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Behavioral and Clinical Characteristics of Persons Receiving Medical Care for HIV Infection — Medical Monitoring Project, United States, 2009

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Behavioral and Clinical Characteristics of Persons Receiving Medical Care for HIV Infection — Medical Monitoring Project, United States, 2009

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Abstract

Problem: As of December 31, 2009, an estimated 864,748 persons were living with human immunodeficiency virus (HIV) infection in the 50 U.S. states, the District of Columbia, and six U.S.-dependent areas. Whereas HIV surveillance programs in the United States collect information about persons with a diagnosis of HIV infection, supplemental surveillance systems collect in-depth information about the behavioral and clinical characteristics of persons receiving outpatient medical care for HIV infection. These data are needed to reduce HIV-related morbidity and mortality and HIV transmission.

Reporting Period Covered: Data were collected during June 2009–May 2010 for patients receiving medical care at least once during January–April 2009.

Description of the System: The Medical Monitoring Project (MMP) is an ongoing surveillance system that assesses behaviors and clinical characteristics of HIV-infected persons who have received outpatient medical care. For the 2009 data collection cycle, participants must have been aged ≥18 years and have received medical care during January–April 2009 at sampled facilities that provide HIV medical care within participating MMP project areas. Behavioral and selected clinical data were collected using an in-person interview, and most clinical data were collected using medical record abstraction. A total of 23 project areas in 16 states and Puerto Rico were funded to collect data during the 2009 data collection cycle. The data were weighted for probability of selection and nonresponse to be representative of adults receiving outpatient medical care for HIV infection in the United States and Puerto Rico. Prevalence estimates are presented as weighted percentages. The period of reference is the 12 months before the patient interview unless otherwise noted.

Results: The patients in MMP represent 421,186 adults who received outpatient medical care for HIV infection in the United States and Puerto Rico during January–April 2009. Of adults who received medical care for HIV infection, an estimated 71.2% were male, 27.2% were female, and 1.6% were transgender. An estimated 41.4% were black or African American, 34.6% were white, and 19.1% were Hispanic or Latino. The largest proportion (23.1%) were aged 45–49 years. Most patients (81.1%) had medical coverage; 40.3% had Medicaid, 30.6% had private health insurance, and 25.7% had Medicare.

An estimated 69.6% of patients had three or more documented CD4+ T-lymphocyte cell (CD4+) or HIV viral load tests. Most patients (88.7%) were prescribed antiretroviral therapy (ART), and 71.6% had a documented viral load that was undetectable or ≤200 copies/mL at their most recent test. Among sexually active patients, 55.0% had documentation in the medical record of being tested for syphilis, 23.2% for gonorrhea, and 23.9% for chlamydia.

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Noninjection drugs were used for nonmedical purposes by an estimated 27.1% of patients, whereas injection drugs were used for nonmedical purposes by 2.1% of patients. Overall, 12.9% of patients engaged in unprotected sex with a partner of negative or unknown HIV status.

Unmet supportive service needs were prevalent, with an estimated 22.8% in need of dental care and 12.0% in need of public benefits, including Social Security Income or Social Security Disability Insurance. Fewer than half of patients (44.8%) reported receiving HIV and sexually transmitted disease prevention counseling from a health-care provider.

Interpretation: The findings in this report indicate that most adults living with HIV who received medical care in 2009 were taking ART, had CD4+ and HIV viral load testing at regular intervals, and had health insurance or other coverage. However, some patients did not receive clinical services and treatment in accordance with guidelines. Some patients engaged in behaviors, such as unprotected sex, that increase the risk for transmitting HIV to sex partners, and some used noninjection or injection drugs or both.

Public Health Actions: Local and state health departments and federal agencies can use MMP data for program planning to determine allocation of services and resources, guide prevention planning, assess unmet medical and supportive service needs, inform health-care providers, and help focus intervention programs and health policies at the local, state, and national levels.

Introduction

As of December 31, 2009, an estimated 864,748 persons were living with a diagnosis of human immunodeficiency virus (HIV) infection in the 50 U.S. states, the District of Columbia, and six U.S. dependent areas (*1*). The estimated number of new HIV diagnoses was 48,283 in 2009 (*1*). Although the National HIV Surveillance System in the United States collects information about persons with a diagnosis of HIV infection (*2*), supplemental surveillance systems provide detailed information about care seeking, health-care use, use of supportive 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*), CDC implemented the Medical Monitoring Project (MMP). MMP data from the 2005 and 2007 data collection cycles also have been published (*5*,*6*).

Methods

Sample and Areas

MMP is a cross-sectional, nationally representative, population-based surveillance system that assesses clinical and behavioral characteristics among adults with HIV infection receiving outpatient medical care in the United States and Puerto Rico. The MMP sample was selected in three consecutive stages: 1) U.S. states and territories, 2) outpatient facilities providing HIV care, and 3) HIV-infected adults aged ≥18 years who had at least one medical care visit to participating facilities during January–April 2009. A total of 23 areas were funded to collect data for the 2009 cycle (Figure): California (including the separately funded jurisdictions of Los Angeles County and San Francisco), Delaware, Florida, Georgia, Illinois (including Chicago), Indiana, Michigan, Mississippi, New Jersey, New York (including New York City), North Carolina, Oregon, Pennsylvania (including Philadelphia), Puerto Rico, Texas (including Houston), Virginia, and Washington. This report provides unweighted sample sizes and weighted prevalence estimates with 95% confidence intervals (CIs) for selected characteristics. Methods for MMP are described in more detail in this report (Appendix) and have been published previously (*3*,*6*,*7*). Additional information on MMP is available at http://www.cdc.gov/hiv/statistics/systems/mmp/index.html.

Data Collection

Interview

A trained interviewer conducted a computer-assisted personal interview. Two versions of the questionnaire (in English and Spanish) were used in 2009: a standard questionnaire and a short questionnaire. The short questionnaire was administered when a patient was too ill to complete the longer standard interview or when translation to a language other than Spanish was required. Only standard questionnaire data are included in this report.

Persons who agreed to participate were interviewed in a private location (e.g., at home or in a clinic). The standard interview contained 10 modules and took approximately 45 minutes to complete. Participants were reimbursed approximately $40 in a cash equivalent for participation. Reimbursement amounts differed slightly by project area. Modules included questions on demographics, access to and use of health care, met and unmet needs for supportive services, sexual behavior, depression, gynecologic and reproductive history (women only), drug and alcohol use, and use of HIV prevention services.

Medical Record Abstraction

Patients' medical records were abstracted after the patients were interviewed. Medical records were abstracted by MMP staff using an electronic application provided by CDC. Abstracted information included diagnoses of conditions that, when they occur in HIV-infected persons, meet the definition for acquired immunodeficiency syndrome (AIDS); prescription of antiretroviral medications; laboratory results; and health-care use in the 12 months before the interview.

Minimum Data Set

The minimum data set is an adjunct to MMP that includes an extract of National HIV Surveillance System data for sampled patients in MMP. Information for the minimum data set is obtained locally, primarily from the Enhanced HIV/AIDS Reporting System (eHARS) (*8*), but might include data from other local sources such as participating facilities. The minimum data set provides descriptive information about sampled patients for statistical weighting, including nonresponse adjustment.

Data Weighting

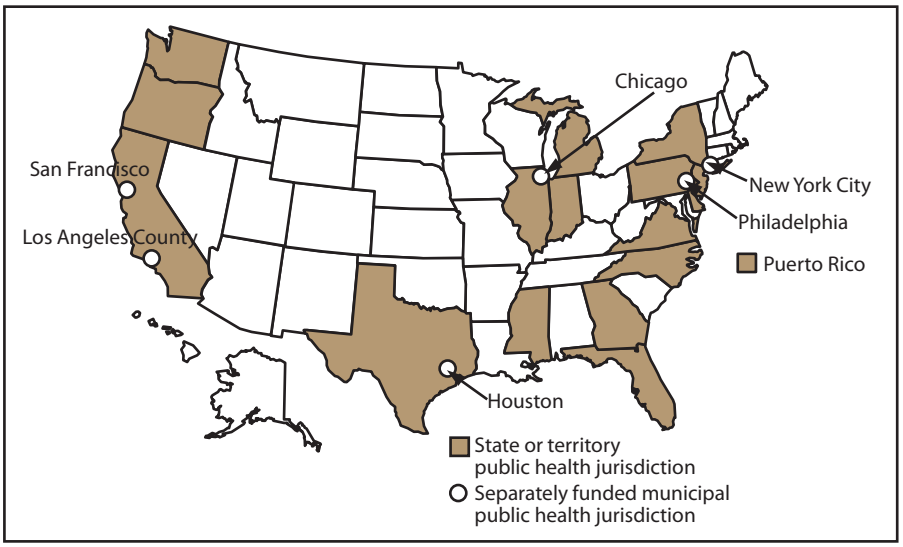
Data used to generate national estimates were weighted for the probability of selection based on known probabilities of selection at each sampling stage. In addition, data were weighted to adjust for nonresponse using predictors of patient-level response, including facility size, race/ethnicity, time since HIV diagnosis, and age group.

Data Management and Statistical Analyses

Data were encrypted and transmitted to CDC through a secure data portal. Statistical software was used for analysis of weighted data to produce prevalence estimates (weighted percentages) and associated CIs (*9*). Data are not reported for any variables with fewer than five responses or a coefficient of variation of ≥30%. No statistical tests were performed.

The term patients in this report refers to adults living with HIV infection receiving outpatient medical care in the United States and Puerto Rico. The time period referenced is the 12 months before the patient interview unless otherwise noted. Measures used in this report are described in detail (Appendix).

FIGURE. Participating areas — Medical Monitoring Project, United States, 2009



Results

Facility and Patient Response Rates

Of 603 sampled eligible facilities within 23 project areas, 461 participated in MMP; the facility response rate, adjusted for eligibility, was 76%. In total, 9,338 patients were sampled from 461 participating facilities. Of these, 4,217 patients completed interviews using the standard questionnaire and had medical record abstractions, for an adjusted patient response rate of 51% (Table 1). The combined response rate for patients with both an interview and a medical record abstraction was 39% (Combined response rate = Project area response rate × Facility response rate × Adjusted patient response rate).

Sociodemographic Characteristics

The 4,217 respondents represent an estimated 421,186 adults living with HIV who received outpatient medical care in the United States and Puerto Rico during January–April 2009. These 421,186 adults are referred to hereafter as patients. An estimated 71.2% of patients were male, 27.2% were female, and 1.6% were transgender (Table 2). An estimated 50.3% identified themselves as heterosexual or straight; 41.4% as homosexual, gay or lesbian; and 8.3% as bisexual. An estimated 41.4% were black or African American, 34.6% were white, and 19.1% were Hispanic or Latino. Three fourths (75.5%) were aged ≥40 years, and 53.8% had received their HIV diagnosis ≥10 years previously. Half (50.6%) had more than a high school education, and 82.7% were born in the United States. Approximately 9.0% were homeless. An estimated 81.1% had any health coverage, 40.3% had Medicaid, 30.6% had

private health insurance, and 25.7% had Medicare. Almost half (43.8%) had household incomes at or below federal poverty guidelines.

