

HIV

SURVEILLANCE REPORT

SPECIAL REPORT

Number 25

Behavioral and Clinical Characteristics of Persons with Diagnosed HIV Infection Medical Monitoring Project, United States 2018 Cycle (June 2018–May 2019)

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



This HIV Surveillance Special Report is 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.

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Suggested citation

Centers for Disease Control and Prevention. *Behavioral and Clinical Characteristics of Persons with Diagnosed HIV Infection—Medical Monitoring Project, United States, 2018 Cycle (June 2018–May 2019)*. HIV Surveillance Special Report 25. <https://www.cdc.gov/hiv/library/reports/hiv-surveillance.html>. Published May 2020. Accessed [date].

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Acknowledgments

This report is based, in part, on contributions by Medical Monitoring Project (MMP) participants, community and provider advisory boards, interviewers, and abstractors; the Data Coordinating Center for HIV Supplemental Surveillance at ICF International; and members of the Clinical Outcomes Team, Division of HIV/AIDS Prevention, National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention, CDC, Atlanta, Georgia.

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

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At year-end 2017, an estimated 1,020,419 persons in the United States and 6 dependent areas were living with diagnosed HIV infection [1]. In 2018, the number of new HIV diagnoses was 37,832 [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 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 fourth to publish MMP data collected by using these revised methods. MMP is a cross-sectional, nationally representative, complex sample survey that assesses the behavioral and clinical characteristics of adults with diagnosed HIV infection in the United States. MMP also provides information on behaviors and clinical outcomes affecting risk of HIV transmission, morbidity, and mortality that are critical for achieving the goals of the Ending the HIV Epidemic: A Plan for America initiative [7], which seeks to reduce new HIV infections in the United States by 90% by 2030.

The 2018 MMP sample was selected in 2 consecutive stages: (1) U.S. states, the District of Columbia, and Puerto Rico and (2) adults aged ≥ 18 years with diagnosed HIV infection reported to NHSS as of December 31, 2017. A total of 23 project areas from 16 states and Puerto Rico were funded to conduct data collection for the 2018 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, hereafter referred to as *persons with diagnosed HIV* or *persons*. The period referenced for estimates 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 [8]. 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 4,050 participated (Table 1). Adjusted for eligibility, the response rate was 45% (data not shown in table).

Sociodemographic Characteristics

An estimated 75% of persons were male, 23% were female, and 2% were transgender (Table 2). Nearly half (47%) identified themselves as heterosexual or straight; 41% as lesbian or gay; 9% as bisexual; and 3% as another sexual orientation. An estimated 41% were black or African American, 29% were white, and 22% were Hispanic or Latino. Three-quarters (75%) were aged at least 40 years, and 68% had received an HIV diagnosis at least 10 years earlier. Over half (56%) had more than a high school education and 86% were born in a U.S. state or territory. The estimated prevalence of homelessness among all persons with diagnosed HIV was 10%. Approximately 14% had moved in with other people because of financial problems, and 3% had been evicted from housing during the past 12 months. An estimated 98% had health insurance or coverage for medications (including antiretroviral therapy [ART] medications): 46% had coverage through the Ryan White HIV/AIDS Program, 45% had Medicaid, 36% had private health insurance, and 28% had Medicare. An estimated 44% had a disability, 41% were unemployed, and 43% had household incomes at or below the federal poverty

threshold. An estimated 17% received Supplemental Security Income (SSI), and 20% received Social Security Disability Insurance (SSDI).

Clinical Characteristics

According to the CDC stage of disease classification for HIV infection [9], an estimated 54% of persons had ever had stage 3 (AIDS) disease (Table 3). An estimated 7% 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 648 cells/ μ L, and the median geometric mean CD4 count was 622 cells/ μ L (range, 2–3,697) (data not shown in table).

An estimated 68% of persons had an undetectable (<200 copies/mL) viral load at the most recent measurement, while 62% had undetectable viral loads at all measurements during the past 12 months (sustained viral suppression).

Use of Health Care Services

Overall, 95% 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 78% were retained in care during the past 12 months, while 63% were retained in care during the past 24 months. An estimated 81% 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, 42% had a prescription for PCP prophylaxis documented in the medical record. Of persons who met the clinical criteria for *Mycobacterium avium* complex (MAC) prophylaxis, 49% had a prescription for MAC prophylaxis documented in the medical record.

Among sexually active persons, an estimated 49% were tested for gonorrhea, 49% for chlamydia, 65% for syphilis, and 44% for all 3 sexually transmitted diseases (STDs) (Table 5).

An estimated 42% of persons were seen in an emergency department at least once, and 4% were seen at least 5 times (Table 6). An estimated 19% of persons were admitted to a hospital for an illness at least once.

Self-reported ART Medication Use and Adherence

An estimated 93% of persons were currently taking ART based on self-report (Table 7). Among the estimated 3% of persons without a history of ART use,

44% 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, 47% were not taking ART due to money or insurance problems, and 29% 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, 74% had never been troubled by ART side effects during the past 30 days; 14% had rarely been troubled. Among persons who had ever missed a dose, the most common reasons given for not taking one's most recently missed ART dose were forgetting (64%), a change in one's daily routine or being out of town (39%), and falling asleep early or oversleeping (35%).

Clinical Characteristics by Subgroups

The estimated prevalence of ART prescription documented in a medical record was 81% among males and 81% among females (Table 9). An estimated 79% of blacks or African Americans were prescribed ART, compared with 85% of Hispanics or Latinos and 82% of whites. The estimated prevalence of ART prescription was 76% among persons aged 18 to 29 years and 83% among those aged 50 years or older.

The estimated prevalence of sustained viral suppression was 63% among males and 60% among females. An estimated 56% of blacks or African Americans had sustained viral suppression, compared with 67% of Hispanics or Latinos and 69% of whites. The estimated prevalence of sustained viral suppression was 53% among persons aged 18 to 29 years and 66% 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 [10] was 18%, including 10% with major depression (Table 10). Based on the total PHQ-8 symptom score (see the appendix), an estimated 15% 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) [11] was 22%, including 9% with severe anxiety.

The estimated prevalence of current smoking was 33%: 26% of persons smoked daily, 3% weekly, 1% monthly, and 2% less than monthly (Table 11). The

estimated prevalence of alcohol use was 63%: 7% of persons drank alcohol daily, 21% weekly, 11% monthly, and 24% less than monthly (Table 12). An estimated 17% of persons engaged in binge drinking during the past 30 days.

