The Minority AIDS Initiative (MAI) Cross-Site Evaluation Report

FY2015

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1. Executive Summary

1.1 Introduction

The Minority AIDS Initiative (MAI) is designed to prevent substance use and HIV/AIDS among at-risk minorities in communities disproportionately affected by HIV/AIDS. This evaluation focuses on four MAI grant programs overseen by the Center for Substance Abuse Prevention (CSAP) within the Substance Abuse and Mental Health Services Administration (SAMHSA): The Substance Abuse and HIV Ready to Respond (RTR) Initiative in Communities Highly Impacted by Substance Use and HIV Infection (Cohort 9), the Capacity-Building Initiative (CBI) for Substance Abuse and HIV Prevention Services for At-Risk Racial/Ethnic Minority Young Adults (Cohort 10), and the Minority Serving Institutions in Partnerships with Community Based Organizations (MSI CBO) Program (MSI CBO 2013 and MSI CBO 2014). Thirty-five RTR grantees and 27 CBI grantees were funded from 2010 through 2015. Twenty-nine MSI CBO 2013 grantees are funded from 2013 through 2016 and 21 MSI CBO 2014 grantees are funded from 2014 through 2017. The following evaluation questions frame the report:

- What activities were implemented as part of the MAI grant program, including the direct, indirect, and HIV testing services provided?
- What are the characteristics of the individuals served?
- How did individual-level knowledge, attitudes, and behaviors change from program entrance to exit? Did outcomes differ by gender, age, race/ethnicity, and sexual orientation?
- Did access to and awareness of health care services change for MAI participants from pretest to posttest?
- Which interventions or combinations of interventions are associated with the best participant outcomes?
- Which grantee- and participant-level factors moderate participant-level outcomes?

The results of this evaluation have the potential to spark changes in policies and practices related to substance abuse (SA) and HIV prevention by identifying the types of strategies that work best for specific at-risk subpopulations.

1.2 Data Sources

The analysis for this report is based on participant- and grantee-level data received from MAI Cohort 9 and Cohort 10, MSI CBO 2013, and MSI CBO 2014 through the end of FY2015. Participant-level data were obtained from youth and adult questionnaires administered to participants of direct-service interventions at program entry and exit and from participant-level service dosage records. A very small number of records from the youth questionnaire were submitted during FY2015. In addition, outcome data from MSI CBO grantees were extremely limited. Therefore, outcome data for this report are restricted to Cohort 9 and Cohort 10 adult participants and are cumulative from the start of these cohorts' data collection.

Cohort 9 and Cohort 10 grantee-level process data were obtained from quarterly progress reports entered online using CSAP's online Prevention Management Reporting and Training System (PMRTS) through FY2014. In March 2015, the PMRTS went offline for the remainder of the fiscal year. During this time, Cohort 9 and Cohort 10 grantees, who were closing their grants, were asked to submit HIV testing data through the Program Evaluation for Prevention Contract's (PEP-C) secure online technical assistance system. No process data were available for the MSI CBO grantees in FY2015 because they had not yet submitted any progress reports through the PMRTS as of the shutdown date. When the system was relaunched in June 2016, MSI CBO grantees submitted retrospective HIV testing data through the system.

1.3 Methodology

The findings presented in the report are results of four types of analysis:

1. Descriptive analyses of the grantees' organizational structure, implemented interventions, and characteristics of individuals served;
2. Pre-post comparisons of participants' knowledge, attitudes, and behaviors associated with SA and sexual risk behaviors;
3. The Success Case Method: a combination of quantitative and qualitative analytic approaches to identifying common characteristics among the high-performing grantees; and
4. Multivariate hierarchical linear modeling used to investigate the participant- and grantee-level factors that moderate key outcomes.

1.4 Results

1.4.1 HIV Testing

- A total of 27,731 HIV tests were provided:
  - 12,182 tested for the first time;
  - 2,080 tests to homeless individuals;
  - 256 positive tests; and
  - All individuals who tested positive were referred to treatment.

1.4.2 Description of the Sample

The data analyzed in this report were submitted by Cohort 9, Cohort 10, MSI CBO 2013, and MSI CBO 2014 grantees through the end of FY2015. The sample consisted of 33,246 program participants.

- Demographic characteristics of the sample—
  - 47% male, 51% female, and 2% transgender
  - 93% over age 18
  - 22% Hispanic
  - 59% non-Hispanic African American/Black
  - 3% non-Hispanic Asian or Pacific Islander
  - 11% non-Hispanic White
  - Less than 1% American Indian/Alaska Natives

- Other socioeconomic characteristics relevant to HIV transmission risk or vulnerability to behavioral health disparities—
  - 13% men who have sex with men (MSM)
  - 4% men who have sex with both men and women
  - 59% residing in southern states
  - 9% homeless
  - 54% with no more than a high school education
  - 3% with military background
  - 25% with someone close to them in the military
  - 37% without health insurance

1.4.3 Changes in Knowledge and Attitudes

- Significant improvements were observed between participants' baseline and exit knowledge and attitudes associated with SA and HIV transmission:
  - 25% increase in perceived risk of harm from binge drinking;
  - 43% increase in perceived risk of harm from weekly marijuana use;
  - 4% increase in perceived risk of harm from sharing unsanitized needles (already at 90% at baseline);
  - 15% increase in perceived risk of harm from unprotected anal sex (adult participants);
  - 23% increase in perceived risk of harm from unprotected oral sex (adult participants);
  - 18% increase in perceived risk of harm from unprotected vaginal sex (adult participants);
  - 27% increase in perceived risk of harm from having sex while drunk or high (adult participants);
  - 15% increase in HIV knowledge; and
  - 9% increase in sexual self-efficacy score (e.g., confidence in negotiating sex safe practices with partner).

1.4.4 Changes in Substance Use

- Significant decreases were observed between the baseline and exit surveys in the reported number of days of substance use during the past 30 days:
  - 15% decrease in alcohol use;
  - 16% decrease in binge drinking;
  - 5% decrease in cigarette use;
  - 7% decrease in marijuana use; and
  - 27% decrease in the use of illicit drugs other than marijuana.

- Past-30-day prevalence rates of injected drugs and misuse of prescription drugs were very low at baseline (1% and 4%, respectively); decreases were also observed in these prevalence rates, but they were not statistically significant.

1.4.5 Changes in Risky Sexual Behaviors

- Among adults who reported being sexually active during the past 30 days, the likelihood of the most recent intercourse being protected increased by 32% between the baseline and exit surveys. When examined separately by type of sexual activity, this increase was as follows:

  – Vaginal sex: 28%;
  – Oral sex: 40%; and
  – Anal sex: 18%.

1.4.6 Changes in Access to Health Care

- Between the baseline and exit surveys, there were significant changes in participants' likelihood of having health insurance and of their knowledge of the availability of health care services in their community:

  – 4% increase in the percentage of participants who had health insurance;
  – 20% increase in the percentage of participants reporting that they knew where to go to obtain services for drug or alcohol problems; and
  – 15% increase in the percentage of participants reporting that they knew where to go to obtain health care for HIV/AIDS or other sexually transmitted diseases.

1.4.7 Grantee-Level Factors Associated With Positive Outcomes

The results of a mixed-methods analysis of the grantees with the most and least successful outcomes identified the following grantee-level factors associated with success:

- Correspondence between target population and implemented interventions;
- Equal emphasis on SA and HIV prevention;
- Successful integration of SA and HIV prevention content;
- Emphasis placed on outcome data.

1.5 Program and Policy Implications of the Results

The evaluation shows that MAI grantees were successful in recruiting at-risk individuals and implementing evidence-based interventions and HIV testing. Results suggest that the MAI programs were effective in decreasing use of alcohol, cigarettes, marijuana, and other illicit drugs and in increasing practices of safe sex. However, results indicate differences in program effectiveness by subgroup and outcome, leading to several program and policy recommendations:

- Provide grantees training on the "High Impact Prevention" approach from the Centers for Disease Control and Prevention, including the list of interventions no longer supported, to aid them in selecting interventions that will be the most cost-effective use of their budgets.
- In light of recent findings that risk reduction counseling before HIV testing is not effective at reducing the likelihood of STD incidence while adding considerable service cost, for future funding opportunity announcements consider revising the requirement to provide pre- and posttest counseling to instead require counseling only in the event of a positive test.
- Consider revising the definition of desirable responses to the survey items pertaining to perception of risk of unprotected sex for different sex acts (anal, vaginal, and oral) to reflect the "hierarchy of transmission risks."
- Inform grantees of the gender disparity in protected anal sex found in this report, and encourage them to tailor prevention messages to women to improve negotiation skills for using protection.
- Continue to encourage grantees that are targeting Black, Latina, and Hispanic women to tailor interventions to be culturally appropriate.
- Promote risk reduction strategies focused on protected sex and access to clean needles as further means to lower disease threat among MSM and injection drug users, and focus special attention on linkages between behavioral and physical health care for these vulnerable subpopulations.
- Consider adding to the survey additional questions about nonmedical use of prescription drugs (such as sources of prescription medication and type of drug), given its high visibility on the national policy agendas.
- Grantees that have identified marijuana use as a priority in their community could use social media to disseminate prevention messages about the potential harm associated with regular marijuana use, specifically targeting

young adults and MSM populations who have high risk of marijuana abuse but low intervention responsivity.

- Increase guidance and training for grantees targeting Black MSM on selecting interventions with strong evidence of effectiveness, not only for MSM in general but for Black MSM in particular.

- Consider allowing (and encouraging) grant funds to be allocated to increasing knowledge and accessibility of pre-exposure prophylaxis (PreP) among grantees targeting Black MSM or other groups at similar risk levels. This is considered best practice in HIV prevention among high-risk individuals and is included in the National AIDS Strategy as a prevention priority for the next 5 years (The White House, 2015).

- Place more emphasis on the strategic plan review and approval process to increase grantees' capacity to select appropriate interventions and ensure effective data collection and evaluation capabilities at the onset of the grant period.

1.6 Limitations

The report has several limitations:

- Absence of a comparison group limited our ability to demonstrate a direct link between the observed pre-post changes and the implemented interventions.

- Because of data collection errors and program attrition, baseline and exit survey data could not be linked for all participants.

- Because of the limited sample sizes of some racial/ethnic groups (most notably Asians, American Indians/Alaska Natives, Native Hawaiians, and Pacific Islanders), outcomes of these groups could not be fully assessed.

- Outcomes of single-day interventions could not be evaluated because of insufficient sample sizes.

- Outcomes for MSI CBO grantees could not be evaluated because of system unavailability and intervention focus (mainly single-day interventions).

- No updates on grantees' planning, capacity-building, and implementation efforts were included in this report because of data system unavailability.

These limitations will be addressed through a newly developed data collection system and more targeted technical assistance efforts to increase data quality. The

adult and youth questionnaires have recently been shortened and revised to better align with current prevention priorities. In addition, the standard quarterly reporting tool has been updated to further improve data collection of grantees' planning, capacity-building, and implementation efforts. An instrument to collect aggregated, community-level outcome data has also been designed, making it possible to assess the impact on community norms of grantees' environmental strategies and information dissemination efforts. These improvements to the instruments and advances in the data collection system will further increase the utility of the MAI initiative to affect policy and programs.

2. Introduction

2.1 Background

The Federal government has made the reduction of HIV/AIDS a priority and provides strong leadership in developing policies and programs to limit the spread of HIV/AIDS domestically and internationally. The Substance Abuse and Mental Health Services Administration (SAMHSA), an agency of the Department of Health and Human Services, plays a key role in overseeing HIV prevention and treatment efforts, particularly as they intersect with mental health, substance use, and addiction. SAMHSA's efforts to address HIV, AIDS, and viral hepatitis (VH) include grant opportunities for community and religious organizations, hospitals, and academic institutions to coordinate mental health and addiction treatment services and to provide HIV testing with pre- and posttest counseling, referrals for treatment, and testing for other infectious diseases (SAMHSA, 2015a). This report evaluates the activities of four cohorts of SAMHSA/CSAP's Minority AIDS Initiative (MAI) grantees from the start of their data collection through the end of FY2015.

2.1.1 HIV/AIDS as a National Priority

Despite the many advances in HIV/AIDS prevention and treatment, the disease remains a serious and persistent problem in the United States. In 2014, the estimated (adjusted) number of new HIV infection diagnoses was 44,073, a rate of 13.8 per every 100,000 persons. As of the end of 2013, about 949,331 people age 13 or over in the United States and its territories were living with HIV, and an estimated 14% were unaware of their infection (Hall et al., 2015). The diagnosis rate has decreased slowly but steadily, from 14.4 per 100,000 in 2010 to 13.4 per 100,000 in 2013. However, there was no further decline, and even a slight increase in the rate between 2013 and 2014 (from 13.4 to 13.8 per 100,000). During the 4 years 2010 through 2013, an estimated 673,538 deaths were recorded among individuals ever diagnosed with AIDS (Centers for Disease Control and Prevention [CDC], 2015a).

Despite the considerable advances in the prevention and treatment of the disease, several populations continue to experience high rates of HIV infection, including African Americans/Blacks, Latino/Hispanics, and gay and bisexual men of all races/ethnicities. The rate (per 100,000) of newly diagnosed HIV infections was 49.4 among African Americans/Blacks, and 18.4 for Hispanic/Latinos; Whites had a diagnosis rate of only 6.1.

Of particular concern is the elevated rate of infection among young adults: In 2014, the rate of new diagnoses was 34.3 among individuals age 20–24 and 35.8 in the 25–29 age group (CDC, 2015a). According to a special CDC report on HIV infection among adolescents and young adults (CDC, 2015a), an estimated 39,516 individuals age 20–24 were living with HIV in the United States in 2014; more than 88% of them identified with a racial/ethnic group other than White. That is, minority communities are disproportionately affected by the spread of HIV among young adults.

HIV diagnosis rates also vary by region of the country. As of the end of 2014, the highest HIV transmission rate was in the South (18.5 per 100,000) compared with 14.2 in the Northeast, 11.2 in the West, and 8.2 in the Midwest (CDC, 2015a). In fact, 50% of newly diagnosed HIV infections in 2013 occurred among individuals residing in the South.

Another subgroup disproportionately affected by HIV/AIDS is men who have sexual contact with men. In fact, male-to-male sexual transmission (with or without injection drug use [IDU]) accounts for more than half of all people living with an HIV diagnosis. CDC (2015) reports that among the 718,300 males (age 13 or older) living with an HIV diagnosis as of the end of 2013, more than two thirds (69%) of the cases (497,957 infections) were attributed to male-to-male sexual contact (CDC, 2015a).

In addition to race/ethnicity and sexual orientation, other characteristics or behaviors that elevate the chances of contracting HIV include substance use and

mental illness. Substance use, abuse, and dependence are leading risk factors for HIV/AIDS. Although IDU is a direct route of transmission, drinking, smoking, ingesting, or inhaling substances also increases risk for HIV infection. Use of substances such as alcohol, crack/cocaine, or methamphetamine decreases inhibition and careful decision-making, increasing the chances that one will engage in sexual contact without protection, with multiple partners, or both. Certain drugs (e.g., crack/cocaine) also are associated with increased trading of sex for drugs or money, whereas drugs like methamphetamine can dry mucosal tissues and increase the risk of tearing in areas where the HIV virus can enter the body (Molitor, Truax, Ruiz, & Sun, 1998). Furthermore, substance abuse (SA) frequently co-occurs with mental illness, which also affects decision-making, impulse control, and sensation-seeking (Klinkenberg, Sacks, & the HIV/AIDS Treatment Adherence, Health Outcomes and Cost Study Group 2004).

2.1.2 Viral Hepatitis as a National Priority

According to a report by the Institute of Medicine (IOM), VH, and especially hepatitis C infection (HCV), is another growing concern in the United States (IOM, 2010). Hepatitis is transmitted through the exchange of bodily fluids; it therefore shares multiple behavioral risk factors with HIV, such as using infected needles to inject drugs and unprotected sexual contact with an infected person. CDC estimates that from 2010 through 2013, cases of acute HCV increased from 850 to 2,138. Although the incidence rate (per 100,000) increased among all adults over age 18, the largest increase was observed in the 20–29 age group (from 0.75 in 2010 to 2.01 in 2013). Among racial/ethnic groups, American Indians/Alaska Natives had the highest incidence rate in 2013 (1.7 in 100,000), followed by non-Hispanic Whites (0.82 per 100,000; CDC, 2016a). In 2014, SAMHSA/CSAP's MAI grant programs began including the prevention of VH among the goals of the MAI program.
Cohorts awarded after that date include hepatitis-related testing, vaccination, and referrals among their funded activities.

2.2 Overview of Grantees in the Minority AIDS Initiative

In this report, the evaluation of change from pretest to posttest focuses on data from two MAI grant programs overseen by CSAP: The Substance Abuse and HIV Ready to Respond (RTR) Initiative in Communities Highly Impacted by Substance Use and HIV Infection (Cohort 9) and the Capacity-Building Initiative (CBI) for Substance Abuse and HIV Prevention Services for At-Risk Racial/Ethnic Minority Young Adults (Cohort 10), which were funded in 2010 for up to 5 years. These grantees have now completed their grant periods and submitted all of the data they have collected.

The RTR grants to Cohort 9 help previously funded MAI grantees enhance their capacity to provide evidence-based services to at-risk populations using approaches that blend SA and HIV prevention. Thirty-five RTR grantees were awarded funding up to 5 years, starting in 2010. The CBI assists grantees in building their infrastructure to deliver and sustain quality and accessible SA and HIV prevention and testing services for young adults. The program engages institutions of higher education and community-level domestic public and private nonprofit entities to support direct SA and HIV prevention services, environmental strategies, and HIV testing for at-risk minority populations age 18–24. This Cohort 10 comprised 27 grantees across the Nation who were awarded 5-year cooperative agreements in 2010.

SAMHSA also awarded 3-year grants to 29 and 21 grantees in 2013 and 2014, respectively, through the Minority Serving Institutions in Partnerships with Community Based Organizations (MSI CBO) Program. MSI CBO grantees were awarded to minority-serving colleges and institutions partnering with local organizations serving young adults of color (age 18–24) to prevent and reduce HIV/AIDS, VH, and substance use. Data from these grantees are included in the descriptive sections of this report. Next year's report will begin to evaluate their outcome data.

A new MSI CBO cohort of 34 grantees was selected in 2015 and awarded 3-year grants. An additional 54 five-year grants were funded in 2015 under MAI's CBI. The grantees funded in 2015 are at the initial stages of the Strategic Prevention Framework process and have not yet started to collect evaluation data.

Exhibit 2.1 details the target population, setting, and goals for the RTR, CBI, and MSI CBO grant programs from which data are presented in this report.

Exhibit 2.1. Description of Cohorts in the Minority AIDS Initiative Whose Data Are Included in the Report

	Cohort 9	Cohort 10	MSI CBO 2013	MSI CBO 2014
Year	2010–2015	2010–2015	2013–2016	2014–2017
Number of Grantees	35	27	29	21
Funding Opportunity Announcement (FOA) or Request for Application (RFA) Title and No.	Substance Abuse and HIV Prevention Ready to Respond Initiative in Communities Highly Impacted by Substance Use and HIV Infection Short Title: RTR Initiative FOA No. SP-10-003	Capacity-Building Initiative for Substance Abuse and HIV Prevention Services for At-Risk Racial/Ethnic Minority Young Adults Short Title: CBI FOA No. SP-10-004	Minority Serving Institutions Partnerships with Community Based Organizations Short Title: MSI/CBO 13 RFA No. SP-13-006	Minority Serving Institutions Partnerships with Community Based Organizations Short Title: MSI/CBO 14 RFA No. SP-14-005
Target Population	Racial/ethnic minorities, reentry, men having sex with men, African American women, Latina women, adolescents (age 12–17) young adults (age 18–24), and individuals age 50 or older	Racial/ethnic minorities young adults age 18–24, including minority college students	African American, Hispanic/Latino, and American Indians/Alaska Natives young adults (age 18–24)	African American, Hispanic/Latino, Asian American/Pacific Islander, and American Indian/Alaska Native young adult populations (age 18–24)
Organizations	Communities highly impacted by HIV	Colleges, universities, and communities	On MSI campuses and in surrounding communities	On MSI campuses and in surrounding communities

2.3 Evaluation Questions

The goal of the evaluation is to explore what strategies were implemented by MAI grantees, who received MAI prevention services, and whether the services were effective in changing knowledge, attitudes, and behaviors that increase the risk of HIV. Specifically, we address the following process and outcome evaluation questions:

- What activities were implemented as part of the MAI grant program, including the direct, indirect, and testing services provided?
- What are the characteristics of the individuals served?
- How did individual-level knowledge, attitudes, and behaviors change from program entrance to exit? Did outcomes differ by gender, age, race/ethnicity, or sexual orientation?
- Did access to and awareness of health care services change for MAI participants from pretest to posttest?
- Which interventions or combinations of interventions are associated with the best participant outcomes?
- Which grantee- and participant-level factors moderate participant-level outcomes?

2.4 Informing Policies and Practices

The aims of the MAI programs and the goals of its evaluation align with key components of the National HIV/AIDS Strategy, such as (1) intensifying efforts to provide HIV prevention in communities with high rates of HIV; (2) expanding the use of evidence-based approaches; (3) educating the public about HIV risks, prevention, and transmission; (4) supporting linkages to care; (5) reducing health inequities; and (6) monitoring and reporting on progress (White House Office of National AIDS Policy, 2015). The results of this evaluation have the potential to spark changes in policies and practices related to HIV prevention and intervention. Results can assist in understanding who receives HIV- and SA-related prevention and treatment services, as well as which subpopulations may be at risk but

underserved. Results also will help us understand which services were provided and whether grantees used best practices in employing evidence-based approaches and providing multilevel (individual and environmental) change strategies. The evaluation will further our understanding of health disparities in service availability and provide insight into policy recommendations for ensuring behavioral health equity. Additionally, understanding which populations had the greatest program-related gains will help us make recommendations ensuring the special needs of vulnerable subpopulations are addressed in a full continuum of care. Finally, findings from the evaluation may help clinicians, patient advocates, and community health workers be better equipped with the tools to educate the public about behavior changes to reduce their risk of HIV. Likewise, the answers to our evaluation questions may assist SAMHSA to continue to provide funding to reduce substance use, HIV/AIDS and hepatitis infections, as well as education and awareness of these issues.

2.5 Report Overview

This evaluation report uses all data submitted by the RTR (Cohort 9) and CBI (Cohort 10) grantees from the beginning of their respective grant periods through the end of FY2015. Additionally, the report includes data on interventions implemented, HIV testing, and participant characteristics for the first two MSI CBO cohorts MSI CBO 2013 and MSI CBO 2014 through the end of FY2015. The following briefly describes the remaining chapters and organization of the report.

- Chapter 3 provides a brief and nontechnical description of the data used in the analysis and the analytic techniques employed. Appendix A provides a detailed description of the multi-item scales and composite variables used in the analysis.
- Chapter 4 discusses the results of the analysis. It begins with grantees' implemented direct-service interventions and HIV testing activities, followed by participant characteristics. Each of these sections includes data from all four cohorts (Cohort 9, Cohort 10, MSI CBO 2013, and MSI CBO 2014). The rest of Chapter 4 presents and discusses results for Cohort 9 and Cohort 10 only. First, participants' baseline risk levels are discussed and compared with

national prevalence rates from a comparable national sample. Then, changes between baseline and exit in participants' knowledge, attitudes, behaviors, and level of access to health care services are discussed. Finally, the last two sections of Chapter 4 discuss grantee-level factors associated with positive outcomes (Success Case Method [SCM] analysis results) and participant- and grantee- level moderators of outcomes (results of multilevel analysis). Appendix D includes qualitative profiles (case studies) of the grantees identified from the SCM analysis as the most successful in improving outcomes.

- Chapter 5 highlights the key findings discussed in Chapter 4; locates them within a broader context, including the relevant published literature; and provides program and policy recommendations based on the results. Appendix C organizes these program and policy recommendations by the type of action needed to address them.

- Chapter 6 discusses the quantity and quality of the data used in this report.

- Chapter 7 discusses the limitations of the current evaluation study, recent revisions and updates to the data collection instruments, and evaluation plans for the future.

3. Data and Methods

3.1 Data Sources

Data for this report come from four main sources:

- Participant questionnaires;
- Participant-level service dosage records;
- Grantee-level data on the number of persons who received HIV testing services in FY2015; and
- Qualitative detail about grantees' implemented interventions and other process-related information used for the Success Case Method (SCM) analysis.

In FY2015, data collection for the first three of these sources differed from the practices of previous years. Before FY2015, Minority AIDS Initiative (MAI) grantees submitted participant-level survey and dosage data via a Web-based data collection system. The contract for the Web-system ended in March 2015, and the system was no longer available to grantees. A new online system, currently under development, will be launched in November 2016 (described in further detail in Chapter 7). In the interim, grantees sent FY2015 participant-level survey and dosage data in standardized templates to the Program Evaluation for Prevention Contract's (PEP-C) secured online technical assistance (TA) system. The data were then processed and underwent CSAP's validation and cleaning procedures.

Similarly, quarterly process information, including data on HIV testing activities, had until mid-FY2015 been submitted through CSAP's online Prevention Management Reporting and Training System (PMRTS). In March 2015 the PMRTS went offline for the remainder of the fiscal year; it was re-launched in June 2016, which was after Cohort 9 and Cohort 10 grantees had closed out their grants. The methods for obtaining data on HIV testing in FY2015 are described in Section 3.1.2.

Finally, qualitative information on Cohort 9 and Cohort 10 grantees' implemented interventions, accomplishments, and barriers, as well as information about their target populations and targeted geographic areas, was obtained from their quarterly progress reports submitted to the PMRTS through FY2014. No process data were available for the Minority Serving Institutions in Partnerships with Community Based Organizations (MSI CBO) grantees in FY2015 because they had not yet submitted any progress reports through the PMRTS as of the shutdown date of that system.

3.1.1 Participant-Level Data

Standardized self-report questionnaires (one for youth and one for adults) were used to obtain information on participant characteristics, including demographic characteristics and attitudes, knowledge, and behaviors related to substance use and HIV. The questionnaires are divided into three modular sections—(1) Demographics, (2) Attitudes and Knowledge, and (3) Behaviors—that are administered based on the overall duration of services a participant receives. Participants receiving services for 30 days or longer complete all three sections of the questionnaire at program entry (baseline), program exit, and follow-up (3–6 months after exit). Participants engaging in services lasting 2 to 29 days receive only the first two sections pertaining to demographic characteristics, attitudes, and knowledge; they do not receive questions about past-30-day behaviors because a valid assessment of pre-post change is not possible given the time frame. For these participants, the questionnaire is completed at baseline and exit only. Finally, participants who receive services lasting only a single day are asked to complete a reduced portion of the survey at exit only (although some grantees collect pre-post data from these participants for local evaluation purposes). They receive questions about demographic characteristics and three to five questions measuring knowledge, attitudes, or both, selected by the grantee as appropriate to the content of the single-session intervention. Data on demographic characteristics, as well as

the names of the interventions the participant received, are collected from all participants regardless of service duration.

In addition to self-reported data, service dosage data are collected and reported by grantees for each participant. Dosage is a measure of the amount of contact, in minutes, a participant has in each direct encounter with the program for a wide range of service categories. Typically, multiple dosage forms are submitted for any given participant, one for each service encounter. These data are linked to the participant's survey data during data processing. The analysis file is structured with a single record per participant containing all of the linked data available for that individual, including multiple waves of survey data and data from multiple dosage forms.

Participant-level data collected through the end of FY2015 by four MAI cohorts (Cohort 9 and Cohort 10; MSI CBO 2013 and 2014) were processed for this report. Exhibit 3.1 describes these data.

Section 4.3, which describes participants' sociodemographic characteristics, is based on all available data collected with the adult questionnaire through the end of FY2015. A very small number of records from the youth questionnaire were submitted during FY2015; these were not included in this year's outcome analysis, on the grounds that they did not change the youth outcome results reported in last year's report. Thus, youth questionnaire data used in this year's report include only records submitted through the end of FY2014. Outcome data from MSI CBO grantees were extremely limited; only four grantees from MSI CBO 2013 and two from MSI CBO 2014 submitted outcome data from multisession interventions, and records with 30 days or longer between baseline and exit (needed to assess behavioral change) were predominately from one grantee. Therefore, outcome data for this report are restricted to Cohort 9 and Cohort 10 adult participants and are cumulative from the start of these cohorts' data collection. Limitations due to data availability and quality are discussed in detail in Chapters 6 and 7.

Exhibit 3.1 Inventory of Participant Data

Description of the Participant-Level Data Processed for the FY2015 MAI Cross-Site Report

	Cohort 9	Cohort 10	MSI CBO 13	MSI CBO 14	Total
Total Participant Records	14,908	12,473	4,984	881	33,246
Total With Dosage Data	12,664	8,575	1,315	682	23,236
Total Whose Dosage Data Could Not Be Matched to Survey Data	1,300	1,351	963	576	4,190
Total From Services That Lasted a Single Day	153	2,596	3,120	21	5,890
Total From Services That Lasted 2 to 29 Days	2,227	2,929	901	86	6,143
Total From Services That Lasted 30 Days or More	11,124	5,593	0	0	16,717

Note: MSI CBO = Minority Serving Institutions in Partnerships with Community Based Organizations.

Source: HIV Cohort 9 and Cohort 10 and MSI CBO 2013 and 2014 participant-level data submitted through FY2015.

3.1.2 HIV Testing Data

MAI grantees provide aggregated counts of persons tested for HIV and their characteristics. Grantees track the total number of persons tested for HIV during the fiscal year, the number tested for the first time, and the number tested by demographic characteristics. In addition, in line with the U.S. Department of Health and Human Services' (HHS) Common Indicators for HHS-funded HIV Programs and Services (Centers for Disease Control and Prevention [CDC], 2015b), grantees report the following:

- Number of HIV-positive results in the 12-month period;
- Number of those tested who were homeless or unstably housed; and

- Number of those who tested positive for HIV who were referred to treatment.

Grantees have the option of using SAMHSA's MAI Rapid HIV/Hepatitis Testing Clinical Information Form to facilitate data collection, or they create their own tracking systems to collect the required data in the aggregate. Most grantees do not track individuals they test over time; that is, individuals tested multiple times may be counted multiple times in the reported numbers. Strictly speaking, the testing data should be interpreted as referring to tests provided rather than to unique individuals tested.

Data on persons tested for HIV in FY2015 were submitted two ways. MSI CBO grantees submitted retrospective data when the PMRTS was relaunched in June 2016. Cohort 9 and Cohort 10 grantees submitted data for the first two quarters of FY2015 in the PMRTS before it closed down in March of 2015 and then had the option of providing data for the full fiscal year by sending aggregated counts to the PEP-C team's secured online TA system.

3.1.3 Qualitative Data for the Success Case Method Analysis

For the SCM analysis, described in detail in Section 3.2.2, descriptive information about Cohort 9 and Cohort 10 grantees' implemented interventions were obtained from their quarterly progress reports submitted to the PMRTS. Along with the name of each intervention, grantees entered a description of the intervention and any adaptations they made to its original design or targeted population. Descriptions of the evidence-based interventions were supplemented with detail from SAMHSA's National Registry of Evidence-Based Programs and Practices and the CDC's Compendium of Evidence-Based Interventions and Best Practices for HIV Prevention. In addition to intervention information, the PMRTS was used to obtain information on Cohort 9 and Cohort 10 grantees' accomplishments and barriers related to capacity and implementation. Grantees' strategic plans and information available from grantee organizations' Web sites were used to supplement the available qualitative information for the SCM analysis.

3.2 Analytic Methods

3.2.1 Participant Characteristics and Pre-Post Change

Before data analysis, all participant-level data underwent a cleaning procedure to address inconsistencies reported within and across time points while retaining as much valid data as possible for analysis. Participant records were ordered by time point (i.e., baseline, exit, and follow-up); then, responses were cleaned within time and across time points to ensure data quality by preventing inconsistent responses from entering into analyses. An example of a within-time-point inconsistency might be a participant who indicates never having used alcohol to an item asking about age of first alcohol use but then indicates alcohol use within the past 30 days in response to another question in the same survey. An example of an across-time inconsistency might be a participant who reports ever having had unprotected sex in her/his lifetime at baseline but at a later time point (i.e., exit or follow-up) reports never having had unprotected sex in his/her lifetime. Inconsistencies were addressed according to a set of standard cleaning rules such that the resulting cleaned dataset contains no conflicting information on the measures used in the evaluation. Inconsistencies were resolved through a set of detailed cleaning rules based on best practices in survey research.

Another component of the cleaning process is to review all available information from each respondent and to logically impute missing values for variables where possible. For example, if a respondent did not answer the question on past-30-day alcohol use but reported binge drinking during the past month, then the value of *any* alcohol use during the same period is imputed to be "yes." Similarly, if the respondent did not report his/her gender at baseline but did provide the information at either exit or follow-up, the value of the cleaned gender variable is derived from those sources.

All cleaned records are included when reporting numbers of persons served by sociodemographic characteristics. For outcome analyses, records are excluded from

analysis if time points are not in chronological order (e.g., exit predates baseline), if baseline and exit records cannot be linked, or if the participant's age is less than 12 years. A further discussion of data quality is provided in Chapter 6.

The exhibits on participant sociodemographic characteristics are based on all cleaned data records from participants who received services through the end of FY2015. Exhibits showing baseline knowledge, attitudes, and behaviors are based on all available baseline data from Cohort 9 and Cohort 10 adult participants, regardless of the availability of exit data. As mentioned above and further discussed in Chapters 6 and 7, outcome analyses are restricted to data from Cohort 9 and Cohort 10 adult participants whose baseline and exit data could be linked.

Change in outcome measures between the baseline and exit surveys is reported as the percent change between baseline and exit—that is, the difference between baseline and exit values expressed as a percentage of the baseline value. This approach conveniently provides the reader with an indicator of intervention effects that is independent of the unit of measurement and the baseline level of the outcome measure being assessed. Significance testing for baseline-to-exit change was performed using two-tailed matched-pairs t-tests for continuous outcome variables and two-tailed McNemar's test for dichotomous outcome variables. Only participants with matched baseline and exit survey records are included in the pre-post comparisons.