Clinical Characteristics

Using the CDC stage of disease classification for HIV (*10*), an estimated 67.6% of patients had stage 3 disease (Table 3); however, 12.4% of patients had a mean CD4+ T-lymphocyte (CD4+) count of 0–199 cells/μL in the past 12 months (Table 4). The estimated geometric mean CD4+ count was 505 cells/μL, and the median CD4+ count was 460 cells/μL (range: 4–2,388).

Use of Health-Care Services

An estimated 99.7% (CI: 99.5–99.9) of patients had one place in particular, such as a physician's office or clinic, where they received most of their HIV medical care. Patients traveled an estimated average of 34.2 minutes (range:1–480 minutes) to their usual HIV care provider.

An estimated 69.6% of patients had at least three CD4+ or HIV viral load tests documented in the medical record (Table 5). As recommended by guidelines, most patients had at least one viral load test in each 6-month interval (76.5%) and at least one CD4+ test annually (96.8%). Overall, an estimated 88.7% of patients had an ART prescription documented in the medical record, and 71.6% of all patients had an undetectable (≤200 copies/mL) viral load at last measurement.

Among the estimated 17.5% (CI: 16.0–19.1) of patients meeting the clinical criteria for *Pneumocystis carinii* pneumonia (PCP) prophylaxis, 78.8% (CI: 75.1–82.5) had a prescription for PCP prophylaxis documented in the medical record. Among the estimated 4.8% of patients meeting the clinical criteria for *Mycobacterium avium* complex (MAC) prophylaxis, 72.3% (CI: 65.7–79.0) had a prescription for MAC prophylaxis documented in the medical record. An estimated 78.5% (CI: 76.0–81.0) of patients received an influenza vaccination. Among sexually active patients, an estimated 23.2% were tested for gonorrhea, 23.9% for chlamydia, 55.0% for syphilis, and 19.7% for all three sexually transmitted diseases (STDs) (Table 6).

An estimated 5.2% of patients were seen in an emergency department or an urgent care center one time, and 1.4% were seen at least five times (Table 7). An estimated 4.5% of patients were admitted to a hospital one time, and 0.4% were admitted at least five times (Table 8).

Self-Reported Antiretroviral Medication Use and Adherence

An estimated 88.2% (CI: 86.8–89.6) of patients were currently taking ART. Among the estimated 6.6% (CI: 5.5–7.7) of patients with no history of ART use, 80% (CI: 74.9–85.1) had never taken ART because a physician advised a delay in treatment, whereas 11.2% (CI: 7.7–14.8) believed medications were unnecessary because they felt healthy or believed their HIV laboratory test results (e.g., CD4+ count and HIV viral load) were good (11.2%, CI: 7.7–14.8).

Among patients currently taking ART, an estimated 63.4% (CI: 61.2–65.7) were never troubled by ART side effects during the past 30 days, whereas 19.0% (CI: 16.9–21.2) were rarely troubled. Patients' ART medications were most commonly paid for by the AIDS Drug Assistance Program (40.1%, CI: 37.4–42.9), Medicaid (33.9%, CI: 29.4–38.4), private health insurance (25.4%, CI: 20.0–30.8), or Medicare (18.3%, CI: 16.2–20.3).

Estimated adherence to dose, schedule, and instructions for taking ART during the past 3 days among patients currently taking ART was 85.6% (CI: 84.1–87.1), 71.7% (CI: 69.3–74.1), and 69.0% (CI: 66.6–71.4), respectively. An estimated 92.8% of patients currently taking ART were very or extremely sure that they could take all of their medication as directed, and 87.4% believed their medication would have a positive effect on their health (Table 9). Among the estimated 61.9% (CI: 58.9–65.0) of patients who were currently taking ART and ever missed a dose, 28.6% missed their last dose because they forgot to take it, and 25.4% missed their last dose because of a change in daily routine (Table 10).

Depression and Substance Use

The estimated prevalence of major depression or other depression using the eight-item Patient Health Questionnaire (PHQ-8) algorithm based on *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* (DSM-IV) criteria (*11*) was 25.6% (CI: 23.8–27.4), including12.4% (CI: 11.2–13.7) with major depression. Using the score-based method (*12*), an estimated 23.7% (CI: 21.9–25.5) of patients had current moderate or severe depression (a PHQ-8 severity score of ≥10).

An estimated 42.4% (CI: 39.7–45.1) of patients were current smokers, with 35.1% (CI: 32.8–37.3) smoking daily, 3.9% (CI: 2.9–4.8) weekly, 1.2% (CI: 0.8–1.5) monthly, and 2.3% (CI: 1.8–2.8) less than monthly. The estimated prevalence of current alcohol use was 66.4% (CI: 63.7–68.7), with 6.9% (CI: 5.6–8.1) using daily, 18.4% (CI: 17.0–19.7) weekly, 13.6% (CI: 12.2 –15.0) monthly, and 27.5% (CI: 25.7–29.3) less than monthly. An estimated 50.7% (CI: 48.6–52.8)

of patients drank alcohol during the past 30 days. Among patients who drank alcohol during the past 30 days, the estimated typical average daily consumption was 3.1 drinks. An estimated 17.8% (CI: 16.4–19.3) of male patients and 12.6% (CI: 10.2–14.9) of female patients engaged in binge drinking during the past 30 days. Among patients who drank alcohol in the past 30 days, the estimated mean number of binge drinking days was 1.8 for male patients and 1.5 for female patients.

An estimated 27.1% (CI: 25.2–28.9) of patients used noninjection drugs for nonmedical purposes. An estimated 22.2% of patients used marijuana, whereas 5.5% used cocaine, 4.8% used crack, and 4.2% used amyl nitrite (Table 11). An estimated 24.0% (CI: 22.1–25.9) of patients drank alcohol before or during sex, whereas 11.9% (CI: 10.3–13.4) used noninjection drugs before or during sex.

An estimated 2.1% (CI: 1.2–2.9) of patients used injection drugs for nonmedical purposes. An estimated 1.1% (CI: 0.4–1.7) used crystal methamphetamine, 0.6% (CI: 0.2–1.0) used heroin, and 0.6% (CI: 0.2–0.9) used cocaine. Of the patients who used injection drugs, an estimated 67.7% (CI: 54.2–81.2) used injection drugs before or during sex.

Gynecologic and Reproductive Health

An estimated 20.9% (CI: 16.4–25.3) of female patients received HIV care at an obstetrics and gynecology clinic, and 77.4% (CI: 73.1–81.8) received a Papanicolaou (Pap) test. An estimated 24.7% (CI: 21.7–27.6) of female patients had been pregnant at least once since testing positive for HIV infection; of these, 80.7% (CI: 75.4–86.0) gave birth to one or more children after learning about their HIV status.

Sexual Behavior

An estimated 47.1% (CI: 42.3–52.0) of patients were men who have sex with men (MSM); 23.8% (CI: 21.2–26.4) were men who exclusively have sex with women (MSW); 26.7% (CI: 23.6–29.8) were women who have sex with men (WSM); 0.7% (CI: 0.4–1.1) were women who exclusively have sex with women (WSW); and 1.6% (CI: 1.1–2.1) were transgender. (Details on classification are provided [Appendix].) An estimated 61.8% (CI: 59.5–64.2) of patients were sexually active, 24.7% (CI: 21.8–27.7) engaged in unprotected sex, and 12.9% (CI: 11.4–14.4) engaged in unprotected sex with a partner with negative or unknown HIV status.

Among MSM, an estimated 69.7% (CI: 66.9–72.5) engaged in anal intercourse or oral sex with at least one man, 31.8% had any unprotected anal intercourse, and 13.7% had unprotected anal intercourse with a partner with negative or unknown HIV status (Table 12). The estimated mean number of sex partners among sexually active MSM during the past 12 months was 5.0 (range: 1–250).

Among MSW, an estimated 57.6% (CI: 53.1–62.0) engaged in oral sex, vaginal intercourse, or anal intercourse with at least one woman; 14.5% had any unprotected vaginal intercourse; and 9.0% had unprotected vaginal intercourse with a partner with negative or unknown HIV status (Table 13). The estimated mean number of female sex partners among sexually active MSW during the past 12 months was 1.5 (range: 1–20).

Among WSM, an estimated 54.7% (CI: 51.8–57.5) engaged in anal intercourse, oral sex, or vaginal intercourse with at least one man, 22.8% had any unprotected vaginal intercourse, and 14.6% had unprotected vaginal intercourse with a partner with negative or unknown HIV status (Table 14). The estimated mean number of male sex partners among sexually active WSM was 1.2 (range: 1–6).

Among WSW, an estimated 65.0% (CI: 44.5–85.4) engaged in sexual activity with at least one woman. The estimated mean number of sex partners among sexually active WSW was 1.2 (range: 1–2). Data on sexual behavior among WSW is not collected by MMP. Among transgender persons, an estimated 49.8% (CI: 35.9–63.7) engaged in any vaginal or anal intercourse with at least one partner. Given the small sample size, the estimate for the mean number of sex partners among transgender persons is not reported here.

Met and Unmet Need for Support Services

An estimated 57.7% of patients received HIV case management services, 57.4% received dental care, 42.0% received counseling about how to prevent the spread of HIV, and 41.9% received medicine through the AIDS Drug Assistance Program (Table 15). An estimated 22.8% of patients had unmet needs for dental care, 12.0% for public benefits such as Social Security Income or Social Security Disability Insurance, 8.6% for transportation services, 8.2% for shelter or housing services, and 7.0% for meal or food services.

Prevention Activities

An estimated 44.8% (CI: 39.8–49.8) of patients received counseling from a physician, a nurse, or another health-care worker about HIV and STD prevention; 30.4% (CI: 26.2–34.5) had a one-on-one conversation with an outreach worker, a counselor, or a prevention program worker about prevention, and 16.2% (CI: 13.2–19.1) participated in an organized session involving a small group of persons (excluding discussions with friends) to discuss prevention of HIV and other STDs. An estimated 54.8% (CI: 51.7–57.9) of patients received free condoms from various organizations; of these, 55.2% (CI: 49.3–61.1) received free condoms from a

physician's office or other health clinic, 32.7% (CI: 28.2–37.2) from an HIV/AIDS-focused community-based organizations, 13.6% (CI: 10.9–16.3) from a social venue (i.e., bar, club, bathhouse, gym, or bookstore), 7.0% (CI: 3.7–10.3) from an STD clinic, 4.0% (CI: 2.6–5.4) from a special event, 1.3% (CI: 0.4–2.2) from a family planning clinic, and 1.3% (CI: 0.6–1.9) from an injecting drug use outreach organization (excluding needle exchange programs).