An estimated 33% of persons used noninjection drugs for nonmedical purposes (Table 13). In total, an estimated 29% used marijuana, 7% used poppers (amyl nitrite), 6% used cocaine, 6% used methamphetamines, 4% used club drugs, 3% used crack, 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 cocaine.

Gynecologic and Reproductive Health

Among females, 84% reported receiving a Papanicolaou (Pap) test in the past 3 years (Table 15). An estimated 32% of females reported being pregnant at least once since receiving an HIV diagnosis.

Sexual Behavior

An estimated 36% of men had receptive anal sex with men, 32% had insertive anal sex with men, and 19% had vaginal sex (Table 16). An estimated 38% 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, 63% had vaginal or anal sex (Table 17).

Among men who had sex with men, an estimated 7% engaged in high-risk sex, compared with 6% 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 64% of men who had sex with men engaged in sex while sustainably virally suppressed, 59% had condom-protected sex, 19% had condomless sex with a partner on preexposure prophylaxis (PrEP), and 59% had sex with a person with HIV. Among sexually active men who had sex only with women, 62% engaged in sex while sustainably virally suppressed, 60% had condom-protected sex, 4% had condomless sex with a partner on PrEP, and 28% had sex with a person with HIV. Among sexually active women who had sex with men, 58% engaged in sex while sustainably virally suppressed, 54% had condom-protected sex, 3% had condomless sex with a partner on PrEP, and 26% had sex with a person with HIV.

Met and Unmet Need for Ancillary Services

An estimated 58% of persons received dental care; 56% received HIV case management services; 46% received medicine through the Ryan White AIDS Drug Assistance Program (ADAP); and 37% received services through the Supplemental Nutrition Assistance Program (SNAP) or Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) (Table 19). An estimated 23% of persons had unmet needs for dental care, 12% for SNAP or WIC, 11% for shelter or housing services, 9% for transportation assistance, 8% for mental health services, 8% for meal or food services, 7% for HIV case management services, 7% for HIV peer group support, and 5% for patient navigation services.

Intimate Partner Violence and Sexual Violence

An estimated 28% 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 59% of persons received counseling from a physician, nurse, or other health care worker about HIV and STD risk reduction; 30% 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 49% of persons received free condoms from various organizations.

Centers for Disease Control and Prevention National Indicators

The estimated prevalence of homelessness among persons who received outpatient HIV care in the past 12 months was 9% (Table 22). The median HIV stigma score (see the appendix) among all persons was 38. An estimated 7% of persons engaged in high-risk sex.

POPULATION OF INFERENCE

For the 2018 Medical Monitoring Project (MMP) data collection cycle (data collected June 1, 2018–May 31, 2019), the population of inference was adults with diagnosed HIV (aged ≥ 18 years) living in the United States as of December 31, 2017.

A total of 23 areas were funded to conduct data collection for the 2018 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, 2017: 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 2018 cycle (June 2018–May 2019). 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 no more than \$50 in cash or the equivalent for participation; tokens 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.

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Table 1. Participants, by project area—Medical Monitoring Project, United States, 2018

Project area	No. sampled	No. participating	% participating^a	% of total
California (excluding Los Angeles County and San Francisco)	500	192	38.4	4.7
Chicago, IL	400	145	36.3	3.6
Delaware	400	189	47.3	4.7
Florida	800	339	42.4	8.4
Georgia	500	176	35.2	4.3
Houston, TX	400	170	42.5	4.2
Illinois (excluding Chicago)	200	52	26.0	1.3
Indiana	400	183	45.8	4.5
Los Angeles County, CA	400	143	35.8	3.5
Michigan	400	180	45.0	4.4
Mississippi	400	168	42.0	4.1
New Jersey	500	234	46.8	5.8
New York (excluding New York City)	200	81	40.5	2.0
New York City, NY	800	359	44.9	8.9
North Carolina	400	166	41.5	4.1
Oregon	400	192	48.0	4.7
Pennsylvania (excluding Philadelphia)	200	84	42.0	2.1
Philadelphia, PA	400	146	36.5	3.6
Puerto Rico	400	168	42.0	4.1
San Francisco, CA	400	176	44.0	4.3
Texas (excluding Houston)	400	160	40.0	4.0
Virginia	400	168	42.0	4.1
Washington	400	179	44.8	4.4
Total	9,700	4,050	41.8	100

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

^a Not adjusted for eligibility.

Table 2. Persons with diagnosed HIV infection, by selected characteristics—Medical Monitoring Project, United States, 2018

	No. ^a	% ^b	95% CI ^c
Gender			
Male	2,923	74.7	72.7–76.7
Female	1,048	23.4	21.5–25.4
Transgender ^d	78	1.8	1.4–2.2
Sexual orientation			
Lesbian or gay	1,591	40.7	37.4–43.9
Heterosexual or straight	1,954	46.7	43.4–50.1
Bisexual	356	9.4	8.2–10.6
Other	118	3.2	2.4–4.0
Race/ethnicity			
American Indian/Alaska Native	—	—	—
Asian	38	1.0	0.6–1.5
Black/African American	1,751	41.3	31.7–51.0
Hispanic/Latino ^e	883	22.3	14.4–30.1
Native Hawaiian/other Pacific Islander	—	—	—
White	1,125	29.1	22.7–35.5
Multiple races	223	5.5	3.7–7.3
Age at time of interview (yr)			
18–24	88	2.4	1.5–3.2
25–29	250	6.2	5.1–7.4
30–34	278	7.4	6.7–8.2
35–39	328	9.3	8.1–10.5
40–44	371	9.5	8.5–10.6
45–49	516	12.8	11.4–14.3
50–54	636	15.7	14.3–17.1
55–59	696	15.7	14.6–16.9
60–64	492	11.6	10.4–12.8
≥65	395	9.3	8.4–10.1
Education			
Less than high school	715	16.9	14.9–18.9
High school diploma or GED	1,088	27.1	25.2–29.0
More than high school	2,237	56.1	53.0–59.2
Country or territory of birth			
United States or U.S. territory	3,448	85.5	83.4–87.5
Foreign born	574	14.5	12.5–16.6
Time since HIV diagnosis (yr)			
<5	576	15.2	14.0–16.3
5–9	690	17.1	16.0–18.3
≥10	2,780	67.7	66.3–69.0
Homeless at any time, past 12 months^f			
Yes	399	9.5	8.5–10.5
No	3,641	90.5	89.5–91.5
Moved in with other people because of financial problems, past 12 months			
Yes	582	14.1	12.5–15.7
No	3,443	85.9	84.3–87.5
Number of times moved, past 12 months			
0	2,870	71.1	69.0–73.3
1	708	18.0	16.2–19.8
≥2	443	10.8	9.8–11.9