The behavioral measures (substance use and risky sexual behaviors) all have a 30-day time referent. That is, the participants were asked to report these behaviors during "the past 30 days." To ensure that the response at exit referred to a period that did not predate program entry, we restricted the analyses of behavioral outcomes to participants who had at least 30 days between their baseline and exit surveys.

Where sample sizes are sufficient, results of outcome analyses are presented by demographic group, including gender, age group, and race/ethnicity. Additionally,

outcomes are examined separately for a list of high-risk subgroups considered to be of special interest to the program. In the case of subgroups with small sample sizes, results are suppressed for one of two reasons: (1) for a subgroup with a sample size less than 20, results are suppressed for privacy protection purposes, given the sensitive nature of the data; and (2) for subgroups with a sample size less than 55, results are suppressed to rule out misleading conclusions, given the larger-than-acceptable margins of error. The minimum sample size of 55 was selected to balance the need to present results for subsamples of interest with the need to suppress results that appeared unstable or unreliable. Wherever numbers are suppressed, a note is inserted after the table to indicate which of the two criteria necessitated this action.

3.2.2 Application of the Success Case Method to Grantee-Level Analysis

SCM is a mixed-methods approach to identifying factors associated with successful outcomes. It was originally developed for evaluating the effectiveness of new initiatives undertaken by business organizations, for whom the measure of success is easily quantified as profitability (Brinkerhoff, 2003). Although not yet widely used to evaluate programs in the not-for-profit sector, the methodology has been successfully adapted to evaluations of social service programs (Coryn, Schröter, & Hanssen, 2009). The original version of the method uses the most and least successful sites exposed to the initiative as sampling strata from which individuals (or organizational branches) are selected for in-depth interviews or focus groups specifically directed at uncovering the reasons for their success or failure. We adapted this approach to investigate the factors associated with successful outcomes among Cohort 9 and 10 grantees, who have already closed out their grants and are no longer available for interviews. Instead of interviews or focus groups, we used all available information about the successful grantees from their progress reports and strategic plans. We also used mission statements and activity narratives available on the grantee organizations' Web sites.

This analysis addresses the following evaluation questions:

- How were implemented strategies and combinations of strategies associated with individual-level changes?
- What other site-specific factors moderated the outcomes of implemented strategies?

The analysis involves a combination of quantitative and qualitative analyses, which are described in the rest of this section.

QUANTITATIVE APPROACH TO DEFINING "SUCCESS"

Keeping in mind the key mission of MAI, to prevent or reduce the spread of substance abuse (SA) and HIV/AIDS in minority communities, we used the following list of outcome measures in our selection of successful grantees for further in-depth study:

- Perception of risk of harm from binge drinking;
- Perception of risk of harm from regular marijuana use;
- Past-30-day binge drinking;
- Past-30-day marijuana use;
- Past-30-day use of illicit drugs other than marijuana;
- Past-30-day misuse of prescription medications;
- Perception of risk of harm from sharing unsanitized needles;
- Perception of risk of harm from anal, oral, and vaginal unprotected sex (three separate measures);
- Perception of risk of harm from sexual activity while under the influence of substances;
- HIV Knowledge Scale;
- Sexual Self-Efficacy Scale; and
- Past-30-day use of protection during intercourse.

For each of these measures, the average percent change between baseline and exit values was calculated for each grantee, and grantees were classified into quintiles for each measure, where the first quintile indicates the largest baseline-to-exit improvement and the fifth quintile indicates the smallest. Not every grantee reported outcome data for all of the 14 measures, so the proportion of measures for which a grantee was in the top quintile was calculated for the following "success" categories:

1. **Overall success:** proportion of outcomes in the top quintile out of the total number of outcomes the grantee reported across the 14 SA and HIV measures
2. **Success in SA outcomes:** proportion of outcomes in the top quintile out of the six SA outcomes
3. **Success in HIV outcomes:** proportion of outcomes in the top quintile out of the eight HIV outcomes

Grantees with fewer than 50 baseline-to-exit matched records for any given outcome measure were not included in the rating for that measure. Fifty-three out of the 62 (85%) Cohort 9 and 10 grantees met this criterion for at least one outcome measure and were included in the analysis.

As would be expected, the successful grantees fell into multiple success categories. We selected the six grantees with the highest proportion of outcomes in the top quintile from the "overall success" category (there was a tie for fifth place, which led to the selection of the top six). To examine whether additional grantees were highly successful in SA- or HIV-specific outcomes, we flagged grantees in the top quintile for at least half (50% or more) of the outcomes for which they reported data within the "SA success" and "HIV success" categories. Most grantees in each of these groups were already among the top six for "overall success," but this step did yield two additional grantees, one from each category, for a total of eight highly successful grantees to further investigate. A spreadsheet was constructed for these grantees, with information on the outcome measures for which they scored in the top quintile, the interventions they implemented, the populations they targeted, and the

demographic distributions of their participants. These grantees were then divided among team members for further in-depth study.

QUALITATIVE IN-DEPTH STUDY OF SUCCESSFUL CASES

In addition to the information in the spreadsheet, team members compiled and examined all information available for their assigned grantees, including the strategic plans and narrative text included in grantees' quarterly progress reports, with special attention to the accomplishments and barriers associated with the capacity-building and implementation steps of the Strategic Prevention Framework. Grantee organizations' Web sites were also used as sources of information about organizational history and structure, mission, types of activities, sources of funding, and any other information that might explain successful outcomes.

The qualitative study team met frequently to present their cases to the entire group. Group discussions followed the case presentations, with the specific aim of identifying shared patterns of characteristics among the cases. These discussions typically generated additional questions that team members would then further investigate. This method resulted in a set of narrative descriptions of the shared patterns of implementation and other characteristics among the successful grantee group.

CONFIRMATORY USE OF "LEAST SUCCESSFUL" CASES

The method for selecting the success cases described above was used in reverse (replacing top quintile with bottom quintile) to identify eight overall least successful cases. Plausible explanations for success that emerged through case presentations and group discussions were checked against these cases. Any bottom-quintile cases that displayed the identified patterns of success were studied in more depth to discover further moderators of success/failure.

3.2.3 Multivariate Moderator Analysis

In addition to comparing baseline and exit values of outcome measures for the entire sample and for selected subgroups, we estimated multivariate models to

identify the grantee-level characteristics that significantly moderated successful outcomes. The structure of the data, with participants nested within grant sites, suggests a multilevel approach that can account for the effects of this clustering on the model parameters. The outcome measures constructed for the analysis identify each participant as having a successful or unsuccessful outcome on the basis of their baseline and exit levels of the outcome measure. The model best suited for investigating this type of binary outcome using clustered data is a multilevel logistic approach with participants as level 1 and grantees as level 2. In the rest of this section, we first describe the coding rules for the outcome variables and then describe the general modeling approach. A more technical model specification and detailed models are included in Appendix D.

DEFINING A "SUCCESSFUL" PROGRAM OUTCOME

In evaluations of prevention programs, the difference between the baseline and exit values of an outcome measure may not always capture the full impact of the intervention because members of the target population are typically high-risk individuals who may not yet show signs of the undesirable behavior. For example, an underage drinking prevention program may target youth who are at high risk of initiating alcohol use but who have not yet done so. For such a participant, remaining a nonuser throughout the program should be considered a successful program outcome. If we were to define our program outcome simply as the baseline-to-exit decrease in the number of days of alcohol use, a participant who remained at 0 days of use throughout the program would be assigned the same program outcome value as someone who reported 20 days of use at baseline and remained at that level at exit. Both would appear as having no change in their alcohol use. This example demonstrates the need for a measure of program outcome that defines as successes both the participants who did not initiate the undesirable behavior and the participants who reduced their undesirable behavior. Indeed, this reasoning is apparent in the CSAP Government Performance and Results Act (GPRA) measure 2.3.83 (Percent of program participants who report no use of alcohol at pretest who remain nonusers at posttest).

Following this reasoning, we developed a coding scheme for defining positive program impact based on two criteria:

- The participant did not show signs of the undesirable behavior or attitude at baseline and remained at that desirable baseline level at exit or
- The participant showed signs of the undesirable behavior or attitude at baseline and improved at exit.

Participants who met either of these two criteria were counted as "program successes" on the grounds that both reflect successful prevention efforts.

IDENTIFYING PARTICIPANT CHARACTERISTICS ASSOCIATED WITH PROGRAM SUCCESS

The PEP-C MAI evaluation plan includes the following evaluation question:

Which individual-level factors were associated with individual-level outcomes?

To address this question, we constructed models predicting successful behavioral outcomes at the participant level. The models investigated the impact of selected participant characteristics on the likelihood of a successful program outcome, controlling for relevant baseline characteristics.

The participant survey data contain detailed information about participants' sociodemographic characteristics. To avoid the methodological error of testing too many hypotheses—and thus increasing the likelihood of discovering significant effects just by chance—we approached this part of the analysis deductively. We tested only hypotheses for which we had theoretical support, based either on our own analysis results or on the literature at large.

As in most other cross-site data, MAI participants are clustered within grant sites. Simple regression models built on the assumption that every respondent's characteristics are independent of every other respondent's data are therefore not suitable for this multisite structure. We used multilevel models that account for clustering by including a random component representing variability across

grantees. The models reflect a two-level data structure with participants as level 1 and grantees as level 2.

Technical descriptions of the models are presented in Appendix D, together with detailed results. Key findings of the analysis are discussed in Chapter 4.

4. Results

4.1 Implemented Direct-Service Interventions

The FY2014 cross-site report relied on grantees' quarterly progress reports for data on implemented interventions. FY2015 progress reports were not available for analysis; the information in this section is derived from participant-level data survey data, which includes the names of up to three interventions that each participant received.

Evidence-based direct-service interventions (EBPs) implemented by at least three Cohort 9 and Cohort 10 grantees and attended by at least 200 participants are listed in Exhibit 4.1. These thresholds were used to identify interventions commonly implemented across grant sites, rather than those implemented by only one or two grantees. A full list of all interventions reported by these two cohorts is provided in Appendix E. Exhibit 4.2 lists all of the EBPs attended by the Minority Serving Institutions in Partnerships with Community Based Organizations (MSI CBO) 2013 and 2014 participants for whom survey data were available. Given the smaller number of participant records from MSI CBO grantees, all of the reported EBPs could be feasibly listed in a table; therefore, no thresholds based on number of grantees or participants were imposed on this list. More detailed information about the selected direct-service EBPs is provided in Appendix B.

Keeping in mind that the Cohort 9 and Cohort 10 list is based on data going back to 2010, the frequently implemented EBPs have all had solid evidence of effectiveness until recently. In recent years, new data have raised doubts about some of these interventions. The Division of HIV/AIDS Prevention at the Centers for Disease Control and Prevention (CDC) no longer supports RESPECT, SISTA, Nia, Street Smart, Safety Counts, or SHIELD for high-impact HIV prevention purposes. Video Opportunities for Innovative Condom Education & Safer Sex (VOICES/VOCES) is now supported only for men who have sex with men (MSM). The substance abuse

(SA) interventions most frequently implemented by these two cohorts, on the other hand, are listed in SAMHSA's National Registry of Evidence-based Programs and Practices.

Exhibit 4.1. Direct-Service Interventions, Cohort 9 and Cohort 10

Direct-Service Interventions Implemented by at Least Three Grantees and Attended by at Least 200 Participants, Cohort 9 and Cohort 10 Through FY2015

Intervention Name	Targeted Outcome Category	Grantees		Participants	
		Number	Percent	Number	Percent
RESPECT	HIV	10	18.5	2,866	14.1
VOICES/VOCES	HIV	8	14.8	3,554	17.5
Rapid HIV testing	HIV	7	13.0	893	4.4
Protocol-Based HIV Counseling and Testing (PBC)	HIV	6	11.1	857	4.2
SISTA	HIV	5	9.3	1,566	7.7
Nia	HIV	5	9.3	1,221	6.0
NIDA Community Outreach Model	SA & HIV	4	7.4	1,860	9.1
Street Smart	SA & HIV	4	7.4	1,604	7.9
Motivational Interviewing	SA & HIV	4	7.4	664	3.3
CLEAR	SA & HIV	4	7.4	446	2.2
Project Towards No Drug Abuse	SA	3	5.6	1,192	5.9
Safety Counts	SA & HIV	3	5.6	940	4.6
PRIME for Life	SA	3	5.6	770	3.8
SHIELD	SA & HIV	3	5.6	527	2.6

Notes: A total of 54 grantees (Cohort 9: 30; Cohort 10: 24) provided participant-level information on direct-service interventions. Data were available for 20,356 participants. NIDA = National Institute on Drug Abuse. SA = substance abuse.

Source: HIV Cohort 9 and Cohort 10 participant-level data reflective of services received through FY2015.

MSI CBO data are more recent. Although we do not yet have survey data from a representative sample of participants, the data we do have (Exhibit 4.2) indicate less frequent implementation of the EBPs whose evidence base has recently been called into question—only SISTA and Nia, both of which were attended by a small proportion of the sample. We are encouraged to see that RESPECT, which has been found to be ineffective in general and possibly iatrogenic among MSM (Metsch, et al., 2013), is not among the EBPs attended by this initial sample of MSI CBO participants.

Exhibit 4.2. Direct-Service Interventions by Minority Serving Institutions in Partnerships with Community Based Organizations

Evidence-Based Direct-Service Interventions Reported in Participant-Level Data Submitted by Minority Serving Institutions in Partnerships with Community Based Organizations (MSI CBO) 2013 and 2014 Grantees Through FY2015

Intervention Name	Targeted Outcome Category	Grantees		Participants	
		Number	Percent	Number	Percent
VOICES/VOCES	HIV	4	36.4	1,096	32.1
Alcohol Literacy Challenge (ALC)	SA	4	36.4	889	26.1
SISTA	HIV	3	27.3	135	4.0
PROMISE	SA & HIV	2	18.2	163	4.8
Rapid HIV testing	HIV	1	9.1	1,883	55.2
Brief Alcohol Screening and Intervention for College Students (BASICS)	SA	1	9.1	98	2.9
Nia	HIV	1	9.1	16	0.5
Project START	HIV	1	9.1	16	0.5
d-up: Defend Yourself!	HIV	1	9.1	13	0.4

Notes: A total of 11 grantees (MSI CBO 2013: 8; MSI CBO 2014: 3) provided information on direct-service interventions. Data were available for 3,412 participants.

Source: HIV MSI CBO 2013 and 2014 participant-level data reflective of services received through FY2015.

It is important to note that the numbers associated with rapid HIV testing in Exhibits 4.1 and 4.2 refer only to tests provided to individuals participating in other direct-service interventions and, therefore, taking the surveys. Individuals who were tested but did not receive any further services (except for testing-related counseling) were not required to take the baseline and exit surveys; therefore, they are not included in these numbers. Total numbers tested are separately reported in the aggregate in grantees' quarterly progress reports.

Consensus is growing on the need for integrating mental health, SA, and primary care services to address the interrelated nature of these different areas of health care (CalMEND, 2011). In this context, "integrated care" refers to the coordination and collaboration among different providers to address all health care needs of the individual as an integrated whole (SAMHSA, n.d.). The lists of frequently implemented EBPs contain multiple interventions that integrate SA and HIV prevention. Implementing an intervention with both HIV and SA prevention components, such as PROMISE, is one of several ways to provide integrated services.

Grantees may also implement a SA-only intervention and a second HIV-only intervention to the same individual but implement them within an organizational structure that allows for coordination and collaboration among the providers of the two. Currently available quantitative data from quarterly progress reports do not provide us with this level of detail about grantees' implementation. This table therefore underrepresents the grantees' overall efforts to provide their participants with integrated services. In-depth examination of the implemented EBPs' curricula would be required to determine the degree to which they integrate SA and HIV. For this report, this in-depth investigation was done for the interventions implemented by the "successful" grantees as part of the Success Case Method (SCM) analysis.

4.2 HIV Testing

During FY2015, grantees in Cohort 9, Cohort 10, MSI CBO 2013, and MSI CBO 2014 jointly provided 27,731 HIV tests. Of this total, 12,182 (approximately 44%) were given to individuals who were being tested for the first time. Slightly more than 2,000 (approximately 12%) of the tests were provided to homeless individuals. Two hundred fifty-six (1%) of the tests had positive results; all of those who tested positive were referred to treatment (Exhibit 4.3).

Cohort 9 and Cohort 10 grantees have completed their grant periods and are now closed out. Exhibit 4.4 shows the complete history of their HIV testing activities. During their strategic planning phase, these grantees had reported that they planned to provide a total of 56,148 tests; that target was exceeded by about 10,000 by the end of FY2014 (SAMHSA, 2015b). In FY2015 the grantees provided an additional 12,485 tests, exceeding their targets by an even larger amount. FY2015 data on the purchase of test kits and referrals made to outside organizations for HIV testing were not available.

Exhibit 4.3. HIV Testing Overview, FY2015

Number of Tests and Percentage Tested for the First Time, Homeless Individuals Tested, HIV-Positive Individuals, and HIV-Positive Individuals Referred to Treatment, Cohort 9, Cohort 10, and Minority Serving Institutions in Partnerships with Community Based Organizations (MSI CBO) 2013 and 2014 in FY2015

		Cohort 9	Cohort 10	MSI CBO 2013	MSI CBO 2014	Total
Total Tested	N	6,347	6,138	13,504	1,742	**27,731**
Tested for the First Time	Valid N	6,276	6,138	13,504	1,742	**27,660**
	N	2,135	1,946	7,085	1,016	**12,182**
	%	34.0	31.7	52.5	58.3	**44.0**
Homeless Individuals Tested	Valid N	1,159	1,250	13,504	1,742	**17,655**
	N	979	4	1,017	80	**2,080**
	%	84.5	0.3	7.5	4.6	**11.8**
HIV-Positive Individuals	Valid N	6,088	4,998	13,504	1,742	**26,332**
	N	36	21	187	12	**256**
	%	0.6	0.4	1.4	0.7	**1.0**
HIV Positive Individuals Referred to Treatment	Valid N	N/A	N/A	187	12	**199**
	N	N/A	N/A	187	12	**199**
	%	N/A	N/A	100.0	100.0	**100.0**

Notes: A total of 91 grantees (Cohort 9: 32; Cohort 10: 26; MSI CBO 2013: 18; MSI CBO 2014: 15) provided data for this table. Valid N refers to the total number of tests for which the information was available. N refers to the number of tests that fell into the category represented by each row. Percentages are calculated by dividing N by Valid N.

Sources: Cohort 9 and Cohort 10 data: SAMHSA's Prevention Management Reporting and Training System (PMRTS); data extracted on February 23, 2015, and supplemented with updates sent by grantees at the end of FY2015 through the Program Evaluation for Prevention Contract technical assistance system; MSI CBO 2013 and 2014: SAMHSA's PMRTS; data extracted on July 18, 2016.

Exhibit 4.4. HIV Testing by Fiscal Year

Number of Individuals Tested and Tested for the First Time, Test Kits Purchased, and Numbers Referred for Testing, Cohort 9 and Cohort 10, FY2011–FY2015

	Number			
	Total Tested	Tested for the First Time	HIV Test Kits Purchased	Referrals Made for HIV Testing
FY2011				
Cohort 9	2,281	863	2,425	1,500
Cohort 10	3,557	1,899	4,742	1,833
Total	5,838	2,762	7,167	3,333
FY2012				
Cohort 9	8,519	3,634	4,248	3,120
Cohort 10	11,054	4,449	6,968	7,882
Total	19,573	8,083	11,216	11,002
FY2013				
Cohort 9	8,189	2,546	4,027	3,654
Cohort 10	14,046	5,714	12,116	6,819
Total	22,235	8,260	16,143	10,473
FY2014				
Cohort 9	8,433	2,445	3,988	3,800
Cohort 10	8,993	3,732	7,935	7,473
Total	17,426	6,177	11,923	11,273
FY2015				
Cohort 9	6,347	2,135	N/A	N/A
Cohort 10	6,138	1,946	N/A	N/A
Total	12,485	4,081	N/A	N/A

Source: Management Reporting Tool on SAMHSA's Prevention Management Reporting and Training System; data extracted on February 23, 2015. Supplemented with data updates voluntarily submitted by grantees at the end of FY2015 through the Program Evaluation for Prevention Contract technical assistance system.

Exhibit 4.5 shows demographic characteristics for people tested by MSI CBO 2013 and MSI CBO 2014 grantees. The overwhelming majority (96%) of individuals tested for HIV were 18 years old or older. Among tested individuals, the percentage of males was lower than that of females, especially in the MSI CBO 2014 cohort (35% and 64%, respectively). Overall, across the two cohorts, over half (65%) were African American, 26% were Hispanic, and 18% were White; however, the racial distribution differed between the two cohorts, with African Americans making up a greater proportion of persons tested in MSI CBO 2013 than in MSI CBO 2014 (69%

and 32%, respectively). Among those tested by MSI CBO 2014 grantees, nearly one quarter (23%) were American Indian or Alaska Native. In addition, there was a cohort difference in the availability of race information for tested individuals. Race was unknown for nearly one quarter (22%) of the individuals tested by MSI CBO 2014 grantees, as opposed to for only 7% of MSI CBO 20013 grantees.

The racial/ethnic distribution of individuals tested for HIV suggests that grantees concentrated their efforts on providing testing services to groups at high risk of HIV transmission: In 2014, the rate (per 100,000) of HIV infection was 94.0 among African Americans, 41.5 among Hispanics, 18.3 among American Indian or Alaska Native, and 12.6 among Whites (CDC, 2015a).

Exhibit 4.5. HIV Testing by Demographic Characteristics, FY2015

Number and Percentage of Individuals Tested, by Demographic Characteristics, by Minority Serving Institutions in Partnerships with Community Based Organizations (MSI CBO) 2013 and 2014 in FY2015

		MSI CBO 2013	MSI CBO 2014	Total
Gender				
Female	N	5,546	641	6,187
	%	53.4	64.4	54.4
Male	N	4,378	350	4,728
	%	42.2	35.2	41.6
Transgender	N	14	3	17
	%	0.1	0.3	0.1
Unknown	N	446	1	447
	%	4.3	0.1%	3.9
Age				
Age 12–17	N	19	38	57
	%	0.2	3.4	0.5
Age 18 or Older	N	9,997	1,074	11,071
	%	95.5	96.2	95.6
Unknown	N	448	5	453
	%	4.3	0.4	3.9

(continued)

Exhibit 4.5. HIV Testing by Demographic Characteristics, FY2015 (continued)

Number and Percentage of Individuals Tested, by Demographic Characteristics, by Minority Serving Institutions in Partnerships with Community Based Organizations (MSI CBO) 2013 and 2014 in FY2015

		MSI CBO 2013	MSI CBO 2014	Total
Ethnicity				
Hispanic	N	2,138	247	2,385
	%	25.4	26.5	25.5
Non-Hispanic	N	5,393	597	5,990
	%	64.0	64.1	64.0
Unknown	N	891	87	978
	%	10.6	9.3	10.5
Race				
African American/Black	N	6,859	322	7,181
	%	68.5	32.4	65.2
American Indian or Alaska Native	N	138	232	370
	%	1.4	23.3	3.4
Asian	N	177	4	181
	%	1.8	0.4	1.6
Native Hawaiian or Other Pacific Islander	N	16	3	19
	%	0.2	0.3	0.2
White	N	1,816	182	1,998
	%	18.1	18.3	18.1
Multiracial	N	88	24	112
	%	0.9	2.4	1.0
Other	N	238	2	240
	%	2.4	0.2	2.2
Unknown	N	688	225	913
	%	6.9	22.6	8.3

Notes: A total of 35 grantees (MSI CBO 2013: 22; MSI CBO 2014: 13) provided data for this table.

Source: Data from SAMHSA's Prevention Management Reporting and Training System (PMRTS), extracted on July 18, 2016.

4.3 Participant Characteristics at Baseline

Information about the characteristics of the participants at the time they started receiving services aids in the evaluation of overall outcomes. It also sheds light on the recruitment priorities of the grantees. In this section, to provide an overview of

the individuals recruited into these programs, we review the baseline characteristics of participants who received direct services from funded programs. The demographic and socioeconomic characteristics of participants are reported for all available data reflecting services provided through the end of FY2015. These tables include data submitted by Cohort 9, Cohort 10, MSI CBO 2013, and MSI CBO 2014 grantees. The tables describing baseline attitudes, knowledge, and behaviors are restricted to data from adult participants in Cohort 9 and Cohort 10. The small volume of cross-site data submitted by MSI CBO grantees contain very little data on outcome measures given the preponderance of single-day interventions among these grantees; as mentioned in Chapter 3, the data collection requirement for single-day interventions consists of demographic data and three-to-five attitude/knowledge items selected from the standard questionnaire. Demographic data from these grantees are included in the descriptive tables; although demographic data are also restricted in sample size, there are a number of participants with demographic but no outcome data. This provided us with an opportunity to present an overview of the number and characteristics of the participants receiving services from MSI CBO grantees, although we recommend caution in drawing conclusions based on the distribution of demographic characteristics among these participants, given the small number of grantees that provided these data.

4.3.1 Gender, Age, Race/Ethnicity, and High-Risk Category

As seen in Exhibit 4.6, Cohort 9, Cohort 10, and MSI CBO 2013 and 2014 grantees served 33,246 individuals in direct-service interventions. Of those served, 47% identified as male, 51% identified as female, and 2% identified as transgender. Grantees primarily served the adult population (93%) and were successful in reaching minority populations, serving a large percentage of African American/Black (59%) and Hispanic/Latino (22%) participants. Approximately 11% of individuals served were non-Hispanic White, and a small minority were non-

Hispanic American Indian/Alaska Native (slightly more than 0.5%), non-Hispanic Asian (3%), non-Hispanic Pacific Islander (less than 0.5%), or multiracial (3%).

MSM were a high-priority target group given their high risk for HIV transmission. As displayed in Exhibit 4.7, about 14% of all participants in Cohort 9, and 16% of participants in Cohort 10 were MSM. This target group is discussed in further detail below.

Exhibit 4.6. Participants: Demographics

Age, Gender, and Race/Ethnicity Distributions of Direct-Service Program Participants

		Cohort 9	Cohort 10	MSI CBO 2013	MSI CBO 2014	Total
Total Served	**N**	**14,908**	**12,473**	**4,984**	**881**	**33,246**
	%	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Gender						
Female	N	7,167	5,246	2,039	241	14,693
	%	52.8	47.4	51.0	80.3	50.8
Male	N	6,213	5,454	1,952	57	13,676
	%	45.8	49.3	48.9	19.0	47.3
Transgender	N	198	365	S1	S1	569
	%	1.5	3.3	S1	S1	2.0
Age						
Age 12–17	N	1,724	200	99	S1	2,028
	%	12.8	1.8	2.5	S1	7.0
Age 18–24	N	3,143	9,783	2,916	288	16,130
	%	23.4	88.3	73.5	96.3	56.1
Age 25 or Older	N	8,560	1,099	951	S1	10,616
	%	63.8	9.9	24.0	S1	36.9
Race/Ethnicity						
Hispanic	N	3,054	2,771	276	164	6,265
	%	23.3	25.8	7.3	61.0	22.4
Non-Hispanic African American/Black	N	7,414	5,777	3,280	82	16,553
	%	56.5	53.8	86.3	30.5	59.3
Non-Hispanic American Indian or Alaska Native	N	113	32	9	0	154
	%	0.9	0.3	0.2	0.0	0.6
Non-Hispanic Asian	N	249	584	63	2	898
	%	1.9	5.4	1.7	0.7	3.2

(continued)

Exhibit 4.6. Participants: Demographics (continued)

Age, Gender, and Race/Ethnicity Distributions of Direct-Service Program Participants

		Cohort 9	Cohort 10	MSI CBO 2013	MSI CBO 2014	Total
Non-Hispanic Native Hawaiian or Other Pacific Islander	N	39	66	1	0	106
	%	0.3	0.6	0.0	0.0	0.4
Non-Hispanic White	N	1,858	1,101	101	16	3,076
	%	14.2	10.2	2.7	5.9	11.0
Non-Hispanic Multiracial	N	398	411	70	5	884
	%	3.0	3.8	1.8	1.9	3.2

Notes: Demographic components may not add up to the Total Served row because some individuals' demographic characteristics are unknown. N refers to the total number of participants in each demographic group. MSI CBO = Minority Serving Institutions in Partnerships with Community Based Organizations.

Source: HIV Cohort 9, Cohort 10, and MSI CBO 2013 and 2014 participant-level data reflective of services received through FY2015. Ten MSI CBO 2013 grantees (35%) and four MSI CBO 2014 grantees (19%) submitted data on participants' demographic characteristics. All 62 Cohort 9 and Cohort 10 grantees submitted data on participant-level demographic data.

Exhibit 4.7. Participants: High-Risk Groups

Distributions of Direct-Service Program Participants Across High-Risk Groups of Special Interest to the MAI Program

		Cohort 9	Cohort 10	MSI CBO 2013	MSI CBO 2014	Total
Program Total	**Valid N**	**14,908**	**12,473**	**4,984**	**881**	**33,246**
	%	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Men Having Sex With Men (Total)	Valid N	10,765	8,111	2,047	287	21,210
	%	13.5	16.2	0.4	0.7	13.1
Men Having Sex With Men (Black)	Valid N	11,325	9,620	2,278	291	23,514
	%	4.7	5.6	0.4	0.0	4.6
Men Having Sex With Men (Hispanic)	Valid N	11,716	9,929	3,817	287	25,749
	%	4.6	5.3	0.0	0.7	4.1
Black, Latina, or Hispanic Women	Valid N	11,638	10,894	3,873	279	26,684
	%	42.0	36.1	46.4	72.8	40.6
Homeless Individuals	Valid N	11,087	5,572	1	210	16,870
	%	9.5	7.2	0.0	0.0	8.6

(continued)

Exhibit 4.7. Participants: High-Risk Groups (continued)

Distributions of Direct-Service Program Participants Across High-Risk Groups of Special Interest to the MAI Program

		Cohort 9	Cohort 10	MSI CBO 2013	MSI CBO 2014	Total
Residents of Southern States	Valid N	14,908	12,473	4,984	881	33,246
	%	56.0	45.1	96.3	97.7	59.1

Notes: The above categories are not mutually exclusive. Therefore, the columns will add to a number greater than 100%. In addition, percentages represent those participants with all relevant participant-level data required to be included in each category. The valid N for each row may therefore be less than the Total Served row. Valid N refers to the total number of participants with valid responses to the survey items used to calculate the target groups. Percentages represent the percentage of participants with data who belong to the category represented by each row. Southern states include Alabama, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, and Virginia. Three southern states (Arkansas, Delaware, and West Virginia) did not have any of the grantees whose data are included in this year's sample. Homeless individuals represent participants who indicated they were "homeless or in a shelter" at baseline or exit. MSI CBO = Minority Serving Institutions in Partnerships with Community Based Organizations.

Source: HIV Cohort 9, Cohort 10, and MSI CBO 13 and 14 participant-level data reflective of services received through FY2015.Ten MSI CBO 2013 grantees (35%), 4 MSI CBO 2014 grantees (19%), and all 62 Cohort 9 and Cohort 10 grantees submitted data on one or more high risk groups; submitted data on one or more high risk groups in addition to region of residence. Data on region were obtained from grantees' contact information.

4.3.2 Regional Distribution and Community Type

Participant-level survey data do not include information on region and type of community. For Cohort 9 and Cohort 10 grantees, we used the grantees' address and their type of community targeted, as reported in their most recently available quarterly progress reports (FY2015, Q2) to conduct the analysis reported in this section. For MSI CBO 2013 and 2014 grantees, we identified the grantees' states through SAMHSA's Grantee Award Archive and assigned the appropriate region. All participants of the grantee were assigned the grantee-level information for these two fields. Caution is recommended in interpreting the Targeted Community table because grantees could report multiple types of targeted communities and individual participants could not be linked to their own community type.

Exhibit 4.8 shows that, in Cohort 9 and Cohort 10, participants in direct-service interventions were represented across all four regions of the United States. The South had the greatest representation of all regions across all cohorts (59%).

Exhibit 4.8. Participants: Region

Distribution of Direct-Service Participants Across Geographic Regions

		Cohort 9	Cohort 10	MSI CBO 2013	MSI CBO 2014	Total
Northeast	N	2,125	1,268	0	0	3,393
	%	14.3	10.2	0.0	0.0	10.2
Midwest	N	1,800	1,187	82	0	3,069
	%	12.1	9.5	1.6	0.0	9.2
South	N	8,355	5,627	4,800	861	19,643
	%	56.0	45.1	96.3	97.7	59.1
West	N	2,628	4,391	102	20	7,141
	%	17.6	35.2	2.0	2.3	21.5
Total	**N**	14,908	12,473	4,984	881	33,246
	%	100.0	100.0	100.0	100.0	100.0

Notes: N refers to the total number of participants in each region. Twelve grantees are located in the Northeast, 8 grantees in the Midwest, 46 grantees in the South, and 16 grantees in the West. MSI CBO = Minority Serving Institutions in Partnerships with Community Based Organizations.

Source: HIV Cohort 9, Cohort 10, and MSI CBO 13 and 14 participant-level data reflective of services received through FY2015.

Exhibit 4.9 shows participants by targeted community type for Cohort 9 and Cohort 10 grantees. As noted previously, these data should be interpreted cautiously because they are based on grantees' targeted communities and were not collected at the individual level. Nearly two thirds (74%) of Cohort 9 grantees targeted urban/exurban-only communities, as did nearly two thirds (62%) of Cohort 10 grantees. Aside from urban/exurban-only communities, Cohort 10 grantees targeted a mix of rural and urban communities (34%) more often than Cohort 9 grantees (8%). The opposite was true for rural-only communities, where Cohort 9 grantees (18%) were more likely to target their efforts than Cohort 10 grantees (3%). Information on targeted community was not available for MSI CBO 2013 and 2014 grantees.

Exhibit 4.9. Participants: Targeted Community

Direct-Service Program Participants, by Targeted Community Types as Reported by Grantees

		Cohort 9	Cohort 10	Total
Rural Only	N	2,625	429	3,054
	%	17.6	3.4	11.2
Urban/Exurban Only	N	11,037	7,788	18,825
	%	74.0	62.4	68.8
Rural and Urban	N	1,246	4,256	5,502
	%	8.4	34.1	20.1
Total	**N**	14,908	12,473	27,381
	%	100.0	100.0	100.0

Note: Five grantees reported a rural-only target area, 47 reported an urban/exurban-only target area, and 10 reported rural and urban target areas.