Discussion

Sociodemographic Characteristics

The findings in this report are nationally representative of HIV-infected adults receiving outpatient medical care in the United States and Puerto Rico. Understanding the sociodemographic characteristics of HIV-infected persons who are receiving medical care can be used to develop strategies to improve HIV medical care and to encourage retention in care. Compared with the general U.S. population, HIV-infected persons in medical care are more likely to be male (*13*), black or African American (*14*), and, among men, to identify themselves as homosexual or gay (*15*). In addition, they are less likely to have access to resources that promote health (*16*). For example, approximately 40% had incomes below the poverty level, and 9% were homeless, whereas only 14% of persons in the general U.S. population had incomes below the poverty level (*17*), and 0.2% were homeless (*18*). In addition, some patients did not have health insurance or coverage, which might present extra challenges for accessing and maintaining care (*19*–*21*). The data from this report highlight that to improve HIV treatment and prevention in the United States, programs and policies need to be aware of the multiple unique needs of persons living with HIV infection.

Clinical Characteristics

Stage of disease among persons living with HIV infection has been associated with morbidity and mortality (*22*). Although nearly 68% of patients had received a diagnosis of stage 3 HIV infection, approximately 87% had a mean CD4+ count of ≥200 cells/μL in the past 12 months, suggesting most patients have had CD4+ recovery (*23*). Stage of disease and current CD4+ count are important indicators of access to and use of medical care.

Use of Health-Care Services

Access to health-care services and treatment is necessary to improve health outcomes among persons living with HIV. By design, MMP samples patients with a usual source of care, and nearly all patients had a source of usual HIV medical care. Treatment guidelines recommend that health-care providers conduct CD4+ and HIV viral load testing every 3–6 months, and for clinically stable patients with suppressed HIV viral load, health-care providers should monitor CD4+ count every 6–12 months (*24*). These data suggest most patients received CD4+ and HIV viral load testing at regular intervals. In addition, guidelines recommend that ART be considered for all HIV-infected persons (*24*). Nearly 89% of patients were prescribed ART, and almost 72% had viral suppression at the time of their most recent viral load test. Increasing the number of patients who are prescribed ART and achieve viral suppression is central to reducing HIV morbidity, mortality, and transmission.

Although PCP and MAC infections are AIDS-defining conditions that are preventable with the appropriate use of prophylactic medications, approximately 20% of eligible patients were not receiving guideline-recommended prophylaxis (*25*). Clinicians should be encouraged to adhere to guidelines for the prevention of opportunistic infections through continuing medical education and targeted campaigns to disseminate updated guidelines (*25*).

Persons living with HIV have increased risk for developing serious influenza-related complications (*26*,*27*), and public health recommendations for HIV-infected persons include yearly influenza vaccination (*25*). Approximately 78% of patients received the influenza vaccination, which is higher than other reported estimates among HIV-infected persons (*28*–*30*) and might be due to possible limitations in accurate recall during self-report, rather than relying on data from medical record abstraction. Clinicians are encouraged to provide annual influenza vaccinations to their HIV-infected patients (*31*).

The occurrence of STDs among HIV-infected persons indicates ongoing or recurrent high-risk behavior (*32*). Because many STDs are asymptomatic (*32*) and can increase HIV transmission risk (*33*), guidelines for incorporating HIV prevention into the medical care of persons living with HIV recommend that all sexually active, HIV-infected persons be screened at least annually for syphilis, gonorrhea, and chlamydia (*34*). These findings suggest fewer than 20% of patients were tested for STDs annually. Health-care providers should be reminded of the need to test sexually active HIV-infected patients for STDs annually (*34*).

Relatively low percentages of MMP patients were hospitalized or used emergency departments or urgent care clinics. This might partially be explained by the expected benefit associated with the receipt of routine medical care, such as viral load and CD4+ monitoring, in settings that follow existing recommendations. Other publications have described higher

rates of emergency department visits among HIV-infected persons than in the general population, suggesting a greater use of acute care resources (*35*). In addition, HIV-infected persons are likely to be hospitalized; a previous study reported that 19.7% of HIV-infected persons had at least one hospital admission annually (*36*). Clinicians should continue to adhere to extant treatment guidelines (*24*,*25*,*34*,*37*) to reduce preventable emergency department visits and hospitalizations.

Self-Reported Antiretroviral Medication Use and Adherence

Use of ART has resulted in a major reduction of HIV-related morbidity and mortality (*24*). In MMP, more than 88% of patients were currently taking ART. The most common reason for not currently taking ART was a physician advising the patient to delay treatment. This finding is likely a result of earlier recommendations to delay the use of ART until a threshold nadir CD4+ count was documented. The 2012 recommendation (*24*) that ART should be initiated for all HIV-infected persons, regardless of CD4+ count, would not be reflected among these patients receiving HIV care in 2009.

Adherence to ART is necessary for HIV viral suppression, improved health and immune function (*24*), and prevention of HIV transmission (*38*). Although dose adherence was relatively high among patients, schedule and instruction adherence were not. Providers can help patients identify barriers and reasons for lack of adherence. Strategies to improve adherence include prescribing less complex regimens (e.g., fewer pills, fewer doses, or both) and using a multidisciplinary team approach to care (e.g., nurses, social workers, pharmacists, and medication managers) (*24*). Other strategies include the use of pill boxes and medication alarms to remind patients to take medication (*39*). Adherence should be assessed at clinic visits as part of routine care (*24*), either through self-report (*40*,*41*) or other measures such as pill counts (*42*). In addition, CDC has identified several medication adherence interventions aimed at improving adherence behaviors and viral suppression (*43*).

Depression and Substance Use

Among HIV-infected persons, depression can affect quality of life and might lead to treatment nonadherence (*44*–*46*), which is associated with increased morbidity, mortality, and HIV transmission risk. Depression also has been associated with substance abuse (*44*,*47*,*48*), which can lead to risky behaviors that might further facilitate HIV transmission. More than 12% of patients experienced major depression, and approximately one fourth experienced some type of depression. Behavioral Risk Factor Surveillance System data from 2006 and 2008 indicate that 4.1% of adults in the general population had current major depression and 9.1% had any current depression (*49*,*50*). Medical providers should continue to screen for depression regularly, providing treatment when indicated (*37*).

Cigarette smoking is the leading cause of preventable death in the United States (*51*), accounting for approximately 440,000 deaths in the United States each year (*52*). Approximately 42% of HIV-infected persons smoke cigarettes, compared with an estimated 19% of adults in the U.S. general population (*53*). HIV-infected persons who smoke are susceptible to respiratory complications (*54*), including lower respiratory tract infections (*55*–*57*), chronic obstructive pulmonary disease, an increased risk for lung cancer (*58*–*61*), and death (*62*). As part of a comprehensive approach to health-care delivery for persons with HIV, providers should assess all patients for tobacco use and promote smoking cessation among current smokers during routine patient encounters (*63*).

Injection drug use can result in direct transmission of HIV infection. In addition, the use of alcohol (*64*,*65*), noninjection drugs (*64*,*66*), and injection drugs (*67*) are associated with risky sexual behaviors and might complicate the management of HIV infection (*68*–*71*). Approximately one fourth of patients used noninjection drugs, and 2% used injection drugs. The medical care setting provides an opportunity to assess drug use behavior, communicate prevention messages, positively reinforce changes to safer behavior, and provide referrals for services such as substance abuse treatment (*34*).

Gynecologic and Reproductive Health

Women living with HIV are at an increased risk for developing cervical cancer (*72*–*74*). HIV-infected women should be screened for cervical cancer twice within the first year after initial HIV diagnosis, and if the results are normal, annually thereafter (*25*,*75*). The findings in this report are consistent with previous studies showing that 77%–81% of HIV-infected women received cervical cancer screening in the past year (*76*,*77*) and suggest that one of five women with HIV were not screened for cervical cancer. Additional efforts should be undertaken to increase the number of health-care providers who provide cervical cancer screening for HIV-infected women (*25*,*75*).

Forty-nine percent of all pregnancies in the United States are unintended (*78*). In general, pregnancy rates among HIV-infected women are lower than that of the general population (*79*). Data from MMP show that almost one fourth of women had been pregnant since testing positive for HIV, of whom nearly 81% gave birth to one or more children after learning their HIV status. Because many women living with HIV are

aware of their HIV status before becoming pregnant, health-care providers who routinely care for HIV-infected women of reproductive age should integrate preconception care into standard medical care visits (*80*,*81*).

Sexual Behavior

An estimated 92% of all new HIV infections in the United States are attributed to sexual transmission (*1*). Previous studies have found that after diagnosis, most persons with HIV infection decrease sexual behaviors that increase the risk for transmission (*82*). However, some might continue to engage in sexual behaviors that can place others at risk for infection. Nearly 14% of MSM, 9% of MSW, and 15% of WSM engaged in unprotected sex with a partner of negative or unknown HIV status. All groups (MSM, MSW, and WSM) had higher proportions of unprotected sex with main partners than with casual partners. The prevalence of sexual risk behaviors highlights the continued need to incorporate HIV prevention into the medical care of HIV-infected persons (*34*). The clinical setting offers an opportunity for providers to talk with patients about ways to prevent HIV transmission.

Met and Unmet Need for Supportive Services

Receipt of supportive services has been linked to improved retention in care (*83*,*84*), quality of life (*85*), and ART adherence (*86*). Unmet need for dental care was particularly high, as has been reported previously (*87*). These data underscore the continued need for supportive services for persons with HIV infection and can be used to help determine how resources should be allocated.

HIV Prevention Activities

HIV prevention counseling by health-care providers can help to reduce risk behaviors among HIV-infected patients (*88*–*90*). Fewer than half of patients were counseled by a health-care provider about HIV and STD prevention. These findings indicate important missed opportunities to engage patients in HIV risk reduction discussions and to refer patients for additional preventive services such as STD screening and partner notification.

Male latex condoms, when used correctly and consistently, are effective in preventing HIV and other STDs (*91*–*93*). Over half of patients received free condoms. Previous MMP findings have shown that use of and intention to use condoms are high among HIV-infected patients receiving free condoms (*6*). Condom distribution programs are an important part of HIV prevention programs in the United States.

Limitations

The findings in this report are subject to at least five limitations. First, because the survey was administered during face-to-face interviews, some responses might have been subject to social response bias, which might have resulted in underreporting of socially undesirable behaviors such as drug use and overreporting of socially desirable behaviors such as adherence to antiretroviral therapy. Second, the combined response rate of 39% is lower than optimal. However, data were adjusted for nonresponse. Third, a potential bias toward favorable outcomes might exist because patients in MMP have a usual source of HIV care and are receiving medical care. Fourth, in certain instances, stratification by certain characteristics produced numbers that were too small for reliable interpretation and were not presented. Finally, although data collection for the 2009 cycle was completed in May 2010, the dissemination of these data was delayed because they were the first to be weighted for national representativeness, and establishing and standardizing the weighting procedures and calculated variables took additional time.

Conclusion

Through ongoing data collection, MMP provides nationally representative estimates of behavioral and clinical characteristics among adults receiving medical care for HIV infection. In addition, MMP monitors risk behaviors, supportive service needs, use of health-care and HIV prevention services, and adherence to clinical care guidelines. These data can be used by local, state, territorial, and federal policymakers to develop strategies for HIV care, treatment, and prevention.