Table 2. Persons with diagnosed HIV infection, by selected characteristics—Medical Monitoring Project, United States, 2018 (cont)

	No. ^a	% ^b	95% CI ^c
Evicted from housing, past 12 months			
Yes	105	2.6	1.7–3.5
No	3,921	97.4	96.5–98.3
Incarcerated >24 hours, past 12 months			
Yes	181	4.7	3.7–5.8
No	3,853	95.3	94.2–96.3
Health insurance or coverage for medications, past 12 months^g			
Yes	3,976	98.1	97.3–98.9
No	46	1.9	1.1–2.7
Type of health insurance or coverage for medications, past 12 months			
Ryan White HIV/AIDS Program			
Yes	1,925	45.7	44.1–47.2
No	2,007	54.3	52.8–55.9
Medicaid			
Yes	1,867	44.9	41.9–47.8
No	2,088	55.1	52.2–58.1
Private health insurance			
Yes	1,383	35.6	32.5–38.6
No	2,561	64.4	61.4–67.5
Medicare			
Yes	1,156	27.7	26.1–29.3
No	2,774	72.3	70.7–73.9
Other public insurance			
Yes	—	—	—
No	—	—	—
Tricare/CHAMPUS or Veterans Administration			
Yes	141	4.6	3.7–5.4
No	3,776	95.4	94.6–96.3
Insurance type unknown^h			
Yes	25	0.5	0.3–0.8
No	3,904	99.5	99.2–99.7
Any disabilityⁱ			
Yes	1,815	43.9	41.5–46.3
No	2,222	56.1	53.7–58.5
Received Supplemental Security Income (SSI), past 12 months			
Yes	738	17.0	15.4–18.5
No	3,243	83.0	81.5–84.6
Received Social Security Disability Insurance (SSDI), past 12 months			
Yes	840	20.2	18.5–21.8
No	3,124	79.8	78.2–81.5
Perception of general health			
Poor	231	5.7	4.9–6.4
Fair	965	22.8	21.0–24.6
Good	1,405	35.7	34.1–37.3
Very good	870	21.8	20.0–23.6
Excellent	550	14.0	12.8–15.2
Went without food due to lack of money, past 12 months			
Yes	802	19.5	18.2–20.8
No	3,234	80.5	79.2–81.8

Table 2. Persons with diagnosed HIV infection, by selected characteristics—Medical Monitoring Project, United States, 2018 (cont)

	No. ^a	% ^b	95% CI ^c
Employment status^j			
Employed	1,898	48.8	47.3–50.2
Unemployed	1,697	40.6	38.5–42.6
Student	65	1.5	1.1–2.0
Retired	373	9.1	7.8–10.5
Combined yearly household income (U.S.)^k			
0–19,999	2,009	52.9	50.3–55.6
20,000–39,999	805	22.3	20.3–24.3
40,000–74,999	501	14.4	13.1–15.7
≥75,000	392	10.4	7.8–13.0
Poverty guidelines^l			
Above poverty threshold	2,055	57.1	54.4–59.9
At or below poverty threshold	1,651	42.9	40.1–45.6
Total	4,050	100	

Abbreviations: CI, confidence interval; GED, general educational development; CHAMPUS, Civilian Health and Medical Program of the Uniformed Services; U.S.\$, 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 medications (including antiretroviral medications).

^h Unknown insurance type means that the person had insurance or coverage for medications (including 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 2017 guidelines were used for persons interviewed in 2018 and the 2018 guidelines were used for persons interviewed in 2019. 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, 2018**

	No. ^a	% ^b	95% CI ^c
HIV infection stage 3 (AIDS)^d			
Yes	2,294	54.2	51.9–56.5
No	1,756	45.8	43.5–48.1
Geometric mean CD4 count (cells/μL)			
0–199	245	7.0	5.9–8.1
200–349	368	11.3	10.1–12.5
350–499	561	17.1	16.0–18.3
≥500	2,103	64.5	62.9–66.2
Lowest CD4 count (cells/μL), past 12 months			
0–49	67	2.0	1.4–2.6
50–199	267	7.5	6.1–9.0
200–349	412	12.7	11.7–13.7
350–499	622	18.8	17.5–20.0
≥500	1,910	59.0	57.2–60.8
Viral suppression			
Most recent viral load documented undetectable or <200 copies/mL	2,990	68.4	65.5–71.4
Most recent viral load documented detectable, ≥200 copies/mL, or missing/unknown	1,060	31.6	28.6–34.5
Sustained viral suppression			
All viral load measurements documented undetectable or <200 copies/mL	2,702	62.2	59.5–64.9
Any viral load ≥200 copies/mL or missing/unknown	1,348	37.8	35.1–40.5
Total	4,050	100	

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

Source of disease stage information: CDC. 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 May 6, 2020.

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 “don’t know” 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, 2018

	No. ^a	% ^b	95% CI ^c
Ever received outpatient HIV care^d			
Yes	—	—	—
No	—	—	—
Received outpatient HIV care, past 12 months^d			
Yes	3,959	95.3	94.3–96.4
No	86	4.7	3.6–5.7
Received outpatient HIV care, past 24 months^d			
Yes	4,000	97.9	97.1–98.8
No	32	2.1	1.2–2.9
Retained in care, past 12 months^e			
Yes	3,234	78.4	76.2–80.6
No	612	21.6	19.4–23.8
Retained in care, past 24 months^e			
Yes	2,581	63.3	60.3–66.3
No	1,258	36.7	33.7–39.7
Prescribed ART, past 12 months^f			
Yes	3,490	81.2	79.3–83.2
No	560	18.8	16.8–20.7
Prescribed PCP prophylaxis, past 12 months^g			
Yes	123	42.3	30.0–54.6
No	174	57.7	45.4–70.0
Prescribed MAC prophylaxis, past 12 months^h			
Yes	29	49.3*	29.5–69.2
No	32	50.7*	30.8–70.5
Received influenza vaccination, past 12 months			
Yes	3,052	74.9	72.6–77.3
No	948	25.1	22.7–27.4
Total	4,050	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. Values with a denominator sample size < 30 , values with an absolute CI width ≥ 0.30 , and values with an absolute CI width between 0.05 and 0.30 and a relative CI width $> 130\%$ are marked with an asterisk (*) and should be interpreted with caution.