Source: HIV Cohort 9 and Cohort 10 participant-level data reflective of services received through FY2015, merged with data from the Management Reporting Tool, extracted on February 23, 2015.

4.3.3 Sexual Orientation and Sexual Behaviors

One objective of the MAI was to increase services for individuals (including sexual minorities) at high risk for HIV/AIDS, SA, or both. Of those served in HIV Cohort 9 and Cohort 10, and MSI CBO 2013 and 2014, approximately 1 in 5 was a member of a sexual minority. Examining sexual orientation more closely by age category, 9% of participants age 12–17 self-reported as bisexual, 4% self-reported as gay or lesbian, and 3% reported as unsure.

Of those participants age 18 or older, 8% self-reported as bisexual, 12% self-reported as gay or lesbian, and 2% reported as unsure. Among participants in this age category, far more participants in HIV Cohort 9 and Cohort 10 self-reported as gay (male) (81% and 88%, respectively) than gay/lesbian (female) (19% and 12%, respectively). The opposite was true for the MSI CBO 2013 cohort, where more participants self-reported as gay/lesbian (female) (56%) than gay (male) (44%).

Participants' reported sexual behavior (whether they have ever had sex with men or women) is shown in Exhibit 4.11. It is important to note that these behavioral survey items are distinct from the item on respondents' subjective identification as gay, lesbian, bisexual, or "unsure," depicted in Exhibit 4.10. The largest proportion reported being women who have sex with men (35%), followed by men who have sex with women (26%), men who have sex with men (13%), and women who have sex with women (6%).

Exhibit 4.10. Participants: Sexual Orientation

Direct-Service Program Participants by Sexual Orientation at Baseline

		Age 12–17					Age 18 or Older				
		Cohort 9	Cohort 10	MSI CBO 2013	MSI CBO 2014	Total	Cohort 9	Cohort 10	MSI CBO 2013	MSI CBO 2014	Total
Straight or Heterosexual	N	1,383	100	50	S1	1,538	8,886	5,615	1,303	240	16,044
	%	84.2	69.4	96.2	S1	83.5	79.8	72.4	90.7	83.0	77.8
Bisexual	N	150	S1	S1	S1	171	854	704	67	27	1,652
	%	9.1	S1	S1	S1	9.3	7.7	9.1	4.7	9.3	8.0
Gay or Lesbian (Total)	N	58	23	S1	S1	81	1,210	1,277	53	S1	2,549
	%	3.5	16.0	S1	S1	4.4	10.9	16.5	3.7	S1	12.4
Gay or Lesbian (Male)	N	22	S1	S1	S1	41	898	1,047	23	S1	1,972
	%	39.3	S1	S1	S1	53.9	80.8	88.1	44.2	S1	83.6
Gay or Lesbian (Female)	N	34	S1	S1	S1	35	213	141	29	S1	387
	%	60.7	S1	S1	S1	46.1	19.2	11.9	55.8	S1	16.4
Unsure	N	51	S1	S1	S1	53	180	161	S1	S1	367
	%	3.1	S1	S1	S1	2.9	1.6	2.1	S1	S1	1.8
Total	**N**	1,642	144	52	S1	1,843	11,130	7,757	1,436	289	20,612
	%	100.0	100.0	100.0	S1	100.0	100.0	100.0	100.0	100.0	100.0

Notes: For the sexual orientation categories, N refers to the total number of participants identifying with the corresponding category on the baseline questionnaire. The total row is the number of valid responses to the sexual orientation survey item. For the gender categories, N refers to the total number identifying with the corresponding gender category and reporting sexual orientation as “Gay or Lesbian” on the baseline questionnaire. Percentages for the gender categories are calculated by dividing each category by the total number reporting sexual orientation. S1: Number provides non-public-domain information about a small subsample (n<20), either directly or through simple arithmetic. Suppressed for privacy protection purposes. MSI CBO = Minority Serving Institutions in Partnerships with Community Based Organizations.

Source: HIV Cohort 9, Cohort 10, and MSI CBO 13 and 14 participant-level data reflective of services received through FY2015. Seven MSI CBO 2013 grantees (24%) and four MSI CBO 2014 grantees (19%) submitted data on participants’ sexual orientation. All but one of the 62 Cohort 9 and Cohort 10 grantees submitted data on this item.

Exhibit 4.11. Participants: Sexual Behavior

Direct-Service Program Participants Age 18 or Older, by Sexual Behavior

		Cohort 9	Cohort 10	MSI CBO 2013	MSI CBO 2014	Total
Men Who Have Sex With Men	Valid N	10,512	7,953	1,979	281	20,725
	%	13.7	16.3	0.3	0.7	13.2
Men Who Have Sex With Women	Valid N	10,413	7,692	2,041	282	20,428
	%	33.2	23.1	3.3	11.7	26.1
Women Who Have Sex With Men	Valid N	10,000	8,106	1,978	203	20,287
	%	43.8	30.3	5.4	49.3	34.7
Women Who Have Sex With Women	Valid N	9,952	7,932	1,879	202	19,965
	%	7.7	5.7	0.4	7.4	6.3
Men Who Have Sex With Both Men and Women	Valid N	10,535	7,960	2,046	282	20,823
	%	4.8	4.7	0.0	0.0	4.2

Notes: Valid N refers to the total number of participants with valid answers to survey items used to calculate each sexual behavior category. MSI CBO = Minority Serving Institutions in Partnerships with Community Based Organizations.

Source: HIV Cohort 9, Cohort 10, and MSI CBO 13 and 14 participant-level data reflective of services received through FY2015. Nine MSI CBO 2013 grantees (31%), 4 MSI CBO 2014 grantees (19%), and 57 Cohort 9 and Cohort 10 grantees (92%) submitted data on participants' sexual behavior.

4.3.4 Housing Status, Educational Achievement, and Military Status

The homeless population is one of special interest to SAMHSA given their unique physical and behavioral health needs (Kidder, Wolitshi, Pals, & Campsmith, 2008). Additionally, youth in out-of-home placements are at high risk for SA and HIV infection (Pilowsky & Wu, 2006). As shown in Exhibit 4.12, Cohort 9 and Cohort 10 grantees, along with MSI CBO 2013 and 2014 grantees, jointly served 31 homeless youth and 1,207 homeless adults, constituting approximately 2% and 8%, respectively, of all youth and adult participants.

Exhibit 4.12. Participants: Housing Status

Direct-Service Program Participants, by Housing Status at Baseline

		Cohort 9	Cohort 10	MSI CBO 2013	MSI CBO 2014	Total
Age 12–17						
Living in Own Home or Apartment	N	908	35	S1	S1	944
	%	56.5	55.6	S1	S1	56.5

(continued)

Exhibit 4.12. Participants: Housing Status (continued)

Direct-Service Program Participants, by Housing Status at Baseline

		Cohort 9	Cohort 10	MSI CBO 2013	MSI CBO 2014	Total
Living in a Relative's Home	N	549	S1	S1	S1	562
	%	34.1	S1	S1	S1	33.6
Living in a Group Home	N	31	S1	S1	S1	33
	%	1.9	S1	S1	S1	2.0
Living in a Foster Home	N	S1	S1	S1	S1	S1
	%	S1	S1	S1	S1	S1
Homeless	N	27	S1	S1	S1	31
	%	1.7	S1	S1	S1	1.9
Other	N	80	S1	S1	S1	88
	%	5.0	S1	S1	S1	5.3
Total	**N**	1,608	63	S1	S1	1,672
	%	100.0	100.0	S1	S1	100.0
Age 18 or Older						
Living in Own Home or Apartment	N	5,069	2,532	S1	97	7,698
	%	55.9	47.9	S1	46.4	52.9
Living in a Relative's Home	N	1,436	1,239	S1	34	2,709
	%	15.8	23.4	S1	16.3	18.6
Living in a Group Home	N	390	150	S1	S1	543
	%	4.3	2.8	S1	S1	3.7
Living in a Foster Home	N	78	S1	S1	S1	92
	%	0.9	S1	S1	S1	0.6
Homeless	N	859	348	S1	S1	1,207
	%	9.5	6.6	S1	S1	8.3
Other	N	1,230	1,004	S1	75	2,309
	%	13.6	19.0	S1	35.9	15.9
Total	**N**	9,062	5,287	S1	209	14,558
	%	100.0	100.0	S1	100.0	100.0

Notes: N refers to the total number of participants reporting the corresponding housing type on the baseline questionnaire. The total row is the number of valid responses to the housing survey item. S1: Number provides non-public-domain information about a small subsample ($n < 20$), either directly or through simple arithmetic. Suppressed for privacy protection purposes. MSI CBO = Minority Serving Institutions in Partnerships with Community Based Organizations.

Source: HIV Cohort 9, Cohort 10, and MSI CBO 13 and 14 participant-level data reflective of services received through FY2015. One MSI CBO 2013 grantee (3%), 2 MSI CBO 2014 grantees (10%), and 58 Cohort 9 and Cohort 10 grantees (94%) submitted data on participants' housing status.

Overall, participants were evenly spread with regard to level of education, with 23% reporting their highest level of educational attainment at less than high school, 31% as a high school diploma, and 36% as some college (see Exhibit 4.13). Only 6% reported graduating from college, and 4% reported at least some schooling beyond college. Educational attainment differed by cohort because of the nature of the target populations. Cohort 10 targeted young adults, including those enrolled in minority-serving institutions of higher education; thus more individuals in Cohort 10 than in Cohort 9 had some college (49% and 19%, respectively). Many of the Cohort 10 respondents may have been enrolled in colleges or universities at the time of the intervention. The educational level of Cohort 9 adult participants was relatively low, with 70% having a high school education or less. Like Cohort 10, the MSI CBO 2013 and 2014 cohorts targeted young adults in minority-serving institutions of higher education. Thus, one would expect these participants to have higher levels of educational attainment.

Exhibit 4.13. Participants: Education

Direct-Service Program Participants Age 18 or Older, by Highest Grade Attained

		Cohort 9	Cohort 10	MSI CBO 2013	MSI CBO 2014	Total
Less Than High School	N	4,019	1,411	111	S1	5,548
	%	39.0	13.8	3.5	S1	23.1
High School Graduate	N	3,210	3,146	937	166	7,459
	%	31.1	30.9	29.4	61.3	31.1
Some College	N	1,979	4,969	1,589	95	8,632
	%	19.2	48.7	49.9	35.1	36.0
College Graduate	N	661	395	375	S1	1,434
	%	6.4	3.9	11.8	S1	6.0
Some Graduate School or Graduate Degree	N	448	276	174	S1	898
	%	4.3	2.7	5.5	S1	3.7

(continued)

Exhibit 4.13. Participants: Education (continued)

Direct-Service Program Participants Age 18 or Older, by Highest Grade Attained

		Cohort 9	Cohort 10	MSI CBO 2013	MSI CBO 2014	Total
Total	**N**	10,317	10,197	3,186	271	23,971
	%	100.0	100.0	100.0	100.0	100.0

Notes: N refers to the total number of participants reporting the corresponding level of education on the questionnaires. The total row is the number of valid responses to the education-level item. S1: Number provides non-public-domain information about a small subsample (n < 20), either directly or through simple arithmetic. Suppressed for privacy protection purposes. MSI CBO = Minority Serving Institutions in Partnerships with Community Based Organizations.

Source: HIV Cohort 9, Cohort 10, and MSI CBO 13 and 14 participant-level data reflective of services received through FY2015. Seven MSI CBO 2013 grantees (24%) and three MSI CBO 2014 grantees (14%) submitted data on participants' education. All 62 Cohort 9 and Cohort 10 grantees submitted data on this item.

Another important population of interest to SAMHSA is veterans or those on active military duty as well as their families and friends, because of the potential exposure to trauma and elevated risks of posttraumatic stress disorder (Petrakis, Rosenheck, & Desai, 2011). As shown in Exhibit 4.14, 5% of adult participants in Cohort 9 and 2% of adult participants in Cohort 10 and MSI CBO 2013 MAI programs had served in the military in their lifetime, and slightly under 1% were on active duty at the time of the intervention. Of those with military involvement, most had been in active-duty Armed Forces. Those currently on active duty, however, were more evenly spread among the Armed Forces, Reserves, and the National Guard. Additionally, 25% of respondents reported that someone close to them (friend or family member) was either on active duty or retired from military service (Exhibit 4.15). In fact, more than a quarter (28%) of those who reported any family members or friends in the military also reported having three or more family members or friends in the military. Thus, the stress of military deployment or the impact of injuries, fatalities, or military-related trauma is likely to affect many more individuals in our sample than the ones specifically reporting their own active duty.

Exhibit 4.14. Participants: Military/Veteran Status

Direct-Service Program Participants Age 18 or Older, by Military/Veteran Status at Baseline

		Cohort 9	Cohort 10	MSI CBO 2013	MSI CBO 2014	Total
Participants Who Served in Lifetime						
Total	**Valid N**	**3,327**	**3,159**	**1,079**	**215**	**7,780**
	%	**5.4**	**1.9**	**1.7**	**0.0**	**3.3**
Armed Forces	N	152	39	6	0	197
	%	84.4	63.9	33.3	0.0	76.1
Reserves	N	18	12	9	0	39
	%	10.0	19.7	50.0	0.0	15.1
National Guard	N	13	9	3	0	25
	%	7.2	14.8	16.7	0.0	9.7
Military Branch Not Specified	N	3	2	0	0	5
	%	1.7	3.3	0.0	0.0	1.9
Participants Who Are Currently on Active Duty						
Total	**Valid N**	**3,309**	**3,152**	**1,079**	**215**	**7,755**
	%	**0.8**	**0.5**	**0.9**	**0.0**	**0.7**
Armed Forces	N	12	6	2	0	20
	%	46.2	40.0	20.0	0.0	39.2
Reserves	N	7	5	6	0	18
	%	26.9	33.3	60.0	0.0	35.3
National Guard	N	7	4	2	0	13
	%	26.9	26.7	20.0	0.0	25.5

Notes: “Valid N” refers to the number of participants with valid responses to the indicated survey question. “N” refers to the number of participants selecting the indicated response option.%ages who served in each military branch may not add up to 100 given that an individual could have served in multiple branches. MSI CBO = Minority Serving Institutions in Partnerships with Community Based Organizations.

Source: HIV Cohort 9, Cohort 10, and MSI CBO 13 and 14 participant-level data reflective of services received through FY2015. Five MSI CBO 2013 grantees (17%), 3 MSI CBO 2014 grantees (14%), and 51 Cohort 9 and Cohort 10 grantees (82%) submitted data on participants’ military/veteran status.

Exhibit 4.15. Participants: Family or Friends in the Military

Direct-Service Program Participants, by the Number of Family Members or Someone Close to Them on Active Duty or Retired from the Military at Baseline

		Cohort 9	Cohort 10	MSI CBO 2013	MSI CBO 2014	Total
Total	**Valid N**	**3,910**	**3,059**	**1,063**	**295**	**8,327**
	%	**23.5**	**21.0**	**36.7**	**37.3**	**24.7**
One Family Member or Friend	N	517	341	170	58	1,086
	%	56.3	53.2	43.6	52.7	52.7
Two Family Members or Friends	N	173	126	76	21	396
	%	18.8	19.7	19.5	19.1	19.2
Three or More Family Members or Friends	N	229	174	144	31	578
	%	24.9	27.1	36.9	28.2	28.1

Notes: Valid N refers to the number of participants with valid responses to the indicated survey question. "N" refers to the number of participants selecting the indicated response option. MSI CBO = Minority Serving Institutions in Partnerships with Community Based Organizations.

Source: HIV Cohort 9, Cohort 10, and MSI CBO 13 and 14 participant-level data reflective of services received through FY2015. Six MSI CBO 2013 grantees (21%), 4 MSI CBO 2014 grantees (19%), and 53 Cohort 9 and Cohort 10 grantees (85%) submitted data on participants' family or friends in the military.

A major intention of the MAI program is to increase access to health care services. Participants were asked about their awareness of health care services in the community related to HIV/AIDS and SA. At the time of the baseline survey, at least three quarters of participants were aware of services in their community: 81% knew where to go for HIV-related services, and 75% knew where to go for SA-related services. However, less than two thirds had health insurance coverage: 56% of Cohort 9 grantees, 73% of Cohort 10 grantees, and 85% of MSI CBO 2014 grantees were enrolled in a health insurance plan. Participants of the latter three cohorts, who were mostly young adults, may have benefitted from the regulations in the Affordable Care Act, which allows parents to retain young adults on their health care policies to age 26 (see Exhibit 4.16).

Exhibit 4.16. Participants: Accessibility of Health Care

Direct-Service Program Participants Age 18 or Older, by Health Coverage and Awareness of Health Services at Baseline

		Cohort 9	Cohort 10	MSI CBO 2013	MSI CBO 2014	Total
Participants With Health Insurance	Valid N	9,011	5,336	S1	196	14,544
	%	56.0	73.2	S1	85.2	62.7
Participants Who Report Knowing the Location of HIV-Related Services in Their Community	Valid N	11,348	7,869	1,075	290	20,582
	%	80.9	81.5	77.0	54.1	80.6
Participants Who Report Knowing the Location of Substance Abuse-Related Services in Their Community	Valid N	11,315	7,858	1,067	291	20,531
	%	77.2	71.9	71.2	50.5	74.5

Notes: Valid N refers to the number of participants who provided a valid response to the corresponding item on the baseline survey. S1: Number provides non-public-domain information about a small subsample ($n < 20$), either directly or through simple arithmetic. Suppressed for privacy protection purposes. MSI CBO = Minority Serving Institutions in Partnerships with Community Based Organizations.

Source: HIV Cohort 9, Cohort 10, and MSI CBO 13 and 14 participant-level data reflective of services received through FY2015. Four MSI CBO 2013 grantees (14%), 4 MSI CBO 2014 grantees (19%), and 57 Cohort 9 and Cohort 10 grantees (92%) submitted participant-level data on accessibility of health care.

4.3.5 Baseline Attitudes, Knowledge, and Behaviors of Adult Participants

To select and adapt intervention strategies for the MAI target populations, it is important to understand participants' baseline levels of attitudes, knowledge, and behaviors related to HIV/AIDS and SA. This section provides an overview of Cohort 9 and Cohort 10 adult participants' attitudes and behaviors at the time they started their services. It is important to note that the tables in this section use all available baseline survey data, regardless of the availability of a matching exit survey. Therefore, these tables provide a more complete picture of outcome measures at baseline than do the baseline numbers displayed in pre- and posttest comparison tables discussed in later sections. The latter are restricted to data from individuals whose baseline and exit records could be matched, which is a smaller group than the individuals who took the baseline survey.

BASELINE ATTITUDES AND KNOWLEDGE

Adults were much more likely to report great risk of harm from binge drinking than from marijuana use (56% and 36%, respectively), although these results differed by cohort: Adults in Cohort 9 (44%) were much more likely to report great risk of harm from marijuana use than were adults in Cohort 10 (23%). Individuals in both cohorts were very aware of the consequences associated with sharing unsanitized needles (90%). Furthermore, perceptions of risk of unprotected sex were moderately high. Participants were more likely to report great risk of harm from unprotected anal and vaginal sex than from unprotected oral sex (76%, 71%, and 55%, respectively). The percentage reporting great risk of harm from oral sex was lower among Cohort 10 participants, who are mostly age 18–24. Young adults receiving services in Cohort 10 were also less likely than adults receiving services in Cohort 9 to perceive great risk of harm from having sex while drunk or high (49% and 61%, respectively). The average HIV knowledge scores were similar across cohorts, with participants scoring more than 70%. Similarly, scores on the Sexual Self-Efficacy Scale were comparable between individuals from Cohort 9 and Cohort 10 (see Exhibit 4.17).

Exhibit 4.17. Participants: Baseline Knowledge and Attitudes

Baseline Knowledge and Attitudes of Direct-Service Participants Age 18 or Older

		Cohort 9	Cohort 10	Total
Percentage Perceiving Great Risk of Harm From Binge Drinking	Valid N	10,541	7,334	17,875
	%	59.0	50.6	55.6
Percentage Perceiving Great Risk of Harm From Marijuana Use	Valid N	9,868	7,028	16,896
	%	44.0	23.4	35.5
Percentage Perceiving Great Risk of Harm From Sharing Unsanitized Needles	Valid N	11,231	7,719	18,950
	%	90.2	89.7	90.0
Percentage Perceiving Great Risk of Harm From Unprotected Anal Sex	Valid N	11,265	7,736	19,001
	%	79.7	70.6	76.0

(continued)

Exhibit 4.17. Participants: Baseline Knowledge and Attitudes (continued)

		Cohort 9	Cohort 10	Total
Percentage Perceiving Great Risk of Harm From Unprotected Oral Sex	Valid N	11,247	7,746	18,993
	%	62.4	43.1	54.5
Percentage Perceiving Great Risk of Harm From Unprotected Vaginal Sex	Valid N	11,216	7,724	18,940
	%	74.3	66.9	71.3
Percentage Perceiving Great Risk of Harm From Having Sex While Drunk or High	Valid N	11,170	7,680	18,850
	%	61.3	49.3	56.4
Average HIV Knowledge Scale Score	Valid N	11,343	7,757	19,100
	%	70.9	74.8	72.5
Average Sexual Self-Efficacy Scale Score	Valid N	11,063	7,580	18,643
	%	13.0	13.6	13.3

Note: Valid N refers to the total number of participants with valid responses to the survey item.
Source: HIV Cohort 9 and Cohort 10 participant-level data reflective of services received through FY2015.

BASELINE DRUG USE AND RISKY SEXUAL BEHAVIORS

Adult participants in the MAI programs were asked similar questions about substance use and sexual behaviors. Cohort 10 participants reported slightly more days of alcohol, marijuana, and injected drug use than those in Cohort 9, although use was infrequent in the past month. On average, adults in Cohort 9 and Cohort 10 reported drinking alcohol 3 to 4 days a month and binge drinking 2 to 3 days a month. Marijuana use was more frequent than binge drinking, at 3 to 4 days a month, especially among Cohort 10 adult participants, most of whom were young adults. Illicit drug use was uncommon (approximately 1 to 2 days a month), and injection drug use (IDU) was rare. Across all types of sexual encounters, 26% of sexually active adults reported using protection during the last sexual act in the past month. Protected sex occurred more often during anal sex than during vaginal or oral sex (53%, 40%, and 18%, respectively). Adults in Cohort 10 (most likely to be age 18–25) were more likely to report protected sex during vaginal, anal, and oral sex than were adults in Cohort 9 (see Exhibit 4.18a).

Exhibit 4.18a. Participants: Baseline Behaviors

Past-30-Day Substance Use and Risky Sexual Behaviors of Direct-Service Participants Age 18 or Older Reported at Baseline

		Cohort 9	Cohort 10	Total
Average Number of Days of Alcohol Use	Valid N	8,538	4,898	13,436
	%	3.5	4.0	3.7
Average Number of Days of Binge Drinking	Valid N	3,140	2,167	5,307
	%	2.0	2.5	2.2
Average Number of Days of Marijuana Use	Valid N	8,825	5,127	13,952
	%	2.9	4.6	3.5
Average Number of Days of Illicit Drug Use (Excluding Marijuana)	Valid N	8,968	5,179	14,147
	%	1.5	1.3	1.5
Average Number of Days of Injected Drug Use	Valid N	9,053	5,274	14,327
	%	0.2	0.3	0.2
Percentage of Sexually Active Participants Reporting Protected Vaginal Sex During the Past 30 Days	Valid N	3,639	2,225	5,864
	%	34.1	50.5	40.3
Percentage of Sexually Active Participants Reporting Protected Anal Sex During the Past 30 Days	Valid N	936	884	1,820
	%	46.7	58.7	52.5
Percentage of Sexually Active Participants Reporting Protected Oral Sex During the Past 30 Days	Valid N	3,115	2,530	5,645
	%	17.3	19.4	18.3
Percentage of Sexually Active Participants Reporting Any Protected Sex (Vaginal, Anal, or Oral) During the Past 30 Days	Valid N	4,795	3,285	8,080
	%	25.2	28.2	26.4

Note: Valid N refers to the total number of participants with valid answers to survey items used to calculate baseline use for each substance.

Source: HIV Cohort 9 and Cohort 10 participant-level data reflective of services received through FY2015.

COMPARISON OF PARTICIPANTS' BASELINE SUBSTANCE USE TO NATIONAL LEVELS

Exhibit 4.18b provides information about the risk levels of the targeted population by comparing the baseline prevalence of past-30-day substance use among participants receiving MAI-funded services during FY2015 (October 1, 2014–September 30, 2015) with national prevalence rates of a comparable national sample during 2014. The comparison suggests that MAI grantees recruited a population whose levels of substance use were substantially higher than the national average. This is especially true of past-30-day marijuana use (MAI participants: 28%; national prevalence: 9%) and illicit drugs other than marijuana (MAI participants: 13%; national prevalence: 3%). Overall, Cohort 10 participants

were heavier substance users at baseline than their Cohort 9 counterparts. Considering that SA is an important risk factor for HIV, viral hepatitis (VH), and other STDs, the results displayed in Exhibit 4.18b point to appropriate outreach and recruitment activities during FY2015.

Exhibit 4.18b. Baseline Substance Use Compared to the National Average

Baseline Prevalence of Past-30-Day Substance Use Among MAI Adult Participants Receiving Services During FY2015, Compared to National Prevalence Rates

	Alcohol		Binge Drinking		Marijuana		Prescription Drug Misuse		Other Illicit Drugs (Excluding Marijuana)	
	Valid N	%	Valid N	%	Valid N	%	Valid N	%	Valid N	%
Cohort 9	1,247	41.2	1,159	22.7	1,412	20.4	1,500	3.0	1,515	11.3
Cohort 10	575	62.6	471	40.8	1,103	38.0	1,131	7.3	1,115	16.1
Total MAI (Cohorts 9 & 10 combined)	1,822	48.0	1,630	27.9	2,515	28.1	2,631	4.8	2,630	13.3
National Prevalence	N/A	57.4	N/A	24.4	N/A	8.5	N/A	2.4	N/A	3.3

Note: Valid N refers to the total number of participants with valid answers to survey items used to calculate baseline prevalence rates for each substance during FY2015. Adults include respondents age 18 or older, with the exception of alcohol use and binge drinking; for alcohol consumption measures, the adult category is defined as age 21 or older. N/A indicates that data were unavailable.

Source: MAI Data: HIV Cohort 9 and Cohort 10 participant-level data reflecting services received in FY2015.

National Data: Center for Behavioral Health Statistics and Quality, Substance Abuse and Mental Health Services Administration, U.S. Department of Health and Human Services. (2015). *2014 National Survey on Drug Use and Health: Detailed tables*. Available from http://www.samhsa.gov/data/

4.4 Pre-Post Change in Knowledge, Attitudes, and Behavior

MAI program participants who received direct services lasting more than 1 day completed surveys at the beginning and end of their service duration. Participants were given unique ID numbers to use on these surveys, and the results were linked at the individual level from pretest to posttest. Data were analyzed to examine the difference (expressed as a percentage of the baseline value) and assess statistical significance. *P*-values of .05 or smaller indicate statistical significance. Positive

change indicates an increase from baseline to exit; a negative change indicates a decrease.

In reporting participant-level outcomes, numbers are not displayed for subgroups smaller than 55 to prevent conclusions based on insufficient information. Information on subsamples of fewer than 20 individuals is also suppressed for privacy protection purposes. These suppressions are indicated in table notes. Additionally, outcomes are not reported for non-Hispanic multiracial individuals because this group comprises individuals from widely varying cultural and socioeconomic backgrounds; their behavioral health needs also vary.

4.4.1 Perceived Risk of Binge Drinking

One of the strongest protective factors in preventing SA is the belief that such behaviors are harmful. Results suggest that the MAI programs were successful in increasing perceptions of risk associated with binge drinking, defined as having five or more drinks on a single occasion (see Exhibit 4.19). Across all participants with matched baseline and exit data, 55% perceived great risk of harm associated with binge drinking at baseline; this percentage increased to 69% at exit, a 25% improvement. Some subgroups improved more than others. Individuals in Cohort 9 showed slightly more improvement than those in Cohort 10, although both cohorts improved significantly. Both males and females increased risk perceptions significantly, although the percent change was higher among males. Change in risk perceptions did not vary much by age group, although at exit, adults age 25 or older were more likely to report great risk from binge drinking than were younger adults (age 18–24). Risk perceptions increased greatly for American Indian/Alaska Native and White participants but less so for Hispanic and Asian/Pacific Islander participants. African American/Black participants showed the smallest change in risk perceptions (17% increase, compared with a 25% increase for the sample as a whole). On average, MSM perceptions of risk increased at levels similar to those of the sample at large. At closer inspection, the MSM average change score hid differences in how Black and Hispanic MSM responded: Black MSM increased their

risk perceptions by 10%; Hispanic MSM increased by 47%. Hispanic MSM had lower risk perceptions at baseline (46% of Hispanic MSM reported great risk of harm from binge drinking, compared with 54% of African Americans/Blacks), but the exit survey results were reversed: 67% of Hispanic MSM reported great harm from binge drinking compared with 59% of Black MSM. Black, Latina, and Hispanic women reported high risk perceptions at both baseline and exit and reported significant improvement. Homeless individuals showed less improvement than the average of all participants, but they did improve significantly. Residents of southern states showed gains in risk perceptions at rates higher than average.

The groups with lower levels of risk perception at baseline generally showed larger improvements at exit than those with higher baseline percentages. That is, groups with larger room for improvement had larger improvements, as would be expected from a purely statistical point of view. Nonetheless, this pattern has an important policy-relevant consequence: Baseline disparities in risk perception observed among different subgroups within demographic dimensions were, for the most part, narrower at exit, suggesting that the interventions contributed to reductions in behavioral health disparities associated with this protective factor.

Exhibit 4.19. Baseline-to-Exit Change in Perceived Risk of Harm From Binge Drinking

Percentage of HIV Cohort 9 and Cohort 10 Adult Respondents Reporting Great Risk of Harm From Having Five or More Drinks Once or Twice a Week

	Valid N	Baseline Percent	Exit Percent	Percent Change	*p*-value
Total	12,859	55.2	68.8	24.6	≤ .001
Cohort					
Cohort 9	7,632	59.2	74.9	26.5	≤ .001
Cohort 10	5,227	49.3	59.8	21.3	≤ .001
Gender					
Female	6,526	62.6	75.9	21.2	≤ .001
Male	6,064	47.2	61.5	30.3	≤ .001

(continued)

Exhibit 4.19. Baseline-to-Exit Change in Perceived Risk of Harm From Binge Drinking (continued)

	Valid N	Baseline Percent	Exit Percent	Percent Change	*p*-value
Age					
Age 18–24	6,744	49.7	61.6	23.9	≤ .001
Age 25 or Older	6,103	61.2	76.7	25.3	≤ .001
Race/Ethnicity					
Hispanic	3,202	56.4	72.3	28.2	≤ .001
Non-Hispanic African American/Black	6,759	57.8	67.6	17.0	≤ .001
Non-Hispanic American Indian or Alaska Native	63	47.6	77.8	63.4	≤ .001
Non-Hispanic Asian/Pacific Islander	614	43.8	53.6	22.4	≤ .001
Non-Hispanic White	1,586	46.6	73.5	57.7	≤ .001
High-Risk Groups of Special Interest					
Men Having Sex With Men (Total)	1,720	47.4	59.7	25.9	≤ .001
Men Having Sex With Men (Black)	653	54.1	59.4	9.8	.020
Men Having Sex With Men (Hispanic)	674	45.8	67.2	46.7	≤ .001
Black, Latina, or Hispanic Women	5,044	65.2	76.7	17.6	≤ .001
Homeless Individuals	730	54.9	62.6	14.0	≤ .001
Residents of Southern States	7,610	55.8	73.7	32.1	≤ .001

Note: *p*-values were derived from paired comparisons (McNemar's test).

Source: HIV Cohort 9 and Cohort 10 participant-level data, matched cases only, reflective of services received through FY2015.

4.4.2 Perceived Risk of Weekly Marijuana Use

The MAI program also appeared effective in increasing perceived risk of harm from weekly marijuana use. At baseline, only 36% of participants reported that smoking marijuana once or twice a week posed great harm. However, this percentage increased to 52% at posttest, a 43% improvement. Again, some subgroups improved more than others. As shown in Exhibit 4.20, the percent change was similar across cohorts, although risk perceptions were much lower at program exit among those in Cohort 10 than among those in Cohort 9. This is likely attributed to

the fact that Cohort 10 participants are 18–24 years old (ages in Cohort 9 varied greatly), and risk perceptions among young adults are highly influenced by social context. Males were more likely to report increases in risk perception than females (59% compared with 34%). However, females started and ended with higher risk perceptions than did males. Young adults increased more than adults age 25 or older, yet young adults' risk perceptions at exit remained below those of the sample average (38% of young adults perceived great risk of harm of weekly marijuana use, compared to 52% of the sample as a whole). Whites and American Indians/Alaska Natives had large gains in risk perceptions (134% for Whites and 94% for American Indians/Alaska Natives). Increases in risk perceptions for marijuana use were similar for Hispanic, African American/Black, and Asian/Pacific Islander participants. Similar to the pattern for risk perceptions for binge drinking, Black MSM showed less improvement (17%) than Hispanic MSM (74%). Homeless individuals improved significantly, as did those in southern states. Despite improvements for all, some groups continued to report low risk perceptions at exit, including Black MSM, young adults age 18–24, Asians/Pacific Islanders, and the homeless.