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TABLE 1. Number and percentage* of participants, by area — Medical Monitoring Project, United States, 2009

Area	No.	(%)
California (excluding Los Angeles County and San Francisco)	180	(4.3)
Chicago, IL	212	(5.0)
Delaware	251	(6.0)
Florida	351	(8.3)
Georgia	165	(3.9)
Houston, TX	141	(3.3)
Illinois (excluding Chicago)	42	(1.0)
Indiana	217	(5.1)
Los Angeles County, CA	236	(5.6)
Michigan	148	(3.5)
Mississippi	212	(5.0)
New Jersey	61	(1.4)
New York (excluding New York City)	97	(2.3)
New York City, NY	211	(5.0)
North Carolina	193	(4.6)
Oregon	259	(6.1)
Pennsylvania (excluding Philadelphia)	32	(0.8)
Philadelphia, PA	252	(6.0)
Puerto Rico	209	(5.0)
San Francisco, CA	206	(4.9)
Texas (excluding Houston)	237	(5.6)
Virginia	125	(3.0)
Washington	180	(4.3)
Total	**4,217**	**(100)**

* Percentages might not add to 100% because of rounding.

TABLE 2. Number* of participants and percentage† of persons, by selected characteristics — Medical Monitoring Project, United States, 2009

Characteristic	No.	%	(95% CI)
Gender§			
Male	3,013	71.2	(68.0–74.4)
Female	1,139	27.2	(24.0–30.4)
Transgender	64	1.6	(1.1–2.1)
Sexual orientation			
Heterosexual or straight	2,112	50.3	(45.5–55.1)
Homosexual, gay, or lesbian	1,691	41.4	(36.6–46.1)
Bisexual	346	8.3	(7.3–9.3)
Race/Ethnicity			
Black or African American	1,740	41.4	(33.3–49.6)
White	1,395	34.6	(28.0–41.1)
Hispanic or Latino¶	881	19.1	(14.2–24.1)
Multiracial	130	3.1	(2.4–3.8)
Asian	31	0.7	(0.5–1.0)
American Indian or Alaska Native	28	0.7	(0.3–1.1)
Native Hawaiian/Other Pacific Islander	10	0.3	(0.1–0.6)
Age at time of interview (yrs)			
18–24	107	2.5	(1.8–3.2)
25–29	209	4.9	(4.2–5.6)
30–34	291	6.8	(5.8–7.8)
35–39	431	10.3	(9.2–11.4)
40–44	690	16.2	(14.9–17.6)
45–49	957	23.1	(21.8–24.3)
50–54	684	15.9	(14.6–17.2)
55–59	471	11.2	(10.2–12.3)
60–64	227	5.7	(4.8–6.5)
≥65	150	3.4	(2.8–3.9)
Education			
<High school	985	22.6	(20.0–25.1)
High school diploma or GED credential	1,161	26.8	(24.1–29.6)
>High school	2,070	50.6	(45.8–55.4)
Country or territory of birth			
United States	3,425	82.7	(77.7–87.7)
Puerto Rico	260	4.2	(0.0–8.7)
Mexico	186	4.0	(3.0–5.1)
Cuba	27	0.7	(0.2–1.2)
Other	316	8.4	(6.9–9.9)
Time since HIV diagnosis (yrs)			
<5	951	23.2	(21.2–25.2)
5–9	978	23.1	(21.5–24.6)
≥10	2,283	53.8	(51.2–56.3)
Homeless at any time during the past 12 months**			
Yes	390	9.0	(7.8–10.2)
No	3,827	91.0	(89.8–92.2)

See table footnotes on page 13.

TABLE 2. (*Continued*) Number* of participants and percentage† of persons, by selected characteristics — Medical Monitoring Project, United States, 2009

Characteristic	No.	%	(95% CI)
Incarcerated for >24 hours during the past 12 months			
Yes	235	5.6	(4.6–6.7)
No	3,979	94.4	(93.3–95.4)
Health insurance or coverage, past 12 months††			
Yes	3,441	81.1	(77.3–84.9)
No	768	18.9	(15.1–22.7)
Type of health insurance or coverage, past 12 months			
Private health insurance			
Yes	1,248	30.6	(24.6–36.5)
No	2,954	69.4	(63.5–75.4)
Medicaid			
Yes	1,717	40.3	(35.4–45.2)
No	2,485	59.7	(54.8–64.6)
Medicare			
Yes	1,078	25.7	(23.6–27.9)
No	3,124	74.3	(72.1–76.4)
Tricare/CHAMPUS and Veterans Administration			
Yes	65	1.4	(0.2–2.6)
No	4,137	98.6	(97.4–99.8)
Other public insurance			
Yes	222	4.8	(1.9–7.7)
No	3,987	95.2	(92.3–98.1)
Insurance type unknown §§			
Yes	76	2.3	(0.9–3.6)
No	4,133	97.7	(96.4–99.1)
Primary source of most financial support during the past 12 months			
SSI or SSDI	1,763	41.1	(37.8–44.4)
Salary or wages	1,550	38.0	(34.9–41.1)
Other (including savings , investments, and pensions)	506	11.4	(8.9–13.8)
Family, partner, or friends	343	8.4	(7.0–9.7)
No income or financial support	43	1.0	(0.7–1.3)
Illegal or possibly illegal activities	8	0.2	(0.0–0.3)
Combined yearly household income from all sources before taxes in last calendar year			
$0–$4,999	478	10.8	(8.7–13.0)
$5,000–$9,999	1,043	24.5	(21.5–27.4)
$10,000–$14,999	769	18.9	(17.3–20.5)
$15,000–$19,999	409	10.2	(9.3–11.1)
$20,000–$29,999	440	11.2	(9.7–12.8)
$30,000–$39,999	250	6.4	(5.3–7.5)
$40,000–$49,999	198	5.1	(4.1–6.0)
$50,000–$74,999	222	6.0	(4.8–7.3)
≥$75,000	271	6.8	(5.3–8.4)
Poverty guidelines¶¶			
Above poverty guidelines	2,214	56.2	(52.0–60.4)
At or below poverty guidelines	1,866	43.8	(39.6–48.0)
Total	**4,217**	—	—

Abbreviations: CI = confidence interval; GED = general educational development; HIV = human immunodeficiency virus; SSDI = Social Security Disability Insurance; SSI = Social Security Supplemental Income.

* The number represents unweighted frequencies. Numbers might not add to total because of missing data. Values exclude categories with fewer than five responses, values with a coefficient of variation >0.30 (30%), responses of "don't know," and skipped (missing) responses.

† Percentages are weighted percentages, and CIs are weighted CIs for those percentages. Percentages might not add to 100% because of rounding.

§ Participants were classified as transgender if sex at birth and gender reported by the participant were different or if the participant chose transgender in response to the question about self-identified gender.

¶ Hispanics or Latinos might be of any race. Participants are classified in only one category.

** McKinney-Vento definition of homelessness: living on the street, living in a shelter, living in a single-room-occupancy hotel, temporarily staying with friends or family, or living in a car. A person is categorized as homeless if that person lacks a fixed, regular, adequate night-time residence or has a steady night-time residence that is 1) a supervised publicly or privately operated shelter designed to provide temporary living accommodation, 2) an institution that provides a temporary residence for persons intended to be institutionalized, or 3) a public or private place not designed for or ordinarily used as a regular sleeping accommodation for human beings (e.g., in an automobile or under a bridge) (Stewart B. McKinney Homeless Assistance Act, 42 U.S.C. §11301, et seq; 1987).

†† Participants could select more than one response for health insurance or coverage. Persons were considered uninsured if they reported having health care costs paid for only through Ryan White-funded programs.

§§ Unknown insurance type means that although the participant had insurance or coverage, the type of insurance or coverage (e.g., public or private) could not be determined.

¶¶ Poverty guidelines as defined by the U.S. Department of Health and Human Services. The 2008 guidelines were used for patients interviewed in 2009, and the 2009 guidelines were used for patients interviewed in 2010. (Information available at http://aspe.hhs.gov/poverty/faq.cfm.)

TABLE 3. Number* of participants and percentage† of persons, by stage of disease — Medical Monitoring Project, United States, 2009

Stage of disease§	No.	%	(95% CI)
Stage 1: No AIDS, CD4+ T-lymphocyte count ≥500 cells/μL (or CD4 percentage of ≥29%)	265	6.9	(5.8–7.9)
Stage 2: No AIDS, CD4+ T-lymphocyte count 200–499 cells/μL (or CD4 percentage of 14% to <29%)	1,044	25.5	(23.5–27.5)
Stage 3: Clinical AIDS or CD4+ T-lymphocyte count <200 cells/μL (or CD4 percentage of <14%)	2,897	67.6	(65.7–69.6)
Total	**4,206**	—	—

Abbreviations: AIDS = acquired immunodeficiency syndrome; CI = confidence interval; HIV = human immunodeficiency virus.
* The number represents unweighted frequencies.
† Percentages are weighted percentages, and CIs are weighted CIs for those percentages. Percentages might not add to 100% because of rounding.
§ CDC surveillance case definition for HIV infection. (**Source:** 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[No. RR-10].)

TABLE 4. Number* of participants and percentage† of persons, by geometric mean CD4+ T-lymphocyte count and lowest CD4+ T-lymphocyte count in the 12 months before the interview — Medical Monitoring Project, United States, 2009

CD4+ T-lymphocyte count (cells/μL)	No.	%	(95% CI)
Geometric mean count			
0–199	543	12.4	(11.0–13.9)
200–349	743	18.5	(17.1–19.8)
350–499	1,011	24.8	(23.4–26.2)
≥500	1,770	44.3	(42.5–46.1)
Lowest count			
0–49	202	4.8	(3.9–5.8)
50–199	553	12.7	(11.3–14.1)
200–349	965	24.3	(23.0–25.6)
350–499	954	23.6	(22.1–25.1)
≥500	1,393	34.6	(32.6–36.6)
Total	**4,067**	—	—

Abbreviations: AIDS = acquired immunodeficiency syndrome; CI = confidence interval; HIV = human immunodeficiency virus.
* The number represents unweighted frequencies.
† Percentages are weighted percentages, and CIs are weighted CIs for those percentages. Percentages might not add to 100% because of rounding.