^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, 2018**

	Total population			Sexually active ^a persons only		
	No. ^b	% ^c	95% CI ^d	No. ^b	% ^c	95% CI ^d
Gonorrhea^e						
Yes, received test	1,718	44.4	39.5–49.3	1,098	49.3	45.0–53.6
No test documented	2,013	55.6	50.7–60.5	1,032	50.7	46.4–55.0
Chlamydia^f						
Yes, received test	1,715	44.3	39.3–49.2	1,096	49.1	44.7–53.5
No test documented	2,016	55.7	50.8–60.7	1,034	50.9	46.5–55.3
Syphilis^g						
Yes, received test	2,392	61.5	59.2–63.9	1,460	65.4	62.7–68.0
No test documented	1,339	38.5	36.1–40.8	670	34.6	32.0–37.3
Gonorrhea, chlamydia, and syphilis						
Yes, received all 3 tests	1,537	39.5	35.4–43.6	991	44.1	40.0–48.2
Fewer than 3 tests documented	2,194	60.5	56.4–64.6	1,139	55.9	51.8–60.0
Total	4,050	100		2,302	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 record abstraction.

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

Excluded are “don’t know” 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 visits and hospital admissions during the 12 months before the interview—Medical Monitoring Project, United States, 2018

	No. ^a	% ^b	95% CI ^c
Number of visits to emergency department			
0	2,312	58.4	55.8–61.0
1	756	19.2	17.3–21.0
2–4	781	18.1	16.7–19.5
≥5	181	4.3	3.5–5.1
Number of hospital admissions			
0	3,203	80.6	78.7–82.6
1	459	11.3	9.6–13.0
2–4	316	6.9	6.1–7.6
≥5	51	1.2	0.8–1.6
Total	4,050	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 “don’t know” 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, 2018

	No. ^a	% ^b	95% CI ^c
Ever taken ART			
Yes	3,958	97.4	96.7–98.1
No	70	2.6	1.9–3.3
Currently taking ART			
Yes	3,828	93.0	91.8–94.3
No	184	7.0	5.7–8.2
Reasons for never taking ART^d			
Health care provider never discussed taking ART with person			
Yes	—	—	—
No	—	—	—
Health care provider said person should not start taking ART			
Yes	18	43.8*	25.3–62.4
No	18	56.2*	37.6–74.7
Money or insurance problems			
Yes	—	—	—
No	—	—	—
Person doesn't believe he/she needs ART			
Yes	18	38.7*	19.9–57.5
No	29	61.3*	42.5–80.1
Person thinks ART would make him/her feel sick or harm him/her			
Yes	—	—	—
No	—	—	—
Person decided not to take ART for some other reason			
Yes	14	29.8	15.7–44.0
No	34	70.2	56.0–84.3
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	27	27.1	18.9–35.4
No	88	72.9	64.6–81.1
Health care provider said person should not take ART			
Yes	—	—	—
No	—	—	—
Money or insurance problems			
Yes	57	46.6	33.3–59.8
No	58	53.4	40.2–66.7
Person doesn't believe he/she needs ART			
Yes	20	19.9	12.6–27.1
No	93	80.1	72.9–87.4
Person thinks ART would make him/her feel sick or harm him/her			
Yes	33	28.7	18.2–39.2
No	82	71.3	60.8–81.8
Person decided not to take ART for some other reason			
Yes	45	40.6	29.5–51.6
No	70	59.4	48.4–70.5
Total	4,050	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. Values with a denominator sample size <30 , values with an absolute CI width ≥ 0.30 , and values with an absolute CI width between 0.05 and 0.30 and a relative CI width $>130\%$ are marked with an asterisk (*) and should be interpreted with caution.

^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, 2018

	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	2,279	59.3	57.0–61.6
1–2	1,010	26.4	24.3–28.5
3–5	353	9.4	8.2–10.6
6–10	92	2.4	1.9–2.9
11+	86	2.5	1.8–3.2
How well did you do at taking your HIV medicines in the way you were supposed to?			
Very poor	53	1.6	0.9–2.3
Poor	52	1.4	0.9–1.8
Fair	170	4.5	3.9–5.2
Good	471	11.8	10.8–12.9
Very good	966	25.2	23.5–27.0
Excellent	2,114	55.4	53.4–57.5
How often did you take your HIV medicines in the way you were supposed to?			
Never	26	0.9	0.4–1.3
Rarely	31	0.8	0.4–1.1
Sometimes	97	2.7	2.1–3.3
Usually	173	4.7	4.0–5.5
Almost always	824	21.6	20.0–23.2
Always	2,674	69.3	67.5–71.1
How often were you troubled by ART side effects?			
Never	2,808	73.9	71.0–76.9
Rarely	510	13.5	11.7–15.2
About half the time	194	5.1	4.3–6.0
Most of the time	148	3.9	3.1–4.7
Always	138	3.6	2.8–4.3
Reasons for last missed ART dose among those who ever missed a dose^d			
Had a problem paying for HIV medicines			
Yes	197	6.6	5.8–7.4
No	2,690	93.4	92.6–94.2
Had a problem getting a prescription or a refill for HIV medicines			
Yes	496	17.2	15.0–19.3
No	2,387	82.8	80.7–85.0
In the hospital or too sick to take HIV medicines			
Yes	244	8.1	7.1–9.1
No	2,641	91.9	90.9–92.9
Fell asleep early or overslept			
Yes	1,040	35.4	32.8–38.0
No	1,845	64.6	62.0–67.2
Change in your daily routine or were out of town			
Yes	1,159	39.3	36.7–41.9
No	1,725	60.7	58.1–63.3
Had side effects from your HIV medicines			
Yes	309	10.6	8.9–12.4
No	2,570	89.4	87.6–91.1
Felt depressed or overwhelmed			
Yes	532	17.8	15.8–19.7
No	2,352	82.2	80.3–84.2
Was drinking or using drugs			
Yes	289	9.4	7.9–11.0
No	2,596	90.6	89.0–92.1
Forgot to take HIV medicines			
Yes	1,851	64.1	61.7–66.5
No	1,034	35.9	33.5–38.3
Did not feel like taking HIV medicines			
Yes	391	13.4	11.6–15.1
No	2,493	86.6	84.9–88.4
Total	3,828	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 “don’t know” 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, 2018