Exhibit 4.20. Baseline-to-Exit Change in Perceived Risk of Harm From Marijuana Use

Percentage of HIV Cohort 9 and Cohort 10 Adult Respondents Reporting Great Risk of Harm From Smoking Marijuana Once or Twice a Week

	Valid N	Baseline Percent	Exit Percent	Percent Change	*p*-value
Total	12,018	36.0	51.5	43.1	≤ .001
Cohort					
Cohort 9	7,060	45.4	64.8	42.7	≤ .001
Cohort 10	4,958	22.7	32.4	42.7	≤ .001
Gender					
Female	6,084	45.2	60.6	34.1	≤ .001
Male	5,680	26.5	42.2	59.2	≤ .001

(continued)

Exhibit 4.20. Baseline-to-Exit Change in Perceived Risk of Harm From Marijuana Use (continued)

	Valid N	Baseline Percent	Exit Percent	Percent Change	*p*-value
Age					
Age 18–24	6,422	24.9	37.9	52.2	≤ .001
Age 25 or Older	5,585	48.8	67.1	37.5	≤ .001
Race/Ethnicity					
Hispanic	3,033	45.2	59.5	31.6	≤ .001
Non-Hispanic African American/Black	6,311	36.0	47.9	33.1	≤ .001
Non-Hispanic American Indian or Alaska Native	57	26.3	50.9	93.5	≤ .001
Non-Hispanic Asian/Pacific Islander	591	23.7	31.0	30.8	≤ .001
Non-Hispanic White	1,503	27.4	64.0	133.6	≤ .001
High-Risk Groups of Special Interest					
Men Having Sex With Men (Total)	1,631	28.4	41.0	44.4	≤ .001
Men Having Sex With Men (Black)	617	30.0	35.0	16.7	.022
Men Having Sex With Men (Hispanic)	640	32.8	57.0	73.8	≤ .001
Black, Latina, or Hispanic Women	4,744	49.4	61.5	24.5	≤ .001
Homeless Individuals	677	32.9	39.7	20.7	≤ .001
Residents of Southern States	7,180	38.1	59.9	57.2	≤ .001

Note: *p*-values were derived from paired comparisons (McNemar's test).

Source: HIV Cohort 9 and Cohort 10 participant-level data, matched cases only, reflective of services received through FY2015.

4.4.3 Perceived Risk of Sharing Unsanitized Needles

Beliefs about the harm associated with sharing unsanitized needles were very high at baseline (90%). However, after individuals participated in MAI direct service programs, they increased their risk perceptions significantly such that 94% reported great risk associated with needle sharing. At posttest, all subgroups reported increased risk perceptions; however, MSM (both Black and Hispanic) reported the lowest risk perception at 89% (see Exhibit 4.21).

Exhibit 4.21. Baseline-to-Exit Change in Perceived Risk of Harm From Sharing Unsanitized Needles

Percentage of HIV Cohort 9 and Cohort 10 Adult Respondents Reporting Great Risk of Harm From Sharing Unsanitized Needles When Using Drugs

	Valid N	Baseline Percent	Exit Percent	Percent Change	*p*-value
Total	13,772	89.9	93.7	4.2	≤ .001
Cohort					
Cohort 9	8,224	89.6	95.1	6.1	≤ .001
Cohort 10	5,548	90.2	91.5	1.4	.004
Gender					
Female	6,921	93.2	96.2	3.2	≤ .001
Male	6,562	86.5	91.3	5.5	≤ .001
Age					
Age 18–24	7,173	88.9	91.5	2.9	≤ .001
Age 25 or Older	6,586	91.0	96.1	5.6	≤ .001
Race/Ethnicity					
Hispanic	3,380	88.6	92.4	4.3	≤ .001
Non-Hispanic African American/Black	7,375	90.1	93.3	3.6	≤ .001
Non-Hispanic American Indian or Alaska Native	63	92.1	93.7	1.7	1.000
Non-Hispanic Asian/Pacific Islander	630	94.3	96.8	2.7	.023
Non-Hispanic White	1,631	91.2	96.5	5.8	≤ .001
High-Risk Groups of Special Interest					
Men Having Sex With Men (Total)	1,803	85.8	89.9	4.8	≤ .001
Men Having Sex With Men (Black)	706	88.0	88.8	0.9	.602
Men Having Sex With Men (Hispanic)	688	79.9	88.8	11.1	≤ .001
Black, Latina, or Hispanic Women	5,389	93.4	96.0	2.8	≤ .001
Homeless Individuals	798	91.1	92.6	1.6	.207
Residents of Southern States	8,163	89.3	94.5	5.8	≤ .001

Note: *p*-values were derived from paired comparisons (McNemar's test).

Source: HIV Cohort 9 and Cohort 10 participant-level data, matched cases only, reflective of services received through FY2015.

4.4.4 Perceived Risk of Harm From Unprotected Sex and Sex Under the Influence

The evaluation results suggested that the MAI programs were effective in increasing perceptions about the risk of unprotected sex. Perceived risk of unprotected sex was explored separately for anal, oral, and vaginal sex, given the different risk propensities for these activities and different levels of information about their risks within the general population. With regard to unprotected anal sex, participants increased in perceived risk by 15%, from 76% reporting great risk at baseline to 87% reporting great risk at program exit (see Exhibit 4.22). Statistically significant improvements were observed for all subgroups except Non-Hispanic American Indians/Alaska Natives. There was no notable difference between Cohort 9 and Cohort 10, but in both cohorts, males improved more than females. Young adults increased risk perceptions more than adults age 25 or older. Whites showed the greatest improvement, closely followed by Asians/Pacific Islanders; African Americans had the least. Among the high-risk groups, Hispanic MSM had the largest improvement and Black MSM had the least. There was a notable difference between the outcomes of Black and Hispanic MSM. Although Black MSM started and ended the program with higher risk perceptions than Hispanic MSM, and both groups improved significantly, Hispanic MSM improved much more (by 25%) than Black MSM (by 6%), thus narrowing the gap.

Exhibit 4.22. Baseline-to-Exit Change in Perceived Risk of Harm From Unprotected Anal Sex

Percentage of Cohort 9 and Cohort 10 Adult Program Participants Reporting Great Risk of Harm From Unprotected Anal Sex

	Valid N	Baseline Percent	Exit Percent	Percent Change	*p*-value
Total	13,823	75.4	86.6	14.9	≤ .001
Cohort					
Cohort 9	8,269	79.2	90.8	14.6	≤ .001
Cohort 10	5,554	69.6	80.3	15.4	≤ .001

(continued)

Exhibit 4.22. Baseline-to-Exit Change in Perceived Risk of Harm From Unprotected Anal Sex (continued)

	Valid N	Baseline Percent	Exit Percent	Percent Change	*p*-value
Gender					
Female	6,931	80.3	90.3	12.5	≤ .001
Male	6,600	70.4	83.0	17.9	≤ .001
Age					
Age 18–24	7,178	69.2	81.1	17.2	≤ .001
Age 25 or Older	6,632	82.1	92.5	12.7	≤ .001
Race/Ethnicity					
Hispanic	3,390	71.5	84.1	17.6	≤ .001
Non-Hispanic African American/Black	7,405	79.8	88.5	10.9	≤ .001
Non-Hispanic American Indian or Alaska Native	63	77.8	82.5	6.0	.629
Non-Hispanic Asian/Pacific Islander	628	62.1	76.1	22.5	≤ .001
Non-Hispanic White	1,646	69.6	87.9	26.3	≤ .001
High-Risk Groups of Special Interest					
Men Having Sex With Men (Total)	1,809	72.7	82.7	13.8	≤ .001
Men Having Sex With Men (Black)	711	81.0	85.9	6.0	.005
Men Having Sex With Men (Hispanic)	689	63.6	79.5	25.0	≤ .001
Black, Latina, or Hispanic Women	5,403	82.7	91.4	10.5	≤ .001
Homeless Individuals	806	78.7	84.2	7.0	≤ .001
Residents of Southern States	8,216	76.1	89.4	17.5	≤ .001

Note: *p*-values were derived from paired comparisons (McNemar's test).

Source: HIV Cohort 9 and Cohort 10 participant-level data, matched cases only, reflective of services received through FY2015.

Participants also responded to risk perceptions relative to unprotected oral sex. At baseline, individuals perceived less risk for oral sex than anal sex, but perceptions of risk around oral sex improved more than perceptions around risk of anal sex. At pretest, 54% of participants reported that engaging in unprotected oral sex put one at great risk of harm (see Exhibit 4.23). This percentage increased to 66% at posttest, a 23% increase. Cohort 10 participants showed slightly larger improvement than their Cohort 9 counterparts, and males increased in risk perceptions slightly more than females. Young adults reported greater increases in risk perception at posttest than did adults age 25 or older. Once again, Non-Hispanic White participants were by far the most responsive to the interventions in terms of increasing their awareness of

risk, closely followed by participants identifying themselves as Asian or Pacific Islander. African American/Black participants showed the lowest increase, but they started at a higher level of perceived risk than other racial/ethnic subgroups. Again, Hispanic MSM experienced the largest improvement among the high-risk groups, whereas homeless individuals had the smallest.

Exhibit 4.23. Baseline-to-Exit Change in Perceived Risk of Harm From Unprotected Oral Sex

Percentage of Cohort 9 and Cohort 10 Adult Program Participants Reporting Great Risk of Harm From Unprotected Oral Sex

	Valid N	Baseline Percent	Exit Percent	Percent Change	*p*-value
Total	13,820	53.7	66.1	23.1	≤ .001
Cohort					
Cohort 9	8,256	62.0	75.7	22.1	≤ .001
Cohort 10	5,564	41.4	51.7	24.9	≤ .001
Gender					
Female	6,954	63.9	77.1	20.7	≤ .001
Male	6,578	43.4	55.2	27.2	≤ .001
Age					
Age 18–24	7,185	43.1	55.0	27.6	≤ .001
Age 25 or Older	6,624	65.1	78.1	20.0	≤ .001
Race/Ethnicity					
Hispanic	3,385	51.5	63.4	23.1	≤ .001
Non-Hispanic African American/Black	7,410	59.8	69.7	16.6	≤ .001
Non-Hispanic American Indian or Alaska Native	62	56.5	67.7	19.8	.189
Non-Hispanic Asian/Pacific Islander	625	24.0	36.5	52.1	≤ .001
Non-Hispanic White	1,656	45.7	69.9	53.0	≤ .001
High-Risk Groups of Special Interest					
Men Having Sex With Men (Total)	1,792	36.6	45.3	23.8	≤ .001
Men Having Sex With Men (Black)	703	47.2	54.9	16.3	≤ .001
Men Having Sex With Men (Hispanic)	685	32.4	44.8	38.3	≤ .001
Black, Latina, or Hispanic Women	5,428	67.9	79.5	17.1	≤ .001
Homeless Individuals	799	61.7	65.2	5.7	.056
Residents of Southern States	8,213	56.8	73.4	29.2	≤ .001

Note: *p*-values were derived from paired comparisons (McNemar's test).

Source: HIV Cohort 9 and Cohort 10 participant-level data, matched cases only, reflective of services received through FY2015.

As with perceptions of risk from unprotected anal and oral sex, risk perceptions related to unprotected vaginal sex also increased significantly from pretest to posttest for all groups except non-Hispanic American Indians/Alaska Natives (see Exhibit 4.24). It is worth noting that this is the group with the smallest sample size, which may be a factor in their nonsignificant result. The impact of small group size on statistical significance is most evident in the case of oral sex (Exhibit 4.23), where American Indians/Alaska Natives had slightly more improvement in risk perception than African Americans, but the latter result was significant because of the much larger size of that group.

Results of the two cohorts were identical; males increased more in risk perceptions of unprotected vaginal sex than did females. As was found for risk perceptions for anal and oral sex, young adults evidenced greater gains in risk perceptions associated with unprotected vaginal sex than did adults age 25 or older, although the older group was more likely than the younger group to perceive great risk at both baseline and exit. Similar to the pattern for other risk perception measures associated with unprotected sex, Whites, closely followed by Asians/Pacific Islanders, increased more than other racial ethnic groups; although African Americans improved significantly, their percent change was lower than that of Hispanics, Asians, and Whites. The pattern among the special high-risk groups was similar to that for perceptions of risk from anal and oral sex, with Hispanic MSM improving the most and Black MSM the least. Again, Black MSM started and ended the program with higher levels of perceived risk compared with Hispanic MSM. Although both groups improved significantly, the latter improved much more (by 33%) than the former (by 7%), thus narrowing the gap.

Exhibit 4.24. Baseline-to-Exit Change in Perceived Risk of Harm From Unprotected Vaginal Sex

Percentage of Cohort 9 and Cohort 10 Adult Program Participants Reporting Great Risk of Harm From Unprotected Vaginal Sex

	Valid N	Baseline Percent	Exit Percent	Percent Change	*p*-value
Total	13,788	70.3	82.7	17.6	≤ .001
Cohort					
Cohort 9	8,245	73.4	86.3	17.6	≤ .001
Cohort 10	5,543	65.8	77.4	17.6	≤ .001
Gender					
Female	6,928	78.4	89.4	14.0	≤ .001
Male	6,572	62.1	76.1	22.5	≤ .001
Age					
Age 18–24	7,169	64.9	77.3	19.1	≤ .001
Age 25 or Older	6,607	76.2	88.6	16.3	≤ .001
Race/Ethnicity					
Hispanic	3,388	66.3	80.4	21.3	≤ .001
Non-Hispanic African American/Black	7,379	74.5	84.2	13.0	≤ .001
Non-Hispanic American Indian or Alaska Native	64	76.6	82.8	8.1	.454
Non-Hispanic Asian/Pacific Islander	633	57.2	72.0	25.9	≤ .001
Non-Hispanic White	1,644	66.2	85.9	29.8	≤ .001
High-Risk Groups of Special Interest					
Men Having Sex With Men (Total)	1,800	63.2	73.9	16.9	≤ .001
Men Having Sex With Men (Black)	707	74.1	79.1	6.7	.006
Men Having Sex With Men (Hispanic)	688	52.2	69.6	33.3	≤ .001
Black, Latina, or Hispanic Women	5,401	80.0	90.1	12.6	≤ .001
Homeless Individuals	802	74.4	80.7	8.5	≤ .001
Residents of Southern States	8,181	71.2	85.8	20.5	≤ .001

Note: *p*-values were derived from paired comparisons (McNemar's test).

Source: HIV Cohort 9 and Cohort 10 participant-level data, matched cases only, reflective of services received through FY2015.

Participants also reported on how risky they perceived it was to have sex while drunk or high (see Exhibit 4.25). Evaluation results suggest that MAI programs were effective in changing beliefs about the risks of harm associated with this behavior: With the exception of American Indians/Alaska Natives, all groups increased their risk perceptions significantly. On the whole, at program entry 56% reported great risk of harm from having sex while drunk or high, and this figure increased to 71% at exit (a 27% improvement). Group differences in outcomes were consistent with

the three perception-of-risk measures discussed above, with males and young adults improving more than females and individuals age 25 or older, respectively. Non-Hispanic Whites were the racial/ethnic group with the largest improvements; among the special high-risk groups, Southern residents improved the most, followed by MSM.

Exhibit 4.25. Baseline-to-Exit Change in Perceived Risk of Harm From Having Sex While Drunk or High

Percentage of Cohort 9 and Cohort 10 Adult Program Participants Reporting Great Risk of Harm From Having Sex While Drunk or High

	Valid N	Baseline Percent	Exit Percent	Percent Change	*p*-value
Total	13,622	55.7	70.8	27.1	≤ .001
Cohort					
Cohort 9	8,136	60.9	77.8	27.8	≤ .001
Cohort 10	5,486	48.0	60.6	26.3	≤ .001
Gender					
Female	6,834	64.4	79.3	23.1	≤ .001
Male	6,501	46.8	62.5	33.5	≤ .001
Age					
Age 18–24	7,103	47.7	62.3	30.6	≤ .001
Age 25 or Older	6,507	64.5	80.2	24.3	≤ .001
Race/Ethnicity					
Hispanic	3,352	57.4	73.3	27.7	≤ .001
Non-Hispanic African American/Black	7,300	57.5	69.7	21.2	≤ .001
Non-Hispanic American Indian or Alaska Native	59	62.7	71.2	13.6	.405
Non-Hispanic Asian/Pacific Islander	622	44.9	60.8	35.4	≤ .001
Non-Hispanic White	1,608	49.2	76.2	54.9	≤ .001
High-Risk Groups of Special Interest					
Men Having Sex With Men (Total)	1,792	49.3	60.0	21.7	≤ .001
Men Having Sex With Men (Black)	703	56.0	62.3	11.3	.003
Men Having Sex With Men (Hispanic)	686	45.9	60.8	32.5	≤ .001
Black, Latina, or Hispanic Women	5,331	66.1	79.6	20.4	≤ .001
Homeless Individuals	795	61.5	69.3	12.7	≤ .001
Residents of Southern States	8,074	55.8	74.5	33.5	≤ .001

Note: *p*-values were derived from paired comparisons (McNemar's test).

Source: HIV Cohort 9 and Cohort 10 participant-level data, matched cases only, reflective of services received through FY2015.

4.4.5 HIV Knowledge

Accurate knowledge regarding the causes of HIV is important for prevention, and many MAI-supported programs included an educational component. Program participants were tested on their knowledge of HIV before and after the intervention (refer to Appendix A for the HIV knowledge questions constituting this scale). On average, participants increased their knowledge by 15%, from getting 73% of responses correct at baseline to getting 84% of responses correct at exit (Exhibit 4.26). All subgroups improved significantly except American Indians/Alaska Natives, but this is likely because of the small sample size, as discussed earlier. Individuals in Cohort 9 showed a greater percent increase in knowledge than did those in Cohort 10, and females enhanced their knowledge slightly more than males. Adults age 25 or older showed the greatest knowledge gain than did those age 18–24, and Hispanic/Latino participants improved their HIV knowledge more so than individuals in other racial/ethnic groups. In exploring results separately for the special high-risk groups, we found that the greatest gains in knowledge accrued to Hispanic MSM, closely followed by Black, Latina, and Hispanic women, whereas Black MSM and the homeless had the smallest gains among all subgroups.

Exhibit 4.26. Baseline-to-Exit Change in HIV/AIDS Knowledge

Average HIV Knowledge Scale Scores of Cohort 9 and Cohort 10 Adult Program Participants

	Valid N	Average Percent Correct at Baseline	Average Percent Correct at Exit	Percent Change	*p*-value
Total	13,970	72.7	83.7	15.1	≤ .001
Cohort					
Cohort 9	8,382	71.1	84.5	18.8	≤ .001
Cohort 10	5,588	75.2	82.4	9.6	≤ .001
Gender					
Female	7,032	73.0	85.0	16.4	≤ .001
Male	6,646	72.4	82.4	13.8	≤ .001

(continued)

Exhibit 4.26. Baseline-to-Exit Change in HIV/AIDS Knowledge (continued)

	Valid N	Average Percent Correct at Baseline	Average Percent Correct at Exit	Percent Change	*p*-value
Age					
Age 18–24	7,246	74.7	83.4	11.6	≤ .001
Age 25 or Older	6,712	70.6	84.0	19.0	≤ .001
Race/Ethnicity					
Hispanic	3,418	70.0	86.4	23.4	≤ .001
Non-Hispanic African American/ Black	7,480	71.9	80.3	11.7	≤ .001
Non-Hispanic American Indian or Alaska Native	65	76.4	81.8	7.1	.105
Non-Hispanic Asian/Pacific Islander	637	79.7	84.8	6.4	≤ .001
Non-Hispanic White	1,676	78.9	92.4	17.1	≤ .001
High-Risk Groups of Special Interest					
Men Having Sex With Men (Total)	1,821	78.4	86.2	9.9	≤ .001
Men Having Sex With Men (Black)	717	77.3	81.0	4.8	≤ .001
Men Having Sex With Men (Hispanic)	692	76.9	91.1	18.5	≤ .001
Black, Latina, or Hispanic Women	5,472	71.4	83.7	17.2	≤ .001
Homeless Individuals	813	74.8	79.4	6.1	≤ .001
Residents of Southern States	8,310	73.6	85.2	15.8	≤ .001

Note: *p*-values were derived from matched-pairs t-tests.

Source: HIV Cohort 9 and Cohort 10 participant-level data, matched cases only, reflective of services received through FY2015.

4.4.6 Sexual Self-Efficacy

The Sexual Self-Efficacy Scale consists of multiple questions about the respondent's level of self-confidence in avoiding undesirable sexual situations. A list of the items and the method of scale calculation are provided in Appendix A.

Exhibit 4.27 shows a 9% increase in the average score of the overall sample between baseline and exit, with all groups (except American Indians/Alaska Natives, whose sample size was small) experiencing highly significant improvements. A larger improvement was observed among participants of Cohort 9 programs (12%)

than among Cohort 10 participants (6%). Older adults (age 25 or older) gained slightly more than did the younger age group (18–24), and White participants improved more than did their racial/ethnic counterparts. Comparing the results of special high-risk groups, we found that Southern residents and Hispanic MSM had the largest gains in sexual self-efficacy, whereas Black MSM had the smallest.

Exhibit 4.27. Baseline-to-Exit Change in Sexual Self-Efficacy

Average Sexual Self-Efficacy Scale Scores for Cohort 9 and Cohort 10 Adult Program Participants

	Valid N	Avg. Scale Score at Baseline	Avg. Scale Score at Exit	Percent Change	*p*-value
Total	13,568	13.3	14.5	9.0	≤ .001
Cohort					
Cohort 9	8,128	13.0	14.5	11.5	≤ .001
Cohort 10	5,440	13.8	14.6	5.8	≤ .001
Gender					
Female	6,783	14.2	15.4	8.5	≤ .001
Male	6,503	12.4	13.6	9.7	≤ .001
Age					
Age 18–24	7,037	13.6	14.6	7.4	≤ .001
Age 25 or Older	6,519	13.0	14.5	11.5	≤ .001
Ethnicity/Race					
Hispanic	3,328	13.0	14.2	9.2	≤ .001
Non-Hispanic African American/Black	7,266	13.4	14.4	7.5	≤ .001
Non-Hispanic American Indian or Alaska Native	59	12.8	13.1	2.3	.720
Non-Hispanic Asian/Pacific Islander	608	14.9	15.7	5.4	≤ .001
Non-Hispanic White	1,636	12.9	15.1	17.1	≤ .001
High-Risk Groups of Special Interest					
Men Having Sex With Men (Total)	1,778	13.3	14.3	7.5	≤ .001
Men Having Sex With Men (Black)	693	13.1	13.9	6.1	≤ .001
Men Having Sex With Men (Hispanic)	685	13.0	14.4	10.8	≤ .001
Black, Latina, or Hispanic Women	5,284	14.2	15.3	7.7	≤ .001
Homeless Individuals	765	12.5	13.4	7.2	≤ .001
Residents of Southern States	8,086	13.1	14.6	11.5	≤ .001

Note: *p*-values were derived from matched-pairs t-tests.

Source: HIV Cohort 9 and Cohort 10 participant-level data reflective of services received through FY2015.

4.4.7 Protected Sex

Exhibit 4.28 displays summary results from the three questions about use of protection during intercourse. For the purpose of this summary measure, participants were considered to have used protection if they reported using protection during the most recent occurrence of each type of intercourse (anal, oral, or vaginal) that they had engaged in during the past 30 days. The results indicate a strong intervention effect on the likelihood of using protection during the most recent intercourse: At program entry, 27% of adult participants who had been sexually active during the past 30 days reported using protection in their most recent intercourse, regardless of the type of intercourse. At the exit survey, this figure was 35%, a 32% increase. This substantial and highly significant intervention effect notwithstanding, the exit survey results indicate that a great deal of room for improvement remained at the end of the intervention: well over half of the participants reported having engaged in some type of unprotected sex during the month preceding their exit survey. Given that individuals who had less than 30 days between their baseline and exit surveys were not included in this analysis, the behavior reported at program exit must have occurred during the time that the participant was receiving services.

The effect was substantially stronger for Cohort 9 participants (41%) than for Cohort 10 (18%), and participants age 25 or older had substantially larger gains than did those age 18–24 (43% and 22%, respectively). The improvement was larger among females (40%) than among males (26%), suggesting that the interventions were more successful in improving women's overall ability to successfully negotiate protected sex. These age and gender differences are interesting, especially given that gains in reported sexual self-efficacy did not show notable differences by gender or age. On the other hand, women and participants in the older age group were more likely to perceive great risk of harm from unprotected intercourse and sexual activity under the influence of substances,

which may have led to higher receptiveness to intervention messages about using protection.

Non-Hispanic Whites were the racial/ethnic group with the largest improvement (67%), whereas Hispanics and non-Hispanic African Americans had the smallest (30% and 31%, respectively). Among the special high-risk groups whose outcomes were studied separately, participants from southern states had the largest increase (47%), followed closely by Black, Latina, and Hispanic women (39%). No significant program effects were observed among Black MSM and homeless participants.

Exhibit 4.28. Baseline-to-Exit Change in Protected Sex

Percentage Who Reported Using Protection During Their Most Recent Intercourse (Vaginal, Anal, or Oral) Among Cohort 9 and Cohort 10 Adult Program Participants Who Were Sexually Active During the Past 30 Days

	Valid N	Baseline Percent	Exit Percent	Percent Change	p-value
Total	4,479	26.6	35.1	32.0	≤ .001
Cohort					
Cohort 9	2,818	25.7	36.1	40.5	≤ .001
Cohort 10	1,661	28.3	33.4	18.0	≤ .001
Gender					
Female	2,390	25.2	35.2	39.7	≤ .001
Male	1,939	27.6	34.8	26.1	≤ .001
Age					
Age 18–24	2,234	27.4	33.3	21.5	≤ .001
Age 25 or Older	2,242	25.9	36.9	42.5	≤ .001
Race/Ethnicity					
Hispanic	1,470	25.4	33.1	30.3	≤ .001
Non-Hispanic African American/Black	2,346	30.1	39.4	30.9	≤ .001
Non-Hispanic American Indian or Alaska Native	S1	S1	S1	S1	—
Non-Hispanic Asian/Pacific Islander	206	19.4	21.8	12.4	.473
Non-Hispanic White	262	13.7	22.9	67.2	.002

(continued)

Exhibit 4.28. Baseline-to-Exit Change in Protected Sex (continued)

Percentage Who Reported Using Protection During Their Most Recent Intercourse (Vaginal, Anal, or Oral) Among Cohort 9 and Cohort 10 Adult Program Participants Who Were Sexually Active During the Past 30 Days

	Valid N	Baseline Percent	Exit Percent	Percent Change	p-value
High-Risk Groups of Special Interest					
Men Having Sex With Men (Total)	790	28.7	32.8	14.3	.024
Men Having Sex With Men (Black)	253	36.8	36.4	−1.1	1.000
Men Having Sex With Men (Hispanic)	340	29.4	37.1	26.2	.005
Black, Latina, or Hispanic Women	2,109	26.6	36.9	38.7	≤ .001
Homeless Individuals	313	31.9	36.7	15.0	.137
Residents of Southern States	2,356	26.4	38.8	47.0	≤ .001

Notes: *p*-values were derived from paired comparisons (McNemar's test). S1: Number provides non-public-domain information about a small subsample ($n < 20$), either directly or through simple arithmetic. Suppressed for privacy protection purposes.

Source: HIV Cohort 9 and Cohort 10 participant-level data, matched cases only, reflective of services received through FY2015.

To further investigate the factors underlying this pattern, we next looked at the likelihood of using protection separately by type of sexual activity. The next three tables (Exhibits 4.29, 4.30, and 4.31) show changes in protected vaginal, oral, and anal sex, in that order. It is worth noting that overall participants were most likely to report using protection during anal intercourse, followed by vaginal and oral intercourse. This pattern is consistent with perceptions of risk of harm from unprotected sex, as already discussed: Participants were most likely to associate great risk of harm with anal intercourse, followed by vaginal and oral intercourse in that order (Exhibits 4.22, 4.24, and 4.23, respectively). The largest gains in perception of risk and increased use of protection were associated with oral intercourse. This suggests that interventions were successful in addressing the misperception about low transmission risk associated with unprotected oral sex.

The racial/ethnic differences discussed above are also observed in the likelihood of protected vaginal sex (Exhibit 4.29). Overall, there is a 30% increase in the likelihood that the last vaginal intercourse was protected (from 40% at baseline to 52% at exit). This increase is 36% among non-Hispanic Whites, 29% among

Hispanics, and 30% among non-Hispanic African Americans. Increases in protected anal sex show a different racial/ethnic variation: 20% and 17%, respectively, among Hispanics and non-Hispanic African Americans. There were an insufficient number of non-Hispanic Whites and American Indians/Alaska Natives for outcome analysis on this measure.

For the overall sample, the likelihood of using protection during oral sex increased by 40% (from 18% to 25%, as displayed in Exhibit 4.30). Non-Hispanic Whites more than doubled their likelihood of using protection during oral intercourse (from 6% to 13%). The next largest increase was observed among non-Hispanic African Americans (49%). Non-Hispanic Asians/Pacific Islanders did not show a statistically significant improvement. Of the high-risk groups, Black, Latina, and Hispanic women had the greatest improvement, closely followed by residents of southern states.

Of the three types of intercourse, receptive anal intercourse carries the largest risk of transmission (Patel et al., 2014). It is therefore, of interest to look closely at the outcomes of groups most likely to engage in this behavior—that is, women and men who have sex with men. As shown in Exhibit 4.31, women increased their likelihood of using protection during anal sex by 31%, whereas MSM improved by 12% on this outcome measure. No race/ethnicity differences in outcome were discernible among women, but there were notable differences among MSM. Although among all MSM the likelihood of protection during anal intercourse increased by 12%, this number was 17% among Hispanic MSM, whereas no statistically significant change was observed among Black MSM. It is worth noting, however, that Black MSM started and ended the program with slightly higher levels of protection than did Hispanic MSM.

Exhibit 4.29. Baseline-to-Exit Change in Protected Vaginal Sex Reported by Adults

Percentage Who Reported Using Protection During Their Most Recent Vaginal Intercourse Among Cohort 9 and Cohort 10 Adult Program Participants Who Had Any Vaginal Sex During the Past 30 Days

	Valid N	Baseline Percent	Exit Percent	Percent Change	p-value
Total	3,501	39.7	51.5	29.7	≤ .001
Cohort					
Cohort 9	2,249	32.2	45.3	40.7	≤ .001
Cohort 10	1,252	53.0	62.8	18.5	≤ .001
Gender					
Female	2,193	36.8	49.2	33.7	≤ .001
Male	1,269	44.5	55.7	25.2	≤ .001
Age					
Age 18–24	1,654	50.5	60.9	20.6	≤ .001
Age 25 or Older	1,844	29.9	43.1	44.1	≤ .001
Race/Ethnicity					
Hispanic	1,106	33.7	43.3	28.5	≤ .001
Non-Hispanic African American/Black	1,960	42.7	55.7	30.4	≤ .001
Non-Hispanic American Indian or Alaska Native	S1	S1	S1	S1	—
Non-Hispanic Asian/Pacific Islander	88	58.0	63.6	9.7	.383
Non-Hispanic White	206	35.0	47.6	36.0	≤ .001
High-Risk Groups of Special Interest					
Men Having Sex With Men (Total)	128	53.1	59.4	11.9	.256
Men Having Sex With Men (Black)	76	48.7	59.2	21.6	.134
Men Having Sex With Men (Hispanic)	S2	S2	S2	S2	—
Black, Latina, or Hispanic Women	1,949	36.6	48.6	32.8	≤ .001
Homeless Individuals	212	38.2	45.3	18.6	.086
Residents of Southern States	1,897	38.1	53.9	41.5	≤ .001

Notes: p-values were derived from paired comparisons (McNemar's test). S1: Number provides non-public-domain information about a small subsample ($n < 20$), either directly or through simple arithmetic. Suppressed for privacy protection purposes. S2: The cell size is too small ($n < 55$) to allow reliable inference. The number is suppressed to rule out misleading conclusions.

Source: HIV Cohort 9 and Cohort 10 participant-level data, matched cases only, reflective of services received through FY2015.

Exhibit 4.30. Baseline-to-Exit Change in Protected Oral Sex

Percentage Who Reported Using Protection During Their Most Recent Oral Intercourse Among Cohort 9 and Cohort 10 Adult Program Participants Who Had Any Oral Sex During the Past 30 Days

	Valid N	Baseline Percent	Exit Percent	Percent Change	p-value
Total	2,890	17.8	24.9	39.9	≤ .001
Cohort					
Cohort 9	1,670	19.0	27.9	46.8	≤ .001
Cohort 10	1,220	16.1	20.7	28.6	≤ .001
Gender					
Female	1,353	13.3	21.5	61.7	≤ .001
Male	1,416	20.8	27.3	31.3	≤ .001
Age					
Age 18–24	1,648	16.6	21.6	30.1	≤ .001
Age 25 or Older	1,240	19.4	29.2	50.5	≤ .001
Race/Ethnicity					
Hispanic	889	18.4	23.7	28.8	≤ .001
Non-Hispanic African American/Black	1,472	19.5	29.1	49.2	≤ .001
Non-Hispanic American Indian or Alaska Native	S1	S1	S1	S1	—
Non-Hispanic Asian/Pacific Islander	179	11.7	12.8	9.4	.845
Non-Hispanic White	197	6.1	12.7	108.2	.024
High-Risk Groups of Special Interest					
Men Having Sex With Men (Total)	680	24.4	29.0	18.9	.016
Men Having Sex With Men (Black)	204	32.4	32.8	1.2	1.000
Men Having Sex With Men (Hispanic)	294	24.8	32.7	31.9	.007
Black, Latina, or Hispanic Women	1,144	14.1	23.7	68.1	≤ .001
Homeless Individuals	209	24.4	27.8	13.9	.410
Residents of Southern States	1,596	17.7	29.0	63.8	≤ .001

Notes: *p*-values were derived from paired comparisons (McNemar's test). S1: Number provides non-public-domain information about a small subsample ($n < 20$), either directly or through simple arithmetic. Suppressed for privacy protection purposes.

Source: HIV Cohort 9 and Cohort 10 participant-level data, matched cases only, reflective of services received through FY2015.