TABLE 5. Number* of participants and percentage† of persons who received CD4+ T-lymphocyte cell count and viral load monitoring, were prescribed antiretroviral therapy, and achieved viral suppression in the 12 months before the interview — Medical Monitoring Project, United States, 2009

CD4+ T-lymphocyte cell count and viral load monitoring, ART prescriptions, and viral suppression	No.	%	(95% CI)
Number of outpatient laboratory tests for CD4 T-lymphocyte cell count or HIV viral load§			
0	115	2.8	(2.0–3.5)
1	343	8.0	(6.9–9.1)
2	799	19.6	(18.2–21.0)
≥3	2,940	69.6	(67.3–72.0)
Number of outpatient laboratory tests for CD4+ T-lymphocyte count§			
0	131	3.2	(2.3–4.1)
1	416	9.7	(8.5–10.8)
2	890	22.1	(20.5–23.7)
≥3	2,760	65.0	(62.4–67.7)
Number of outpatient laboratory tests for HIV viral load§			
0	193	4.7	(3.3–6.0)
1	422	10.0	(9.0–11.0)
2	959	23.0	(21.4–24.6)
≥3	2,623	62.3	(59.5–65.0)
Viral load measured at least once every 6 months			
Yes	3,199	76.5	(74.3–78.6)
No	998	23.5	(21.4–25.7)
CD4+ T-lymphocyte count measured at least once annually			
Yes	4,066	96.8	(95.9–97.7)
No	131	3.2	(2.3–4.1)
Prescribed ART			
Yes	3,737	88.7	(86.9–90.5)
No or missing/unknown	480	11.3	(9.5–13.1)
Viral suppression			
Most recent HIV viral load undetectable or ≤200 copies/mL	3,016	71.6	(68.4–74.9)
>200 copies/mL or missing/unknown	1,201	28.4	(25.1–31.6)
HIV viral load measurements in the past 12 months			
All HIV viral load measurements in the past 12 months undetectable or ≤200 copies/mL	2,437	57.7	(54.8–60.6)
Any HIV viral load measurement in the past 12 months >200 copies/mL or missing/unknown	1,780	42.3	(39.4–45.2)
Total	**4,217**	—	—

Abbreviations: ART = antiretroviral therapy; CI = confidence interval; HIV = human immunodeficiency virus.
* The number represents unweighted frequencies. Numbers might not add to total because of missing data.
† Percentages are weighted percentages, and CIs are weighted CIs for those percentages. Percentages might not add to 100% because of rounding.
§ Only includes tests with a documented result.

TABLE 6. Number* of participants and percentage† of persons who received testing for selected sexually transmitted diseases in the 12 months before the interview, by type of testing§ and self-reported sexual activity¶ — Medical Monitoring Project, United States, 2009

Type of testing	No. in sample	%	(95% CI)	No. of sexually active persons	%	(95% CI)
Gonorrhea testing						
Yes, received testing	929	20.5	(17.6–23.4)	649	23.2	(19.7–26.7)
No testing documented	3,268	79.5	(76.6–82.4)	1,981	76.8	(73.3–80.3)
Chlamydia testing						
Yes, received testing	962	21.2	(18.4–24.0)	673	23.9	(20.6–27.3)
No testing documented	3,235	78.8	(76.0–81.6)	1,957	76.1	(72.7–79.4)
Syphilis testing						
Yes, received testing	2,334	52.1	(48.9–55.3)	1,533	55.0	(51.5–58.5)
No testing documented	1,863	47.9	(44.7–51.1)	1,097	45.0	(41.5–48.5)
Gonorrhea, chlamydia, and syphilis testing						
Yes, received testing for all three STDs	780	17.0	(14.1–19.8)	556	19.7	(16.4–23.0)
No testing documented	3,417	83.0	(80.2–85.9)	2,074	80.3	(77.0–83.6)
Total	**4,197**	—	—	**2,630**	—	—

Abbreviations: CI = confidence interval; NAAT = nucleic acid amplification test; STD = sexually transmitted disease.
* The number represents unweighted frequencies.
† Percentages are weighted percentages, and CIs are weighted CIs for those percentages. Percentages might not add to 100% because of rounding.
§ Laboratory testing for sexually transmitted diseases was documented in the medical record abstraction component of the Medical Monitoring Project. Testing for *Neisseria gonorrhoeae* was defined as documentation of a result from culture, Gram stain, NAAT, or the nucleic acid probe. *Chlamydia trachomatis* testing was defined as a result from culture, direct fluorescent antibody, enzyme immunoassay or enzyme-linked immunoassay, NAAT, or nucleic acid probe. Syphilis testing was defined as a result from non-treponemal syphilis tests (rapid plasma reagin, Venereal Disease Research Laboratory), treponemal syphilis tests (*Treponema pallidum* hemagglutination assay, *T. pallidum* particle agglutination, microhemagglutination assay for antibody to *T. pallidum*, fluorescent treponemal antibody absorbed tests), or dark-field microscopy.
¶ Sexual activity was reported in the patient interview component of the Medical Monitoring Project and was defined as oral sex or anal or vaginal intercourse.

TABLE 7. Number* of participants and percentage† of persons reporting use of an emergency department or urgent care clinic for HIV medical care in the 12 months before the interview — Medical Monitoring Project, United States, 2009

No. of times in an emergency department or urgent care clinic	No.	%	(95% CI)
0	3,739	89.2	(87.4–90.9)
1	226	5.2	(4.1–6.3)
2–4	182	4.2	(3.3–5.1)
≥5	59	1.4	(1.0–1.8)
Total	**4,206**	**100.0**	—

Abbreviations: CI = confidence interval; HIV = human immunodeficiency virus.
* The number represents unweighted frequencies.
† Percentages are weighted percentages, and CIs are weighted CIs for those percentages. Percentages might not add to 100% because of rounding.

TABLE 8. Number* of participants and percentage† of persons reporting hospital admissions for an HIV-related illness in the 12 months before the interview— Medical Monitoring Project, United States, 2009

No. of times admitted to hospital	No.	%	(95% CI)
0	3,896	92.6	(91.3–93.8)
1	184	4.5	(3.6–5.5)
2–4	108	2.5	(1.9–3.1)
≥5	17	0.4	(0.2–0.6)
Total	**4,205**	**100.0**	—

Abbreviations: CI = confidence interval; HIV = human immunodeficiency virus.
* The number represents unweighted frequencies. Analyses limited to persons with diagnosis of HIV infection for at least 12 months before the interview.
† Percentages are weighted percentages, and CIs are weighted CIs for those percentages. Percentages might not add to 100% because of rounding.

TABLE 9. Medication beliefs regarding antiretroviral therapy for HIV infection among participants currently taking antiretroviral medications — Medical Monitoring Project, United States, 2009

Medication belief	No.*	%†	(95% CI)
How sure are you that you will be able to take all or most of your medication as directed?			
Not at all sure	54	1.6	(1.0–2.1)
Somewhat sure	202	5.6	(4.4–6.7)
Very sure	1,181	30.9	(28.0–33.8)
Extremely sure	2,268	61.9	(58.6–65.2)
How sure are you that your medication will have a positive effect on your health?			
Not at all sure	111	3.1	(2.3–3.9)
Somewhat sure	346	9.4	(7.9–10.9)
Very sure	1,251	33.4	(30.6–36.3)
Extremely sure	1,982	54.0	(50.9–57.1)
How sure are you that if you do not take your medication exactly as instructed, the HIV will become resistant to HIV medications?			
Not at all sure	234	6.5	(5.7–7.2)
Somewhat sure	441	12.4	(10.6–14.1)
Very sure	1,252	33.7	(31.0–36.4)
Extremely sure	1,722	47.5	(44.3–50.7)
Total	**3,708**	—	—

Abbreviations: CI = confidence interval; HIV = human immunodeficiency virus.
* The number represents unweighted frequencies. Numbers might not add to total because of missing data.
† Percentages are weighted percentages, and CIs are weighted CIs for those percentages. Percentages might not add to 100% because of rounding.

TABLE 10. Number* of participants and percentage† of persons reporting reasons§ for not taking last missed antiretroviral therapy dose, among those who missed a dose — Medical Monitoring Project, United States, 2009

Reason for missing ART dose	No.	%	(95% CI)
Forgot to take			
Yes	640	28.6	(25.6–31.6)
No	1,616	71.4	(68.4–74.4)
Change in daily routine including travel			
Yes	578	25.4	(22.7–28.1)
No	1,678	74.6	(71.9–77.3)
Problem with prescription or refill			
Yes	266	12.0	(9.6–14.4)
No	1,990	88.0	(85.6–90.4)
Felt sick or tired			
Yes	268	12.1	(10.4–13.9)
No	1,988	87.9	(86.1–89.6)
Drinking or using drugs			
Yes	118	5.2	(4.2–6.2)
No	2,138	94.8	(93.8–95.8)
Felt depressed or overwhelmed			
Yes	97	3.8	(2.8–4.9)
No	2,159	96.2	(95.1–97.2)
Side effects			
Yes	79	3.2	(2.3–4.0)
No	2,177	96.8	(96.0–97.7)
Money or insurance issues			
Yes	53	2.3	(1.6–2.9)
No	2,203	97.7	(97.1–98.4)
Too many pills to take			
Yes	27	1.1	(0.6–1.5)
No	2,229	98.9	(98.5–99.4)
Homeless			
Yes	9	0.4	(0.1–0.6)
No	2,247	99.6	(99.4–99.9)
Total	**2,256**	**100.0**	—

Abbreviations: ART = antiretroviral therapy; CI = confidence interval.
* The number represents unweighted frequencies.
† Percentages are weighted percentages, and CIs are weighted CIs for those percentages. Percentages might not add to 100% because of rounding.
§ Participants could report more than one reason.

TABLE 11. Number* of participants and percentage† of persons who used noninjection drugs§ for nonmedical purposes in the 12 months before the interview, by type of drug — Medical Monitoring Project, United States, 2009

Substance	No.	%	(95% CI)
Marijuana			
Yes	921	22.2	(20.4–24.0)
No	3,283	77.8	(76.0–79.6)
Cocaine that is smoked or snorted			
Yes	238	5.5	(4.6–6.4)
No	3,967	94.5	(93.6–95.4)
Crack			
Yes	204	4.8	(3.9–5.7)
No	4,001	95.2	(94.3–96.1)
Amyl nitrite ("poppers")			
Yes	175	4.2	(3.1–5.3)
No	4,030	95.8	(94.7–96.9)
Crystal methamphetamine			
Yes	144	3.2	(2.5–3.9)
No	4,061	96.8	(96.1–97.5)
Painkillers (e.g., oxycodone, Vicodin [hydrocodone and acetaminophen], or Percocet [acetaminophen and oxycodone])			
Yes	112	2.7	(1.9–3.4)
No	4,094	97.3	(96.6–98.1)
Ecstasy ("X")			
Yes	93	2.1	(1.6–2.6)
No	4,113	97.9	(97.4–98.4)
Downers (e.g. diazepam, lorazepam, or alprazolam)			
Yes	86	2.0	(1.5–2.4)
No	4,120	98.0	(97.6–98.5)
Amphetamines ("speed")			
Yes	59	1.4	(1.0–1.7)
No	4,145	98.6	(98.3–99.0)
GHB			
Yes	57	1.2	(0.8–1.6)
No	4,149	98.8	(98.4–99.2)
Heroin/opium that is smoked or snorted			
Yes	45	0.9	(0.5–1.3)
No	4,161	99.1	(98.7–99.5)
Hallucinogens such as LSD or mushrooms			
Yes	40	0.8	(0.4–1.3)
No	4,166	99.2	(98.7–99.6)
Ketamine ("Special K")			
Yes	30	0.7	(0.4–1.0)
No	4,176	99.3	(99.0–99.6)
Steroids			
Yes	24	0.7	(0.3–1.0)
No	4,179	99.3	(99.0–99.7)
Total	**4,206**	—	—

Abbreviations: CI = confidence interval; GHB = gamma hydroxybutyrate; LSD = lysergic acid diethylamide.
* The number represents unweighted frequencies.
† Percentages are weighted percentages, and CIs are weighted CIs for those percentages. Percentages might not add to 100% because of rounding.
§ Noninjection drugs include all drugs that were not injected (i.e., administered by any route other than injection). These drugs include all drugs, including legal drugs that were not used for medical purposes.

