875	97.1	96.4–97.8
Prescription tranquilizers (e.g., Valium, Ativan, Xanax, downers, nerve pills)^e			
Yes	92	2.4	1.7–3.2
No	3,903	97.6	96.8–98.3
Total	4,038	100	

Disclaimer: The use of trade names is for identification only and does not imply endorsement by the Department of Health and Human Services or the Centers for Disease Control and Prevention.

Abbreviations: CI, confidence interval; GHB, gamma hydroxybutyrate.

Note. Numbers might not add to total because of missing data. Percentages might not sum to 100 because of rounding.

Excluded are values with a coefficient of variation ≥ 0.30 , “don’t know” responses, and skipped (missing) responses.

Persons could report taking more than 1 noninjection drug.

^a Numbers are unweighted.

^b Percentages are weighted percentages.

^c CIs incorporate weighted percentages.

^d Includes all drugs that were not injected (i.e., administered by any route other than injection), including legal drugs that were not used for medical purposes.

^e Not prescribed, or prescribed but taken more than directed.

Table 14. Injection drug use during the 12 months before the interview—Medical Monitoring Project, United States, 2016

	No. ^a	% ^b	95% CI ^c
Use of any injection drugs			
Yes	120	2.6	1.8–3.3
No	3,886	97.4	96.7–98.2
Injection drugs used			
Cocaine			
Yes	17	0.3	0.2–0.4
No	3,987	99.7	99.6–99.8
Heroin			
Yes	37	0.7	0.5–0.9
No	3,967	99.3	99.1–99.5
Heroin and cocaine (speedball)			
Yes	15	0.3	0.1–0.4
No	3,989	99.7	99.6–99.9
Methamphetamine (e.g., crystal meth, tina, crank, ice)			
Yes	90	2.0	1.3–2.8
No	3,914	98.0	97.2–98.7
Amphetamine (e.g., speed, bennies, uppers)			
Yes	—	—	—
No	—	—	—
Prescription opioids (e.g., OxyContin, oxycodone, hydrocodone)			
Yes	—	—	—
No	—	—	—
Total	4,038	100	

Disclaimer: The use of trade names is for identification only and does not imply endorsement by the Department of Health and Human Services or the Centers for Disease Control and Prevention.

Abbreviation: CI, confidence interval.

Note. Numbers might not add to total because of missing data. Percentages might not sum to 100 because of rounding.

Excluded are values with a coefficient of variation ≥ 0.30 , “don’t know” responses, and skipped (missing) responses.

Persons could report taking more than 1 injection drug.

^a Numbers are unweighted.

^b Percentages are weighted percentages.

^c CIs incorporate weighted percentages.

Table 15. Gynecological care and reproductive health among women—Medical Monitoring Project, United States, 2016

	No. ^a	% ^b	95% CI ^c
Papanicolaou (Pap) test, past 12 months			
Yes	753	71.2	66.8–75.5
No	271	28.8	24.5–33.2
Pregnant since HIV diagnosis			
Yes	283	29.1	24.7–33.5
No	744	70.9	66.5–75.3
Total	1,045	100	

Abbreviation: CI, confidence interval.

Note. Measures are self-reported. Numbers might not add to total because of missing data. Percentages might not sum to 100 because of rounding. Excluded are values with a coefficient of variation ≥ 0.30 , “don’t know” responses, and skipped (missing) responses.

^a Numbers are unweighted.

^b Percentages are weighted percentages.

^c CIs incorporate weighted percentages.

Table 16. Sexual behavior during the 12 months before the interview among cisgender men and women—Medical Monitoring Project, United States, 2016

Behavior	Men			Women		
	No. ^a	% ^b	95% CI ^c	No. ^a	% ^b	95% CI ^c
Engaged in anal sex with men						
Receptive						
Yes	981	34.3	31.7–36.9	58	5.5	3.7–7.4
No	1,860	65.7	63.1–68.3	969	94.5	92.6–96.3
Insertive						
Yes	911	32.3	30.4–34.2	—	—	—
No	1,930	67.7	65.8–69.6	—	—	—
Engaged in anal sex with women						
Yes	71	2.2	1.5–2.9	—	—	—
No	2,855	97.8	97.1–98.5	—	—	—
Engaged in vaginal sex						
Yes	518	17.7	14.9–20.5	513	50.1	46.1–54.1
No	2,353	82.3	79.5–85.1	513	49.9	45.9–53.9
Engaged in vaginal or anal sex						
Yes	1,737	60.5	58.4–62.5	516	50.4	46.6–54.3
No	1,127	39.5	37.5–41.6	510	49.6	45.7–53.4
Number of vaginal or anal sex partners among						
MSM^d						
Mean	6			—		
Median	2			—		
Range	1–360			—		
MSW^e						
Mean	2			—		
Median	1			—		
Range	1–50			—		
WSM^f						
Mean	—			1		
Median	—			1		
Range	—			1–10		
Total	2,930	100		1,045	100	

Abbreviations: CI, confidence interval; MSM, men who had sex with men; MSW, men who had sex only with women; WSM, women who had sex with men.

Note. Numbers might not add to total because of missing data. Percentages might not sum to 100 because of rounding.

Excluded are values with a coefficient of variation ≥ 0.30 , “don’t know” responses, and skipped (missing) responses.

^a Numbers are unweighted.

^b Percentages are weighted percentages.

^c CIs incorporate weighted percentages.

^d Among men who had anal sex with men in the 12 months before the interview.