	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	2,521	81.4	78.9–83.9	1,668	60.0	57.3–62.7	1,980	63.1	60.3–65.9	2,181	92.9	91.6–94.2
Female	902	80.7	78.1–83.4	576	58.0	54.3–61.6	672	59.7	55.8–63.5	788	92.9	91.3–94.5
Transgender ^f	66	79.3	68.2–90.4	34	44.8	31.0–58.7	49	56.9	43.8–69.9	63	96.0	91.2–100
Sexual orientation												
Lesbian or gay	1,369	82.0	79.3–84.8	898	59.3	55.7–62.8	1,101	65.3	61.7–68.9	1,198	93.8	92.3–95.4
Heterosexual or straight	1,705	81.9	79.9–83.9	1,128	60.5	57.6–63.3	1,283	61.2	57.8–64.6	1,466	92.1	90.6–93.6
Bisexual	292	76.7	69.4–84.1	185	56.0	50.8–61.2	233	58.5	53.5–63.5	269	95.3	92.6–98.1
Other	96	74.6	65.4–83.7	54	47.7	38.7–56.7	69	52.2	44.2–60.1	79	90.1	85.1–95.0
Race/ethnicity												
American Indian/Alaska Native	20	90.2	71.9–100	12	65.0*	41.8–88.2	14	61.0*	37.5–84.5	15	94.0	83.5–100
Asian	29	61.5*	40.6–82.3	20	54.7*	34.6–74.7	28	59.6*	38.8–80.4	23	96.4	89.8–100
Black/African American	1,495	78.8	76.5–81.1	902	55.7	51.9–59.5	1,080	56.0	53.1–58.9	1,276	91.2	90.0–92.5
Hispanic/Latino ^g	772	84.5	80.2–88.8	522	61.0	57.8–64.2	608	66.5	60.5–72.6	700	94.0	92.0–96.0
Native Hawaiian/other Pacific Islander	9	100	—	—	—	—	9	100	—	8	93.3	80.3–100
White	968	81.9	78.1–85.7	699	63.7	59.7–67.7	825	68.5	63.3–73.7	860	95.3	92.6–97.9
Multiple races	197	84.7	74.6–94.8	117	53.4	47.0–59.7	138	57.6	45.8–69.4	150	88.1	83.6–92.7
Age at time of interview (yr)												
18–29	279	75.5	69.3–81.7	141	46.0	39.1–53.0	199	52.8	47.0–58.7	256	95.2	92.5–97.9
30–39	509	78.8	75.4–82.1	297	53.2	48.8–57.6	375	58.7	54.3–63.2	439	90.3	86.0–94.6
40–49	771	82.2	78.2–86.1	474	55.6	51.7–59.4	571	59.3	54.0–64.6	658	92.7	91.3–94.2
\geq 50	1,931	82.5	80.0–85.0	1,367	64.5	61.9–67.2	1,557	66.1	62.8–69.3	1,679	93.6	92.3–94.8
Total	3,490	81.2	79.3–83.2	2,279	59.3	57.0–61.6	2,702	62.2	59.5–64.9	3,032	93.0	91.9–94.1

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 before 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, 2018

	No. ^a	% ^b	95% CI ^c
Depression based on DSM-IV criteria^d			
No depression	3,287	82.4	81.1–83.7
Other depression	309	7.6	6.8–8.4
Major depression	381	10.0	8.8–11.2
Moderate or severe depression (PHQ-8 score ≥10)			
Yes	575	15.0	13.7–16.3
No	3,402	85.0	83.7–86.3
Anxiety^e			
No anxiety	3,143	78.2	75.5–81.0
Mild anxiety	208	5.4	4.3–6.6
Moderate anxiety	310	7.8	6.2–9.4
Severe anxiety	328	8.5	7.5–9.5
Total	4,050	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 “don’t know” 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, 2018

	No. ^a	% ^b	95% CI ^c
Smoked ≥100 cigarettes (lifetime)			
Yes	2,171	53.4	50.0–56.8
No	1,841	46.6	43.2–50.0
Cigarette smoking status			
Never smoked	1,841	46.6	43.2–50.0
Former smoker	867	20.9	18.5–23.3
Current smoker	1,302	32.5	29.4–35.6
Frequency of current cigarette smoking			
Never	2,708	67.5	64.4–70.6
Daily	1,040	26.1	23.9–28.3
Weekly	126	3.0	2.3–3.6
Monthly	48	1.3	0.7–1.9
Less than monthly	88	2.1	1.5–2.8
Smoked ≥50 cigars, cigarillos, or little filtered cigars (lifetime)			
Yes	611	16.0	14.2–17.7
No	3,406	84.0	82.3–85.8
Cigars, cigarillos, or little filtered cigars smoking status			
Never smoked	3,406	84.0	82.3–85.8
Former smoker	298	7.8	5.9–9.8
Current smoker	312	8.1	6.5–9.7
Frequency of current cigars, cigarillos, or little filtered cigars smoking			
Never	3,704	91.9	90.3–93.5
Daily	94	2.1	1.3–3.0
Some days	91	2.6	1.7–3.4
Rarely	127	3.4	2.7–4.1
Electronic cigarette smoking status			
Never used electronic cigarettes	2,940	72.3	68.9–75.6
Used electronic cigarettes, but not in the past 30 days	840	21.5	18.6–24.4
Used electronic cigarettes in the past 30 days	238	6.2	5.3–7.1
Total	4,050	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 “don’t know” 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, 2018

	No. ^a	% ^b	95% CI ^c
Any alcohol use^d			
Yes	2,510	63.2	60.0–66.4
No	1,503	36.8	33.6–40.0
Frequency of alcohol use			
Daily	291	7.1	6.2–8.0
Weekly	816	21.4	19.8–22.9
Monthly	455	11.2	9.8–12.5
Less than monthly	948	23.5	21.1–26.0
Never	1,503	36.8	33.6–40.0
Binge drinking, past 30 days^e			
Yes	655	16.9	15.2–18.6
No	3,331	83.1	81.4–84.8
Total	4,050	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 “don’t know” 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, 2018