TABLE 12. Number* of participants and percentage† of men who have sex with men§ who reported sex risk behaviors in the 12 months before the interview, by type of partner — Medical Monitoring Project, United States, 2009

	Any partner¶			Main partner**			Casual partner††		
Behavior	**No.**	**%**	**(95% CI)**	**No.**	**%**	**(95% CI)**	**No.**	**%**	**(95% CI)**
Any anal intercourse									
Yes	1,137	58.0	(55.1–60.9)	746	38.0	(35.5–40.4)	665	34.1	(30.8–37.4)
No	778	42.0	(39.1–44.9)	1,171	62.0	(59.6–64.5)	1,254	65.9	(62.6–69.2)
Any unprotected anal intercourse									
Yes	606	31.8	(27.7–35.8)	372	19.1	(16.2–22.0)	357	18.7	(15.5–21.9)
No	1,260	68.2	(64.2–72.3)	1,539	80.9	(78.0–83.8)	1,511	81.3	(78.1–84.5)
Unprotected anal intercourse with partners of negative or unknown HIV status									
Yes	264	13.7	(11.9–15.4)	137	7.0	(5.6–8.3)	148	7.7	(6.5–9.0)
No	1,592	86.3	(84.6–88.1)	1,773	93.0	(91.7–94.4)	1,716	92.3	(91.0–93.5)
Insertive anal intercourse									
Yes	927	46.7	(43.8–49.7)	590	29.9	(27.8–32.0)	528	27.0	(24.2–29.9)
No	987	53.3	(50.3–56.2)	1,327	70.1	(68.0–72.2)	1,390	73.0	(70.1–75.8)
Unprotected insertive anal intercourse									
Yes	490	24.9	(21.6–28.2)	291	15.0	(12.7–17.4)	279	14.2	(11.8–16.6)
No	1,423	75.1	(71.8–78.4)	1,625	85.0	(82.6–87.3)	1,637	85.8	(83.4–88.2)
Unprotected insertive anal intercourse with partners of negative or unknown HIV status									
Yes	154	7.8	(6.3–9.4)	85	4.3	(3.2–5.4)	75	3.9	(2.9–5.0)
No	1,756	92.2	(90.6–93.7)	1,831	95.7	(94.6–96.8)	1,840	96.1	(95.0–97.1)
Receptive anal intercourse									
Yes	872	44.8	(42.2–47.4)	569	28.7	(26.6–30.8)	492	25.7	(22.9–28.5)
No	1,024	55.2	(52.6–57.8)	1,344	71.3	(69.2–73.4)	1,406	74.3	(71.5–77.1)
Unprotected receptive anal intercourse									
Yes	468	24.7	(20.9–28.4)	293	15.0	(12.5–17.6)	263	13.9	(11.3–16.6)
No	1,397	75.3	(71.6–79.1)	1,618	85.0	(82.4–87.5)	1,605	86.1	(83.4–88.7)
Unprotected receptive anal intercourse with partners of negative or unknown status									
Yes	202	10.7	(9.3–12.2)	107	5.7	(4.5–6.9)	113	5.9	(4.9–7.0)
No	1,655	89.3	(87.8–90.7)	1,803	94.3	(93.1–95.5)	1,752	94.1	(93.0–95.1)

Abbreviations: CI = confidence interval; HIV = human immunodeficiency virus.

* N = 1,939. Total for any anal intercourse in the any partner category does not include 24 persons who had unknown information for the questions about anal intercourse (insertive or receptive) with any partners. Numbers might not add to total because of missing data on sexual behaviors. The number represents unweighted frequencies. Values exclude categories with fewer than five responses.

† Percentages are weighted percentages, and CIs are weighted CIs for those percentages. Percentages might not add to 100% because of rounding.

§ Men who have sex with men were defined as 1) men who reported sex with men in the 12 months before interview, regardless of whether they also reported sex with women or 2) if no sexual activity was reported, men who identified as homosexual, gay, or bisexual.

¶ Any sex partner.

** A sex partner whom the respondent felt committed to more than anyone else.

†† A sex partner whom the respondent did not feel committed to or did not know very well.

TABLE 13. Number* of participants and percentage† of men who exclusively have sex with women§ who reported sex risk behaviors in the past 12 months, by type of partner — Medical Monitoring Project, United States, 2009

	Any partner¶			Main partner**			Casual partner††		
Behavior	**No.**	**%**	**(95% CI)**	**No.**	**%**	**(95% CI)**	**No.**	**%**	**(95% CI)**
Vaginal intercourse									
Yes	574	55.6	(51.2–60.0)	455	43.8	(39.4–48.2)	168	16.5	(14.2–18.9)
No	444	44.4	(40.0–48.8)	564	56.2	(51.8–60.6)	850	83.5	(81.1–85.8)
Unprotected vaginal intercourse									
Yes	161	14.5	(11.6–17.4)	142	12.7	(10.1–15.3)	27	2.6	(1.5–3.7)
No	857	85.5	(82.6–88.4)	877	87.3	(84.7–89.9)	991	97.4	(96.3–98.5)
Unprotected vaginal intercourse with partners of negative or unknown HIV status									
Yes	99	9.0	(6.5–11.5)	80	7.2	(5.0–9.3)	24	2.3	(1.3–3.3)
No	919	91.0	(88.5–93.5)	939	92.8	(90.7–95.0)	994	97.7	(96.7–98.7)
Anal intercourse									
Yes	70	6.5	(4.2–8.7)	57	4.8	(2.6–7.1)	20	2.3	(1.3–3.4)
No	945	93.5	(91.3–95.8)	960	95.2	(92.9–97.4)	997	97.7	(96.6–98.7)
Unprotected anal intercourse									
Yes	24	2.1	(0.9–3.3)	21	1.8	(0.7–2.9)	—	—	—
No	991	97.9	(96.7–99.1)	996	98.2	(97.1–99.3)	1,013	99.6	(99.2–100.0)
Unprotected anal intercourse with partners of negative or unknown HIV status									
Yes	16	1.5	(0.6–2.4)	14	1.3	(0.5–2.1)	—	—	—
No	999	98.5	(97.6–99.4)	1,003	98.7	(97.9–99.5)	1,015	99.8	(99.6–100.0)

Abbreviations: CI = confidence interval; HIV = human immunodeficiency virus.

* N = 1,025. Total does not include seven persons who had unknown information for the questions regarding vaginal intercourse with any partners. Total does not include 10 persons who had unknown information for the questions regarding anal intercourse with any partners. Numbers might not add to total because of missing data on sexual behaviors. The number represents unweighted frequencies. Values exclude categories with fewer than five responses.

† Percentages are weighted percentages, and CIs are weighted CIs for those percentages. Percentages might not add to 100% because of rounding.

§ Men who have sex with women were defined as 1) men who reported sex only with women in the 12 months before interview or 2) if no sexual activity reported, men who identified as heterosexual/straight.

¶ Any sex partner.

** A sex partner whom the respondent felt committed to more than anyone else.

†† A sex partner whom the respondent did not feel committed to or did not know very well.

TABLE 14. Number* of participants and percentage† of women who have sex with men§ who reported sex risk behaviors in the preceding 12 months, by type of partner — United States, Medical Monitoring Project, 2009

	Any partner¶			Main partner**			Casual partner††		
Behavior	**No.**	**%**	**(95% CI)**	**No.**	**%**	**(95% CI)**	**No.**	**%**	**(95% CI)**
Vaginal intercourse									
Yes	593	53.4	(50.3–56.5)	532	48.1	(45.0–51.2)	95	8.4	(6.3–10.4)
No	509	46.6	(43.5–49.7)	570	51.9	(48.8–55.0)	1,007	91.6	(89.6–93.7)
Unprotected vaginal intercourse									
Yes	246	22.8	(20.0–25.6)	226	21.1	(18.6–23.7)	30	2.7	(1.7–3.8)
No	854	77.2	(74.4–80.0)	874	78.9	(76.3–81.4)	1,072	97.3	(96.2–98.3)
Unprotected vaginal intercourse with partners of negative or unknown HIV status									
Yes	161	14.6	(12.3–16.9)	140	12.7	(10.6–14.7)	26	2.4	(1.4–3.4)
No	939	85.4	(83.1–87.7)	960	87.3	(85.3–89.4)	1,076	97.6	(96.6–98.6)
Anal intercourse									
Yes	74	5.9	(4.1–7.6)	64	5.3	(3.7–6.8)	14	0.8	(0.3–1.3)
No	1,024	94.1	(92.4–95.9)	1,037	94.7	(93.2–96.3)	1,084	99.2	(98.7–99.7)
Unprotected anal intercourse									
Yes	33	2.8	(1.6–3.9)	32	2.7	(1.6–3.9)	—	—	—
No	1,065	97.2	(96.1–98.4)	1,069	97.3	(96.1–98.4)	1,097	100.0	(99.9–100.0)
Unprotected anal intercourse with partners of negative or unknown HIV status									
Yes	11	0.9	(0.2–1.6)	10	0.9	(0.2–1.6)	—	—	—
No	1,087	99.1	(98.4–99.8)	1,091	99.1	(98.4–99.8)	1,097	100.0	(99.9–100.0)

Abbreviations: CI = confidence interval; HIV = human immunodeficiency virus.

* N = 1,105. Total does not include three persons who had unknown information for the questions regarding vaginal intercourse with any partners. Total does not include seven persons who had unknown information for the questions regarding anal intercourse with any partners. Numbers might not add to total because of missing data on sexual behaviors. The number represents unweighted frequencies. Values exclude categories with fewer than five responses.

† Percentages are weighted percentages, and CIs are weighted CIs for those percentages. Percentages might not add to 100% because of rounding.

§ Women who have sex with men were defined as 1) women who reported sex with men in the 12 months before interview, regardless of whether they also reported sex with women, or 2) if no sexual activity was reported, women who identified as heterosexual, straight, or bisexual.

¶ Any sex partner.

** A sex partner whom the respondent felt committed to more than anyone else.

†† A sex partner whom the respondent did not feel committed to or did not know very well.