^e Among men who had vaginal or anal sex only with women in the 12 months before the interview.

^f Among women who had vaginal or anal sex with men in the 12 months before the interview.

Table 17. Sexual behavior during the 12 months before the interview among transgender persons—Medical Monitoring Project, United States, 2016

Behavior	Transgender ^{a,b}			Transgender women ^a			Transgender men ^b		
	No. ^c	% ^d	95% CI ^e	No. ^c	% ^d	95% CI ^e	No. ^c	% ^d	95% CI ^e
Engaged in vaginal or anal sex									
Yes	38	69.4*	54.0–84.8	32	62.2*	42.6–81.7	—	—	—
No	19	30.6*	15.2–46.0	17	37.8*	18.3–57.4	—	—	—
Engaged in vaginal or anal sex with men									
Yes	32	45.5*	26.5–64.5	31	59.5*	41.3–77.8	—	—	—
No	25	54.5*	35.5–73.5	18	40.5*	22.2–58.7	—	—	—
Engaged in vaginal or anal sex with women									
Yes	—	—	—	—	—	—	—	—	—
No	—	—	—	—	—	—	—	—	—
Engaged in vaginal or anal sex with transgender partners									
Yes	—	—	—	0	0	—	—	—	—
No	—	—	—	49	100	—	—	—	—
Reported any high-risk sex^f									
Yes	—	—	—	—	—	—	—	—	—
No	—	—	—	—	—	—	—	—	—
Number of vaginal or anal sex partners^g									
Mean	3			3			2		
Median	1			2			1		
Range	1–20			1–20			1–3		
Total	59	100		51	100		8	100	

Abbreviations: CI, confidence interval; PrEP, preexposure prophylaxis [footnotes only].

Note. Numbers might not add to total because of missing data. Percentages might not sum to 100 because of rounding.

Excluded are values with a coefficient of variation ≥ 0.30 , "don't know" responses, and skipped (missing) responses. Values with a denominator sample size < 30 , values with an absolute CI width ≥ 0.30 , and values with an absolute CI width of between 0.05 and 0.30 and a relative CI width $> 130\%$ are marked with an asterisk and should be interpreted with caution.

^a Persons were classified as transgender if sex at birth and gender reported by the person were different, or if the person chose "transgender" in response to the question about self-identified gender. When reported sex at birth and gender were different, persons who reported that their sex assigned at birth was male, but identified as female or transgender, were classified as transgender women.

^b Persons were classified as transgender if sex at birth and gender reported by the person were different, or if the person chose "transgender" in response to the question about self-identified gender. When reported sex at birth and gender were different, persons who reported that their sex assigned at birth was female, but identified as male or transgender, were classified as transgender men.

^c Numbers are unweighted.

^d Percentages are weighted percentages.

^e CIs incorporate weighted percentages.

^f Vaginal or anal sex with at least 1 HIV-negative or unknown status partner while not sustainably virally suppressed, a condom was not used, and the partner was not on PrEP. PrEP use was only measured among the 5 most recent partners.

^g Among persons who had vaginal or anal sex in the 12 months before the interview.

Corrected data on estimates of high-risk sex and condomless sex with a partner on PrEP—May 2, 2019.

Table 18. Sexual behavior during the 12 months before the interview among men who had sex with men (MSM), men who had sex only with women (MSW), and women who had sex with men (WSM)—Medical Monitoring Project, United States, 2016

Behavior	MSM			MSW			WSM		
	No. ^a	% ^b	95% CI ^c	No. ^a	% ^b	95% CI ^c	No. ^a	% ^b	95% CI ^c
Engaged in any high-risk sex^d									
Yes	113	6.4	4.6–8.3	26	3.4	1.7–5.0	62	7.3	4.9–9.8
No	1,856	93.6	91.7–95.4	844	96.6	95.0–98.3	941	92.7	90.2–95.1
Engaged in any high-risk sex among sexually active persons^d									
Yes	113	10.0	7.2–12.8	26	6.6	3.4–9.7	62	14.3	10.0–18.6
No	1,149	90.0	87.2–92.8	430	93.4	90.3–96.6	450	85.7	81.4–90.0
Percentages of sexually active persons who used a prevention strategy with at least 1 partner									
Sex while sustainably virally suppressed^e									
Yes	904	66.4	63.0–69.7	323	68.9	63.1–74.8	329	61.1	54.7–67.4
No	363	33.6	30.3–37.0	141	31.1	25.2–36.9	186	38.9	32.6–45.3
Condom-protected sex^f									
Yes	780	64.5	59.8–69.3	323	69.0	63.1–74.9	304	57.3	52.1–62.6
No	463	35.5	30.7–40.2	129	31.0	25.1–36.9	199	42.7	37.4–47.9
Condomless sex with a partner on PrEP^g									
Yes	158	11.6	9.1–14.1	18	2.8	1.4–4.2	—	—	—
No	1,104	88.4	85.9–90.9	446	97.2	95.8–98.6	—	—	—
Sex with an HIV-positive partner^h									
Yes	769	59.8	56.6–63.0	124	27.9	23.6–32.1	134	26.0	20.3–31.7
No	498	40.2	37.0–43.4	340	72.1	67.9–76.4	381	74.0	68.3–79.7
Total	1,985	100		885	100		1,015	100	

Abbreviations: CI, confidence interval; PrEP, preexposure prophylaxis.