	No. ^a	% ^b	95% CI ^c
Use of any noninjection drugs^d			
Yes	1,319	33.3	30.2–36.4
No	2,691	66.7	63.6–69.8
Noninjection drugs used^d			
Marijuana			
Yes	1,145	29.1	26.1–32.0
No	2,865	70.9	68.0–73.9
Crack			
Yes	131	3.1	2.3–3.9
No	3,879	96.9	96.1–97.7
Cocaine that is smoked or snorted			
Yes	246	5.9	4.5–7.2
No	3,763	94.1	92.8–95.5
Methamphetamine (e.g., crystal meth, tina, crank, ice)			
Yes	231	6.1	4.7–7.5
No	3,779	93.9	92.5–95.3
Amphetamine (e.g., speed, bennies, uppers)			
Yes	66	1.6	1.1–2.1
No	3,943	98.4	97.9–98.9
Club drugs (e.g., Ecstasy or X, ketamine or Special K, GHB or Liquid Ecstasy)			
Yes	142	3.7	2.8–4.7
No	3,868	96.3	95.3–97.2
Amyl nitrite (poppers)			
Yes	292	7.1	5.4–8.7
No	3,718	92.9	91.3–94.6
Prescription opioids (e.g., oxycodone, hydrocodone, Vicodin, Percocet)^e			
Yes	122	2.9	2.2–3.7
No	3,888	97.1	96.3–97.8
Prescription tranquilizers (e.g., Valium, Ativan, Xanax, downers, nerve pills)^e			
Yes	100	2.4	1.7–3.2
No	3,907	97.6	96.8–98.3
Total	4,050	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 “don’t know” 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, 2018

	No. ^a	% ^b	95% CI ^c
Use of any injection drugs			
Yes	120	2.9	2.0–3.8
No	3,889	97.1	96.2–98.0
Injection drugs used			
Cocaine			
Yes	20	0.5	0.3–0.7
No	3,989	99.5	99.3–99.7
Heroin			
Yes	—	—	—
No	—	—	—
Heroin and cocaine (speedball)			
Yes	—	—	—
No	—	—	—
Methamphetamine (e.g., crystal meth, tina, crank, ice)			
Yes	99	2.4	1.6–3.2
No	3,910	97.6	96.8–98.4
Amphetamine (e.g., speed, bennies, uppers)			
Yes	—	—	—
No	—	—	—
Prescription opioids (e.g., OxyContin, oxycodone, hydrocodone)			
Yes	—	—	—
No	—	—	—
Total	4,050	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, 2018

	No. ^a	% ^b	95% CI ^c
Papanicolaou (Pap) test, past 3 years^d			
Yes	874	84.3	81.6–87.0
No	151	15.7	13.0–18.4
Pregnant since HIV diagnosis			
Yes	291	31.6	27.7–35.6
No	743	68.4	64.4–72.3
Total	1,048	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 “don’t know” and skipped (missing) responses.

^a Numbers are unweighted.

^b Percentages are weighted percentages.

^c CIs incorporate weighted percentages.

^d Since HIV diagnosis for women with a diagnosis within the past 3 years.

Table 16. Sexual behavior during the 12 months before the interview among cisgender men and women—Medical Monitoring Project, United States, 2018

Behavior	Men			Women		
	No. ^a	% ^b	95% CI ^c	No. ^a	% ^b	95% CI ^c
Engaged in anal sex with men						
Receptive						
Yes	1,005	35.8	32.6–39.0	65	6.7	4.5–8.9
No	1,819	64.2	61.0–67.4	963	93.3	91.1–95.5
Insertive						
Yes	900	31.6	29.6–33.7	NA	NA	NA
No	1,927	68.4	66.3–70.4	NA	NA	NA
Engaged in anal sex with women						
Yes	74	2.5	1.8–3.3	NA	NA	NA
No	2,834	97.5	96.7–98.2	NA	NA	NA
Engaged in vaginal sex						
Yes	544	18.6	17.1–20.2	496	50.4	46.8–53.9
No	2,313	81.4	79.8–82.9	531	49.6	46.1–53.2
Engaged in vaginal or anal sex						
Yes	1,759	61.7	59.2–64.3	498	50.5	47.0–54.1
No	1,088	38.3	35.7–40.8	529	49.5	45.9–53.0
Number of vaginal or anal sex partners among						
MSM^d						
Mean	8			NA		
Median	2			NA		
Range	1–605			NA		
MSW^e						
Mean	2			NA		
Median	1			NA		
Range	1–50			NA		
WSM^f						
Mean	NA			1		
Median	NA			1		
Range	NA			1–30		
Total	2,923	100		1,048	100	

Abbreviations: CI, confidence interval; NA, not applicable; 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 "don't know" 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, 2018

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	44	63.0	50.8–75.3	40	65.0	51.7–78.4	—	—	—
No	31	37.0	24.7–49.2	27	35.0	21.6–48.3	—	—	—
Engaged in vaginal or anal sex with men									
Yes	39	57.2	45.0–69.4	37	60.7	47.6–73.7	—	—	—
No	36	42.8	30.6–55.0	30	39.3	26.3–52.4	—	—	—
Engaged in vaginal or anal sex with women									
Yes	—	—	—	—	—	—	—	—	—
No	—	—	—	—	—	—	—	—	—
Engaged in vaginal or anal sex with transgender partners									
Yes	—	—	—	—	—	—	0	0	—
No	—	—	—	—	—	—	7	100	—
Reported any high-risk sex^f									
Yes	—	—	—	—	—	—	0	0	—
No	—	—	—	—	—	—	7	100	—
Number of vaginal or anal sex partners^g									
Mean	17			18			4		
Median	2			2			2		
Range	1–200			1–200			1–7		
Total	78	100		69	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.

^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.

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, 2018

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	128	7.0	4.9–9.0	42	5.9	3.8–8.0	59	6.7	4.3–9.1
No	1,788	93.0	91.0–95.1	855	94.1	92.0–96.2	946	93.3	90.9–95.7
Engaged in any high-risk sex (among sexually active persons)^d									
Yes	128	10.5	7.5–13.4	42	11.4	7.6–15.2	59	13.3	9.0–17.6
No	1,143	89.5	86.6–92.5	423	88.6	84.8–92.4	431	86.7	82.4–91.0
Percentages of sexually active persons who used a prevention strategy with at least 1 partner									
Sex while sustainably virally suppressed^e									
Yes	869	63.9	59.7–68.1	309	61.9	53.9–69.8	315	58.0	49.3–66.6
No	414	36.1	31.9–40.3	163	38.1	30.2–46.1	183	42.0	33.4–50.7
Condom-protected sex^f									
Yes	722	58.7	55.1–62.4	291	59.7	52.6–66.9	260	53.7	47.7–59.6
No	539	41.3	37.6–44.9	164	40.3	33.1–47.4	221	46.3	40.4–52.3
Condomless sex with a partner on PrEP^g									
Yes	241	18.6	15.6–21.6	22	4.4	2.2–6.7	16	3.0	1.7–4.4
No	1,031	81.4	78.4–84.4	447	95.6	93.3–97.8	482	97.0	95.6–98.3
Sex with an HIV-positive partner^h									
Yes	768	58.5	55.6–61.5	118	27.6	22.7–32.5	128	25.8	22.0–29.6
No	515	41.5	38.5–44.4	354	72.4	67.5–77.3	370	74.2	70.4–78.0
Total	1,945	100		911	100		1,023	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 “don’t know” 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, 2018