TABLE 15. Number* of participants and percentage† of persons who needed, received, or did not receive ancillary services in the 12 months before the interview — Medical Monitoring Project, United States, 2009

Service	Received service (No.)	%	(95% CI)	Needed but did not receive service (No.)	%	(95% CI)	Did not need or receive service (No.)	%	(95% CI)
HIV case management services	2,456	57.7	(53.5–62.0)	221	5.3	(4.4–6.2)	1,524	36.9	(32.8–40.9)
Dental care	2,415	57.4	(54.2–60.7)	958	22.8	(20.2–25.4)	841	19.8	(18.0–21.5)
Public benefits including Supplemental Security Income or Social Security Disability Insurance	1,970	46.4	(43.2–49.6)	482	12.0	(10.5–13.4)	1,758	41.6	(38.4–44.9)
Counseling about how to prevent the spread of HIV	1,792	42.0	(37.1–46.8)	42	1.0	(0.7–1.3)	2,378	57.0	(52.2–61.9)
Medicine through the AIDS Drug Assistance Program	1,786	41.9	(39.1–44.6)	121	2.9	(2.4–3.4)	2,244	55.1	(52.3–58.0)
Meal or food services	1,312	30.0	(26.1–33.8)	295	7.0	(6.0–7.9)	2,607	63.1	(59.5–66.6)
Mental health services	1,180	27.2	(24.0–30.4)	254	5.9	(4.9–6.9)	2,773	66.8	(63.9–69.7)
Transportation services	1,129	26.0	(23.3–28.8)	368	8.6	(7.2–10.1)	2,719	65.3	(62.3–68.3)
Professional help remembering to take HIV medications on time or correctly	865	19.3	(16.6–22.0)	81	1.9	(1.4–2.3)	3,266	78.8	(76.0–81.6)
HIV peer group support	779	18.1	(16.1–20.0)	348	8.4	(7.0–9.7)	3,078	73.5	(71.6–75.4)
Shelter or housing services	713	16.5	(14.3–18.7)	346	8.2	(7.3–9.1)	3,157	75.3	(72.6–78.1)
Drug or alcohol counseling or treatment	458	10.4	(8.8–12.0)	87	2.2	(1.7–2.7)	3,669	87.4	(85.7–89.2)
Home health services	331	7.8	(6.8–8.7)	108	2.7	(2.2–3.2)	3,775	89.5	(88.4–90.6)
Interpreter services	128	3.2	(2.4–4.1)	19	0.4	(0.2–0.6)	4,069	96.4	(95.4–97.3)
Domestic violence services	84	1.6	(1.1–2.1)	38	0.9	(0.6–1.3)	4,092	97.5	(96.9–98.1)
Child care services	64	1.4	(0.8–1.9)	60	1.4	(1.1–1.8)	4,092	97.2	(96.6–97.9)

Abbreviations: CI = confidence interval; HIV = human immunodeficiency virus.

* N = 4,217. The number represents unweighted frequencies. Analyses limited to persons with diagnosis of HIV infection for at least 12 months before the interview. Values exclude categories with fewer than five responses, values with a coefficient of variation >0.30 (30%), responses of "don't know," and skipped (missing) responses.

† Percentages are weighted percentages, and CIs are weighted CIs for those percentages. Percentages might not add to 100% because of rounding.

§ Participants could report receiving or needing more than one service.

Appendix
Methods for the Medical Monitoring Project

Sampling Method

The Medical Monitoring Project (MMP) collects behavioral and clinical information from a probability sample of adults receiving medical care for human immunodeficiency virus (HIV) infection from outpatient facilities in the United States and Puerto Rico (*1*–*3*). MMP uses a probability-proportional-to-size (PPS) sampling design. The MMP sample was selected in the following three stages: 1) states, 2) facilities providing HIV medical care, and 3) patients receiving medical care.

Selection of States

States were selected first. All 50 states, the District of Columbia (DC), and Puerto Rico (defined as primary sampling units [PSUs]) were eligible for selection. From these 52 PSUs, 20 were selected using PPS sampling based on the prevalence of acquired immunodeficiency syndrome (AIDS) prevalence at the end of 2002. 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. Six municipal jurisdictions received separate funding for HIV/AIDS 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 comprised a city-state pair unit. If a state included a city with independent HIV surveillance authority (e.g., Texas, which includes Houston, an independently funded HIV surveillance authority), selection of the state included selection of the city. (City-state pairs were selected as one unit.) In 2004, 19 states (which include the six 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, starting with the 2009 data collection cycle, three 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.

Selection of Facilities Providing HIV Medical Care

HIV medical care facilities were selected after the selection of states. Facilities were defined as providing HIV medical care if they provided at least one of the following in the context of treating and managing a patient's HIV infection on an outpatient basis: 1) CD4+ T-lymphocyte or HIV viral load testing or 2) prescriptions for antiretroviral medications. Thus, facilities providing HIV care could include outpatient facilities such as hospital-affiliated clinics, free-standing clinics, or private physicians' offices. Within each participating project area, MMP staff compiled comprehensive lists of facilities providing HIV medical care by using various available data sources. Facilities that did not provide medical care (e.g., HIV counseling and testing sites) were excluded from the list of facilities, as were emergency departments, facilities located outside of the MMP areas, correctional facilities, facilities in military installations, and facilities that provided HIV medical care exclusively to persons aged <18 years.

The size of each facility was determined by using the estimated patient load for the population definition period, defined for the 2009 cycle as the 4-month period during January 1–April 30, 2009. From the list of facilities and estimated patient load, HIV medical care facilities were selected with a likelihood of selection proportional to their estimated patient load. All selected facilities were recruited to participate. If a facility declined to participate or was found to be ineligible, that facility was not replaced with another facility. (Substitution of facilities was not allowed.)

Selection of Patients Receiving Medical Care

Individual patients were selected after facility selection. Each participating facility compiled comprehensive lists of eligible patients seen during the population definition period. The patient lists from each area were then compiled into a single list from which patients were selected. Project areas attempted to recruit all selected patients to participate.

Participant Recruitment

Patients selected in the third stage of selection were recruited to participate through one of two strategies: enrollment by MMP staff or enrollment by facility staff. The strategy depended on clinic needs, project area needs, local Institutional Review Board requirements, and the number of patients selected from a given facility. For enrollment by MMP staff members, facilities provided local MMP staff members with contact information for patients. For enrollment by health-care providers, selected patients were initially contacted by their

health-care providers either in person, by telephone, or by mail, and then were contacted by MMP staff members. The same participant eligibility criteria were used in all participating project areas: diagnosis of HIV infection, age ≥18 years at the beginning of the 4-month period when patients were eligible for selection, no previous participation in MMP during the current data collection cycle, and receipt of medical care at the sampled facility during the population definition period.

Missing Value Substitution for Selected Variables Using Data from Other Sources

Some persons in the sample had missing information in the interview for at least one of the following variables: sex at birth, gender, race, ethnicity, date of birth, or date of first positive HIV test. For persons who had missing values for any of these variables, interview data were linked with their corresponding medical record and surveillance data (minimum data set) that includes information primarily from the Enhanced HIV/AIDS Reporting System (eHARS) (*4*). The proportion of respondents who had information substituted was 18.8%.

Measures and Reference Periods

Sociodemographic Characteristics

Sociodemographic characteristics data that were collected from participants during the interview included gender, sexual orientation, race/ethnicity, age, education level, country or territory of birth, time since HIV diagnosis, homelessness, being incarcerated for >24 hours, health insurance or coverage and type of health coverage, primary source of financial support, combined yearly household income from all sources, and household income (above, at, or below federal poverty guidelines) (*5*). The 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 they answered "transgender" to the interview question regarding self-identified gender. Sexual orientation categories were heterosexual or straight; homosexual, gay, or lesbian; and bisexual. Race/ethnicity categories were black or African American, white, Hispanic or Latino, American Indian/Alaska Native, Asian, Native Hawaiian/Pacific Islander, and multiracial. Age groups included 18–24 years, 25–29 years, 30–34 years, 35–39 years, 40–44 years, 45–49 years, 50–54 years, 55–59 years, 60–64 years, and ≥65 years. Educational attainment was categorized as less than high school, high school diploma or general educational development credential, and more than high school. Country of birth was categorized as United States, Puerto Rico, Mexico, Cuba, or other. Time since HIV diagnosis was categorized as <5 years, ≥5 to <10 years, and ≥10 years. Persons also were asked if they had been homeless at any time during the 12 months before the interview. Health insurance or coverage was categorized as private health insurance, Medicaid, Medicare, Tricare/CHAMPUS and Veterans Administration coverage, insurance classified as other public health insurance, or other unknown insurance. Participants could select more than one response for health insurance or coverage. Persons were considered uninsured if they reported having only Ryan White HIV/AIDS Program coverage.

The questionnaire included sections on the primary source of financial support during the 12 months before interview, (including Social Security Supplemental Income [SSI] or Social Security Disability Insurance [SSDI]); salary or wages; other (including savings investments, pensions); family, partner, or friends; no income or financial support; and illegal or possibly illegal activities. Persons were also asked about their combined monthly or yearly household income from all sources during the last calendar year (in U.S. dollars). Whether a person met current federal poverty guidelines was determined using the U.S. Department of Health and Human Services (HHS) poverty guidelines (*5*) that corresponded to the calendar year for which income was asked. These guidelines are issued yearly for the 48 contiguous U.S. states and DC and are one indicator used for determining eligibility for many federal and state programs. Because persons who participate in MMP are asked about their income in the year before interview, the 2008 guidelines (*6*) were used for participants interviewed in 2009, and the 2009 guidelines (*7*) were used for persons interviewed in 2010. Because the poverty guidelines are not defined for the territory of Puerto Rico, the guidelines for the contiguous states and DC were used for this jurisdiction. For participants whose income range and household size resulted in an ambiguous poverty level determination, the household income was assumed to be at the midpoint value of the income range.

Clinical Characteristics

CDC Stage of Disease Classification for HIV Infection

The stage of HIV infection, a measure of disease severity, was defined according to the CDC's 2008 revised surveillance case definition for HIV infection using data from participant medical records (*8*). Stage 1, the least severe stage, was defined as having had a nadir CD4+ count of ≥500 cells/μL or a CD4+ percentage

of ≥29% and no previous diagnosis of an AIDS-defining condition. Stage 2 was defined as having had a nadir CD4+ count of 200–499 cells/μL *or* CD4+ percentage of 14%–28% and no previous diagnosis of an AIDS-defining condition. Stage 3 was defined as having had a nadir CD4+ count of <200 cells/μL, a nadir CD4+ percentage of <14%, or an AIDS-defining condition. To determine the stage of HIV infection, medical record data from both the time period since HIV diagnosis and the 12 months before interview were abstracted.

CD4+ T-Lymphocyte Count

For each participant, the geometric mean of all CD4+ count results documented in the medical record in the 12 months before the interview was calculated. This was done to summarize all CD4+ counts for the 12 months before the interview as a single measure for a given participant. For each participant, the lowest CD4+ count among all documented CD4+ measurements in the 12 months before the interview also was determined.

Use of Health-Care Services

HIV Medical Care

Participants were asked if, during the 12 months before the interview, they had a usual source of primary HIV medical care. HIV medical care was defined as conducting CD4+ or viral load testing and providing prescriptions for antiretroviral medications in the context of treating and managing HIV disease on an outpatient basis.