Note. Numbers might not add to total because of missing data. Percentages might not sum to 100 because of rounding. Persons who reported no anal, vaginal, or oral sex in the 12 months before the interview were categorized according to self-reported sexual orientation. This table does not include information on women who had sex with women only, women who had sex with transgender persons only, or men who had sex with transgender persons only.

Excluded are values with a coefficient of variation ≥ 0.30 , “don’t know” responses, and skipped (missing) responses.

^a Numbers are unweighted.

^b Percentages are weighted percentages.

^c CIs incorporate weighted percentages.

^d Vaginal or anal sex with at least 1 HIV-negative or unknown status partner while not sustainably virally suppressed, a condom was not used, and the partner was not on PrEP. PrEP use was only measured among the 5 most recent partners.

^e HIV viral load <200 copies/mL documented in the medical record at every measure in the past 12 months before the interview.

^f Condoms were consistently used with at least 1 vaginal or anal sex partner.

^g At least 1 HIV-negative condomless-sex partner was on PrEP. PrEP use was only measured among the 5 most recent partners and was reported by the HIV-positive partner.

^h Sex with at least 1 HIV-positive partner.

Table 19. Met and unmet needs for ancillary services during the 12 months before the interview—Medical Monitoring Project, United States, 2016

	Persons who received services			Persons who needed but did not receive services by time of interview		
	No. ^a	% ^b	95% CI ^c	No. ^a	% ^b	95% CI ^c
Dental care						
Yes	2,379	56.4	53.4–59.4	924	24.7	22.4–27.0
No	1,631	43.6	40.6–46.6	3,086	75.3	73.0–77.6
HIV case management services						
Yes	2,216	52.4	47.9–56.9	263	7.5	6.3–8.6
No	1,781	47.6	43.1–52.1	3,734	92.5	91.4–93.7
Medicine through ADAP						
Yes	1,899	44.6	42.2–46.9	109	3.5	2.7–4.2
No	2,034	55.4	53.1–57.8	3,824	96.5	95.8–97.3
SNAP or WIC						
Yes	1,584	38.4	34.4–42.4	517	13.3	11.7–15.0
No	2,421	61.6	57.6–65.6	3,488	86.7	85.0–88.3
Mental health services						
Yes	1,274	29.8	26.8–32.8	350	9.3	8.2–10.4
No	2,720	70.2	67.2–73.2	3,644	90.7	89.6–91.8
Professional help remembering to take HIV medicines on time or correctly (adherence support services)						
Yes	1,263	29.4	25.4–33.5	31	0.7	0.4–1.0
No	2,730	70.6	66.5–74.6	3,962	99.3	99.0–99.6
Transportation assistance						
Yes	992	22.9	21.1–24.7	309	7.4	6.2–8.7
No	3,014	77.1	75.3–78.9	3,697	92.6	91.3–93.8
Meal or food services^d						
Yes	861	20.3	17.9–22.6	349	8.7	7.6–9.8
No	3,143	79.7	77.4–82.1	3,655	91.3	90.2–92.4
Shelter or housing services						
Yes	672	15.5	14.3–16.7	479	12.1	10.9–13.3
No	3,333	84.5	83.3–85.7	3,526	87.9	86.7–89.1
HIV peer group support						
Yes	505	11.5	10.6–12.4	271	7.0	6.0–8.0
No	3,493	88.5	87.6–89.4	3,727	93.0	92.0–94.0
Patient navigation services						
Yes	481	11.1	9.9–12.3	200	5.5	4.5–6.6
No	3,517	88.9	87.7–90.1	3,798	94.5	93.4–95.5
Drug or alcohol counseling or treatment						
Yes	345	7.9	6.8–8.9	89	2.1	1.5–2.7
No	3,660	92.1	91.1–93.2	3,916	97.9	97.3–98.5
Interpreter services						
Yes	107	2.6	2.0–3.1	—	—	—
No	3,913	97.4	96.9–98.0	—	—	—
Domestic violence services						
Yes	41	1.0	0.7–1.2	43	1.1	0.7–1.5
No	3,965	99.0	98.8–99.3	3,963	98.9	98.5–99.3
Total	4,038	100		4,038	100	

Abbreviations: CI, confidence interval; ADAP, AIDS Drug Assistance Program; SNAP, Supplemental Nutrition Assistance Program; WIC, Special Supplemental Nutrition Program for Women, Infants, and Children.

Note. Persons could report receiving or needing more than 1 service. Numbers might not add to total because of missing data. Percentages might not sum to 100 because of rounding. Excluded are values with a coefficient of variation ≥ 0.30 , “don’t know” responses, and skipped (missing) responses.

^a Numbers are unweighted.

^b Percentages are weighted percentages.

^c CIs incorporate weighted percentages.

^d Includes services such as soup kitchens, food pantries, food banks, church dinners, or food delivery services.

Table 20. Intimate partner violence and sexual violence—Medical Monitoring Project, United States, 2016

	No. ^a	% ^b	95% CI ^c
Was ever slapped, punched, shoved, kicked, choked, or otherwise physically hurt by a romantic or sexual partner			
Yes	1,062	26.0	23.6–28.3
No	2,927	74.0	71.7–76.4
Was slapped, punched, shoved, kicked, choked, or otherwise physically hurt by a romantic or sexual partner, past 12 months			
Yes	170	4.1	3.5–4.7
No	3,817	95.9	95.3–96.5
Was ever threatened with harm or physically forced to have unwanted vaginal, anal, or oral sex			
Yes	679	17.2	15.3–19.0
No	3,301	82.8	81.0–84.7
Was threatened with harm or physically forced to have unwanted vaginal, anal, or oral sex, past 12 months			
Yes	55	1.4	0.9–1.8
No	3,924	98.6	98.2–99.1
Total	4,038	100	

Abbreviation: CI, confidence interval.