Exhibit 4.31. Baseline-to-Exit Change in Protected Anal Sex

Percentage Who Reported Using Protection During Their Most Recent Anal Intercourse Among Cohort 9 and Cohort 10 Adult Program Participants Who Had Any Anal Sex During the Past 30 Days

	Valid N	Baseline Percent	Exit Percent	Percent Change	p-value
Total	702	53.4	62.8	17.6	≤ .001
Cohort					
Cohort 9	432	52.3	63.9	22.2	≤ .001
Cohort 10	270	55.2	61.1	10.7	.085
Gender					
Female	117	33.3	43.6	30.9	.017
Male	499	57.3	66.5	16.1	≤ .001
Age					
Age 18–24	415	54.5	62.7	15.0	.002
Age 25 or Older	287	51.9	63.1	21.6	≤ .001
Race/Ethnicity					
Hispanic	315	52.7	63.2	19.9	≤ .001
Non-Hispanic African American/Black	219	58.4	68.5	17.3	.007
Non-Hispanic American Indian or Alaska Native	S1	S1	S1	S1	—
Non-Hispanic Asian/Pacific Islander	78	56.4	57.7	2.3	1.000
Non-Hispanic White	S2	S2	S2	S2	—
High-Risk Groups of Special Interest					
Men Having Sex With Men (Total)	520	60.2	67.1	11.5	.003
Men Having Sex With Men (Black)	132	69.7	72.7	4.3	.627
Men Having Sex With Men (Hispanic)	258	57.4	67.4	17.4	≤ .001
Black, Latina, or Hispanic Women	94	36.2	47.9	32.3	.027
Homeless Individuals	64	53.1	64.1	20.7	.210
Residents of Southern States	310	50.3	64.5	28.2	≤ .001

Notes: *p*-values were derived from paired comparisons (McNemar's test). S1: Number provides non-public-domain information about a small subsample ($n < 20$), either directly or through simple arithmetic. Suppressed for privacy protection purposes. S2: The cell size is too small ($n < 55$) to allow reliable inference. The number is suppressed to rule out misleading conclusions.

Source: HIV Cohort 9 and Cohort 10 participant-level data, matched cases only, reflective of services received through FY2015.

4.4.8 Substance Use

In addition to the prevention and reduction of sexual risk behaviors, the other major aim of the MAI was to reduce substance use, a strong risk factor for

transmission of HIV/AIDS and VH. In addition to increasing the chances of sexual risk taking, substance use or addiction can decrease overall health, increase vulnerability to HIV/VH infection, accelerate the progression of disease, and reduce treatment adherence (Alter, 2002; Brodbeck, Matter, & Moggi, 2006; Fisher, Bang, & Kapiga, 2007).

Participants were asked at program entry and exit whether they had engaged in any of the following substance use behaviors in the past 30 days: any alcohol use, binge drinking (defined as having five or more drinks on the same occasion), cigarette use, marijuana use, illicit drug use other than marijuana, IDU, and nonmedical use of prescription drugs.

PAST-30-DAY ALCOHOL USE

All subgroups but Black MSM reported a significant decline in the number of days on which they drank alcohol in the past 30 days. On average, participants decreased the number of days by 15%. Those in Cohort 9 declined more than those in Cohort 10, females declined more than males, and adults age 25 or older declined more than those age 18–24 (see Exhibit 4.32). All racial/ethnic groups with sufficient sample sizes reduced the number of days they drank in the past month, with Hispanics reducing alcohol use the most (23%). Results for Black and Hispanic MSM showed contrast: Past-30-day alcohol use by Black MSM did not change from baseline to program exit, but past-30-day alcohol use by Hispanic MSM decreased by 22%. Among all subgroups, baseline alcohol use was the highest among MSM, with Hispanic MSM reporting more days of use than Black MSM. A significant decline was observed among Hispanic but not among Black MSM, so that these two MSM groups reported the same level of alcohol use at exit (4 days a month, on average). Black, Latina, and Hispanic women reported lower than average alcohol use at baseline, declined 21%, and reported the lowest level of alcohol use of any subgroup at exit. Homeless individuals reported higher than average alcohol use at both time periods but declined significantly by 14%. Participants from southern states reported significant declines as well (19%).

Exhibit 4.32. Baseline-to-Exit Change in Past-30-Day Alcohol Use

Average Days of Alcohol Use During the Past 30 Days by HIV Cohort 9 and Cohort 10 Adult Respondents

	Valid N	Average Days at Baseline	Average Days at Exit	Percent Change	*p*-value
Total	7,396	3.4	2.9	−14.7	≤ .001
Cohort					
Cohort 9	4,888	3.4	2.8	−17.6	≤ .001
Cohort 10	2,508	3.6	3.1	−13.9	≤ .001
Gender					
Female	4,135	2.5	2.0	−20.0	≤ .001
Male	3,065	4.6	4.0	−13.0	≤ .001
Age					
Age 18–24	3,350	3.5	3.1	−11.4	≤ .001
Age 25 or Older	4,043	3.4	2.7	−20.6	≤ .001
Race/Ethnicity					
Hispanic	2,177	2.6	2.0	−23.1	≤ .001
Non-Hispanic African American/Black	3,869	3.8	3.3	−13.2	≤ .001
Non-Hispanic American Indian or Alaska Native	25	S2	S2	S2	-
Non-Hispanic Asian/Pacific Islander	471	3.8	3.3	−13.2	.006
Non-Hispanic White	570	3.4	2.8	−17.6	≤ .001
High-Risk Groups of Special Interest					
Men Having Sex With Men (Total)	1,051	5.2	4.5	−13.5	≤ .001
Men Having Sex With Men (Black)	340	4.3	4.3	0.0	.936
Men Having Sex With Men (Hispanic)	420	5.5	4.3	−21.8	≤ .001
Black, Latina, or Hispanic Women	3,484	2.4	1.9	−20.8	≤ .001
Homeless Individuals	552	4.4	3.8	−13.6	.049
Residents of Southern States	3,755	3.2	2.6	−18.8	≤ .001

Notes: *p*-values were derived from matched-pairs t-tests. S2: The cell size is too small ($n < 55$) to allow reliable inference. The number is suppressed to rule out misleading conclusions.

Source: HIV Cohort 9 and Cohort 10 participant-level data, matched cases only, reflective of services received through FY2015.

PAST-30-DAY BINGE DRINKING

Participants' reductions in past-month binge drinking occurred at a level similar to their reductions in any alcohol use (approximately 16%; see Exhibit 4.33). However, focusing on average change masked subgroup differences in program responsivity.

Significant declines in binge drinking were found for Cohort 9 participants, but the decline among Cohort 10 participants did not reach significance. Adults 25 years or older experienced a significant decline of 22%, whereas no statistically significant change was observed in the 18-to-24 age group. There were significant declines among Hispanics and African Americans/Blacks (but not for Whites or Asians/Pacific Islanders). Binge drinking at posttest was not significantly different from binge drinking at pretest for MSMs. Homeless individuals reported reductions in binge drinking (43%) at program exit, as did those residing in southern states (22% decline). Of note, binge drinking was not frequent, occurring less than 2 days in the past 30, on average.

Exhibit 4.33. Baseline-to-Exit Change in Past-30-Day Binge Drinking

Average Days of Binge Alcohol Use During the Past 30 Days by HIV Cohort 9 and Cohort 10 Adult Respondents

	Valid N	Average Days at Baseline	Average Days at Exit	Percent Change	*p*-value
Total	2,400	1.9	1.6	−15.8	≤ .001
Cohort					
Cohort 9	1,250	1.7	1.3	−23.5	≤ .001
Cohort 10	1,150	2.2	2.0	−9.1	.110
Gender					
Female	1,340	1.6	1.3	−18.8	.002
Male	987	2.3	2.1	−8.7	.046
Age					
Age 18–24	1,340	2.0	1.9	−5.0	.083
Age 25 or Older	1,058	1.8	1.4	−22.2	≤ .001

(continued)

Exhibit 4.33. Baseline-to-Exit Change in Past-30-Day Binge Drinking (continued)

Average Days of Binge Alcohol Use During the Past 30 Days by HIV Cohort 9 and Cohort 10 Adult Respondents

	Valid N	Average Days at Baseline	Average Days at Exit	Percent Change	*p*-value
Race/Ethnicity					
Hispanic	675	1.3	1.0	−23.1	.004
Non-Hispanic African American/Black	1,108	2.1	1.8	−14.3	.004
Non-Hispanic American Indian or Alaska Native	7	S1	S1	S1	—
Non-Hispanic Asian/Pacific Islander	248	1.5	1.6	6.7	.897
Non-Hispanic White	251	2.7	2.4	−11.1	.283
High-Risk Groups of Special Interest					
Men Having Sex With Men (Total)	310	3.0	2.5	−16.7	.093
Men Having Sex With Men (Black)	105	2.1	2.0	−4.8	.825
Men Having Sex With Men (Hispanic)	75	2.9	3.1	6.9	.738
Black, Latina, or Hispanic Women	1,044	1.6	1.1	−31.3	≤ .001
Homeless Individuals	167	2.8	1.6	−42.9	.012
Residents of Southern States	1,164	1.8	1.4	−22.2	≤ .001

Notes: *p*-values were derived from matched-pairs t-tests. S1: Number provides non-public-domain information about a small subsample ($n < 20$), either directly or through simple arithmetic. Suppressed for privacy protection purposes.

Source: HIV Cohort 9 and Cohort 10 participant-level data, matched cases only, reflective of services received through FY2015.

PAST-30-DAY CIGARETTE USE

Exhibit 4.34 displays average days of cigarette use in the past 30 days at baseline and exit. Overall, there was a 5% decrease between pre- and posttest. Cohort 10 participants and females declined significantly in past-30-day cigarette use, although Cohort 9 participants and males did not. In contrast to the patterns with alcohol use, younger adults (age 18–24) reduced past-30-day cigarette use more than older adults (10% change and 1% change, respectively). The results for American Indian/Alaska Native participants were excluded because of low sample size leading to an unreliable estimate. The only racial/ethnic group to show statistically significant reductions in past-30-day cigarette use was Hispanics. Of the high-risk groups, Black MSM; Black, Latina, and Hispanic women; and residents of

southern states showed significant reductions in cigarette use from baseline to exit. In contrast to results for alcohol use, Black MSMs showed significant improvement after the program, although Hispanic MSMs did not. Similar to the previously discussed pre- and posttest results, Black, Latina, and Hispanic women had lower than average use at baseline and exit interviews and higher than average declines between baseline and exit. Homeless individuals were the most likely to smoke at both time points and did not change significantly in past-30-day cigarette use as a result of direct service program exposure. Those in southern states did show slight declines in cigarette use.

Exhibit 4.34. Baseline-to-Exit Change in Past-30-Day Cigarette Use

Average Days of Cigarette Use During the Past 30 Days by HIV Cohort 9 and Cohort 10 Adult Respondents

	Valid N	Average Days at Baseline	Average Days at Exit	Percent Change	p-value
Total	7,622	6.6	6.3	−4.5	≤ .001
Cohort					
Cohort 9	4,916	8.2	8.0	−2.4	.124
Cohort 10	2,706	3.6	3.2	−11.1	≤ .001
Gender					
Female	4,264	5.1	4.8	−5.9	≤ .001
Male	3,147	8.4	8.4	0.0	.953
Age					
Age 18–24	3,591	4.2	3.8	−9.5	≤ .001
Age 25 or Older	4,026	8.7	8.6	−1.1	.156
Race/Ethnicity					
Hispanic	2,279	4.5	4.1	−8.9	≤ .001
Non-Hispanic African American/Black	3,910	7.9	7.7	−2.5	.130
Non-Hispanic American Indian or Alaska Native	26	S2	S2	S2	—
Non-Hispanic Asian/Pacific Islander	509	1.8	1.8	0.0	.981
Non-Hispanic White	589	9.6	9.6	0.0	.883

(continued)

Exhibit 4.34. Baseline-to-Exit Change in Past-30-Day Cigarette Use (continued)

	Valid N	Average Days at Baseline	Average Days at Exit	Percent Change	p-value
High-Risk Groups of Special Interest					
Men Having Sex With Men (Total)	1,118	7.5	6.9	−8.0	.002
Men Having Sex With Men (Black)	351	9.9	8.8	−11.1	.009
Men Having Sex With Men (Hispanic)	445	6.1	5.7	−6.6	.116
Black, Latina, or Hispanic Women	3,579	5.3	4.9	−7.5	≤ .001
Homeless Individuals	553	15.2	15.1	−0.7	.759
Residents of Southern States	3,839	7.2	7.0	−2.8	.045

Notes: *p*-values were derived from matched-pairs t-tests. S2: The cell size is too small ($n < 55$) to allow reliable inference. The number is suppressed to rule out misleading conclusions.

Source: HIV Cohort 9 and Cohort 10 participant-level data, matched cases only, reflective of services received through FY2015.

PAST-30-DAY MARIJUANA USE

On average, the number of days of marijuana use in the past 30 days declined less than alcohol use or binge drinking but more than cigarette use (see Exhibit 4.35). In the overall sample, the reduction in the number of days of marijuana use was 7%. Marijuana use declined more among Cohort 9 than in Cohort 10 participants. Both males and females evidenced significant reductions from baseline to exit. African Americans/Blacks were the only racial/ethnic group to show significant reductions in marijuana use (sample size for American Indians/Alaska Natives was not sufficient for reliable inference). However, when data were examined separately by high-risk category, results indicated that Black MSM did not improve significantly after the program, nor did Hispanic MSM. Black, Latina, and Hispanic women reduced marijuana use by 11%, a statistically significant finding. There was no significant change in past-30-day marijuana use for homeless individuals, but individuals residing in southern states reduced use by 14%. Of note, Black MSM and homeless respondents had the highest prevalence of marijuana use at baseline, and neither of these high-risk groups showed any significant change at program exit.

Exhibit 4.35. Baseline-to-Exit Change in Past-30-Day Marijuana Use

Average Days of Marijuana Use During the Past 30 Days by HIV Cohort 9 and Cohort 10 Adult Respondents

	Valid N	Average Days at Baseline	Average Days at Exit	Percent Change	*p*-value
Total	7,795	2.8	2.6	−7.1	≤ .001
Cohort					
Cohort 9	5,096	2.3	2.0	−13.0	≤ .001
Cohort 10	2,699	3.8	3.6	−5.3	.203
Gender					
Female	4,302	1.9	1.7	−10.5	.009
Male	3,276	3.8	3.5	−7.9	.003
Age					
Age 18–24	3,595	3.9	3.8	−2.6	.080
Age 25 or Older	4,196	1.8	1.5	−16.7	≤ .001
Race/Ethnicity					
Hispanic	2,313	1.8	1.7	−5.6	.332
Non-Hispanic African American/Black	4,029	3.5	3.1	−11.4	≤ .001
Non-Hispanic American Indian or Alaska Native	27	S2	S2	S2	—
Non-Hispanic Asian/Pacific Islander	514	1.2	1.2	0.0	.970
Non-Hispanic White	605	2.6	2.5	−3.8	.535
High-Risk Groups of Special Interest					
Men Having Sex With Men (Total)	1,149	4.0	4.0	0.0	.790
Men Having Sex With Men (Black)	370	5.5	5.5	0.0	.983
Men Having Sex With Men (Hispanic)	451	3.2	3.0	−6.3	.447
Black, Latina, or Hispanic Women	3,617	1.9	1.7	−10.5	.017
Homeless Individuals	600	5.2	5.1	−1.9	.763
Residents of Southern States	3,941	2.8	2.4	−14.3	≤ .001

Note: *p*-values were derived from matched-pairs t-tests. S2: The cell size is too small ($n < 55$) to allow reliable inference. The number is suppressed to rule out misleading conclusions.

Source: HIV Cohort 9 and Cohort 10 participant-level data, matched cases only, reflective of services received through FY2015.

PAST-30-DAY ILLICIT DRUG USE (EXCLUDING MARIJUANA)

Illicit drug use (excluding marijuana) included use of inhalants, heroin, crack or cocaine, methamphetamine, hallucinogens, and nonmedical use of prescription

drugs. On average, the percent reduction in the number of days of substance use in the past 30 was greater for illicit drugs use than for alcohol use, binge drinking, cigarette use, or marijuana use (27% decline). As shown in Exhibit 4.36, the percent reduction in numbers of days used was greater among Cohort 9 participants than among their Cohort 10 counterparts. Males and females both reduced illicit drug use at similar rates. Young adults (18–24 years) did not change illicit drug use behavior significantly from baseline to exit, although adults age 25 or older reduced illicit drug use in the past 30 days by 36%. No significant program effects were observed for White or Asian/Pacific Islander participants. Asians/Pacific Islanders reported very low illicit drug use at both data collection points. Both African Americans/Blacks and Hispanics showed declines in illicit drug use (31% and 25%, respectively). When separated by high-risk category, results were less promising: There was no significant reduction in past-30-day illicit drug use among MSM. Black, Latina, and Hispanic women reported a 29% reduction from baseline to exit. Homeless individuals also decreased use significantly after receipt of direct services, as did residents of southern states. On average, illicit drug use was uncommon (approximately 1 day out of the past 30 at baseline). Rates of illicit drug use were 2 to 3 times higher at baseline for MSM and the homeless than for the sample as a whole.

Exhibit 4.36. Baseline-to-Exit Change in Past-30-Day Illicit Drug Use

Average Days of Illicit Drug Use (Excluding Marijuana) During the Past 30 Days by HIV Cohort 9 and Cohort 10 Adult Respondents

	Valid N	Average Days at Baseline	Average Days at Exit	Percent Change	*p*-value
Total	7,965	1.1	0.8	−27.3	≤ .001
Cohort					
Cohort 9	5,231	1.3	0.8	−38.5	≤ .001
Cohort 10	2,734	0.8	0.7	−12.5	.051

(continued)

Exhibit 4.36. Baseline-to-Exit Change in Past-30-Day Illicit Drug Use (continued)

Average Days of Illicit Drug Use (Excluding Marijuana) During the Past 30 Days by HIV Cohort 9 and Cohort 10 Adult Respondents

	Valid N	Average Days at Baseline	Average Days at Exit	Percent Change	*p*-value
Gender					
Female	4,404	0.7	0.5	−28.6	≤ .001
Male	3,338	1.5	1.1	−26.7	≤ .001
Age					
Age 18–24	3,645	0.8	0.7	−12.5	.143
Age 25 or Older	4,315	1.4	0.9	−35.7	≤ .001
Race/Ethnicity					
Hispanic	2,318	0.8	0.6	−25.0	.026
Non-Hispanic African American/Black	4,091	1.3	0.9	−30.8	≤ .001
Non-Hispanic American Indian or Alaska Native	29	S2	S2	S2	—
Non-Hispanic Asian/Pacific Islander	515	0.5	0.5	0.0	1.000
Non-Hispanic White	606	1.3	0.9	−30.8	.083
High-Risk Groups of Special Interest					
Men Having Sex With Men (Total)	1,156	1.8	1.6	−11.1	.389
Men Having Sex With Men (Black)	381	2.3	2.1	−8.7	.737
Men Having Sex With Men (Hispanic)	450	1.6	1.3	−18.8	.182
Black, Latina, or Hispanic Women	3,641	0.7	0.5	−28.6	≤ .001
Homeless Individuals	610	3.0	2.0	−33.3	≤ .001
Residents of Southern States	3,991	1.2	0.8	−33.3	≤ .001

Notes: *p*-values were derived from matched-pairs t-tests. S2: The cell size is too small ($n < 55$) to allow reliable inference. The number is suppressed to rule out misleading conclusions.

Source: HIV Cohort 9 and Cohort 10 participant-level data, matched cases only, reflective of services received through FY2015.

PAST-30-DAY INJECTION DRUG USE

Given the low prevalence rates of injected drugs, displaying average days of use was not informative. Exhibit 4.37, therefore, shows baseline-to-exit change in the percentage of participants reporting past-30-day use. Only 1% of participants reported use at baseline. This rate declined by 20% at program exit, but the change was not statistically significant. This lack of statistical significance could be due to the difficulty of detecting significant change in prevalence rates that are very low to

start with. The only subgroups with statistically significant reductions were women (as a whole) as well as Black, Latina, and Hispanic women: Both subgroups showed reductions on the order of 50%. Groups with the highest prevalence of IDU were Whites, MSM, and homeless individuals.

Exhibit 4.37. Baseline-to-Exit Change in Past-30-Day Injected Drug Use

Percentage of HIV Cohort 9 and Cohort 10 Adult Respondents Reporting Injected Drug Use During the Past 30 Days

	Valid N	Baseline Percent	Exit Percent	Percent Change	*p*-value
Total	8,078	1.0	0.8	−20.0	.119
Cohort					
Cohort 9	5,263	0.9	0.7	−22.2	.193
Cohort 10	2,815	1.3	1.1	−15.4	.487
Gender					
Female	4,470	0.6	0.3	−50.0	≤ .001
Male	3,388	1.3	1.3	0.0	.888
Age					
Age 18–24	3,746	1.2	1.1	−8.3	.761
Age 25 or Older	4,327	0.9	0.6	−33.3	.073
Race/Ethnicity					
Hispanic	2,340	0.9	0.9	0.0	1.000
Non-Hispanic African American/Black	4,181	0.9	0.7	−22.2	.211
Non-Hispanic American Indian or Alaska Native	29	S2	S2	S2	—
Non-Hispanic Asian/Pacific Islander	523	0.4	0.2	−50.0	1.000
Non-Hispanic White	611	2.3	1.5	−34.8	.267
High-Risk Groups of Special Interest					
Men Having Sex With Men (Total)	1,177	2.7	2.8	3.7	1.000
Men Having Sex With Men (Black)	389	2.8	2.8	0.0	1.000
Men Having Sex With Men (Hispanic)	456	2.2	2.6	18.2	.774
Black, Latina, or Hispanic Women	3,710	0.6	0.3	−50.0	.004
Homeless Individuals	624	3.0	2.4	−20.0	.424
Residents of Southern States	4,068	1.0	0.7	−30.0	.108

Notes: *p*-values were derived from paired comparisons (McNemar's test). S2: The cell size is too small (n < 55) to allow reliable inference. The number is suppressed to rule out misleading conclusions.

Source: HIV Cohort 9 and Cohort 10 participant-level data, matched cases only, reflective of services received through FY2015.

PAST-30-DAY MISUSE OF PRESCRIPTION DRUGS

As with injected drugs, the average days of prescription drug misuse was low and focusing on prevalence rates instead proved more meaningful. Exhibit 4.38 compares the baseline and exit percentages of adult participants who reported using prescription drugs without a doctor's orders during the past 30 days. This outcome indicator was more resistant to change than the substances that were discussed earlier. Although there was a 14% decrease in the prevalence of prescription drug misuse, this decrease was accounted for by two subgroups: individuals age 25 or older and individuals residing in the South. All other groups lowered nonmedical prescription drug use at posttest, but the percent change did not reach statistical significance.

Exhibit 4.38. Baseline-to-Exit Change in Past-30-Day Prescription Drug Misuse

Percentage of HIV Cohort 9 and Cohort 10 Adult Respondents Reporting Nonmedical Use of Prescription Drugs During the Past 30 Days

	Valid N	Baseline Percent	Exit Percent	Percent Change	*p*-value
Total	8,066	3.7	3.2	−13.5	.024
Cohort					
Cohort 9	5,258	3.4	3.0	−11.8	.147
Cohort 10	2,808	4.3	3.6	−16.3	.082
Gender					
Female	4,458	2.2	1.8	−18.2	.122
Male	3,388	5.4	4.6	−14.8	.068
Age					
Age 18–24	3,744	4.2	3.8	−9.5	.281
Age 25 or Older	4,317	3.2	2.6	−18.8	.040
Race/Ethnicity					
Hispanic	2,339	4.2	3.6	−14.3	.206
Non-Hispanic African American/Black	4,173	3.0	2.7	−10.0	.267
Non-Hispanic American Indian or Alaska Native	29	S2	S2	S2	—
Non-Hispanic Asian/Pacific Islander	522	3.8	3.3	−13.2	.629
Non-Hispanic White	609	5.9	5.1	−13.6	.473

(continued)

Exhibit 4.38. Baseline-to-Exit Change in Past-30-Day Prescription Drug Misuse (continued)

	Valid N	Baseline Percent	Exit Percent	Percent Change	*p*-value
High-Risk Groups of Special Interest					
Men Having Sex With Men (Total)	1,178	8.2	7.3	−11.0	.329
Men Having Sex With Men (Black)	390	5.1	4.6	−9.8	.832
Men Having Sex With Men (Hispanic)	456	10.7	10.1	−5.6	.798
Black, Latina, or Hispanic Women	3,701	2.1	1.6	−23.8	.066
Homeless Individuals	622	6.4	5.0	−21.9	.211
Residents of Southern States	4,061	3.5	2.7	−22.9	.010

Notes: *p*-values were derived from paired comparisons (McNemar's test). S2: The cell size is too small ($n < 55$) to allow reliable inference. The number is suppressed to rule out misleading conclusions.

Source: HIV Cohort 9 and Cohort 10 participant-level data, matched cases only, reflective of services received through FY2015.

4.5 Pre-Post Change in Ease of Access to Health Care

Research shows that access to health services—including both health care coverage and locations in geographically convenient areas—can increase the effective management of and recovery from disorders such as HIV/AIDS, VH, and SA. Moreover, SAMHSA is charged with decreasing health disparities among racial/ethnic minorities; lesbian, gay, bisexual, transgender, and questioning (LGBTQ) populations; and other vulnerable groups. Thus, another goal of the MAI initiative was to increase access to and awareness of services for the prevention, intervention, and treatment of these conditions.

4.5.1 Health Care Coverage

There was a small but statistically significant increase in the proportion of participants covered by health insurance, from 62% at baseline to 64% at exit, an increase of 4% (Exhibit 4.39). This improvement was due to Cohort 9 participants who increased their health coverage by 6%; there was no significant change among participants of Cohort 10 programs. However, it is worth noting that Cohort 10 participants were more likely to have coverage at program entry (73%) than Cohort 9 participants were (55%). Health insurance coverage was higher for

females at both baseline and at exit but increased more for males, thus somewhat reducing the gender gap. The rate of health insurance coverage varied widely by race/ethnicity, with non-Hispanic Asians/Pacific Islanders having the highest rate at exit (87%) and Hispanics the lowest (52%). Among the high-risk groups of special interest, Hispanic MSM had the lowest rate at baseline (39%) and no significant change at exit. Homeless participants, on the other hand, had the largest improvement in coverage rate; they increased from 54% at baseline to 59% at exit, an increase of 10%.

Exhibit 4.39. Baseline-to-Exit Change in Participants With Health Insurance

Percentage of Cohort 9 and Cohort 10 Adult Program Participants With Health Insurance

	Valid N	Baseline Percent	Exit Percent	Percent Change	*p*-value
Total	9,740	61.6	63.8	3.6	≤ .001
Cohort					
Cohort 9	6,210	55.0	58.2	5.8	≤ .001
Cohort 10	3,530	73.2	73.5	0.4	.569
Gender					
Female	5,017	66.3	68.2	2.9	≤ .001
Male	4,459	56.7	59.2	4.4	≤ .001
Age					
Age 18–24	4,656	68.9	69.8	1.3	.076
Age 25 or Older	5,079	54.9	58.3	6.2	≤ .001
Race/Ethnicity					
Hispanic	2,723	49.7	52.2	5.0	≤ .001
Non-Hispanic African American/Black	5,254	64.2	66.4	3.4	≤ .001
Non-Hispanic American Indian or Alaska Native	S2	S2	S2	S2	—
Non-Hispanic Asian/Pacific Islander	575	86.1	87.3	1.4	.349
Non-Hispanic White	749	63.4	66.2	4.4	.017
High-Risk Groups of Special Interest					
Men Having Sex With Men (Total)	1,763	54.7	56.8	3.8	.014
Men Having Sex With Men (Black)	680	61.2	63.7	4.1	.125
Men Having Sex With Men (Hispanic)	684	38.6	40.2	4.1	.207
Black, Latina, or Hispanic Women	4,193	63.8	66.0	3.4	≤ .001
Homeless Individuals	777	53.9	59.2	9.8	≤ .001
Residents of Southern States	5,336	49.8	51.7	3.8	≤ .001

Notes: *p*-values were derived from paired comparisons (McNemar's test). S2: The cell size is too small (n < 55) to allow reliable inference. The number is suppressed to rule out misleading conclusions.

Source: HIV Cohort 9 and Cohort 10 participant-level data, matched cases only, reflective of services received through FY2015.

4.5.2 Awareness of Health Care Services

Most individuals enrolled in MAI-funded programs were aware of services in their neighborhoods that provided professional care for HIV/AIDS and other STDs (see Exhibits 4.40 and 4.41). Awareness of HIV and other STD-related health care services (Exhibit 4.40) increased, on average, from 80% at baseline to 93% at exit (a 15% increase). For all subgroups except Hispanics and Hispanic MSM, more than 90% of respondents were aware of health care services at the completion of their grantee service. Individuals in Cohort 9 increased more in awareness than in Cohort 10 (by 18% and 11%, respectively), and women increased more than men (by 18% and 12%, respectively). Percent change between baseline and exit was slightly higher among the older age subgroup (18%) than among the younger group (12%). Hispanics were the racial/ethnic group with the highest gains in awareness of health care resources for HIV (26%), followed by Asians/Pacific Islanders (21%), whereas non-Hispanic African Americans had the lowest gains (10%). Among the special high-risk groups, Black, Latina, and Hispanic women had the largest improvement of awareness (19%) and Black MSM had the smallest (5%).

Exhibit 4.40. Baseline-to-Exit Change in Accessibility of Health Care for HIV/AIDS or Other STDs

Percentage of Cohort 9 and Cohort 10 Adult Program Participants Reporting That They Know Where to Go in Their Neighborhood to See a Health Care Professional Regarding HIV/AIDS or Other STDs

	Valid N	Baseline Percent	Exit Percent	Percent Change	*p*-value
Total	13,776	80.4	92.5	15.0	≤ .001
Cohort					
Cohort 9	8,221	79.8	94.0	17.8	≤ .001
Cohort 10	5,555	81.3	90.2	10.9	≤ .001
Gender					
Female	6,901	79.2	93.8	18.4	≤ .001
Male	6,583	81.7	91.3	11.8	≤ .001
Age					
Age 18–24	7,195	81.3	91.3	12.3	≤ .001
Age 25 or Older	6,569	79.4	93.8	18.1	≤ .001

(continued)

Exhibit 4.40. Baseline-to-Exit Change in Accessibility of Health Care for HIV/AIDS or Other STDs (continued)

	Valid N	Baseline Percent	Exit Percent	Percent Change	*p*-value
Race/Ethnicity					
Hispanic	3,396	70.6	88.9	25.9	≤ .001
Non-Hispanic African American/Black	7,422	85.3	93.6	9.7	≤ .001
Non-Hispanic American Indian or Alaska Native	64	82.8	93.8	13.3	.065
Non-Hispanic Asian/Pacific Islander	634	75.2	91.3	21.4	≤ .001
Non-Hispanic White	1,661	80.4	94.9	18.0	≤ .001
High-Risk Groups of Special Interest					
Men Having Sex With Men (Total)	1,811	84.0	91.7	9.2	≤ .001
Men Having Sex With Men (Black)	710	89.4	93.9	5.0	≤ .001
Men Having Sex With Men (Hispanic)	690	78.3	88.3	12.8	≤ .001
Black, Latina, or Hispanic Women	5,427	78.8	93.5	18.7	≤ .001
Homeless Individuals	807	85.4	92.6	8.4	≤ .001
Residents of Southern States	8,248	81.1	93.7	15.5	≤ .001

Note: *p*-values were derived from paired comparisons (McNemar's test).

Source: HIV Cohort 9 and Cohort 10 participant-level data, matched cases only, reflective of services received through FY2015.

Finally, MAI participants were asked if they knew where to go in their neighborhoods to see a health care professional for a drug or alcohol problem (see Exhibit 4.41). It is worth noting that at program entry, awareness of SA treatment services was slightly lower than awareness of HIV and other STD services. On the other hand, awareness of SA services increased slightly more than for HIV-related services such that at exit, the level of awareness was comparable for both types of health care services.

All subgroups whose outcomes were examined separately experienced statistically significant increases in awareness of SA-related health care services, including non-Hispanic American Indians and Alaska Natives, for whom change was the hardest to detect because of their small sample size. Gender differences in this outcome were similar to those associated with awareness of HIV services; however, the age difference was reversed, with the younger age group improving slightly more than the older group. Among racial/ethnic groups, Hispanics had the largest

improvement (36%) and non-Hispanic African Americans had the smallest (15%). Variation in outcomes across the special high-risk groups was similar to that observed for HIV-related health care services, with Black or Hispanic women experiencing the largest improvement of awareness (26%) and homeless participants and Black MSM the smallest (8% and 9%, respectively).

Exhibit 4.41. Baseline-to-Exit Change in Accessibility of Health Care for a Drug or Alcohol Problem

Percentage of Cohort 9 and Cohort 10 Adult Program Participants Reporting That They Know Where to Go in Their Neighborhood to See a Health Care Professional Regarding a Drug or Alcohol Problem

	Valid N	Baseline Percent	Exit Percent	Percent Change	*p*-value
Total	13,750	74.1	89.2	20.4	≤ .001
Cohort					
Cohort 9	8,209	76.2	91.1	19.6	≤ .001
Cohort 10	5,541	70.8	86.4	22.0	≤ .001
Gender					
Female	6,890	72.6	89.9	23.8	≤ .001
Male	6,569	75.7	88.9	17.4	≤ .001
Age					
Age 18–24	7,181	71.4	87.1	22.0	≤ .001
Age 25 or Older	6,557	76.9	91.6	19.1	≤ .001
Race/Ethnicity					
Hispanic	3,390	63.0	85.6	35.9	≤ .001
Non-Hispanic African American/Black	7,407	78.0	89.9	15.3	≤ .001
Non-Hispanic American Indian or Alaska Native	63	81.0	95.2	17.5	.012
Non-Hispanic Asian/Pacific Islander	632	68.2	86.9	27.4	≤ .001
Non-Hispanic White	1,662	81.5	94.3	15.7	≤ .001
High-Risk Groups of Special Interest					
Men Having Sex With Men (Total)	1,811	74.9	87.5	16.8	≤ .001
Men Having Sex With Men (Black)	711	84.2	91.4	8.6	≤ .001
Men Having Sex With Men (Hispanic)	690	67.8	83.3	22.9	≤ .001
Black, Latina, or Hispanic Women	5,419	71.1	89.2	25.5	≤ .001
Homeless Individuals	802	83.4	90.3	8.3	≤ .001
Residents of Southern States	8,240	76.0	91.1	19.9	≤ .001

Note: *p*-values were derived from paired comparisons (McNemar's test).

Source: HIV Cohort 9 and Cohort 10 participant-level data, matched cases only, reflective of services received through FY2015.