Frequency of CD4+ T-Lymphocyte and HIV Viral Load Testing

In this report, the frequency of outpatient CD4+ count and HIV viral load tests documented in the medical record for each participant during the 12 months before the interview were categorized and presented as follows: frequency of outpatient laboratory testing for CD4+ cell count or HIV viral load (0, 1, 2, or ≥3 tests), number of CD4+ tests (0, 1, 2, or ≥3), number of HIV viral load tests (0, 1, 2, or ≥3), whether HIV viral load testing was done at least once in every 6-month interval, and whether CD4+ testing was done at least once during the 12 months before the interview.

Prescription of Antiretroviral Medications

Antiretroviral therapy (ART) was defined as having a documented prescription in the medical record of any one of the following medications: abacavir, amprenavir, atazanavir, darunavir, delavirdine, didanosine, efavirenz, emtricitabine, enfuvirtide, etravirine, fosamprenavir, indinavir, lamivudine, lopinavir/ritonavir, maraviroc, nelfinavir, nevirapine, raltegravir, ritonavir, saquinavir, stavudine, tenofovir, tipranavir, zalcitabine, or zidovudine.

HIV Viral Suppression

In this report, two measures of HIV viral suppression are presented. First, having a documented most recent viral load result of ≤200 copies/mL or undetectable during the 12 months before the interview was classified as current viral suppression. Second, having all documented HIV viral load results ≤200 copies/mL or undetectable during the 12 months before the interview was classified as durable viral suppression.

Pneumocystis carinii Pneumonia and *Mycobacterium avium* Complex Prophylaxis

Persons eligible for *Pneumocystis carinii* pneumonia (PCP) prophylaxis had a CD4+ cell count of <200 cells/μL during the 12 months before the interview, and those eligible for *Mycobacterium avium* complex (MAC) prophylaxis had a CD4+ cell count of <50 cells/μL in the 12 months before the interview. Based on current recommendations for preventing PCP among HIV-infected persons (*9*), receipt of PCP prophylaxis was defined as documentation in the medical record that prophylaxis for PCP was prescribed or that regimens typically given as PCP prophylaxis were prescribed: trimethoprim-sulfamethoxazole, dapsone (with or without pyrimethamine and leucovorin), aerosolized pentamidine, and atovaquone. Based on current recommendations for preventing MAC disease among HIV-infected persons (*9*), receipt of MAC prophylaxis was defined as documentation in the medical record that prophylaxis for MAC disease was prescribed or that regimens typically given as MAC prophylaxis were prescribed: 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).

Testing for Sexually Transmitted Diseases

Testing for gonorrhea, chlamydia, and syphilis during the 12 months before the interview for all participants as well as for sexually active participants (defined as participants who engaged in oral sex, anal intercourse, or vaginal intercourse in the 12 months before the interview) are presented. Testing for *Neisseria gonorrhoeae* was defined as documentation in the medical record of a result from culture, Gram stain, nucleic acid amplification test (NAAT), or the nucleic acid probe. *Chlamydia trachomatis* testing was defined as documentation in the medical record of a result from culture, direct fluorescent antibody, enzyme immunoassay or enzyme-linked immunoassay, NAAT, or nucleic acid probe. Syphilis

testing was defined as documentation in the medical record of a result from nontreponemal syphilis tests (rapid plasma reagin, Venereal Disease Research Laboratory), treponemal syphilis tests (*Treponema pallidum* hemagglutination assay, *T. pallidum* particle agglutination, microhemagglutination assay for antibody to *T. pallidum*, fluorescent treponemal antibody absorbed tests), or dark-field microscopy.

Additional Measures of Health-Care Use

Participants were asked about receipt of seasonal influenza vaccine in the 12 months before the interview. Participants were also asked to report HIV-related emergency department visits, urgent care center visits, and hospitalizations.

Self-Reported Antiretroviral Medication Use and Adherence

Participants were asked about their use of ART medications as well as their reasons for never or not currently taking them. Participants who reported currently taking ART were asked about their primary payment method for prescription medications for HIV infection and related illnesses and to describe the reasons for not taking their last missed ART dose. They also were asked a series of questions about their perceptions of ART. Specifically, they were asked how sure they were that 1) they would be able to take all or most of medications as directed, 2) the medication would have a positive effect on their health, and 3) if they did not take their medications exactly as instructed, that the HIV infection would become resistant to medications. Participants were asked about adherence over the past 3 days to ART doses, schedules, and special instructions for taking ART. Dose adherence referred to taking a dose or set of pills, spoonfuls, or injections of ART medications. Schedule adherence referred to following a specific schedule for ART medication timing, such as "2 times a day" or "every 8 hours." Special instruction adherence referred to following special instructions for ART medication, such as "take with food" or "on an empty stomach." Special instruction adherence was only asked of participants who reported having special instructions for taking their ART medications. Participants who reported currently taking ART described the reasons for not taking their last missed ART dose.

Depression and Substance Use

Depression

Participants were asked questions from the eight-item Patient Health Questionnaire (PHQ-8) (*10*). These questions represent an eight-item scale used to measure frequency of depressed mood in the past 2 weeks. The PHQ-8 includes 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; 8) moving or speaking so slowly that other people could have noticed, or conversely, 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." The PHQ-8 responses were scored using two different methods. First, an algorithm involving criteria from the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* (DSM-IV) (*11*), for diagnosing major depression was used to classify adults receiving medical care for HIV infection as having major depression, other depression, or no depression. To meet the criteria for any type of depression, a participant must have had the presence of a specific number of symptoms in the scale (at least five symptoms for major depression and two to four symptoms for other types of depression) for half the days or nearly every day, with at least one of the symptoms being either anhedonia or feelings of hopelessness. Second, a score-based method, calculated as the sum of scores from the responses in the scale, was used to determine the presence of current depression of moderate or severe intensity, which was defined as a sum score of ≥10 (*10*).

Substance Use

Participants were asked whether they smoked and about the frequency of current cigarette smoking. Frequency of smoking was categorized as daily, weekly, monthly, less than monthly, or never. Current smokers were defined as persons who smoked daily, weekly, monthly, or less than monthly. Participants also were asked about alcohol use during the 12 months and 30 days before the interview. A drink was defined as 12 oz of beer, a 5-oz glass of wine, or a 1.5-oz shot of liquor. Binge drinking was defined as five or more drinks in one sitting for men and four or more drinks in one sitting for women. Participants were asked about the use of noninjection and injection drugs during the 12 months before the interview. Noninjection drugs were drugs which were not injected (i.e., administered by any route other than injection). Noninjection and injection drugs were defined as all drugs, including legal drugs that were not used for medical purposes.

Gynecologic and Reproductive Health

All female participants were asked whether they received HIV care at an obstetrics and gynecology clinic. Females were also asked whether they had received a pelvic examination and Papanicolaou (Pap) test in the past 12 months, whether they had been pregnant since testing positive for HIV, how many times they had given birth to children since testing positive for HIV, and about the number of pregnancies and births in the 12 months before the interview.

Sexual Behavior

Participants were asked about their sexual orientation (i.e., heterosexual or straight; homosexual, gay, or lesbian; and bisexual) as part of the demographics section. Regardless of how participants answered the question about sexual orientation, males and females were asked about sexual behavior with male and female partners in the 12 months before the interview. Sexual behavior was defined as anal intercourse, vaginal intercourse, or oral sex.

If males and females reported any sexual activity in the 12 months before the interview, they were asked about the number of sex partners and whether they considered the partners to be main or casual. A main partner was defined as a person whom the respondent felt committed to more than anyone else. A casual partner was defined as a person whom the respondent did not feel committed to or did not know very well.

Participants were then asked a series of questions about these main and casual partners. First, they were asked whether they disclosed their HIV status before the first sexual encounter after their HIV diagnosis with no, some, or all partners. Then they were asked the number of persons with whom they had unprotected sex. Unprotected sex was defined as vaginal or anal intercourse without a condom at all or a condom used for part of the time during sex. Participants also were asked how many of the partners with whom they had unprotected vaginal or anal intercourse were HIV-positive. To determine whether a participant had sex with a partner of negative or unknown status, the number of HIV-positive status partners was subtracted from the total number of partners with whom the participant reported unprotected sex, and if the numbers were not equal (i.e., not all partners were HIV-positive), then the participant was considered to have had sex with a partner of negative or unknown HIV status.

A composite variable was created that considered the gender of the participants' sex partners, or if no sexual activity was reported, their self-identified sexual orientation (i.e., heterosexual or straight; homosexual, gay, or lesbian; or bisexual). The categories were as follows: men who have sex with men (MSM) were defined as men who reported sex with men in the 12 months before interview, regardless of whether they also reported sex with women, or if no sexual activity was reported, men who identified as homosexual, gay, or bisexual. Men who exclusively have sex with women (MSW) were defined as men who reported sex only with women in the 12 months before interview, or if no sexual activity was reported, men who identified as heterosexual/straight. Women who have sex with men (WSM) were defined as women who reported sex with men in the 12 months before interview, regardless of whether they also reported sex with women, or if no sexual activity was reported, women who identified as heterosexual/straight or bisexual. Women who exclusively have sex with women (WSW) were defined as women who reported sex with women only in the 12 months before interview, or if no sexual activity was reported, women who identified as homosexual, gay, or lesbian. Transgender persons were defined as previously described in the Participant Measures section. Participants who did not fit into any of the categories described (i.e., were unclassified because they had not had any sex in the past year and self-reported sexual orientation was missing) were categorized as other/unclassified. These categories are mutually exclusive. (For example, a participant could not be transgender and be placed in any of the other categories.)

Met and Unmet Need for Support Services

Participants were asked whether they received HIV-related supportive services during the 12 months before the interview and, if they did not receive them, whether they needed them. Supportive services consisted of HIV case management services, counseling about how to prevent HIV transmission, medicine through the AIDS Drug Assistance Program, professional help remembering to take HIV medicines on time or correctly, HIV peer group supports, dental care, mental health services, drug or alcohol counseling or treatment, public benefits including SSI or SSDI, domestic violence services, shelter or housing services (including temporary or long-term housing), meal or food services, home health services (e.g., home nursing care, physical therapy, or health care that provides services in a patient's home), transportation assistance, child care services, interpreter services, and other HIV-related services. A met need was defined as a supportive service received. An unmet need was defined as a supportive service that the respondent needed but did not receive in the 12 months before interview. For each service, the need (met or unmet) was self-perceived by the respondent.

Prevention Activities

Participants were asked if they had a one-on-one conversation with a doctor, nurse, or other health-care worker about HIV and sexually transmitted diseases (STD) prevention. Topics could have included condom negotiation, how to practice safer sexual behavior or injection use, or how to talk with partners about safe sex. Participants were also asked about participation in one-on-one discussions about ways to prevent HIV infection and other STDs and in group-level interventions consisting of at least one organized session with a small group of persons (excluding discussions with friends) to discuss ways to prevent HIV and other STDs. They were asked about receipt of free condoms and the types of organizations that provided the condoms.

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