Note. Numbers might not add to total because of missing data. Percentages might not sum to 100 because of rounding.

Excluded are values with a coefficient of variation ≥ 0.30 , “don’t know” responses, and skipped (missing) responses.

^a Numbers are unweighted.

^b Percentages are weighted percentages.

^c CIs incorporate weighted percentages.

Table 21. Prevention services received during the 12 months before the interview—Medical Monitoring Project, United States, 2016

	No. ^a	% ^b	95% CI ^c
One-on-one HIV/STD risk-reduction conversation with physician, nurse, or other health care worker			
Yes	2,217	52.4	48.6–56.1
No	1,785	47.6	43.9–51.4
One-on-one HIV/STD risk-reduction conversation with outreach worker, counselor, or prevention program worker			
Yes	1,384	32.7	28.3–37.1
No	2,615	67.3	62.9–71.7
Attended an organized HIV/STD risk-reduction session involving a small group of people			
Yes	545	12.7	10.9–14.4
No	3,460	87.3	85.6–89.1
Received free condoms			
Yes	2,079	49.9	46.7–53.1
No	1,931	50.1	46.9–53.3
Total	4,038	100	

Abbreviation: CI, confidence interval.

Note. Persons could report receiving more than 1 prevention service.

Numbers might not add to total because of missing data. Percentages might not sum to 100 because of rounding.

Excluded are values with a coefficient of variation ≥ 0.30 , “don’t know” responses, and skipped (missing) responses.

^a Numbers are unweighted.

^b Percentages are weighted percentages.

^c CIs incorporate weighted percentages.

Table 22. National indicators: homelessness, HIV stigma, and high-risk sex—Medical Monitoring Project, United States, 2016

	Homeless in the 12 months before the interview among persons receiving HIV care in the past 12 months ^a			HIV stigma ^b		Engaged in any high-risk sex ^c			
	No. ^d	Row % ^e	95% CI ^f	No. ^d	Row median score	Interquartile range	No. ^d	Row % ^e	95% CI ^f
Gender									
Male	264	8.6	7.3–9.9	2,789	37.6	22.7–54.6	139	5.4	4.0–6.7
Female	75	7.5	5.5–9.4	973	44.3	28.9–61.6	62	7.1	4.8–9.5
Transgender ^g	—	—	—	56	47.4	26.6–57.3	—	—	—
Sexual orientation									
Lesbian or gay	88	4.6	3.7–5.6	1,620	36.7	23.1–52.9	86	6.2	4.2–8.3
Heterosexual or straight	195	10.7	8.4–13.0	1,768	40.0	24.1–58.1	90	5.7	3.7–7.7
Bisexual	46	12.8	9.6–16.1	328	43.0	26.7–61.6	26	7.0	3.9–10.1
Other	—	—	—	89	48.5	27.9–62.7	—	—	—
Race/ethnicity									
American Indian/Alaska Native	—	—	—	18	51.2	43.7–71.3	0	—	—
Asian	—	—	—	31	52.2	38.4–73.3	—	—	—
Black/African American	168	9.8	8.3–11.3	1,620	39.1	24.4–57.2	88	5.4	3.8–7.1
Hispanic/Latino ^h	73	8.3	4.4–12.2	784	37.9	24.4–56.8	44	7.1	4.5–9.7
Native Hawaiian/Other Pacific Islander	—	—	—	6	42.5	42.5–56.0	0	—	—
White	79	6.4	4.8–8.1	1,170	38.2	22.7–54.1	54	4.9	3.1–6.8
Multiple races	24	10.7	5.7–15.7	190	44.9	23.2–58.5	18	11.8	5.3–18.3
Age at time of interview (yr)									
18–29	44	13.7	9.7–17.6	307	42.3	27.7–59.7	41	15.6	9.6–21.5
30–39	65	10.3	7.7–12.9	598	41.3	26.9–59.3	50	9.6	5.4–13.9
40–49	95	8.3	6.5–10.1	952	41.6	26.9–58.0	48	5.9	3.9–7.9
≥50	145	6.9	5.2–8.7	1,964	36.4	20.9–53.8	67	3.0	1.9–4.2
Total	349	8.4	7.3–9.6	3,821	39.0	23.9–56.2	206	5.9	4.5–7.4

Abbreviations: CI, confidence interval; PrEP, preexposure prophylaxis [footnotes only].

Note. Numbers might not add to total because of missing data.

Excluded are values with a coefficient of variation ≥0.30, “don’t know” responses, and skipped (missing) responses.

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

^b Ten-item scale ranging from 0 (no stigma) to 100 (high stigma) that measures 4 dimensions of HIV stigma: personalized stigma, disclosure concerns, negative self-image, and perceived public attitudes about people living with HIV.

^c Vaginal or anal sex with at least 1 HIV-negative or unknown status partner while not sustainably virally suppressed, a condom was not used, and the partner was not on PrEP. PrEP use was only measured among the 5 most recent partners.

^d Numbers are unweighted.

^e Percentages are weighted percentages.

^f CIs incorporate weighted percentages.

^g Persons were classified as transgender if sex at birth and gender reported by the person were different, or if the person chose “transgender” in response to the question about self-identified gender.

^h Hispanics or Latinos might be of any race. Persons are classified in only 1 race/ethnicity category.