	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	2,391	57.5	55.0–60.0	881	22.8	21.0–24.7
No	1,622	42.5	40.0–45.0	3,132	77.2	75.3–79.0
HIV case management services						
Yes	2,325	55.5	52.2–58.9	276	7.4	6.5–8.3
No	1,679	44.5	41.1–47.8	3,728	92.6	91.7–93.5
Medicine through Ryan White ADAP						
Yes	1,925	46.0	44.4–47.7	116	3.5	2.8–4.2
No	1,975	54.0	52.3–55.6	3,784	96.5	95.8–97.2
SNAP or WIC						
Yes	1,570	37.2	35.1–39.2	461	11.5	10.1–12.8
No	2,439	62.8	60.8–64.9	3,548	88.5	87.2–89.9
Professional help remembering to take HIV medicines on time or correctly (adherence support services)						
Yes	1,432	34.4	30.6–38.3	43	1.1	0.7–1.5
No	2,556	65.6	61.7–69.4	3,945	98.9	98.5–99.3
Mental health services						
Yes	1,346	32.8	29.5–36.1	317	8.1	7.1–9.2
No	2,659	67.2	63.9–70.5	3,688	91.9	90.8–92.9
Transportation assistance						
Yes	1,072	24.4	22.8–26.1	336	8.5	7.3–9.8
No	2,940	75.6	73.9–77.2	3,676	91.5	90.2–92.7
Meal or food services^d						
Yes	918	20.9	17.9–23.9	319	8.1	7.1–9.1
No	3,093	79.1	76.1–82.1	3,692	91.9	90.9–92.9
Shelter or housing services						
Yes	708	16.9	15.0–18.9	453	10.9	9.4–12.4
No	3,304	83.1	81.1–85.0	3,559	89.1	87.6–90.6
Patient navigation services						
Yes	621	14.4	12.3–16.4	188	4.6	3.7–5.5
No	3,378	85.6	83.6–87.7	3,811	95.4	94.5–96.3
HIV peer group support						
Yes	510	11.5	10.4–12.6	296	7.2	5.7–8.8
No	3,488	88.5	87.4–89.6	3,702	92.8	91.2–94.3
Drug or alcohol counseling or treatment						
Yes	305	7.3	6.3–8.3	112	2.9	2.1–3.6
No	3,710	92.7	91.7–93.7	3,903	97.1	96.4–97.9
Domestic violence services						
Yes	57	1.4	1.0–1.8	38	0.9	0.6–1.3
No	3,955	98.6	98.2–99.0	3,974	99.1	98.7–99.4
Total	4,050	100		4,050	100	

Abbreviations: CI, confidence interval; ADAP, Ryan White 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 “don’t know” 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, 2018

	No. ^a	% ^b	95% CI ^c
Was ever slapped, punched, shoved, kicked, choked, or otherwise physically hurt by a romantic or sexual partner			
Yes	1,072	27.5	24.8–30.1
No	2,906	72.5	69.9–75.2
Was slapped, punched, shoved, kicked, choked, or otherwise physically hurt by a romantic or sexual partner, past 12 months			
Yes	167	4.1	3.2–5.0
No	3,811	95.9	95.0–96.8
Was ever threatened with harm or physically forced to have unwanted vaginal, anal, or oral sex			
Yes	699	17.4	15.1–19.7
No	3,284	82.6	80.3–84.9
Was threatened with harm or physically forced to have unwanted vaginal, anal, or oral sex, past 12 months			
Yes	41	1.0	0.7–1.3
No	3,940	99.0	98.7–99.3
Total	4,050	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 “don’t know” 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, 2018

	No. ^a	% ^b	95% CI ^c
One-on-one HIV/STD risk-reduction conversation with physician, nurse, or other health care worker			
Yes	2,434	59.0	54.4–63.5
No	1,582	41.0	36.5–45.6
One-on-one HIV/STD risk-reduction conversation with outreach worker, counselor, or prevention program worker			
Yes	1,298	30.4	25.9–35.0
No	2,721	69.6	65.0–74.1
Attended an organized HIV/STD risk-reduction session involving a small group of people			
Yes	539	12.6	11.3–13.9
No	3,479	87.4	86.1–88.7
Received free condoms			
Yes	2,020	49.0	45.3–52.7
No	1,999	51.0	47.3–54.7
Total	4,050	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 “don’t know” 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, 2018

	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	274	8.6	7.6–9.6	2,792	36.1	22.0–53.7	170	6.5	4.7–8.2
Female	92	9.3	7.2–11.4	968	43.7	27.7–61.5	59	6.6	4.2–8.9
Transgender ^g	14	14.8	6.4–23.2	73	41.3	23.4–68.3	—	—	—
Sexual orientation									
Lesbian or gay	98	5.3	4.1–6.5	1,540	35.2	21.5–51.7	101	7.0	5.0–9.0
Heterosexual or straight	202	10.3	9.0–11.5	1,827	39.6	25.0–58.6	100	6.1	4.1–8.0
Bisexual	56	14.9	10.6–19.2	341	38.2	25.3–58.6	25	6.9	3.1–10.7
Other	22	19.0	9.3–28.7	112	34.1	23.1–52.1	—	—	—
Race/ethnicity									
American Indian/Alaska Native	—	—	—	20	28.4	19.1–50.0	0		
Asian	—	—	—	33	28.6	15.5–49.6	0		
Black/African American	195	10.8	9.3–12.2	1,652	38.4	23.9–56.9	95	6.5	4.0–8.9
Hispanic/Latino ^h	69	7.7	5.2–10.2	828	37.0	24.7–53.3	42	5.1	2.9–7.3
Native Hawaiian/other Pacific Islander	—	—	—	9	42.4	29.8–62.0	0		
White	79	6.8	5.4–8.3	1,079	36.4	21.4–54.4	76	7.8	5.4–10.2
Multiple races	32	12.3	8.3–16.3	213	43.9	25.4–63.8	22	9.4	4.0–14.8
Age at time of interview (yr)									
18–29	50	15.9	10.8–21.1	328	42.8	29.5–57.8	—	—	—
30–39	70	11.2	8.7–13.7	587	40.2	25.1–59.6	64	10.9	7.1–14.6
40–49	101	10.4	8.5–12.3	846	38.6	26.5–56.2	54	6.7	4.3–9.2
≥50	159	6.5	5.5–7.5	2,073	35.1	20.1–53.5	74	4.3	3.0–5.6
Total	380	8.9	8.0–9.8	3,834	37.8	23.2–55.9	235	6.6	4.8–8.4