4.6 Grantee-Level Factors Associated With Positive Outcomes—Success Case Method Analysis Results

As described in Chapter 3, the SCM analysis conducted for this report involved an in-depth examination of all available information about the top- and bottom-performing grantees in an effort to identify factors that distinguish these two groups. This analysis is an inductive, hypothesis-generating exercise intended to provide researchers and policy-makers with directions for future investigation. The results should not be treated as definitive explanations of successful outcomes, but rather as plausible hypotheses for future testing. As is the nature of qualitative analysis, we had to make multiple judgment calls in classifying grantees; however, we were careful to approach this part of the analysis as a team. All results discussed in this section are based on consensus among five team members. If any member of the team believed that there was not sufficient evidence to support a potential conclusion, that conclusion was not included among the reported results. This provided a reliability check for the conclusions drawn from the qualitative analysis.

The reader will recall that the definition of "success" is the only quantitative, systematic component of this analysis. Grantees that were at the top of the distributions for the majority (more than half) of the SA or the HIV outcomes were defined as "top performers." Conversely, grantees that were at the bottom of the distributions for most of the SA or the HIV outcomes were defined as "bottom performers." We did not reveal the identities of these grantees in this report. A separate lookup table with grantee names and award numbers will be developed for SAMHSA upon request.

Exhibit 4.42 displays the locations of the top- and bottom-performing grantees within each outcome measure's grantee-level distribution (part 4.42a is for SA outcomes and part 4.42b is for HIV outcomes). Grantees that did not have at least 50 participants providing outcome data for a measure were not rated for that measure, resulting in some blank cells. Behavioral measures are the most likely to have blank cells because only participants who had at least 30 days between their baseline and

exit surveys were included in behavioral outcome analyses. There were more behavioral outcomes among SA than among HIV measures, hence the larger number of blank cells in the left portion of Exhibit 4.42. Also note that there are some unfavorable results among the top performers and some favorable results among the bottom performers. For example, Grantee 4 is classified among the overall top performers although it rated in the bottom fifth of the outcome distributions for past-30-day marijuana use and perceived risk of unprotected oral sex. Similarly, Grantee 13 was among the top fifth of the distribution for past-30-day marijuana and other illicit drug use measures, even though it is included among the overall bottom performers. That is, few grantees excelled at all outcomes, and not many grantees ranked in the bottom quintile for all outcomes. Finally, it is purely by coincidence, and not by design, that there are precisely eight grantees in both the top and the bottom groups.

Exhibits 4.43 and 4.44 summarize the results of the qualitative analysis, depicting salient features of the top- and bottom-performing grantees, respectively. The factors that best distinguished between the two groups, selected from a larger list of potential explanations for grantee success, are depicted in the columns of the tables. Potential explanations investigated but found to be poor distinguishing factors are discussed in Section 4.4.6.

Exhibit 4.42a. Success Case Method – Measure Quintiles – Substance Use Measures

Measure Quintiles for Top- and Bottom-Performing Cohort 9 and Cohort 10 Grantees by Key Outcome Measures

	Perceived Risk of Binge Drinking	Perceived Risk of Marijuana Use	Past-30-Day Binge Drinking	Past-30-Day Marijuana Use	Past-30-Day Illicit Drug Use (Excluding Marijuana)	Past-30-Day Prescription Drug Use
Top-Performing Grantees						
Grantee 1	1	1		4	1	3
Grantee 2	1	1	1	1	2	2
Grantee 3	1	1				
Grantee 4	2	3	2	5	3	1
Grantee 5	1	1	4	2	1	1
Grantee 6	1	1		1	1	5
Grantee 7	1	1				
Grantee 8	3	1				
Bottom-Performing Grantees						
Grantee 9	3	3		5	2	4
Grantee 10	2	2				
Grantee 11	4	5		3	5	5
Grantee 12	5	2		2	2	3
Grantee 13	5	5		1	1	5
Grantee 14	2	4				
Grantee 15	3	5		5	5	5
Grantee 16	5	1				

Exhibit 4.42b. Success Case Method – Measure Quintiles – HIV Measures

Measure Quintiles for Top- and Bottom-Performing Cohort 9 and Cohort 10 Grantees by Key Outcome Measures

	Perceived Risk of Sharing Unsanitized Needles	Perceived Risk of Anal Sex	Perceived Risk of Oral Sex	Perceived Risk of Vaginal Sex	Perceived Risk From Sex Under the Influence	HIV Knowledge	Sexual Self-Efficacy	Protected Sex (Vaginal, Anal, or Oral)
Top-Performing Grantees								
Grantee 1	1	1	1	1	1	1	1	3
Grantee 2	1	1	1	1	1	1	1	1
Grantee 3	1	1	1	1	1	1	1	
Grantee 4	1	1	5	1	1	1	1	2
Grantee 5	1	2	2	1	1	1	1	1
Grantee 6	5	3	1	3	3	3	3	
Grantee 7	3	2	2	1	1	2	1	
Grantee 8	3	1	1	1	1	2	4	
Bottom-Performing Grantees								
Grantee 9	5	5	5	5	5	5	4	1
Grantee 10	5	5	2	5	5	5	3	
Grantee 11	5	2	5	5	3	3	2	5
Grantee 12	4	5	4	4	5	5	5	5
Grantee 13	4	5	5	5	4	4	5	3
Grantee 14	5	5	4	5	5	4	3	
Grantee 15	1	2	5	2	5	3	5	5
Grantee 16	5	5	2	4	4	5	5	

Note: Quintiles are calculated by dividing the grantee-level distribution of each measure into five equal slices and numbering them from top to bottom. Thus, quintile 1 indicates that the grantee rated among the top one-fifth (i.e., top 20%) for that measure; likewise, quintile 5 indicates that the grantee rated among the bottom one-fifth for the measure. Grantees were not ranked on measures with insufficient sample size (n<50). Cells corresponding to these instances are left blank.

Source: HIV Cohort 9 and Cohort 10 participant-level data reflective of services received through FY2015.

Exhibit 4.43. Characteristics of Top-Performing Grantees

Characteristics of Top-Performing Cohort 9 and Cohort 10 Grantees With Respect to Salient Factors

Grantee	Interventions Implemented	Interventions Fit Target Population?	Sufficient Focus on Both HIV & SA?	Evidence of Integrated HIV & SA Services?	Evidence of Value Placed on Data/ Evaluation?	Matched Baseline and Exit Records	
						Valid N	Percent
Grantee 1	• Project Towards No Drug Abuse • Mpowerment • RESPECT	Yes	Yes	Yes	Yes	442	99.1
Grantee 2	• Get Connected • PROMISE • Protocol-Based HIV Counseling and Testing	Yes	Yes	Yes	No	281	74.7
Grantee 3	• Challenging College Alcohol Abuse • VOICES/VOCES • Rapid HIV Testing • Additional instructional films and presentations disseminated by CDC	Partially	Yes	Yes	Yes	1,518	88.5
Grantee 4	• PEARLS • SHIELD • Peer Network • RESPECT	Yes	Yes	Yes	Yes	292	85.3
Grantee 5	• Integrated Making Proud Choices and Project Towards No Drug Abuse	Yes	Yes	Yes	Yes	404	90.6
Grantee 6	• PRIME For Life • RESPECT	Yes	No	Yes	No	410	58.5
Grantee 7	• Project Towards No Drug Abuse with integrated HIV prevention component	Yes	Yes	Yes	Yes	533	97.4
Grantee 8	• SISTA • Enhanced SISTA • Nia • Safe in the City	Yes	Yes	Yes	Yes	173	77.5

Note: Valid N for matched baseline and exit records refers to all baseline records for multisession interventions; the percentage of matched baseline and exit records is based on the number of baseline records for multisession interventions with matched exit records.

Source: HIV Cohort 9 and Cohort 10 participant-level data reflective of services received through FY2015; Management Reporting Tool on SAMHSA's Prevention Management Reporting and Training System, data extracted on February 23, 2015; grantees' approved strategic plans; and information available on grantee organization's Web site.

Exhibit 4.44. Characteristics of Bottom-Performing Grantees

Characteristics of Bottom-Performing Cohort 9 and Cohort 10 Grantees With Respect to Salient Factors

Grantee	Interventions Implemented	Interventions Fit Target Population?	Sufficient Focus on Both HIV & SA?	Evidence of Integrated HIV & SA Services?	Evidence of Value Placed on Data/ Evaluation?	Matched Baseline and Exit Records	
						Valid N	Percent
Grantee 9	• NIDA Community Outreach Model • Protocol-Based HIV Counseling and Testing • RESPECT	Yes	No (SA neglected)	No	No	123	78.9
Grantee 10	• Protocol-Based HIV Counseling and Testing • RESPECT • VOICES/VOCES • Substance abuse treatment program designed by a local county sheriff's office	Partially	No (SA neglected)	No	Yes	161	85.1
Grantee 11	• Street Smart	No	No (SA neglected)	Yes	No	499	34.1
Grantee 12	• Living in Balance • Seeking Safety • Integration of additional recovery support and basic needs services	Yes	No (HIV neglected)	No	Yes	178	82.6
Grantee 13	• Modelo Intervencion Psychomedico	No	No (SA neglected)	No	No	346	35.8
Grantee 14	• 3MV • SISTA • Rapid HIV Testing	Yes	No (SA neglected)	No	No	470	34.5
Grantee 15	• Holistic Health Recovery Program	Partially	No (SA neglected)	Yes	No	303	53.1
Grantee 16	• Street Smart • Locally designed educational theater activities	Partially	No (SA neglected)	Yes	No	348	59.8

Note: Valid N for matched baseline and exit records refers to all baseline records for multisession interventions; the percentage of matched baseline and exit records is based on the number of baseline records for multisession interventions with matched exit records. NIDA = National Institute on Drug Abuse.

Source: HIV Cohort 9 and Cohort 10 participant-level data reflective of services received through FY2015; Management Reporting Tool on SAMHSA's Prevention Management Reporting and Training System, data extracted on February 23, 2015; grantees' approved strategic plans; and information available on grantee organization's Web site.

4.6.1 Implemented Evidence-Based Programs

No single EBP or combination of EBPs clearly distinguished the top and bottom groups. However, we found it noteworthy that the only three grantees that implemented *Project Towards No Drug Abuse* (Project TND) are all among the top performers and that none of the bottom performers implemented this program. Project TND is a drug abuse prevention program originally designed for high school-age youth. More detail about the program is provided in Appendix B. All three grantees that implemented it integrated HIV prevention modules into the curriculum and adapted the material to fit their target population (for the most part, young adults).

4.6.2 Correspondence Between Target Populations and Interventions

We looked at the demographic characteristics of the participants targeted by the grantees and checked whether the interventions they implemented were either designed for or carefully adapted to those subgroups. All but one top-performing grantee implemented interventions appropriate for their target populations. The one exception, Grantee 3, implemented interventions appropriate for some but not all of its targeted groups (Exhibit 4.43). In contrast, only three of the eight bottom-performing grantees implemented interventions that were appropriate for their participants, and three implemented interventions that only partially fit their participants' demographic characteristics. Interventions implemented by two of the bottom performers did not fit their targeted populations at all (Exhibit 4.44).

To conclude, the available narrative and qualitative information about the top and bottom grantees supported our hypothesis that selecting interventions designed for and tested for effectiveness among demographic groups similar to the targeted ones may be a predictor of successful outcomes.

4.6.3 Balancing Focus Between Substance Abuse and HIV

Exhibit 4.43 shows that seven of the eight top-performing grantees focused equally on HIV and SA prevention in their planning (e.g., intervention selection) and implementation. In contrast, all of the bottom-performing grantees neglected or only superficially addressed one of the two goals (Exhibit 4.44). In some of these cases, the "neglect" was in the form of failing to address both goals at the same intensity; in other cases, the intervention targeting one of the goals was a poor fit to the targeted population. In all but one of these cases, SA was the neglected goal, perhaps because most of the grantees are HIV-focused organizations.

It is interesting to note that the unfavorable outcomes are not limited to the neglected goal. For example, Grantee 9 focused mainly on HIV prevention to the neglect of SA prevention (Exhibit 4.44), yet it ranked in the bottom two quintiles for all HIV-related attitude and knowledge items (Exhibit 4.42b). Likewise, Grantee 12's main focus was SA, with insufficient emphasis on HIV prevention (Exhibit 4.44), yet it did not rank at the top for any of the SA outcomes, either. These observations suggest that the crucial factor here is *balance* between the two goals. That is, failing to target one of the two goals sufficiently will likely result in failure to meet the other goal as well. The reason could be that HIV transmission and SA share common risk and protective factors such that effectively targeting both is the best approach to preventing both. Relatedly, SA constitutes a risk factor for HIV transmission and HIV transmission can be a consequence of SA, making both equally as relevant in interventions that target both.

4.6.4 Intervention Integration

In the context of this analysis, integration refers to the degree to which HIV and SA prevention messages are integrated in the way they are delivered to participants. An example of integration is the way Grantee 5 combined an HIV EBP and a SA EBP into a single curriculum that all participants received. From the point of view of the participants, it most probably felt like a single program, based on narrative

descriptions of implementation provided by the grantee. An example of poor integration is Grantee 9, which provided some SA and some HIV prevention services but not as part of a seamless whole. That is, there is no evidence of a concerted effort to ensure that participants receive a "package" of services including both SA and HIV messages; for example, some participants may have received Protocol-Based HIV Counseling and Testing services with no systematic SA component.

Exhibit 4.43 shows that we found evidence of efforts to integrate SA and HIV prevention for all of the top-performing grantees, whereas similar sources of information yielded similar evidence for only three of the eight bottom-performing grantees (Exhibit 4.44). Although the integration factor is related to balance between SA and HIV focus discussed in the previous section, they are not identical. For example, although Grantee 11 focused mostly on HIV to the neglect of SA prevention, whatever SA services were provided were integrated with HIV services. Not every participant may have received SA services, but those who did received them in conjunction with HIV services.

4.6.5 Value Placed on Data and Outcomes

Evidence of the importance of data and outcomes to the grantee's activities varied. In one case, the evidence was a presentation of the outcomes in a national conference; in another, it was shared key personnel between the grant and the state's epidemiological outcomes workgroup. As is evident from Exhibits 4.43 and 4.44, the percentage of baseline and exit records that could be matched varied across the 16 grantees, with a maximum of 99% and a minimum of 34%. Because this factor is closely related to data quality and the care with which participants are tracked, we considered a matching rate of 80 or above to constitute evidence of the care with which evaluation data were collected and submitted.

The number of participant records from multisession interventions, along with the baseline-to-exit matching rate emerged as distinguishing factors, in and of themselves, between the top and bottom performers: On average, the eight top-

performing grantees submitted 507 records per grantee, with an overall matching rate of 86%, whereas the bottom-performing eight grantees submitted 304 records per grantee, with an overall matching rate of 50%.

A few hypotheses are suggested by these results. It is possible that grantees with better outcomes are more motivated to submit outcome data. On the other hand, having good outcomes and emphasizing data and outcomes may share common predictors, such as highly qualified grantee staff. A third possibility is that successful data collection and outcome evaluation help grantees achieve favorable outcomes by providing accurate and timely feedback from the field, which, in turn, allows grantee staff to update and improve their activities accordingly. It is also possible that a combination of all of these factors was at play in distinguishing the two groups of grantees along this dimension.

4.6.6 Tested but Unsupported Hypotheses

We also gathered information on the following characteristics:

- Use of peer navigators in outreach and service delivery;
- Provision of incentives for program completion, response to surveys, or both;
- Success in serving the population the grantee planned to serve;
- Previous experience with an MAI grant;
- Maturity of the grantee organization (i.e., year established);
- Organizational structure (smaller, mission-driven community organization or a large organization with a corporate management structure);
- Primarily HIV-oriented organization; and
- Level of community ties/strength of community partnerships.

Either these factors did not vary across grantees or the top- and bottom-performing grantees were evenly distributed along these dimensions. For example, most Cohort 9 and Cohort 10 grantees had held MAI grants and were primarily HIV-oriented organizations. As other examples of the evidence failing to support our

hypothesis, top and bottom grantees were equally likely to have been established in the 1980s and 1990s, to have used peer navigators and incentives for retention purposes, to have successfully served their planned target populations, to have strong community ties, and to have a corporate management structure.

4.7 Moderators and Mediators of Behavioral Outcomes—Multilevel Multivariate Analysis Results

The results described in this section come from models produced by multivariate multilevel analysis. The models assumed a hierarchical data structure with participants as level 1 and grantees as level 2, thus accounting for clustering by grant site. A large number of models were estimated to investigate the predictors of four key outcomes: binge drinking, marijuana use, and unprotected anal and vaginal intercourse. These four behavioral outcome measures were selected for further in-depth analysis because they represent behaviors highly associated with the risk of HIV and other STD transmission. Exhibits 4.45 and 4.46 below provide summary results of the multilevel multivariate analysis conducted to identify the predictors of positive program outcomes for these four behaviors. In this analysis, a participant is defined as having a "positive program outcome" if he or she either reduced or stopped engaging in the undesirable behavior altogether or did not engage in the undesirable behavior at both baseline and exit.

The models displayed in the tables are selected as the best representatives of the combinations of predictors of each outcome from multiple models estimated to test *a priori* hypotheses. The hypotheses were based either on the results of the pre-post comparisons conducted for this report or on existing epidemiological literature. Each row represents a predictor and each column contains the results of a single model found to fit the data best given the available information about each participant. The numbers in the table are odds ratios, which represent the strength of each predictor's effect on the likelihood of a positive outcome. An odds ratio of 1 indicates no effect; less than 1, a negative effect; and greater than 1, a positive effect.

A blank cell indicates that the model represented in that column did not include the predictor represented in that row. A larger number of models with additional technical details can be found in Appendix D.

Some of the predictors reported in the tables can be characterized as moderators of the outcomes, whereas others are mediators. The distinction between the two is not a statistical but a logical one. In general, if a predictor can be considered to be a short-term outcome of the program, which, in turn, caused the behavior to change, we define that predictor as a mediator (or an intervening variable). A good example is improvement in knowledge or attitudes which, in turn, leads to behavior change in the long run. On the other hand, if a participant characteristic such as age, gender, or race/ethnicity is correlated with the degree to which participant behaviors improve as a result of the intervention, such as race/ethnicity or gender, we define that factor as a moderator of the relevant behavioral outcome.

4.7.1 Predictors of Positive Substance Use Outcomes

Exhibit 4.45 shows the summary results from models estimating the likelihood of positive outcomes in past-30-day binge drinking and marijuana use. A participant was coded as having a positive outcome in substance use if she or he met either one of two criteria: (1) The participant reported no past-30-day use at baseline and remained a nonuser at exit (sometimes referred to as “nonuser stability”); or (2) the participant reported some past-30-day use at baseline and had reduced or stopped use at exit (sometimes referred to as “user decrease”).

BINGE DRINKING

The column labeled “Binge Drinking” in Table 4.45 shows the odds ratios estimated by the binge drinking model with the best fit to the data. The model indicates that age group, identification as an MSM, and baseline levels of binge drinking and perception of risk of binge drinking were significant moderators; increasing one’s perception of risk from binge drinking between baseline and exit was a significant mediator. If, for the sake of simplicity, we take the odds of an outcome to be

equivalent to the likelihood of that outcome, the odds ratios from this model can be interpreted as follows:

- Young adults (age 18–24) were 41% less likely to have a positive program outcome than older adults (age 25 or older);
- MSM were 33% less likely to have a positive program outcome than the rest of the sample;
- Participants who perceived great risk of harm from binge drinking at program entry were 42% more likely than those who perceived lower risk to have a positive program outcome;
- Participants who increased their perception of risk of harm from binge drinking between baseline and exit were 66% more likely to have a positive program outcome than participants who did not increase their risk perception; and
- Heavy binge-drinkers at program entry were less likely to have a positive program outcome than those who reported less frequent binge drinking: Each additional day of binge drinking reported at baseline decreased the odds of a positive program outcome by 5%.

MARIJUANA USE

Exhibit 4.45 contains two models for marijuana use; Model 1 was found to fit the data best. Considering the current debates around decriminalization, we also estimated a second model (Model 2) to test the following hypothesis: "Participants living in decriminalization states were less likely to have a positive outcome in marijuana use, compared to participants living in states that had no decriminalization measures." For the purpose of this analysis, a state was categorized as a "decriminalization state" if it had enacted legislation to legalize or downgrade to a civil or local infraction at least some uses of marijuana under some conditions (National Conference of State Legislatures, 2016). Model 2 controls for the significant predictors in the best-fitting model (Model 1), with the exception of those that may be associated with decriminalization and thus mask the effect of decriminalization on positive marijuana outcomes.

Model 1 (the best-fitting model) indicates that age group, being an MSM, baseline levels of marijuana use, perceiving great risk from marijuana use, family cohesion,

and being a smoker at program entry were significant moderators of positive marijuana outcomes. Increased perception of risk from marijuana use and reducing or discontinuing cigarette use between baseline and exit were significant mediators. The odds ratios estimated by Model 1 can be interpreted as follows:

- Young adults (age 18–24) were 52% less likely to have a positive program outcome than older adults (age 25 or older);
- MSM were 28% less likely to have a positive program outcome than the rest of the sample;
- Participants who reported any cigarette smoking at baseline were 37% less likely to have a positive program outcome than baseline nonsmokers;
- Heavy marijuana users at program entry were less likely to have a positive program outcome than those who reported less frequent use: Each additional day of marijuana use reported at baseline decreased the odds of a positive program outcome by 7%;
- Participants who perceived great risk of harm from marijuana use at program entry were more than twice as likely as those who perceived lower risk to have a positive marijuana outcome;
- Family cohesion had a positive impact on the likelihood of a positive marijuana outcome: Each additional point on the Family Cohesion Scale at program entry increased the likelihood of a positive marijuana outcome by 13%;
- Participants who had a positive program outcome for cigarette smoking were almost twice as likely as participants who did not have a positive cigarette outcome to have a positive marijuana outcome; and
- Having a positive outcome in perception of risk from marijuana use increased the likelihood of a positive marijuana use outcome by 72%.

A detailed description of the Family Cohesion Scale is included in Appendix A.

As mentioned above, Model 2 is a more appropriate test of the hypothesized impact of decriminalization on the program outcome than Model 1, although it does not fit the data as well. The results from Model 2 can be summarized as follows: When age group, MSM status, race (African American/Black vs. all others), family cohesion, baseline cigarette use, and baseline-to-exit change in cigarette use were controlled

for, participants who lived in decriminalization states did not have program outcomes in marijuana use significantly different from those of participants who lived in states where marijuana is illegal.

Caution is advised in drawing conclusions about the effects of decriminalization on prevention outcomes from these findings. Note that the participants of these programs are not a representative sample of the general population. Additionally, the communities represented are not a random sample from communities in the nation but were selected for funding on the basis of their level of risk for HIV infection. Fifteen states were represented in the sample, 6 of which (40%) were classified as decriminalization states. By comparison, 22 of the 50 states and the District of Columbia (43%) meet our definition of a decriminalization state.

Exhibit 4.45. Multilevel Analysis Results: Substance Use

Participant-Level Predictors (Odds Ratios) of a Successful Program Outcome in Past-30-Day Substance Use, Based on the Results of a Multilevel Logistic Regression Analysis

Predictor	Binge Drinking	Marijuana Use (1)	Marijuana Use (2)
Odds Ratios			
Man Who Has Sex with Men	0.669*	0.723*	0.695**
Age 18–24	0.586**	0.477**	0.409**
African American/Black	—	0.805	0.761*
Past-30-Day Binge Drinking, at Baseline (# of Days)	0.954**	—	—
Past-30-Day Marijuana Use, at Baseline (# of Days)	—	0.934**	—
Perceived Great Risk from Binge Drinking, at Baseline	1.423**	—	—
Perceived Great Risk from Marijuana Use, at Baseline	—	2.038**	—
Smoked Cigarettes During the 30 Days before Baseline	—	0.630**	0.477**
Improved on Cigarette Use Between Baseline and Exit	—	1.943**	2.078**
Improved on Perception of Risk from Binge Drinking Between Baseline and Exit	1.658**	—	—
Improved on Perception of Risk from Marijuana Use Between Baseline and Exit	—	1.723**	—
Family Cohesion Scale Score at Baseline	—	1.126*	1.235**
Marijuana Decriminalization Measures in the State	—	0.740	0.672
Model Characteristics			
Number of Participants in the Model	2,194	6,057	6,965
Number of Grantees in the Model	40	48	48

*p<0.05 **p<0.01

Source: HIV Cohort 9 and Cohort 10 participant-level data reflective of services received through FY2015.

4.7.2 Predictors of Positive Outcomes in Protection During Intercourse

Exhibit 4.46 displays the results of the best-fitting models predicting positive program outcomes related to protected sex. A positive program outcome in protected sex was defined as using protection in the most recent sexual encounter of the specified type, regardless of behavior at program entry. Participants who did not report any intercourse of the specified type during the past 30 days were not included in these models.

VAGINAL INTERCOURSE

Gender, age group, intention to have safe sex at baseline, baseline sexual self-efficacy, and baseline experience of abuse were significant moderators of positive outcomes in protected vaginal sex. Increased perception of risk from unprotected vaginal sex was a significant mediator. The odds ratios from the model predicting protected vaginal intercourse outcomes can be interpreted as follows:

- Women were 22% less likely than men to have a positive program outcome;
- Young adults were 64% more likely than older adults to have a positive program outcome;
- A positive program outcome was twice as likely for participants who, at program entry, expressed an intention to have safe sex in the next 6 months as it was for participants who did not express this intention.
- Each additional one-unit increase in the Sexual Self-Efficacy Scale score at program entry increases the odds of a positive program outcome by 3%;
- Experiencing physical, emotional, or sexual abuse or having been forced to use substances against one's will during the past 3 months lowered the likelihood of a positive outcome: Each additional one-unit increase in the Abuse Scale score at program entry decreased the likelihood of a positive program outcome by 31%; and
- Participants who increased their perception of risk of harm from unprotected vaginal sex between baseline and exit were 59% more likely than participants who did not increase their risk perception to have a positive program outcome.

A detailed description of the Abuse Scale is included in Appendix A.

ANAL INTERCOURSE

Gender, race, perceiving great risk from unprotected anal sex at baseline, and having had sex under the influence of alcohol or drugs during the 3 months before program entry were significant moderators of a successful program outcome associated with protected anal sex. The odds ratios from the model predicting protected anal intercourse outcomes can be interpreted as follows:

- Women were 56% less likely than men to have a positive program outcome;
- African American/Black participants were 78% more likely than the rest of the sample to have a positive program outcome;
- Participants who perceived great risk of harm from unprotected anal sex at program entry were 62% more likely than those who perceived lower risk to have a positive program outcome during program participation; and
- Participants who reported having sex while drunk or high in the 3 months before program entry were 31% less likely to have a positive program outcome than participants who did not report engaging in this behavior at baseline.

Exhibit 4.46. Multilevel Analysis Results: Unprotected Sex

Participant-Level Predictors (Odds Ratios) of a Successful Program Outcome in Protected Sex, Based on the Results of a Multilevel Logistic Regression Analysis

	Type of Intercourse	
Predictor	**Vaginal**	**Anal**
Odds Ratios		
Female	0.784*	0.440**
Age 18–24	1.640**	—
African American/Black	—	1.782*
Reported Intention to Have Safe Sex in the Next 6 Months, Reported at Baseline	2.121**	—
Perceived Great Risk from Unprotected Anal Sex at Baseline	—	1.624*
Reported Having Sex While Drunk or High During the Past 3 Months at Baseline	—	0.694*
Sexual Self-Efficacy Scale Score at Baseline	1.027**	—
Experience of Abuse in the Past 3 Months, Reported at Baseline (Scale Score)	0.689**	—
Improved on Perception of Risk from Unprotected Vaginal Sex Between Baseline and Exit	1.593**	—
Model Characteristics		
Number of Participants in the Model	3,314	626
Number of Grantees in the Model	46	41

*p<0.05 **p<0.01

Source: HIV Cohort 9 and Cohort 10 participant-level data reflective of services received through FY2015.

4.7.3 The Impact of Dosage on Outcomes

The impact of total length of program exposure on participant outcomes was investigated separately for group- and individual-format service delivery. Neither dosage measure had a statistically significant effect on the four behavioral outcomes for which multivariate models were estimated. One possible reason for this finding is that the content of the service may be more predictive of outcomes than the length of exposure. Future analyses could test this assertion by investigating the effects of dosage separately for each service type hypothesized to make a difference in outcomes.

5. Key Findings and Recommendations

5.1 Implemented Interventions

In general, Minority AIDS Initiative (MAI) grantees followed program guidelines to implement evidence-based programs (EBPs). All interventions implemented by at least three Cohort 9 and Cohort 10 grantees (and serving a minimum of 200 participants) were listed on federal registers of prevention programs with demonstrated evidence of effectiveness (Exhibit 4.1), as were the interventions reported by the limited number of Minority Serving Institutions in Partnerships with Community Based Organizations (MSI CBO) grantees that submitted participant-level cross-site data (Exhibit 4.2). This use of EBPs partly explains the positive outcomes discussed in this report. However, recent developments in effectiveness studies of EBPs suggest reconsideration of appropriate interventions for new MAI grantees. Additionally, changes to the national strategy for the prevention of HIV/AIDS have implications for SAMHSA's guidelines for selecting MAI-funded interventions.

The EBP implemented by the largest number of Cohort 9 and Cohort 10 grantees was RESPECT, a curriculum-driven counseling program designed to accompany HIV testing. RESPECT was implemented by 10 grantees and received by 2,866 participants (Exhibit 4.1) from 2010 through 2015. Halfway through this time period, a large-scale, randomized controlled trial comparing RESPECT participants with a control group that received HIV testing with only basic information found no significant difference in the incidence of STDs (including HIV) in the patients randomized to these two groups at 6-month follow-up. Additionally, men who have sex with men (MSM) receiving RESPECT had a slightly higher incidence of STDs than MSM in the control group (Metsch et al., 2013). Although the RESPECT group experienced a slight but significant reduction in unprotected sex with non-primary partners, the failure to document group differences in STD incidence led the authors to conclude that RESPECT is not cost-effective.

These findings contradict an earlier similar clinical trial that contributed to Project RESPECT's designation as evidence based; that study had reported significantly larger reductions in both risky behaviors and in STD incidence in the RESPECT group compared with the information-only group (Kamb et al., 1998). The difference between the two study findings, despite similarities in methodology, could be due to the changing clinical environment of HIV testing (e.g., the increased prominence of rapid testing in recent years); demographic or socioeconomic changes, or both, in the population qualifying for the studies; or a combination of both factors. The 2013 study prompted the Centers for Disease Control and Prevention (CDC) to send a letter to all its grantees in October 2014, summarizing this new evidence and concluding, "This finding, along with other evidence, clearly indicates that RESPECT with rapid testing should no longer be implemented."

It is encouraging that this program is not among the short list of interventions reported by the more recently funded MSI CBO 2013 and 2014 grantees (Exhibit 4.2), although it is important to keep in mind that the data were available from a small number of selected grantees and are not representative of these two cohorts' activities. If, as more program data become available, RESPECT is found to be implemented by the current MSI CBO grantees, we strongly recommend that those grantees be instructed to discontinue implementation among MSM.

One additional conclusion from the 2013 RESPECT study was that there is no evidence to support the effectiveness of risk reduction counseling before testing. The authors maintain that although posttest counseling and referral are essential for individuals with positive results, in all other cases, simply providing information about the test is sufficient; counseling does not significantly reduce the likelihood of future STD incidence and adds considerable service cost. The most recent MAI funding opportunity announcement (FOA) (SP-16-004) requires grantees to provide counseling before and after HIV and hepatitis tests. Authors of future FOAs might consider specifying the requirement as the provision of testing information only and

not as a full risk reduction counseling session except for cases where the test result is positive.

Another relevant update is the "High Impact Prevention" approach recently adopted by CDC's Division of HIV/AIDS Prevention and the associated review of programs endorsed by the Diffusion of Effective Behavioral Interventions (DEBI) project. The results of the review were disseminated to all CDC grantees in August 2013 in the form of two intervention lists, one identifying those that "confer the greatest prevention benefit in the most cost-effective way" and will continue to be supported by the agency and the second listing interventions that do not meet these criteria and will no longer be supported (https://effectiveinterventions.cdc.gov/docs/default-source/general-docs/HIV_Prevention_Behavioral_Interventions_Selected_for_Support_by_the_Division_of_HIV.pdf). The interventions on the second list are still included in CDC's Compendium of Effective Behavioral Interventions as evidence based (with a cautionary note added to the RESPECT entry), but they are no longer considered "high impact" and "cost effective."

Many of the interventions on CDC's second (not supported) list are popular among MAI grantees. These include SISTA, Nia, Street Smart, SHIELD, Safety Counts, and Voices/Voces (no longer supported for participants other than MSM).

Recommendations: We recommend that MAI grantees be offered training on CDC's "High Impact Prevention" approach and be encouraged to direct their grant funds on the DEBI interventions that meet these new criteria to ensure the most cost-effective use of their budgets. MAI should reconsider its support of RESPECT and risk reduction counseling before testing based on new research.

5.2 Hierarchy of HIV Transmission Risks and Participants' Risk Perceptions

Frequently updated estimates of the relative likelihood of HIV transmission given different types of sex acts continue to show that the risk of transmission is highest for unprotected anal sex. Vaginal sex has lower relative risk, and oral sex is only marginally risky (Varghese et al., 2002; Patel et al., 2014).

Our analysis results indicate that the percentage of participants perceiving great risk of harm from unprotected sex is highest for anal sex (Exhibit 4.22: 75% at baseline, 87% at exit), followed by vaginal sex (Exhibit 4.24: 70% at baseline, 83% at exit), and is lowest for oral sex (Exhibit 4.23: 54% at baseline, 66% at exit). These results represent "good news" at two levels: First, they indicate that after program exposure, the perception of risk of harm from unprotected sex increased significantly, regardless of the type of sex act. Second, the likelihood that program participants considered a sex act to pose great risk varied in the same direction as the "hierarchy of transmission risk," suggesting that most had appropriate knowledge about HIV transmission.

Recommendations: Future evaluation studies could consider revising the definition of the desirable responses to these three survey items. For example, retaining "great risk" as the desirable response for the unprotected anal sex item but revising the desirable responses to the vaginal sex item as "moderate" or "great" risk, and to the oral sex item as "slight," "moderate," or "great" risk may more accurately reflect participants' knowledge about transmission risk.