Appendix: Methods and Definitions

METHODS

The Medical Monitoring Project (MMP) uses a stratified, 2-stage sampling design. States were sampled first, with probability proportional to size (PPS). All 50 states, the District of Columbia, and Puerto Rico (defined as primary sampling units [PSUs]) were eligible for selection. From these 52 PSUs, 20 were selected by using PPS sampling based on AIDS prevalence at the end of 2002. According to the PPS sampling method, states with a higher AIDS prevalence had a higher probability of selection, and those with a lower AIDS prevalence had a lower probability of selection [1]. Six municipal jurisdictions receive separate funding for HIV surveillance (Chicago, Illinois; Houston, Texas; Los Angeles County, California; New York City, New York; Philadelphia, Pennsylvania; and San Francisco, California); these areas were included with the state for first-stage sampling and constituted a city-state unit. If a state included a city with independent HIV surveillance authority (e.g., Texas, which includes Houston), selection of the state included selection of the city (i.e., city-state units were selected together). In 2004, 19 states (including the 6 separately funded areas within those states) and Puerto Rico were selected from the 52 PSUs, resulting in 26 MMP project areas. Because of funding constraints for the 2009 data collection cycle, 3 project areas (Maryland, Massachusetts, and South Carolina) were randomly selected to discontinue participation in MMP, and the total number of MMP areas was reduced to 23. An analysis carried out in 2014 found that the original measure of size with which states were originally sampled (i.e., AIDS prevalence in 2002) was still a reasonable proxy for the distribution of HIV prevalence in 2010 (the most recent year for which prevalence estimates were available at the time). Consequently, we concluded that the selected sample of states was still sufficiently representative of the population of persons with diagnosed HIV and that selecting a new sample for the 2015 and subsequent data collection cycles was unwarranted. In addition, the change in the sampling frame and the availability of national totals from the National HIV Surveillance System (NHSS) presented new options for calibrating

weights, further lessening the need for any adjustments to the sample of states.

At the second stage, persons with a reported diagnosis in NHSS were sampled after the selection of the states. The sampling frame was the national case surveillance data set containing records submitted to the Centers for Disease Control and Prevention (CDC) as of December 31, 2015. This national data set was divided into 24 separate frame files according to the most recently reported residence information, with 1 frame for each of the 23 project areas and 1 residual file for all non-MMP project areas. Individuals were eligible for sampling if their vital status was alive, they were aged ≥ 18 years, and they were residents of the United States. Records in the NHSS are deidentified (under provisions of CDC's Assurance of Confidentiality) and include only limited information about where the person currently resides, lacking the more exact address information contained in local case surveillance systems. CDC staff drew simple random samples from the 23 project area frame files, and project area staff then linked their samples to local case surveillance systems and extracted contact information for use in locating sampled persons, whom they then attempted to recruit.

Nonresponse Analysis and Weighting

Data used to generate national estimates were weighted for the probability of selection based upon known probabilities of selection of states and individuals within states. In addition, data were weighted to adjust for nonresponse by using predictors of response, including sex, race/ethnicity, age of most recent contact information, transmission category, and the person's receipt of care as documented by laboratory test results in NHSS records. In 2016, frame data extracted from NHSS provided information for all sampled persons in MMP, regardless of response to the interview or from the medical record abstraction. These data provided descriptive information about all sampled persons for assessing how person characteristics were associated with nonresponse and were the source of data used for nonresponse analysis and weighting.

Eligibility and Response Classifications

Persons were eligible for participation if, as of the sampling date, they had received a diagnosis of HIV, were aged ≥ 18 years, alive, and a resident of an MMP project area. Sampled persons were presumed to be eligible based on their information in NHSS unless data from another source contradicted this status. Persons were classified into 4 categories: (1) eligible respondents, (2) contacted nonrespondents, (3) nonrespondents who were not contacted, and (4) ineligible persons. These categories were used in calculating final response rates and contact rates in accordance with standard formulas [2].

Weighting

Overview

For the 2016 MMP cycle, sets of weights at the national level of analysis were produced independently of the local levels of analysis. Base weights were applied, and statistical adjustments were then made for multiplicity and nonresponse at the person level. These nonresponse adjustments distributed the base weights of nonresponding persons to responding persons, so that the sum of the adjusted weights equaled the sum of the base weights. After adjusting for nonresponse, the weights were then poststratified to population totals from the NHSS frame. Extreme weights were trimmed and the weights were adjusted to the same population totals.

For the weighting process, an updated sampling frame was created by returning to the source of surveillance records approximately a year later, during which time additional information may have become available for persons reported to NHSS and additional diagnoses may have been reported. This updated frame added to the frame all records that would have been eligible if their information had met the inclusion criteria; primarily, these were diagnoses that occurred during the year prior to the MMP sampling date (for the 2016 cycle, December 31, 2015), but had not yet been reported on the date the initial sample was drawn. Additionally, some persons were found to have had multiple records pertaining to them at the time of sampling, which were later identified as duplicate records. In some cases, updated information indicated that a person originally judged eligible and included on the original frame was ineligible.

Adjustments for unequal selection probabilities

The base weight was the inverse probability of selection for the person, which varied by project area. A person who was sampled from one jurisdiction, but lived in another area at the time of sampling, retained the original base weight. Prior to weighting, such cross-jurisdictional records were grouped with their project area of residence at the time of sampling. This moving of records had no effect on the national weights, but did affect the project area weight totals, increasing some slightly while decreasing others.