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 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). The selected sample of states was still sufficiently representative of the population of persons with diagnosed HIV; consequently, 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, 2017. Using NHSS data, the initial national frame dataset was created for persons who were alive, had diagnosed HIV infection, 18 years or older, and living in the United States, the District of Columbia, or Puerto Rico on the sampling date (December 31, 2017). Each case was assigned to a surveillance jurisdiction based on the most recently reported residence in NHSS. These addresses primarily came from case report forms and HIV-related laboratory reports. From this initial national frame, CDC staff drew simple random samples for the 23 project areas; 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.

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 2018 MMP cycle, sets of weights were produced nationally, for the city-state combinations, and for each project area. This report presents national weighted data and, thus, represents all adults with diagnosed HIV infection living in the United States. Nationally, data were weighted on the basis of known

probabilities of selection at the state or jurisdiction level and person level and then adjusted for multiplicity and nonresponse. After adjusting for nonresponse, the weights were 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 obtained from NHSS data approximately a year and a half after sampling, during which time additional information reported to NHSS may have become available for sampled persons and additional diagnoses may have been reported. This updated sampling frame added records that would have been eligible if their information had been reported to NHSS on the date the initial sample was drawn; primarily, these were diagnoses that occurred during the year prior to the MMP sampling date (for the 2018 cycle, December 31, 2017). Additionally, some persons were found to have had multiple records 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. The updated sampling frame data also provided descriptive information for all sampled persons regardless of response and were the source of data used for nonresponse analysis and weighting.

Adjustments for unequal selection probabilities

The first step in the computation of weights was the calculation of base weights that reflect the sampling design probabilities. The base weight for each sampled person incorporates both the probability of selecting a project area, and the probability of selecting a person within a 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 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 after the original frame was compared to the updated sampling frame. This factor, which accounts for some persons' multiple opportunities for

being sampled, was capped at 2.0 and was applicable for only 48 persons.

Adjustments for nonresponse

A nonresponse adjustment factor was applied to the multiplicity-adjusted base weight based on an analysis of nonresponse. In 2018, updated sampling frame data provided descriptive information about all sampled persons, which was used to assess how these characteristics were associated with nonresponse. The potential predictors of nonresponse were: race/ethnicity, men who have sex with men (MSM) HIV transmission category, HIV/AIDS disease stage, disease progression measured by most recent viral load test reported to NHSS, time since HIV diagnosis, age of most recent contact information, the person's frequency of receipt of HIV care (as indicated by NHSS records), movement to a different MMP jurisdiction since the time of sampling, non-U.S. birthplace, sex at birth, and age at sampling date. The nonresponse analysis followed a 2-step process. First, a bivariate analysis was conducted to determine which characteristics were potential predictors of nonresponse; then, a multivariate analysis using the significant characteristics from the bivariate analysis was conducted to identify independent predictors of nonresponse. Three significant predictors from this multivariate analysis were used to create weighting classes for the national data. In 2018, the significant predictors of nonresponse were: the person's frequency of receipt of HIV care (as indicated by NHSS records), age of most recent contact information, and sex at birth. Within weighting classes, the adjustment factor 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. The multiplicity adjusted weight within each nonresponse weighting class was then multiplied by the nonresponse adjustment factor to produce the nonresponse adjusted weights.

Poststratification and trimming

Poststratification methods ensure that weighted totals sum to known population totals and, therefore, minimize the potential for biases due to nonresponse and noncoverage. However, poststratification can also add additional variance to the weights. Thus, trimming procedures are used to control weight variability and reduce its impact on survey variances. MMP used an iterative approach that combines poststratification and trimming so that trimmed weights retain their

variance-reducing features after poststratification and ensures that poststratified weights add up to known population totals.

The nonresponse adjusted weights were first poststratified to population totals from the updated sampling frame. The poststratification cells were defined by crossing sex at birth, race/ethnicity, and age group. Nationally, there were 32 poststratification cells. Poststratification adjustments were performed within each poststratification cell so that the weighted sum was preserved in each cell. To reduce additional variance added to poststratified weights, cells were collapsed and the need for weight trimming was evaluated. Poststratified cells were collapsed when cells had 2 or fewer respondents or had an extreme adjustment factor (≥ 1.75). The need for trimming was then assessed. If the design effect due to weighting (measured as $1 + CV^2$, where CV is the coefficient of variation of the weights) had exceeded 1.75, we would have 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. However, no trimming was needed for the national or project area weights.

Design variables

Nationally, design variables indicating strata and cluster membership for each participating person accounting for the sample design were created. Many states were sampled with certainty because of 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. Among the 23 project areas, 14 were sampled with certainty. The 14 certainty project areas each represent a stratum, and each person within the stratum is a cluster. The remaining 9 noncertainty project areas were grouped to create strata, and each noncertainty project area was a cluster within the stratum. Multiple project areas within certainty states were effectively substrata, and each project area remained its own stratum. 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 medications:** Participants were asked whether they had health insurance or coverage for medications (including antiretroviral [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 medications.
- **Federal poverty guidelines:** Participants were asked about their combined monthly or yearly household income (in U.S.\$) 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 2017 guidelines [3] were used for participants interviewed in 2018, and the 2018 guidelines [4] were used for persons interviewed in 2019. 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, *pneumocystis* pneumonia (PCP) prophylaxis, or *Mycobacterium avium* complex (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, bictegravir, cobicistat, darunavir, delavirdine, didanosine, dolutegravir, doravirine, efavirenz, elvitegravir, emtricitabine, enfuvirtide, etravirine, fosamprenavir, ibalizumab, 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.
- **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.
- **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.

Centers for Disease Control and Prevention National Indicators

Measures in this section are used by CDC 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 persons 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 has determined MMP is 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.

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