5.3 Unmet Need for Prevention: Protection During Intercourse

The composite measure of protected sex is constructed by combining participants' responses to three survey items, separately asking about use of protection during the most recent anal, vaginal, and oral sexual encounters. The summary measure is

coded as "protected" for participants who report using protection during the most recent occasion of all intercourse types that they reported having engaged in during the past 30 days. Exhibit 4.28 indicates that only 27% of the sexually active adults in the sample were coded as "protected" at baseline; the number increased to 35% at exit. That is, 65% of the participants reported at least one type of unprotected sexual encounter during the 30 days preceding program exit. Considering the high-risk status of the participants, this finding raises concerns.

Separately examining responses to the three items composing the summary measure provides further insights: Participants were least likely to use protection during oral sex (Exhibit 4.30: 25% at exit), followed by vaginal sex (Exhibit 4.29: 52% at exit). They were most likely to report their most recent anal intercourse as protected (Exhibit 4.31: 63% at exit). These results align with the "hierarchy of transmission risk" and with participants' perceptions of risk as discussed in the previous section: Participants are most likely to use protection during acts that are known to carry the highest relative risk of transmission and least likely to do so during acts associated with relatively low risk, which is an encouraging outcome. However, we are still concerned that over a third of the sexually active participants reported that their most recent anal intercourse preceding program exit was unprotected (Exhibit 4.31).

A further cause for concern is the gender disparity in protected anal sex. At program exit, only 44% of the women who had anal sex during the past 30 days reported their most recent anal intercourse as protected; the corresponding number is 67% for men in general as well as for MSM (Exhibit 4.31).

Recommendations: Given that receptive anal intercourse has the highest relative risk of sexual transmission, our results point to a need for prevention messages specifically tailored to women. Disseminating this cross-site finding to currently active grantees may help them intensify their efforts in this area.

5.4 Black, Latina, and Hispanic Women

More than three quarters of the women diagnosed with HIV during 2014 were either Black or Hispanic/Latina (CDC, 2015), underscoring the high-risk status of this population group. Studies of the factors underlying elevated risk factors in this group suggest that some of the risky behaviors are associated with cultural norms for intimate relationships (Hirsch et al., 2002). Socioeconomic factors such as minority status, higher prevalence of poverty, high-stress work environments, and low access to prevention and health care services are also suggested as reasons for the high incidence of HIV infection in this group (Wingood & DiClemente, 2000).

From FY2010 through FY2015, MAI grantees served close to 11,000 Black, Latina, and Hispanic women in direct-service interventions. In light of the behavioral risk factors specific to Black, Latina, and Hispanic women, we examined the outcomes of this group separately and compared them with outcomes of the overall sample and of other subgroups. Overall, the results indicate that these women benefited from the services they received to a larger extent than did most other groups, showing larger improvement between baseline and exit values of most HIV- and substance abuse (SA)-related outcome measures than the overall sample.

Recommendations: MAI programs appear to be working well for Black, Latina, and Hispanic women. We suggest continuing the use of programs already implemented that are evidence-based and culturally tailored to this subpopulation (Crepaz et al., 2007; Crepaz et al., 2009).

5.5 Nonmedical Use of Prescription Drugs

Prescription drug misuse, particularly abuse of opioids, is a major public health threat. Based on the National Survey for Drug Use and Health (2014), more than 6.5 million individuals are estimated to have used prescription drugs nonmedically in the past month, with approximately two thirds of those misusing opioids (painkillers) (Center for Behavioral Health Statistics and Quality, 2015). Of the

25,000 overdose deaths from prescription drugs in 2014, more than 18,000 were attributed to opiate pain relievers, representing a 3.4-fold increase in opioid-attributed deaths since 2001 (CDC, 2015c). Nonmedical prescription drug use heightens risk for HIV/hepatitis C virus (HCV) by increasing the likelihood that one will engage in risky sexual behaviors, including sexual activity with more partners and less use of protection (Benotsch, Martin, Koester, Cejka, & Luckman, 2011; Kelly & Parsons, 2013). Moreover, research suggests that a significant proportion of the MSM community uses prescription drugs such as painkillers, sedatives, stimulants, sleep aids, and medicines for erectile dysfunction recreationally to enhance sexual experiences (Kelly & Parsons, 2010). Nonmedical prescription drug use also increases risk for HIV/HCV through the escalation from recreational drug use to addiction. Particularly alarming is the transition from the oral route of administration of prescription painkillers to injection. This transition to injection drug use (IDU) is concomitant with increased risk of transmission of HIV and HCV (Behavioral Health Coordination Committee, 2013). Public health officials suspect that policies that decreased access to prescription painkillers have resulted in a resurgence of heroin use (Cicero, Ellis & Harney, 2015), which has doubled among young adults in the past decade (CDC, 2015c). Another disturbing trend is HCV clusters among young opioid abusers. Young adults are at an increased risk for opioid-related HIV/HCV, because they are more likely than older adults to transition from oral to injection use of prescription drugs and to reuse or share unclean needles (Surratt, Kurtz, & Cicero, 2011). The CDC reported several outbreaks of HCV transmitted via sexual behaviors among HIV-positive MSM. Co-occurring HIV/HCV infection decreases treatment responsivity and increases disease progression (Hagan et al., 2014; Van de Laar, Matthews, Prins, & Danta, 2000). These emerging trends are of particular concern because young adults 18–24 and MSM were the least likely of MAI participants to reduce nonmedical use of prescription drugs (Van de Laar et al., 2000).

During FY2015, MAI direct service programs were successful in recruiting participants with higher prevalence of prescription drug misuse than the national

average (5% and 2.4%, Exhibit 4.18b). In this context, "misuse" is defined as "using prescription medication without a doctor's order to feel good or get high".

Looking at the outcomes of all adult Cohort 9 and Cohort 10 participants from FY2010 through FY2015, we find a significant reduction in reported misuse (by 14%, Exhibit 4.38). This decrease was primarily due to changes among individuals age 25 or older; younger participants experienced no significant declines. Among the special high-risk groups studied separately, the only one with a significant improvement was participants residing in southern states. Among the groups whose outcomes were examined separately, Hispanic MSM had the highest levels of past-30-day misuse of prescription drugs at both baseline and exit (11% and 10%, respectively).

Recommendations: There are clearly subgroups among MAI participants whose high levels of prescription drug misuse put them at high risk for addiction, escalation to other forms of drug abuse, and, relatedly, to HIV/HCV infection. We suggest prioritizing messages about the consequences of prescription drug misuse to young adults and MSM. We also recommend risk reduction strategies focused on protected sex and access to clean needles as another way to lower disease threat for MSM and injection drug users. Community linkages should include MSM-serving organizations as well as SA treatment programs in an effort to target subpopulations at the highest level of risk. Finally, we recommend extra attention to the linkages between behavioral and physical health care for these vulnerable subpopulations to ensure that drug users and MSM have rapid access to testing and intervention to prevent escalation of drug use and HCV/HIV transmission. SAMHSA could consider adding additional questions about nonmedical use of prescription drugs to the survey because this topic is high on the national policy agenda. If feasible, questions regarding perceptions of harm, sources of prescription medication, and specific type of prescription medication used would be helpful.

5.6 Marijuana Use

Marijuana use has negative consequences for sexual risk-taking as well as for emotional and physical health. Marijuana use (particularly when mixed with alcohol and other drugs) alters judgment and decision-making capacity, increasing the likelihood of engaging in unprotected sexual activity and partnering with individuals of unknown serostatus or IDU behaviors (Ritchwood, Ford, Sutton, & Lochman, 2015). In the short term, marijuana can impair working memory, worsen motor coordination, and induce paranoia. Prolonged marijuana use can lead to addiction, cognitive impairment, altered brain development, and chronic bronchitis (Volkow, Baler, Compton, & Weiss, 2014). Marijuana use is particularly harmful during adolescence and young adulthood, when the brain is still developing (Lisdahl, Gilbart, Wright, & Shollenbarger, 2013).

Despite research findings detailing the possible deleterious outcomes of frequent marijuana use, most individuals who participated in MAI direct programs did not perceive marijuana use as harmful. As shown in Exhibit 4.20, about one-third of participants (36%) at baseline reported great risk of harm from smoking marijuana once or twice a week. Although this percentage increased by 43%, at exit, only 52% of the participants believed that marijuana use caused great harm. It is worth noting that the percentage of participants perceiving binge drinking to pose great harm (see Exhibit 4.19) was greater than the percentage of individuals who believed that regular marijuana use was harmful (69% and 52%, respectively, at program exit).

Young adults had one of the lowest levels of risk perception at both pretest and posttest (See Exhibit 4.20) and used marijuana more frequently than all other subgroups whose outcomes are displayed in Exhibit 4.35 except MSM and homeless participants. Further, MAI interventions did not significantly reduce marijuana use among young adults (see Exhibit 4.35). These results indicate the need for increased dissemination of accurate messages about the potential harm associated with regular marijuana use, particularly for college students. Research suggests that marijuana use increases significantly during the first year of college because of

greater availability and opportunity, lack of parental supervision, and social norms that overestimate the proportion of students on campus who use marijuana (Stewart & Moreno, 2013).

Attitudes toward marijuana are complicated by decriminalization legislation. Research suggests that decriminalization lowers harm perceptions, particularly among youth 12–17 and young adults 18–25 (Khatapoush & Hallfors, 2004; Pacek, Mauro, & Martin, 2015). For example, Miech, Johnston, O'Malley, Bachman, Schulenberg, & Patrick (2015) compared trends in California adolescents' attitudes about the use of marijuana during the period before and after decriminalization with adolescent attitudes in the rest of the nation; they found steeper declines in perceptions of harm and sharper increases in prevalence of use among California youth than in their counterparts. Similar increases in the prevalence of permissive attitudes and of use were observed in Colorado among youth and young adults after the decriminalization and subsequent commercialization of marijuana (Schuermeyer et al., 2014). However, it is not clear whether legalization is the cause or consequence of changes in attitude (Cerdá, Wall, Keyes, Galea, & Hasin, 2012). More research is needed to establish the causal direction of this association and to further understand the varying types of laws and their implementation on marijuana attitudes and use (Pacula, Powell, Heaton, & Sevigny, 2015).

Turning now to MAI program participants, we find that Black MSM reported lower risk perceptions and more frequent use of marijuana than did the overall average MAI participants (see Exhibits 4.20 and 4.35). Furthermore, MAI direct service programs had no impact on marijuana use among Black MSM (Exhibit 4.35). This result is of concern because Black MSM are at the highest risk for seroconversion in the United States. Marijuana use among Black MSM is associated with increased likelihood of multiple sexual partners and unprotected sex (Morgan et al., 2016).

Two other subpopulations of special interest include Asians/Pacific Islanders and homeless people. Asians/Pacific Islanders had lower risk perceptions for marijuana use than any other race/ethnicity at both program entry and exit (Exhibit 4.20);

however, they also reported less substance use in general than other race/ethnicities (Exhibit 4.35). We need to further explore what subgroups among Asians/Pacific Islanders have the highest use and what practices related to substance use and sexual behaviors place Asians/Pacific Islanders at risk. There is a dearth of information on Asian MSM, so more elaborate analyses of this subgroup may be warranted. Homeless people also had low risk perceptions for marijuana (Exhibit 4.20), more frequent use of marijuana than average, and no significant change in use after exposure to MAI direct service programs (Exhibit 4.35). They need specialized, comprehensive services that address their substance abuse (SA) prevention needs.

Recommendations: We recommend finding innovative ways to increase harm perceptions and lower use of marijuana among young adults and MSM who have high risk yet low intervention responsivity. Use of social media for dissemination of prevention messages and information about available health care and prevention resources may work well in these subpopulations. Given that these populations are highly influenced by social ecology, we suggest interventions that target norms and social networks. We also suggest rapid and intensive interventions for individuals seeking services for prescription drug addiction and IDU. For college students, intervening early in the freshman year, when decisions to use marijuana are most salient, may increase treatment responsivity. We also recommend that minority-serving colleges direct significant resources to MSM of color, partner with MSM-related organizations to ensure that preventive interventions are culturally and contextually relevant, and collaborate with social venues frequented by the lesbian, gay, bisexual, transgender, and questioning (LGBTQ) community to expand access to target populations and intervention settings and to implement programs that include the social networks of MSM (Morgan et al., 2016).

5.7 Outcome Disparities Among Men Who Have Sex With Men

Approximately 2,700 MSM were in the sample, with more than three quarters identifying themselves as either Hispanic or non-Hispanic African American/Black. There were roughly the same number of Black and Hispanic MSM. Overall, MSM experienced significant improvements in perception of risk of harm from behaviors that increase the likelihood of HIV transmission. The likelihood of using protection during intercourse also increased significantly. However, Hispanic MSM had consistently larger improvements in HIV-related risk and protective factors than Black MSM did. In fact, all the improvement in protected sex among MSM was due to improvement among Hispanic MSM, with Black MSM showing no significant improvements. It is worth noting here that at baseline Black MSM were more likely than Hispanic MSM to perceive risk of harm from unprotected sex. However, they were not at a "ceiling," which might have explained their lower program gains. Furthermore, Hispanic MSM showed more improvement in outcomes in cases where they were at comparable baseline levels to Black MSM, such as HIV knowledge and sexual self-efficacy, indicating that their better performance cannot be explained by higher baseline risk levels.

Hispanic MSM also showed larger improvements in perceptions of risk of harm from binge drinking and regular marijuana use. The pattern is somewhat different for substance use. Overall, MSM did not reduce their marijuana use or binge drinking between baseline and exit. Average days of alcohol use did decline significantly, but only among Hispanic MSM, whereas average days of cigarette use declined significantly among Black but not Hispanic MSM. The latter is the only finding in the entire report in which Black MSM benefited more from program exposure than their Hispanic counterparts.

These racial/ethnic disparities are of serious concern, especially in light of the fact that Black MSM have among the highest incidence rates of HIV/AIDS (CDC, 2015a). Some evidence suggests that the correlates of HIV transmission may be more

complex among Black than among other MSM (Millet et al., 2007). For example, Peterson and Jones (2009) suggest that the social context of sexual risk behaviors plays a more prominent role in predicting serostatus among Black MSM than among their White or Hispanic counterparts. This finding suggests that for this subgroup, interventions that have an "ecological" approach—one that considers the entire social network and community ties of participants—are more likely to succeed than interventions focusing on individual decision-making and sexual self-efficacy training.

Few evidence-based interventions designed for MSM have been evaluated among Black MSM (Johnson et al., 2008, Wilton et al., 2009); their effects on this group may therefore be unknown, and their implementation may result in disparities such as the ones we are observing. Another related possibility for our findings may be that our outcome measures do not fully capture the complexities of the mechanism of change within this group. For example, a randomized controlled study of one of the interventions that some MAI grantees implement, Many Men Many Voices (3MV), found that Black MSM did increase their likelihood of using protection, but only during casual encounters, not during sex with their partners (Wilton et al., 2009). Our measure of protected sex does not distinguish between casual and partner sex, possibly masking some of the subtle yet effective behavioral changes experienced by Black MSM participating in MAI interventions. Future revisions to the MAI cross-site instruments could consider distinguishing between casual and partner sex in the protected sex items in order to capture this behavioral complexity.

These complexities notwithstanding, there is evidence that culturally sensitive social/behavioral interventions delivered with fidelity can be effective in reducing risks and increasing protections among Black MSM (Herbst et al., 2007; Maulsby et al., 2013).

Another strategy to address the high incidence of HIV among Black MSM is to increase knowledge and accessibility of pre-exposure prophylaxis (PreP); this is considered a best practice in HIV prevention among high-risk individuals and is

included in the National AIDS Strategy as a prevention priority for the next 5 years (The White House, 2015).

Recommendations: Grantees targeting this group should be trained in the culturally specific mechanisms of behavioral change applicable to this group and should select interventions with strong evidence of effectiveness, not only for MSM in general but for Black MSM in particular. For Black MSM, diversify strategies beyond the individual level and include social ecological approaches that target social network. To increase responsivity to interventions, target risk factors specific to Black MSM including the high rate of sexually transmitted diseases, unrecognized HIV infection, disparities in access to HIV testing and treatment, racism, stigma, homophobia, and marginalization from families, communities, and religious organizations (Maulsby et al., 2013). Additionally, SAMHSA might consider allowing (and encouraging) grant funds to be allocated for PreP for MSM. Future revisions to the cross-site instruments could add an item on the participant's knowledge and ease of access to PreP.

5.8 Health Disparities

SAMHSA is committed to the reduction of disparities in health status, access, and outcomes. The analysis for this report yielded positive results relating to health care accessibility. Exhibit 4.39 shows a small but significant increase in health care coverage, with a larger increase among homeless participants than others. Knowledge of health care services in the community also increased significantly between pre- and posttest (Exhibits 4.40 and 4.41), possibly as a result of grantees' information dissemination activities such as media campaigns and participation in community health fairs. However, some racial/ethnic disparities remain. Exhibit 4.39 shows that at program exit, Hispanics were less likely to have health insurance than the sample at large, and the percentage of insured Hispanic MSM was lower than the percentage of insured Hispanic participants in general (40% and 52%, respectively). In general, MSM had lower insurance coverage than the sample average (57% and 64%, respectively). Asians/Pacific Islanders had the highest rate

of health insurance coverage, and the rate was equivalent for Whites and Blacks. Homeless individuals gained health coverage and increased awareness of treatment centers, an important success given how difficult it is to reach this population and to attract them to and retain them in comprehensive services.

Some disparities were also observed in attitude and behavior outcomes of the MAI-funded direct-service interventions reported in Chapter 4. The subgroups most responsive to MAI programs were female participants and those age 25 or older. These groups experienced significant improvements on most outcome measures related to substance use and sexual risk behaviors. Subgroups that gained the least were generally MSM; this result is alarming, because they have the greatest risk for HIV transmission. As discussed in more detail earlier in this chapter, Hispanic MSM gained more than Black MSM from MAI programs, although they also started at higher levels of risk. Black MSM showed no significant improvement in any substance use measure except cigarettes or in any indicator of protected sex. This outcome is particularly disturbing, as most new HIV cases occur among Black MSM, particularly young Black MSM (CDC, 2015a). The limited gains among Black and Hispanic MSM highlight the urgent need to improve services to these groups.

Asians/Pacific Islanders also had no significant improvement in substance use or sexual risk behaviors. This may be because the sample size is smaller than other race/ethnicities (except American Indian or Alaska Natives), and grouping Asians/Pacific Islanders together may mask differences in evaluation response by culture, gender, and sexual orientation. The lack of findings concerns us, because Asians/Pacific Islanders reported lower rates of protected oral and anal sex than did the average MAI participant. Asians/Pacific Islanders also reported low perceived harm from binge drinking, marijuana use, unprotected sex, and sex while drunk or high. On a positive note, their prevalence of substance use was lower than the overall MAI sample on all measures except nonmedical use of prescription drugs. As sample size increases with additional data, it will be useful to examine the outcomes of Asians and Pacific Islanders separately to gain further insights about their

potentially differing prevention needs. It will also be informative to specifically investigate the risk and protective factors of Asian and Pacific Islander MSMs; there is very little prevention data about this group. For Asians as a whole, the emphasis for prevention should be on risk perceptions and protected sexual behaviors.

Recommendations: Direct significant resources to interventions for Black and Hispanic MSM and implement effective behavioral intervention (EBIs) shown to be efficacious with these subgroups. Involve key stakeholders from these communities in recruiting participants and selecting, adapting, and implementing interventions. Consult with Asian and Pacific Islander behavioral health specialists to identify culturally appropriate ways to improve strategies for increasing risk perceptions regarding substance use and risky sexual activity. Engage more American Indian/Alaska Native grantees to ensure a large enough sample size of participants to assess MAI's efficacy among this group.

5.9 Strategic Plan Review and Approval Process

The results of the Success Case Method (SCM) analysis suggest that most of the factors that distinguish the grantees with the most successful outcomes from those with the least successful outcomes lead back to the planning stage of the Strategic Prevention Framework. Effective guidance at this early stage will improve grantees' ability to achieve the goals of CSAP's MAI programs. For example, the results suggest that grantees that focused on one of the two major program goals (SA and HIV prevention) while neglecting the other were less likely to have favorable results than grantees that emphasized both goals equally. Another factor that distinguished the most and least successful grantees was the appropriateness of the interventions they selected for the populations they served. Third, an integrated approach to HIV and SA preventions was found to be associated with successful outcomes. Finally, SCM analysis results suggest that grantees with a strong emphasis on data and outcomes were more likely to be in the top-performing group.

Recommendations: These considerations suggest that outcomes may be improved by providing support to grantees at the strategic planning stage. For example, project officers could be supported in their review of strategic plans by being provided training on best practices and being discouraged from approving plans with inappropriate intervention selection and implementation elements. A checklist of core elements to look for in a strategic plan may help support project officers in their review process. In addition to appropriate choice of interventions, an effective evaluation plan and capacity to collect and submit cross-site evaluation data should be included among the core elements of a good strategic plan.

6. Data Quality Considerations

The first part of this chapter briefly describes the data used in this report and discusses data availability and quality issues that affect the sample sizes available for analysis. The second part focuses on data from follow-up surveys and compares key characteristics of participants with follow-up data with characteristics of the entire group of participants who entered the programs. Significant differences between these two groups suggest that follow-up data analysis may potentially involve selection bias.

6.1 Overview of Participant-Level Data

Sample sizes available for specific outcome analyses were determined by the cross-site data collection protocol and the quality of the submitted data. As discussed in Chapter 3, the data collection protocol links the portions of the survey to be administered and the required number of data waves to the duration of the participant's services. Participants receiving a single day of services are required to complete only an exit survey to collect demographic data and attitudinal or knowledge data directly related to the content of the intervention. Services lasting 2 to 29 days require the collection of demographic data and the full set of cross-site survey items on attitudes and knowledge, at baseline and exit. Services lasting 30 days or longer require the collection of data at baseline, exit, and follow-up (3–6 months after exit) using the entire cross-site instrument, thus providing data on demographics, attitudes, knowledge, and behaviors.

In addition to service duration, sample sizes available for outcome analysis are influenced by the quality of the data. Some data issues are corrected during data cleaning, others are prevented from introducing inaccuracies into the analysis by replacing suspect numbers with missing value codes, and a number of errors lead to the elimination of the entire record from outcome analysis.

One common quality issue leading to outcome data loss is failure to link multiple waves of data from the same participant. This usually happens when the unique participant identification number is not used consistently throughout the data collection, multiple participants are assigned the same ID, data entry errors are made in this data field, or one or more of these factors are combined. These issues are being addressed through training and technical assistance to grantees in data management and database preparation.

Another obvious reason for failure to link multiple waves of data into a single participant record is the participant's absence during survey administration, either because of program dropout or for another reason. This issue can be addressed through training and technical assistance in program retention techniques and effective tracking of participants to ensure data collection at all required waves.

Exhibit 6.1 summarizes data availability for outcome analysis, distinguishing between service duration and data quality issues as sample size determinants. The top section shows data from participants whose services lasted more than a day. There were 22,711 participants age 12 or older with more than a day's service duration and survey dates in correct order; only 15,731 (69%) of them had their baseline and exit data successfully linked to allow pre-post comparisons. That is, data from 6,980 participants were excluded from outcome analysis because either they did not complete an exit survey or we were unable to link their baseline and exit data because of quality issues. The cross-site team will continue to provide training to grantees on avoiding the most common errors responsible for data loss.

In the Minority Serving Institutions in Partnerships with Community Based Organizations (MSI CBO) cohorts, the records that qualified for pre-post comparisons of attitude and knowledge measures (824 for MSI CBO 2013 and 59 for MSI CBO 2014) were not included in the analysis because of the restricted and selected nature of data submissions from these two cohorts. These records were submitted by just four 2013 and two 2014 grantees. Just under 90% of the participants whose data are represented in the MSI CBO 2013 sample were served

by two grantees, and 80% of the participants in the MSI CBO 2014 sample were served by a single grantee. That is, including these data in outcome analyses would not have presented a representative picture of these cohorts' outcomes. In contrast, Cohort 9 and Cohort 10 data include records from all but 1 of the 62 grantees in these two cohorts.

Pre-post comparisons of behavioral outcome measures were valid only for cases with at least 30 days between the baseline and exit surveys, because all of these survey items have a past-30-day time reference. Exhibit 6.1 indicates that approximately 41% of the records met this criterion and were included in the assessment of behavioral change. Because most of the limited number of MSI CBO data came from interventions with fewer than 30 days between the two data waves, very few met the criteria for assessing behavioral change. If the preponderance of interventions with less than 30 days between baseline and exit is typical of the MSI CBO cohorts, availability of data for future behavioral outcome analyses may be more limited than it has been for earlier cohorts.

The second half of Exhibit 6.1 displays data availability for follow-up analysis. Of the 16,601 participants who were required to take the follow-up survey, only 7,532 did so; of those, the three waves of data could be linked for only 7,000 individuals (42%). The limited proportion of individuals who took the follow-up survey may not have been a random sample of those who were required to take the survey, raising questions about attrition bias in the follow-up data. The next section further investigates this possibility.

Exhibit 6.1. Availability and Quality of Survey Data

Availability and Quality of Participant-Level Survey Data From Participants Age 12 or Older, Submitted by Cohort 9 & 10 and MSI CBO 2013 & 2014 Grantees Through the End of FY2015

Data Category	Cohort 9		Cohort 10		MSI CBO 13		MSI CBO 14		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Participant-Level Survey Records From Services Lasting More Than a Single Day										
Total From Services Lasting More Than a Single Day	13,263	100.0	8,462	100.0	900	100.0	86	100.0	22,711	100.0
Total With Baseline Data	13,090	98.7	7,972	94.2	894	99.3	82	95.3	22,038	97.0
Matched Baseline and Exit Records	9,091	68.5	5,757	68.0	824	91.6	59	68.6	15,731	69.3
Matched Records With 30 Days or More Between Baseline and Exit	6,196	46.7	3,042	35.9	13	1.4	0	0.0	9,251	40.7
Participant-Level Survey Records From Services Lasting 30 Days or Longer										
Total From Services Lasting 30 or More Days	11,040	100.0	5,561	100.0	0	N/A	0	N/A	16,601	100.0
Total With Follow-Up Data	5,247	47.5	2,285	41.1	--	N/A	--	N/A	7,532	45.4
Follow-Up Data Matched to Both Baseline and Exit	5,017	45.4	1,983	35.7	--	N/A	--	N/A	7,000	42.2

Notes: “Total From Services Lasting More Than a Day” is the number of individuals age 12 or older who participated in multisession interventions and whose survey dates were in the correct chronological order. Data from respondents younger than 12 are excluded from outcome analyses because the psychometric properties of the instruments have not been confirmed for this age group. Participants for whom the reported interview dates do not align with the sequencing of data waves (e.g., reported exit date precedes reported baseline date) are also excluded from outcome analysis unless subsequently corrected by the grantee. “Total From Services Lasting 30 or More Days” is the number of individuals age 12 or older who participated in interventions lasting 30 days or longer and whose survey dates were in the correct chronological order.

Source: HIV Cohort 9 and Cohort 10 and MSI CBO 2013 and 2014 participant-level data submitted through FY2015.

6.2 Assessing Attrition Bias in the Follow-up Data

In evaluation studies in general, attrition bias occurs when the study subjects who fail to respond to a follow-up assessment are systematically different from those who provide data for that assessment. The subjects whose pre-post data can be compared thus are not a representative sample of the study subjects as a whole, leading to biased evaluation results and faulty conclusions. This is a concern for the Minority AIDS Initiative (MAI) Cross-Site Evaluation because a smaller proportion of the participants respond to the follow-up survey relative to those who respond to baseline or exit survey assessments. For example, in last year's report, of the participants who were required to take a follow-up survey 3 to 6 months after program exit, only 35% actually did so. Furthermore, there was a cohort difference in the follow-up rate, with 37% of Cohort 9 and 31% of Cohort 10 participants taking the follow-up survey. At that time, implementation was ongoing and the expectation was that more follow-up data would be available by the time these grantees completed implementation.

Cohort 9 and Cohort 10 have now closed out their grants and submitted all of their data. After incorporating the new data submitted by these grantees at the end of their grant period, we find that the follow-up rate has increased, as expected: We were able to match baseline, exit, and follow-up data for 42% of the participants whose services lasted 30 days or longer. Cohort 9 grantees continue to have higher follow-up rates than their Cohort 10 counterparts (45% and 36%, respectively). Despite this improvement in the availability of follow-up data, the retention rate for the overall evaluation study is still below 50%, and the cohort difference has persisted and even increased. We therefore conducted an analysis to assess whether the follow-up survey data available from these two cohorts raise any concerns about attrition bias in outcome analyses that compare follow-up data to baseline and exit data.

The research question we addressed is whether the group of participants with matched baseline, exit, and follow-up data are a representative sample of the entire

group that was required to take the follow-up survey—that is, the participants whose service duration was at least 30 days. To answer this question, we compared the smaller group with follow-up data to the entire group on relevant baseline characteristics and conducted statistical tests to identify significant differences between the two. The entire analysis was conducted on the participants whose service duration was at least 30 days and who were, therefore, required to take the follow-up survey.

Exhibit 6.2 compares the baseline characteristics of the entire group of participants with at least 30 days' service duration with the subset whose baseline, exit, and follow-up data could be linked. The *p*-values were obtained from independent-sample t-tests comparing the two groups on the characteristics represented in each row. Comparing the participants' grantee cohort, we find that Cohort 9 participants are grossly overrepresented in the sample with matched follow-up data, suggesting that grantees in Cohort 9 were more likely than their Cohort 10 counterparts to submit follow-up data that could be matched with baseline and exit data. The reason could be any of the following or a combination of them: (1) Cohort 9 grantees may have served populations that were easier to track and retain in the study; (2) their program retention efforts may have been more effective; (3) the records they submitted may have contained fewer errors that would have led to data loss during processing and cleaning. It is also worth noting that Cohort 9 grantees had almost twice as many participants whose services lasted 30 or more days (11,040) as Cohort 10 did (5,561), resulting in a matched follow-up sample heavily tilted toward Cohort 9 grantees, even without differential attrition (see Exhibit 6.1).

The two samples had significant gender differences. The smaller group with matched follow-up data had a significantly higher proportion of females and correspondingly smaller proportion of males and transgender individuals, indicating that female participants were more likely than the other two gender categories to be retained in the program through the follow-up survey. Age comparisons show that the matched sample significantly overrepresented

participants age 25 or older and underrepresented young adults age 18–24. There were relatively few youth (age 12–17) entering the programs, and the proportion of youth in the matched sample did not differ from the proportion of youth in the entire group entering the program.

There are significant differences between the overall and matched samples in terms of racial and ethnic distribution as well. The matched sample over-represents Hispanics and non-Hispanic Asians; all other racial/ethnic groups were significantly underrepresented, with the exception of Native Hawaiians and other Pacific Islanders, who had a very small sample size initially.

We also investigated the extent to which attrition affected the representation of the high-risk groups of special interest to SAMHSA, for whom separate outcome analyses were conducted in this report. Of those groups, homeless participants are underrepresented in the matched group, indicating a higher attrition rate than participants who were not homeless at baseline. Black, Latina, and Hispanic women, on the other hand, are overrepresented, indicating significantly lower attrition rates than the rest of the participants.

Exhibit 6.2. Attrition Analysis: Participant Characteristics

Comparison of All Participants Required to Take the Follow-Up Survey to the Subsample With Matched Baseline-Exit-Follow-Up Data in Terms of Demographic Characteristics at Baseline

	Valid N (All Baseline Records)	Baseline Percent (All Baseline Records)	Valid N (Matched Records)	Baseline Percent (Matched Records)	*p*-value of Difference
Cohort					
Cohort 9 Participant	7,846	59.3	6,623	70.1	≤ .001
Cohort 10 Participant	7,846	40.7	6,623	29.9	≤ .001
Gender					
Female	7,818	46.6	6,598	53.0	≤ .001
Male	7,818	49.2	6,598	44.4	≤ .001
Transgender	7,818	4.2	6,598	2.6	≤ .001
Age					
Age 12–17	7,758	1.1	6,620	1.0	.456
Age 18–24	7,758	51.8	6,620	43.1	≤ .001
Age 25 or Older	7,758	47.1	6,620	55.9	≤ .001
Race/Ethnicity					
Hispanic	7,542	22.9	6,468	31.5	≤ .001
Non-Hispanic African American/Black	7,542	58.7	6,468	52.3	≤ .001
Non-Hispanic American Indian or Alaska Native	7,542	0.6	6,468	0.3	.002
Non-Hispanic Asian	7,542	3.0	6,468	6.3	≤ .001
Non-Hispanic Native Hawaiian or Other Pacific Islander	7,542	0.4	6,468	0.3	.662
Non-Hispanic White	7,542	10.5	6,468	6.9	≤ .001
Non-Hispanic Multiracial	7,542	3.9	6,468	2.5	≤ .001
High-Risk Groups of Special Interest					
Men Having Sex With Men (Total)	7,649	18.1	6,554	17.7	.631
Men Having Sex With Men (Black)	7,678	6.9	6,570	5.9	.016
Men Having Sex With Men (Hispanic)	7,708	7.0	6,581	7.3	.607
Black, Latina, or Hispanic Women	7,716	37.7	6,495	45.4	≤ .001
Homeless Individuals	7,657	11.7	6,519	7.6	≤ .001

Notes: *p*-values were derived from independent-sample t-tests comparing the two samples on the characteristics in each row. Participants with and without the characteristic are coded 1 and 0, respectively.

Source: HIV Cohort 9 and Cohort 10 participant-level data reflective of services received through FY2015.

The significant over- or underrepresentation of multiple subgroups in the sample with matched follow-up data raises concerns about the validity of follow-up analysis: The outcome data in the matched sample will likely be biased toward the groups that are overrepresented while inadequately reflecting the outcomes of the underrepresented groups. To assess the extent to which the misrepresentation of these subgroups in the matched sample could bias outcome analyses, we next compared the two samples with respect to attitude, knowledge, and behavior measures at program entry.