Adjustments for multiplicity

A multiplicity factor was applied to the person weight for persons with records found to be present more than once when the original frame was compared to the updated frame. This factor, which accounts for some persons' multiple opportunities for being sampled, was capped at 2.0 and was applicable for only 56 persons.

Adjustments for nonresponse

A nonresponse adjustment factor was then applied to the base weight. This factor makes use of information available for every sampled case from the NHSS frame data: personal demographics, HIV exposure category, laboratory data, and diagnosis data. Definitions of weighting classes were based on variables that were determined in bivariate analyses to be significantly related to response at the national or project area level. For the national adjustment factor, weighting classes were based on variables related to response: sex at birth, age of most recent contact information, and the person's frequency of receipt of care (as indicated by NHSS records). For local project area data, the factors used for this adjustment varied, depending on the results of bivariate analyses. Within weighting classes, the adjustment for nonresponse was the ratio of the sum of the multiplicity-adjusted base weights for eligible sampled cases to the sum of these weights for eligible respondents.

Poststratification

The updated sampling frame provided information on the size and characteristics of the population with diagnosed HIV, which was used for poststratification to known distributions. A count of records on this updated frame provided an updated total population size estimate. Poststratifying to this total forced the sample-based estimate of population size to conform and corrected for late reports. This adjustment was

performed within classes defined by key demographics (age, race/ethnicity, and gender), so that the weight sum was preserved in each class.

Trimming

After poststratification, the need for trimming the adjusted weights, so as not to inflate variance, was assessed. Where the design effect due to weighting (measured as $1 + CV^2$, where CV is the coefficient of variation of the weights) exceeded 1.75, we capped the weights at the median weight plus 4 times the interquartile range of the weights, then redistributed the excess to preserve the weight total. This was implemented in 4 project areas, but was not needed for national weights. The effect of other weighting adjustments, however, reduced weight totals through the exclusion of sampled persons found to be ineligible, while approximately maintaining the proportional distributions of the factors used in the poststratification.

Design variables and variance estimation

Nationally, design variables indicating strata and cluster membership for each participating person accounted for the sample design. Many states were sampled with certainty, because of their higher AIDS prevalence, and each of these was defined as its own stratum. Elsewhere, strata were created by grouping 2 to 3 states (PSUs in the stratified PPS design) that had similar selection probabilities. Multiple project areas within certainty states were effectively substrata, and each project area remained its own stratum. For certainty PSUs, the participant was the cluster. For the strata composed of noncertainty states, the state was the cluster. For local estimates, variance estimation was conditional on the initial sampling of states as PSUs, meaning that this stage of sampling was ignored. Participants were treated as having come from a simple random sample with replacement, although the various adjustment factors induced unequal weights.

DEFINITIONS

Sociodemographic Characteristics

- **Gender:** Categories were male, female, and transgender. Participants were classified as transgender if reported sex at birth and current gender as reported by the participant were not the same or if

the participant answered “transgender” to the interview question regarding self-identified gender.

- **Health insurance, including coverage for antiretroviral therapy (ART) medications:** Participants were asked whether they had health insurance or coverage for ART medications during the 12 months before the interview. Responses to these questions were combined and categorized as private health insurance, Medicaid, Medicare, Ryan White HIV/AIDS Program, Tricare/CHAMPUS and Veterans Administration coverage, insurance classified as other public health insurance, and unknown insurance. Participants could select more than 1 response for health insurance, including coverage for ART medications.
- **Federal poverty guidelines:** Participants were asked about their combined monthly or yearly household income (in US\$) from all sources during the 12 months before the interview. The number of persons meeting the current federal poverty threshold was determined by using the U.S. Department of Health and Human Services poverty guidelines that corresponded to the calendar year for which income was asked. These guidelines are issued yearly for the 48 contiguous states and Washington, D.C., and are an indicator used for determining eligibility for many federal and state programs. The 2015 guidelines [3] were used for participants interviewed in 2016, and the 2016 guidelines [4] were used for persons interviewed in 2017. Because the poverty guidelines are not defined for the territory of Puerto Rico, the guidelines for the contiguous states and Washington, D.C., were used for this jurisdiction. Participants were asked to specify the range of their income, and household income was assumed to be the midpoint of the income range.

Clinical Characteristics

- **CDC stage of disease classification for HIV infection:** Defined according to CDC’s 2014 revised surveillance case definition for HIV infection [5]. Information from NHSS was used to determine the most advanced HIV disease stage ever reached by participants.

Use of Health Care Services

- **Outpatient HIV medical care:** Defined as documentation of any of the following: encounter with

an HIV care provider, viral load test result, CD4 test result, HIV resistance test or tropism assay, ART prescription, PCP prophylaxis, or MAC prophylaxis. All were measured through documentation in the person's medical record; an encounter with an HIV care provider was also measured based on interview self-report. Persons were considered to be retained in care if they had 2 elements of outpatient HIV care at least 90 days apart in each 12-month period reviewed.

- **ART prescription:** Defined as a prescription in the medical record, during the 12 months before the interview, of any of the following medications: abacavir, amprenavir, atazanavir, cobicistat, darunavir, delavirdine, didanosine, dolutegravir, efavirenz, elvitegravir, emtricitabine, enfuvirtide, etravirine, fosamprenavir, indinavir, lamivudine, lopinavir/ritonavir, maraviroc, nelfinavir, nevirapine, raltegravir, rilpivirine, ritonavir, saquinavir, stavudine, tenofovir alafenamide, tenofovir disoproxil fumarate, tipranavir, or zidovudine. Persons with no medical record abstraction were considered to have no documentation of ART prescription.
- ***Pneumocystis pneumonia* (PCP) prophylaxis:** Defined as documentation in the medical record that prophylaxis for PCP was prescribed among persons with a CD4 count of <200 cells/ μ L in the 12 months before the interview [6]. Persons prescribed regimens typically given as PCP prophylaxis (trimethoprim-sulfamethoxazole, dapsone with or without pyrimethamine and leucovorin, aerosolized pentamidine, and atovaquone) were not presumptively categorized as having received PCP prophylaxis unless this was specifically stated in the medical record or no length of time was specified for the course of treatment.
- ***Mycobacterium avium* complex (MAC) prophylaxis:** Defined as documentation in the medical record that prophylaxis for MAC disease was prescribed among persons with a CD4 count of <50 cells/ μ L in the 12 months before the interview [6]. Persons prescribed regimens typically given as MAC prophylaxis (azithromycin with or without ethambutol and/or rifabutin, clarithromycin with or without ethambutol and/or rifabutin, and rifabutin with or without azithromycin or azithromycin along with ethambutol) were not presumptively

categorized as having received MAC prophylaxis unless this was specifically stated in the medical record or no length of time was specified for the course of treatment.

- **Influenza vaccination:** Participants were asked whether they had received seasonal influenza vaccine during the 12 months before the interview.
- ***Neisseria gonorrhoeae* testing:** Defined as documentation in the medical record, during the 12 months before the interview, of a result from culture, Gram stain, enzyme immunoassay (EIA), nucleic acid amplification test (NAAT), or nucleic acid probe.
- ***Chlamydia trachomatis* testing:** Defined as documentation in the medical record, during the 12 months before the interview, of a result from culture, direct fluorescent antibody (DFA), EIA or enzyme-linked immunoassay (ELISA), NAAT, or nucleic acid probe.
- **Syphilis testing:** Defined as documentation in the medical record, during the 12 months before the interview, of a result from nontreponemal serologic tests (rapid plasma reagin [RPR], Venereal Disease Research Laboratory [VDRL]), treponemal serologic tests (*Treponema pallidum* hemagglutination assay [TPHA], *T. pallidum* particle agglutination [TP-PA], microhemagglutination assay for antibodies to *T. pallidum* [MHA-TP], Chemiluminescence Immunoassay [CIA], fluorescent treponemal antibody absorption [FTA-ABS] tests), polymerase chain reactions (PCR), or dark-field microscopy.

Self-reported ART Medication Use and Adherence

- **ART adherence:** Participants were asked about their adherence to ART in the 30 days before the interview using questions from a 3-item scale developed by Wilson and colleagues [7]. Participants were asked about how many days they missed at least 1 dose of their HIV medicines, how often they took their HIV medicines in the way they were supposed to, and how good a job they did at taking their HIV medicines in the way they were supposed to during the 30 days before the interview.

Depression and Substance Use

- **Depression:** Participants were asked questions from the Patient Health Questionnaire (PHQ-8), an 8-item scale used to measure frequency of depressed mood in the preceding 2 weeks [8]. The PHQ-8 has the following question: “Over the last 2 weeks, how often have you been bothered by any of the following problems?” The respondent is then asked about the following problems: (1) little interest or pleasure in doing things (anhedonia); (2) feeling down, depressed, or hopeless; (3) trouble falling/staying asleep, or sleeping too much; (4) feeling tired or having little energy; (5) poor appetite or overeating; (6) feeling bad about yourself or that you are a failure or have let yourself or your family down; (7) trouble concentrating on things, such as reading the newspaper or watching television; and (8) moving or speaking so slowly that other people could have noticed, or being fidgety or restless or moving around a lot more than usual. Response categories were “not at all,” “several days,” “more than half the days,” and “nearly every day,” with points (0–3) assigned to each response category, respectively. The PHQ-8 responses were scored by using 2 methods. Method 1: an algorithm involving criteria from the *Diagnostic and Statistical Manual of Mental Disorders*, 4th edition (DSM-IV-TR) [9], for diagnosing major depression was used to classify adults with diagnosed HIV as having major depression, other depression, or no depression. To meet the criteria for major depression, a participant must have experienced 5 or more symptoms at least “more than half the days,” and one of the symptoms must be anhedonia or feelings of hopelessness. For other depression, a participant must have experienced 2 to 4 symptoms at least “more than half the days,” and one of the symptoms must be anhedonia or feelings of hopelessness. Method 2: scores for each response category were summed to produce a total score between 0 and 24 points. Current depression of moderate or severe intensity was defined as a total score of ≥ 10 .
- **Anxiety:** Participants were asked questions from the Generalized Anxiety Disorder Scale (GAD-7), a 7-item scale used to screen for and measure the severity of generalized anxiety disorder [10]. The GAD-7 has the following question: “Over the last

2 weeks, how often have you been bothered by any of the following problems?” The respondent is then asked about the following problems: (1) feeling nervous, anxious, or on edge; (2) not being able to stop or control worrying; (3) worrying too much about different things; (4) trouble relaxing; (5) being so restless that it is hard to sit still; (6) becoming easily annoyed or irritable; and (7) feeling afraid as if something awful might happen. Responses were scored according to criteria from the DSM-IV-TR [9]. Response categories were “not at all,” “several days,” “more than half the days,” and “nearly every day,” with points (0–3) assigned to each response category, respectively. Scores for each response category were summed to produce a total score between 0 and 21 points. “Severe anxiety” was defined as having a score of ≥ 15 ; “moderate anxiety” was defined as having a score of 10–14; and “mild anxiety” was defined as having a score of 5–9.

- **Alcohol use:** Participants were asked about alcohol use during the 30 days and the 12 months before the interview. A drink was defined as 12 ounces of beer, a 5-ounce glass of wine, or a 1.5-ounce shot of liquor.
- **Binge drinking:** Defined as ≥ 5 drinks in a single sitting for men and ≥ 4 drinks in a single sitting for women in the past 30 days.

Sexual Behavior

- **Prevention modalities:** Reported behaviors that decrease the likelihood of HIV transmission to a sexual partner, including
 - Sex while sustainably virally suppressed: Vaginal or anal sex and the person’s HIV viral load was documented in the medical record as < 200 copies/mL at every measure in the past 12 months before the interview.
 - Condom-protected sex: Condoms were consistently used with at least 1 vaginal or anal sex partner.
 - Condomless sex with a partner on preexposure prophylaxis (PrEP): At least 1 HIV-negative condomless-sex partner was on PrEP. PrEP use was only measured among the 5 most recent partners and was reported by the HIV-positive partner.

- Sex with an HIV-positive partner: Vaginal or anal sex with at least 1 HIV-positive partner.
- **High-risk sex:** Vaginal or anal sex with at least 1 HIV-negative or unknown status partner while not sustainably virally suppressed, when a condom was not used, and the partner was not known to be taking PrEP.

Met and Unmet Needs for Ancillary Services

- **Met need:** Defined as an ancillary service (e.g., HIV case management service, dental care, mental health service) received during the 12 months before the interview.
- **Unmet need:** Defined as an ancillary service that the participant reported as needed, but not received, during the 12 months before the interview.

Division of HIV/AIDS Prevention National Indicators

Measures in this section are used by CDC’s Division of HIV/AIDS Prevention for national monitoring and evaluation purposes.

- **Homelessness among persons receiving HIV care:** Defined as 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 the interview among person who received any outpatient HIV medical care in the 12 months before the interview.
- **HIV stigma:** Defined as the median score on a 10-item scale ranging from 0 (no stigma) to 100 (high stigma) that measures 4 dimensions of HIV stigma: personalized stigma, disclosure concerns, negative self-image, and perceived public attitudes about people with HIV [11].
- **High-risk sex:** See “Sexual Behavior” section.

ETHICS STATEMENT

In accordance with guidelines for defining public health research [12], CDC determined MMP was public health surveillance used for disease control, program, or policy purposes. Local institutional review board approval was obtained at participating states and territories when required. Informed consent was obtained from all interviewed participants.

REFERENCES

1. Frankel MR, McNaghten A, Shapiro MF, et al. A probability sample for monitoring the HIV-infected population in care in the U.S. and in selected states. *Open AIDS J* 2012;6:67–76. doi:10.2174/1874613601206010067.
2. The American Association for Public Opinion Research. Standard Definitions: Final dispositions of case codes and outcome rates for surveys. 9th ed. [https://www.aapor.org/Standards-Ethics/Standard-Definitions-\(1\).aspx](https://www.aapor.org/Standards-Ethics/Standard-Definitions-(1).aspx). Revised 2016. Accessed January 11, 2019.
3. U.S. Department of Health and Human Services. 2015 Poverty guidelines. <https://aspe.hhs.gov/2015-poverty-guidelines>. Published 2015. Accessed January 2, 2019.
4. U.S. Department of Health and Human Services. Computations for the 2016 poverty guidelines. <https://aspe.hhs.gov/computations-2016-poverty-guidelines>. Published 2016. Accessed January 11, 2019.
5. CDC [Selik RM, Mokotoff ED, Branson B, Owen SM, Whitmore S, Hall HI]. Revised surveillance case definition for HIV infection—United States, 2014. *MMWR* 2014;63(RR-03):1–10. https://www.cdc.gov/mmwr/indrr_2014.html. Accessed January 11, 2019.
6. Panel on Antiretroviral Guidelines for Adults and Adolescents. Guidelines for the use of antiretroviral agents in adults and adolescents living with HIV. <https://go.usa.gov/vdGA>. Updated October 25, 2018. Accessed January 11, 2019.
7. Wilson IB, Lee Y, Michaud J, Fowler FJ Jr, Rogers WH. Validation of a new three-item self-report measure for medication adherence. *AIDS Behav* 2016;20(11):2700–2708.
8. Kroenke K, Strine TW, Spitzer RL, et al. The PHQ-8 as a measure of current depression in the general population. *J Affect Disord* 2009;114(1–3):163–173. doi:10.1016/j.jad.2008.06.026.
9. American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders: DSM-IV-TR*. 4th ed. Washington, DC: American Psychiatric Association; 2000.
10. Spitzer RL, Kroenke K, Williams JB, Löwe B. A brief measure for assessing generalized anxiety disorder: the GAD-7. *Arch Intern Med* 2006;166(10):1092–1097.
11. Wright K, Naar-King S, Lam P, Templin T, Frey M. Stigma scale revised: reliability and validity of a brief measure of stigma for HIV+ youth. *J Adolesc Health* 2007;40(1):96–98. doi:10.1016/j.jadohealth.2006.08.001.
12. CDC. Distinguishing public health research and public health nonresearch. <https://go.usa.gov/vdwz>. Published July 2010. Accessed January 11, 2019.