Exhibit 6.3 compares the entire group of participants with at least 30 days' service duration with the subsample with matched baseline, exit, and follow-up records, in terms of baseline attitudes and knowledge associated with substance abuse (SA) and risky sexual behaviors. The results indicate that those with matched records were significantly more likely to perceive great risk of harm from marijuana use and from engaging in sexual activity under the influence of drugs or alcohol at program entry. They also reported significantly higher sexual self-efficacy. However, they had significantly less knowledge about HIV. These key differences between the two samples, with the exception of the HIV knowledge measure, suggest that participants with matched records were at lower risk of SA and risky sexual behaviors at program entry.

Exhibit 6.3. Attrition Analysis: Attitudes and Knowledge

Comparison of All Adult Participants Required to Take the Follow-Up Survey to the Subsample With Matched Baseline-Exit-Follow-Up Data in Terms of Attitudes and Knowledge at Baseline

Measure	Valid N (All Baseline Records)	Baseline Value (All Baseline Records)	Valid N (Matched Records)	Baseline Value (Matched Records)	p-value of Difference
Percent Perceiving Great Risk of Harm From Binge Drinking	7,268	56.7	6,223	58.3	.061
Percent Perceiving Great Risk of Harm From Marijuana Use	6,870	33.9	5,844	42.9	≤ .001
Percent Perceiving Great Risk of Harm From Sharing Unsanitized Needles	7,742	91.2	6,569	91.5	.606
Percent Perceiving Great Risk of Harm From Unprotected Anal Sex	7,765	76.3	6,581	77.0	.311
Percent Perceiving Great Risk of Harm From Unprotected Oral Sex	7,746	55.4	6,571	56.2	.344
Percent Perceiving Great Risk of Harm From Unprotected Vaginal Sex	7,722	72.9	6,570	72.4	.519
Percent Perceiving Great Risk of Harm From Having Sex While Drunk or High	7,697	56.6	6,552	60.5	≤ .001
Average HIV Knowledge Scale Score	7,805	72.9	6,614	70.8	≤ .001
Average Sexual Self-Efficacy Scale Score	7,572	13.3	6,496	13.6	≤ .001

Notes: *p*-values are derived from independent-sample t-tests comparing the two samples on the measures in each row. For the perception of risk measures, responses of "great risk" are coded 1 and all other valid responses are coded 0.

Source: HIV Cohort 9 and Cohort 10 adult participant-level data reflective of services received through FY2015.

We next compared the two samples on behavioral measures at baseline (Exhibit 6.4). With the exception of binge drinking, the participants with matched baseline, exit, and follow-up data reported significantly fewer days of substance use. On the other hand, the subsample with matched follow-up data had significantly lower likelihood of using protection during intercourse during the 30 days preceding program entry.

Exhibit 6.4. Attrition Analysis: Past-30-Day Behaviors

Comparison of All Adult Participants Required to Take the Follow-Up Survey to the Subsample With Matched Baseline-Exit-Follow-Up Data in Terms of Behaviors Reported at Baseline

Measure	Valid N (All Baseline Records)	Baseline Value (All Baseline Records)	Valid N (Matched Records)	Baseline Value (Matched Records)	*p*-value of Difference
Average Days of Binge Alcohol Use	2,878	2.2	1,714	2.1	.861
Average Days of Cigarette Use	7,140	8.6	6,292	6.8	≤ .001
Average Days of Marijuana Use	7,348	4.1	6,305	2.8	≤ .001
Average Days of Nonmedical Prescription Drug Use	7,509	0.5	6,477	0.4	.003
Average Days of Nonmedical Injection Drug Use	7,538	0.3	6,490	0.1	≤ .001
Average Days of Use of All Illicit Drugs Excluding Marijuana	7,414	1.7	6,437	1.2	≤ .001
Percent Using Protection During the Most Recent Intercourse (Vaginal, Anal, or Oral) Among Participants Who Were Sexually Active During the Past 30 Days	4,269	27.5	3,630	24.8	.007

Notes: *p*-values are derived from independent-sample t-tests comparing the two samples on the measures in each row. The protected sex measure is coded 1 if protection was used during the most recent intercourse and 0 otherwise.

Source: HIV Cohort 9 and Cohort 10 adult participant-level data reflective of services received through FY2015.

The results of the above analysis indicate that the participants whose follow-up data could be linked to their baseline and exit data had better scores on key SA outcome measures coming into the program. That is, the participants with less favorable outcome measures were less likely to have usable follow-up data. Although the two groups had significant differences with regard to multiple HIV-related outcomes, the direction of the difference was less clear; in terms of the key behavioral measure, that is, avoiding unprotected sex, the group with follow-up data was less likely to

report using protection at baseline. This group also entered the programs with a significantly lower average HIV knowledge score.

These differences suggest that outcome analyses comparing follow-up data to baseline data would likely overestimate positive program effects on substance use while possibly underestimating improvements in risky sexual behaviors.

7. Limitations and Considerations for Future Evaluations

7.1 Limitations of the Report

Although the Minority AIDS Initiative (MAI) evaluation successfully collected data from more than 33,000 participants of direct service programs and provided important insights into effective substance use and HIV prevention efforts, it has several limitations that should be considered.

7.1.1 Establishing Causality

One limitation of this evaluation is that we cannot know for certain that the results reflecting baseline-to-exit change in knowledge, attitudes, and behaviors are due to participation in MAI programs, because we have no comparison or control group. That is, participants could be improving over time for reasons that have nothing to do with the MAI program. A stronger design would include a control/comparison group of individuals similar to MAI participants and follow them over time to see if they are changing in similar or different ways. That being said, given that grantees, for the most part, used effective behavioral interventions (EBIs), the likelihood that knowledge, attitudes, and behaviors changed to show that reduced risk is greater than if EBIs were not used. Additionally, aggregate positive trends across multiple subgroups were relatively consistent, and trends showing improvement have been consistent with prior MAI evaluation reports; this coalescing information provides a "preponderance of evidence" that MAI programs are beneficial.

7.1.2 Sample Size Considerations

As discussed in Chapter 6, not all survey data from individuals receiving more than a single day of service could be matched from baseline to exit, and matching rates varied by duration of services. Given that service duration determines the sections of the survey given to participants, with behavioral questions asked only of

participants who stayed in the program for 30 days or more, there was considerable variation in the sample sizes available for analysis, and relatedly, in the degree of generalizability of the results. Of those whose service duration lasted more than a single day, 69% provided exit data that could be matched to their baseline survey. However, matched baseline-to-exit data on substance use and sexual risk behaviors was achieved for only 41% of those whose service duration was 30 days or longer. Therefore, data used in the evaluation of behavioral change may not be fully representative of all MAI grantees enrolled in services for 30 or more days. As such, the results could be biased upward if nonrespondents were more likely to do poorly or downward if nonrespondents were more likely than an average respondent to improve. For these reasons, we have higher confidence in the assessment of attitude and knowledge change than we do in the assessment of behavioral change.

Similarly, follow-up data could be matched to baseline and exit data for only 42% of the participants receiving services lasting 30 days or more. In response to the relatively low matching rates, the data collection training provided by the cross-site team now has increased emphasis on compliance with best-practice data collection methodologies, such as assigning unique participant IDs and ensuring the accuracy of record management data fields.

In the FY2014 report, we were unable to present outcomes separately for several racial/ethnic groups because of insufficient sample sizes. The new data added to the analysis database during FY2015 allowed us to display outcome results for all racial/ethnic groups, but not all groups had sufficient sample sizes for every outcome measure. Some results could not be tabulated for American Indians/Alaska Natives, Asians, Native Hawaiians, and Pacific Islanders, even after pooling Asians and Native Hawaiians/Pacific Islanders into a single group. That is, we were able to provide only a partial picture of the outcomes of these groups. This is a serious limitation of the data, especially in light of the high incidence of viral hepatitis among American Indians/Alaska Natives, as pointed out in Chapter 2 (Introduction). With increasing emphasis on hepatitis prevention, we anticipate that MAI grantees

will serve larger numbers of this high-risk population, increasing the volume of available data for assessing their outcomes.

Another sample size issue has to do with the two cohorts of grantees (funded in 2013 and 2014, respectively) funded through the Minority Serving Institutions in Partnerships with Community Based Organizations (MSI CBO) Program. A substantial number of these grantees used their own instruments to collect data, and those that did use the cross-site instruments did not have a means of submitting their data for part of FY2015 after CSAP's data collection portal closed down. Even though a workaround was eventually devised and some of those data were successfully submitted, the sample sizes from these two cohorts did not allow us to conduct outcome analysis. All current grantees have now been trained in the cross-site data collection protocols and have started using the standard instruments, so this limitation is not likely to recur in future years.

It is also noteworthy that most participants for whom data were available in the MSI CBO cohorts participated in interventions lasting a single day. Thus, in addition to the already low sample sizes for these cohorts, data were extremely limited even to assess baseline prevalence of substance use, housing status, and high-risk groups based on sexual behavior (i.e., men who have sex with men [MSM]) because these survey items are not administered to participants of single-session interventions.

Another analysis that the data did not allow us to conduct was assessment of the outcomes of single-day interventions, whose participants are given a single survey at program exit. The size of the single-day participant subsample for any given knowledge/attitude measure was insufficient for the type of analysis included in the evaluation plan to assess knowledge or attitude change among these participants. There are two reasons for the small sample sizes. First, most participants in Cohort 9 and Cohort 10 received services lasting more than a single day. Second, grantees selected three to five attitude/knowledge questions from the questionnaire to include in the exit survey, based on the focus of the single-day intervention. Thus, not all participants of these interventions responded to the same

survey items. As more data accumulate and sample sizes increase, we will be able to evaluate the outcomes of these brief interventions. As specified in the evaluation plan, the analysis will involve comparing each single-day participant's exit response to a given survey item with the average baseline response calculated among participants who were given both a baseline and an exit survey (i.e., participants whose services lasted more than a single day).

7.1.3 Process and Implementation Evaluation

The source of evaluation data on the implementation of the Strategic Prevention Framework at each grant site is the grantees' quarterly progress reports, typically submitted using CSAP's data submission portal. After the portal closed down, no process information in standard format was available. Although grantees continue to submit narrative reports every quarter, these are not suitable for cross-site analysis. This year's report, therefore, contains no updates on grantees' planning, capacity-building, and implementation efforts. From participants' questionnaires, we were able to compile information on direct-service interventions received. The quantitative process evaluation for this year's report is limited to the number of grantees implementing and the number of participants receiving the major interventions.

We supplemented this limited analysis with a retrospective qualitative investigation of the processes and organizational characteristics of the most successful Cohort 9 and Cohort 10 grantees, using their strategic plans, past progress reports, and other available information about the organizations. The results of this analysis are presented in Section 4.6. However, these data also have limitations.

First, implementation fidelity—that is, the degree to which an intervention is delivered as intended—is critical for evidence-based interventions to be effective in practice. However, we were unable to assess implementation fidelity, as the Management Reporting Tool (MRT) that collected process data was not designed for this purpose. Although several MRT fields—such as how interventions were

adapted and whether all planned services were covered—are related to fidelity, we found through our qualitative investigation that grantees were inconsistent in how they responded to these items. For example, a grantee would report no adaptations in the relevant field in the MRT, but then make reference to adaptations elsewhere, such as in the accomplishments and barriers reported. Process data were therefore lacking for this important factor that might otherwise have emerged as one of the factors shared among the most successful grantees and lacking among the least successful.

Second, grantees varied in the amount of detail they provided in narrative responses in their MRT entries. Some provided adequately detailed descriptions, but others were lacking in the detail needed for a full understanding of how interventions were adapted, integrated, and implemented. Similarly, the quality and level of detail in grantees' strategic plans varied.

For these reasons, the Success Case Method analysis results should be regarded as plausible hypotheses to be tested in the future rather than definitive explanations for grantee success.

7.2 Data Collection and Evaluation Plans for the Future

The adult and youth questionnaires have recently been revised and now have approval from the Office of Management and Budget (OMB); data collection using the new questionnaires started in the spring of 2016. The standard quarterly reporting tool has also been revised, received OMB approval, and been in use since June 2016. Additionally, an online instrument to collect aggregated, community-level outcome data has also been designed and made available for online data entry.

These new developments in the MAI data collection system have important implications for the future of the cross-site evaluation. First, the revised questionnaires are shorter than the previous ones; the lower burden will hopefully encourage grantees to collect data from a larger number of participants, increasing

the volume and representativeness of participant-level data. Furthermore, the new instruments better align with current prevention priorities; the new data will allow us to assess outcomes associated with new substances such as synthetic marijuana and electronic cigarettes. The questionnaires now contain more detailed items on mental health status; this will enable us to consider the links between substance abuse, mental health, and risky sexual behaviors. Finally, new survey items on health insurance, disparities in access to health care, and past experiences with discrimination will allow us to better evaluate the impact of funded programs on health disparities.

In addition, the current data collection protocol is being assessed for possible revisions that will help to improve the quantity and quality of participant-level data collection. The two areas under discussion are data collection for single-session interventions and for interventions that are not curriculum based. For single-session interventions, allowing participants to respond to all of the attitudinal and knowledge questions in Section Two of the questionnaire, rather than only to three to five questions selected by the grantee, will increase the availability of data for outcomes evaluation. This is of particular importance for the MSI CBO cohorts, who are implementing single-session interventions in much greater numbers than previous cohorts. For interventions that are not curriculum based, such as motivational interviewing and individualized counseling, there is currently little guidance to grantees about how to define "exit" for implementation of the exit survey. The cross-site evaluation team is working with CSAP to provide guidance to grantees for collecting data from open-ended services; we hope these efforts will yield more data with which to assess program outcomes. Another aspect of the data collection protocol that is currently under discussion is the rule to collect data on behavioral outcomes only from participants whose services last 30 days or more. The initial reasoning behind this restriction was that, typically, the exit survey is administered immediately after the last service encounter and the behavioral items all use a 30-day reference, making pre-post comparisons invalid in cases in which services last less than 30 days. Given that the more recent grantees appear to prefer

brief interventions to longer ones, this restriction is expected to have an increasingly negative effect on available sample sizes for evaluating behavior change. One solution to this issue would be to send participants a link to an online version of the exit survey 30 days after the end of their services, instead of administering it on the last day of services. This alternative will be possible only if online survey administration directly to participants can be accomplished within SAMHSA's data security requirements.

The revised quarterly reporting tool also better aligns with current prevention priorities and with the needs of grantees for a more streamlined format. For example, it includes comparable information on HIV and hepatitis testing and hepatitis vaccination activities, as well as demographic and socioeconomic characteristics of the recipients of these services. Response options have been updated to better reflect the activities of the current grantees. Additionally, the overall structure and content of the tool has been revamped in response to data quality issues encountered in the past. We anticipate that the process and implementation data submitted using the new tool will be more usable for evaluation purposes.

The newly developed Indirect Services Outcomes Tool will provide the evaluation team with community-level outcome data, making it possible to assess the impact of grantees' environmental strategies and information dissemination efforts on community norms. Although grantees have been required to implement these population-based strategies in an effort to make community-level improvements, data for evaluating the effectiveness of these activities have not been available in the past. The ability to evaluate impact at this level will greatly enhance the quality of the evaluation.

The development of a new system for online data submission will have a large impact on data quality. Data will be subjected to real-time validation checks and grantees will receive immediate error messages describing the issues and suggesting ways of correcting them. The list of validation checks was developed

through a collaboration between system developers and the MAI cross-site analysts who have been processing and cleaning the data. This system will ensure that serious data errors will be identified and corrected at the point of entry, improving the overall quality of the data and increasing the sample sizes available for outcome analyses.

These advances in the data system will further increase the utility of the MAI initiative to affect policy and programs that ultimately reduce the incidence of substance use disorders, HIV/AIDS, viral hepatitis, and other STDs.

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Appendix A: Construction of Multi-Item Scales and Composite Variables

HIV/AIDS Knowledge Scale

The adult HIV/AIDS Knowledge Scale was created from the following items, with response options of "True," "False," and "Don't Know":

- Only people who look sick can spread the HIV/AIDS virus.
- Only people who have sexual intercourse with gay (homosexual) people get HIV/AIDS.
- Birth control pills protect women from getting the HIV/AIDS virus.
- There are drugs available to treat HIV that can lengthen the life of a person infected with the virus.
- There is no cure for AIDS.
- Young people under age 18 need their parents' permission to get an HIV test.

Scale construction was the percentage correct out of these six items for each participant, among participants with at least one valid response. Thus, the values range from 0 to 100.

The "Percent Change" column in the outcome table for this measure represents the baseline-to-exit change in average percentage of correctly identified statements, expressed as a percentage of the baseline average.

Sexual Self-Efficacy Scale

The adult Sexual Self-Efficacy Scale was constructed from the following items, with response options of "Not at All," "A Little," "Somewhat," and "Very Much."

In your relationship with your PRIMARY (MAIN) partner, how confident are you that you could:

- Refuse to have sex with your partner because you weren't in the mood?
- Ask your partner to wait while you got a condom or dental dam?
- Tell your partner how to treat you sexually?
- Refuse to engage in sexual practices you didn't like?
- Ask your partner to use a condom or dental dam?
- Refuse to have sex because your partner did not want to use a condom or dental dam?

This scale was computed by assigning values from 0 to 3 to the response categories, with the lowest response category ("Not At All") assigned the value of zero. The values of all scale items were then summed to obtain the scale score. Thus, the scale has a range from 0 to 18. Participants with a missing value for more than one scale item were assigned a missing value for the scale.

Abuse Scale

The Abuse Scale was constructed from the following items, with response options of "Never," "Rarely," "Sometimes," "Often," and "Very Often."

In the past 3 months, how often has anyone with whom you had an intimate relation, sexual or not:

- Emotionally abused you (swore at you, called you negative names, kept you from seeing family or friends)?
- Physically abused you (slapped, beat, kicked, or choked you; threatened you with a knife or a gun)?
- Sexually abused you (forced you to have sex, physically hurt the sexual parts of your body)?
- Forced you to use drugs or alcohol?

This scale was computed by assigning values from 1 to 5 to the response categories such that the lowest response category ("Never") was assigned the value of 1. The scale score was created by calculating the mean of all four values of the scale items. Participants with a missing value for any of the scale items were assigned a missing value for the scale.

Family Cohesion Scale

The Family Cohesion Scale was constructed from the following items, with response options of "I don't have any family," "Not true," "Sometimes true," "Usually true," and "Always true."

- I'm available when others in my family want to talk to me.
- I listen to what other family members have to say, even when I disagree.
- Members of my family ask each other for help.
- Members of my family like to spend free time with each other.
- Members of my family feel very close to each other.
- We can easily think of things to do together as a family.

This scale was computed by assigning values from 1 to 4 to the response categories such that the lowest response category ("Not true") was assigned the value of 1. The response category "I don't have any family" was assigned a missing value and not included in the scale. The scale score was created by calculating the mean of all valid values of the scale items. Participants with a missing value for more than one scale item were assigned a missing value for the scale.

Binge Alcohol Use

The measure for past-30-day binge alcohol use was derived using the following items, with response options ranging from 0 to 30 days. Respondents could also choose "Don't know or can't say."

- During the past 30 days, on how many days did you have 4 or more drinks on the same occasion? [By "occasion," we mean at the same time or within a couple of hours of each other].
- During the past 30 days, on how many days did you have 5 or more drinks on the same occasion? [By "occasion," we mean at the same time or within a couple of hours of each other].

These two survey items reflect the gender-specific definition of binge drinking: for females, binging is defined as four or more drinks in one sitting; for males, the definition is five or more drinks in one sitting. The questionnaire has no skip pattern based on gender; that is, all participants respond to both items, regardless of gender. The composite binge drinking measure analyzed in this report was created by combining the responses to the two binge drinking items ("4 or more" and "5 or more") with the respondent's gender as follows:

Female respondents: The composite binge drinking variable was assigned the value of the "4 or more" item. If that item did not have a valid response, then the composite was assigned the response to the "5 or more" item. If neither binge drinking item had a valid response, the composite was assigned a missing value.

Male respondents: The composite binge drinking variable was assigned the value of the "5 or more" item. If that item did not have a valid response, the composite was assigned a missing value regardless of the response to the "4 or more" item.

Transgender respondents: The composite binge drinking variable was assigned the value of the "5 or more" item. If that item did not have a valid response, the composite was assigned a missing value regardless of the response to the "4 or more" item.

Respondents for whom valid gender information was not available: The composite binge drinking variable was assigned the value of the "5 or more" item. If that item did not have a valid response, the composite was assigned a missing value regardless of the response to the "4 or more" item.

CSAP's standard cleaning rules were applied when an inconsistency was detected between the two binge drinking items (e.g., fewer days of 5 or more drinks than 4 or more drinks reported) or between either binge drinking item and the past-30-day alcohol use item (e.g., fewer days of any alcohol use than binge drinking reported).

Perceived Risk of Harm From Having Sex While Drunk or High

Perceived risk of harm from having sex while drunk or high was reported using the following items on the adult survey, with response options for these items of "No Risk," "Slight Risk," "Moderate Risk," and "Great Risk."

How much do you think people risk harming themselves physically:

- If they have sex while under the influence of alcohol?
- If they have sex while high on drugs?

A dichotomous composite variable was created and assigned the value "Great Risk," if this response option was selected for both items. If at least one of the items had a response other than "Great Risk," the composite variable was assigned the value "Not Great Risk." If either item was missing a valid response, the composite variable was assigned a missing value.

Protected Sex (Vaginal, Anal, or Oral)

A composite measure of protected sex was created from multiple items about the incidence of protected sex, asked separately for three types of intercourse (vaginal, anal, and oral). The response options for the incidence of past-30-day sex questions are "Yes" and "No." The response options for the protected/unprotected sex questions are "I have never had [vaginal/oral/anal] sex," "Protected," and "Unprotected."

The following are the items from the adult survey:

- Have you had vaginal sex in the past 30 days?
- The last time you had vaginal sex, was it protected or unprotected?
- Have you had anal sex in the past 30 days?
- The last time you had anal sex, was it protected or unprotected?
- Have you had oral sex in the past 30 days?
- The last time you had oral sex, was it protected or unprotected?

Three interim variables were created by recoding each of the protected or unprotected sex items as missing if the respondent reported no incidence of intercourse of the corresponding type during the past 30 days. Using the interim variables, we created a composite variable and assigned it the value "Protected" if all available responses to the interim sex variables were "Protected." If any of the available responses were "Unprotected," the composite variable was assigned the value "Unprotected." If all three interim sex variables had missing values, the composite variable was assigned a missing value.

Men Having Sex With Men

A composite measure of men who have sex with men (MSM) was created using the following items from the adult survey. The response options for the gender question are "Male," "Female," "Transgender, Male to Female," "Transgender, Female to Male," and "Transgender, Unspecified." The response options for the two sexual behavior questions are "Yes" and "No."

- How would you describe yourself? (Gender)
- Are you a man who has sex with men?
- In the past 3 months, have you had sex with any men?

Responses to all three items were used to create two interim variables—one for baseline responses and one for exit responses. Response options for the interim variables were "Yes, MSM" and "No, Not MSM."

Male or transgender (male to female) respondents: For respondents who reported that they were "Male" or "Transgender, Male to Female" and responded "No" to the item "Are you a man who has sex with men?" the interim variable was assigned a value of "No, Not MSM." If a respondent reported "Yes" to one of the two sexual behavioral items, the interim variable was assigned a value of "Yes, MSM." If both sexual behavior items were missing, the interim variable was assigned a missing value.

Female respondents: For respondents who reported they were "Female," the interim variable was assigned a value of "No, Not MSM."

Transgender (unspecified) or transgender (female to male) respondents: For respondents who reported they were "Transgender, Unspecified" or "Transgender, Female to Male" and responded "Yes" to the item "Are you a man who has sex with men?" the interim variable was assigned a value of "Yes, MSM." If they reported "No" or were missing a response to the item "Are you a man who has sex with men?" the interim variable was assigned a missing value.

The final composite variable used in the analysis was created using the two interim variables—one for baseline and one for exit—and assigned a value of "MSM" or "Not MSM." If either baseline or exit interim variables were "Yes, MSM," the composite was assigned a value of "MSM." If both interim variables were "No, Not MSM," the composite was assigned a value of "Not MSM." If both interim variables were missing, the composite was assigned a missing value.

Appendix B: Summaries of Selected Direct-Service Interventions

This appendix summarizes the direct-service interventions included in Exhibits 4.1 and 4.2.

Alcohol Literacy Challenge (ALC)

(Implemented by 4 grantees)

Target Population: High school and college students

Intervention Description: ALC is a classroom-based program aiming to change participants' alcohol expectations and to reduce the amount and frequency of alcohol consumption. Alcohol expectations include individuals' beliefs about the positive and negative effects of alcohol use such as increased sociability (positive) and impairments to mental functioning (negative). ALC is designed to correct falsely held beliefs of the effects of alcohol, to increase negative expectations, and to reduce the level of alcohol use.

Brief Alcohol Screening and Intervention for College Students (BASICS)

(Implemented by 1 grantee)

Target Population: College students who drink alcohol heavily and have experienced or are at risk for alcohol-related problems

Intervention Description: BASICS aims to reduce alcohol use and the negative consequences of drinking among college students. It is delivered in two 1-hour interviews, with a brief online assessment survey taken by the student after the first session. The first interview asks about the student's recent alcohol consumption patterns, personal beliefs about alcohol, and drinking history. It also provides instructions for self-monitoring drinking between sessions and prepares the student

for an online assessment survey. Data from the online assessment survey are used to develop a customized feedback profile for use in the second interview. This interview compares individual alcohol use with alcohol use norms, reviews individualized negative consequences and risk factors, clarifies perceived risks and benefits of drinking, and provides options to assist in making changes to decrease or abstain from alcohol use. BASICS is based on principles of motivational interviewing and is delivered by trained personnel proficient in motivational interviewing. Overall, the intervention is aimed at revealing the discrepancy between the student's risky drinking behavior and his or her goals and values.

CLEAR

(Implemented by 4 grantees)

Target Population: Persons age 16 or older who are living with HIV/AIDS or who are at high risk for HIV

Intervention Description: CLEAR uses cognitive behavioral techniques to alter behavior and build skills for making healthy choices. It is a client-centered program that is delivered in multiple, one-on-one sessions. The sessions cover three modules: improving physical health, reducing unprotected sex and substance use, and reducing emotional distress and increasing quality of life. CLEAR may be integrated into Comprehensive Risk Counseling Services (CRCS) programs.

d-up: Defend Yourself!

(Implemented by 1 grantee)

Target Population: Black men who have sex with men (MSM)

Intervention Description: d-up: Defend Yourself! promotes and normalizes condom use and assists participants to recognize and work with risk-related racial and sexual bias. Black MSM act as influencers to one another to shift norms of safe sex practices to reduce the risk of HIV transmission.

Motivational Interviewing

(Implemented by 4 grantees)

Target Population: Any

Intervention Description: Motivational interviewing (MI) is directed at changing ambivalent attitudes to create behavior change. MI may be applied to a variety of problem behaviors related to alcohol and substance use, sexual behaviors, and health promotion. MI is an individual-level intervention that spans multiple sessions.

Nia

(Implemented by 6 grantees)

Target Population: Inner city, heterosexually active, African American men

Intervention Description: On the basis of a recent review of HIV prevention programs by the Division of HIV/AIDS Prevention (DHAP) at the Centers for Disease Control and Prevention (CDC), Nia no longer meets the CDC criteria for interventions that offer the greatest prevention benefit while being cost-effective. The CDC continues to support Nia with online resources; however, the DHAP no longer offers training or capacity-building assistance for this intervention. Nia aims to improve behavioral and communication skills, eliminate or reduce sex-related risk behaviors, educate men on HIV/AIDS, bring groups of men together, and promote condom use. The intervention is video based and delivered to a small group over two to four sessions. Nia is based on the Information-Motivation-Behavioral Skills model, which assumes that people need information, motivation, and behavioral skills to adopt preventive behavior.

NIDA Community Outreach Model

(Implemented by 4 grantees)

Target Population: Injection drug users and their sex partners

Intervention Description: The NIDA [National Institute on Drug Abuse] Community Outreach Model aims to produce behavior change among at-risk drug users. The intervention uses community-based outreach to engage drug users and offers two education and risk reduction sessions around HIV, hepatitis B virus, and viral hepatitis (VH) testing with pre- and posttest counseling. The outreach workers are equipped to offer information on risk-reduction strategies to injection drug users and may provide a referral to testing and counseling or other health services during the outreach event. The education and risk reduction counseling at testing also covers topics such as drug- and sex-related risk reduction and behavior change and is an opportunity to access personalized risk information, prevention strategies, and appropriate referrals.

Peers Reaching Out and Modeling Intervention Strategies (PROMISE)

(Implemented by 2 grantees)

Target Population: Any

Intervention Description: PROMISE is a community-level intervention that promotes safer sex and drug- and sex-related risk reduction practices. Peer advocates are recruited from the intervention population and act as role models by sharing risk reduction stories and materials with the target audiences. PROMISE may be implemented with any population because it is created by the collaboration and effort of community members.

PRIME for Life (PFL)

(Implemented by 3 grantees)

Target Population: PFL is primarily implemented among court-referred impaired driving offenders and has been adapted for military personnel, college students, middle and high school students, and parents.

Intervention Description: PFL focuses on changing individuals' perceptions of the risks of drug and alcohol use as well as their attitudes and beliefs about substance use. It is a motivational intervention implemented in group settings and can span 4.5 to 20 hours, depending on the version. PFL is based on the Lifestyle Risk Reduction Model, Transtheoretical Model, and persuasion theory. The participants construct plans for their own behavior change and are supported by instructors who use components of MI in their approach. Multimedia presentations and guided discussions contribute to motivating the participants to maintain low-risk attitudes and to reduce substance use.

Project Towards No Drug Abuse (Project TND)

(Implemented by 3 grantees)

Target Population: High school youth

Intervention Description: Project TND is a drug use prevention program that helps youth improve decision-making, build motivation to not use drugs, gain self-control and communication skills, and obtain resources to help with resisting drug use. Project TND is offered in twelve 40-minute sessions led by teachers or health educators. It has been effective in alternative and traditional high schools.

Project START

(Implemented by 1 grantee)

Target Population: Persons re-entering the community from a correctional facility

Intervention Description: Project START focuses on building the clients' awareness of HIV, STD, and VH risk behaviors and on offering resources to reduce their risk. It is an individual-level, multisession intervention.

Protocol-Based Counseling HIV Counseling and Testing (PBC)

(Implemented by 6 grantees)

Target Population: No target population specified

Intervention Description: PBC includes prevention counseling, testing, referrals, and partner services. It is conducted in multiple individual sessions between the client and a risk reduction specialist. Together, they identify a goal that will reduce HIV risk, and they practice skills that support completion of that goal. The prevention counseling is designed to help an individual identify behaviors and the context of behaviors that place him or her at risk for HIV, STDs, or VH, as well as to practice skills that work toward risk reduction.

RESPECT

(Implemented by 10 grantees)

Target Population: High-risk, HIV-negative persons visiting STD clinics

Intervention Description: In 2014, the DHAP discontinued support for the RESPECT intervention. RESPECT is an HIV testing and HIV prevention counseling intervention that aims to reduce high-risk sexual behaviors and to prevent HIV and STDs. After the introduction of rapid HIV testing, the RESPECT intervention was adapted to a single session with a testing and a counseling component. Studies have shown that the single-session approach is ineffective and, in fact, can increase risk of

STDs among MSM. Although the CDC does not fund RESPECT, the CDC's Effective Interventions Web site offers tools and materials on the intervention and the CDC's Compendium of Evidence-Based Interventions and Best Practices for HIV Prevention offers adaptations of the RESPECT intervention.

Safety Counts

(Implemented by 3 grantees)

Target Population: Out-of-treatment active IDUs and non-IDUs

Intervention Description: On the basis of a recent review of HIV prevention programs by CDC's DHAP, Safety Counts no longer meets the CDC criteria for interventions that offer the greatest prevention benefit while being cost-effective. The CDC continues to support Safety Counts with online resources; however, the DHAP no longer offers training or capacity-building assistance for this intervention. Safety Counts aims to reduce high-risk drug use and sexual behaviors by, or to prevent HIV among, active drug users. The intervention is delivered over seven sessions in group and individual settings. The needs for both HIV-positive and HIV-negative clients are addressed.

Self-Help in Eliminating Life-Threatening Diseases (SHIELD)

(Implemented by 3 grantees)

Target Population: Adults who are current or former drug users who interact with other drug users

Intervention Description: On the basis of a recent review of HIV prevention programs by CDC's DHAP, SHIELD no longer meets the CDC criteria for interventions that offer the greatest prevention benefit while being cost-effective. The CDC continues to support SHIELD with online resources; however, the DHAP no longer offers training or capacity-building assistance for this intervention. SHIELD is designed to teach people to become peer educators to promote risk reduction and prevention for HIV and substance use. Peer educators are taught how to engage and

communicate with people in their networks regarding HIV prevention and how to be leaders in their social communities. By communicating skills and information on prevention, peer educators are leading an effort in their social communities to reduce the spread of HIV.

Sisters Informing Sisters on Topics about AIDS (SISTA)

(Implemented by 8 grantees)

Target Population: African American women who are sexually active

Intervention Description: On the basis of a recent review of HIV prevention programs by CDC's DHAP, SISTA no longer meets the CDC criteria for interventions that offer the greatest prevention benefit while being cost-effective. The CDC continues to support SISTA with online resources; however, the DHAP no longer offers training or capacity-building assistance for this intervention. SISTA is a gender- and culturally relevant intervention that focuses on increasing condom use among participants. The intervention is delivered in five peer-led group sessions and focuses on HIV knowledge, gender and ethnic pride, and sexual risk reduction skills training. SISTA is based on Social Learning theory and the theory of Gender and Power.

Street Smart

(Implemented by 4 grantees)

Target Population: Youth, age 11–18

Intervention Description: On the basis of a recent review of HIV prevention programs by CDC's DHAP, Street Smart no longer meets the CDC criteria for interventions that offer the greatest prevention benefit while being cost-effective. The CDC continues to support Street Smart with online resources; however, the DHAP no longer offers training or capacity-building assistance for this intervention. Street Smart builds youths' skills in practicing safer sexual behaviors and in reducing substance use. The intervention is delivered across multiple sessions that

work on improving the youths' social skills, assertiveness, and coping through exercise and problem solving, identifying triggers, and reducing harmful behaviors. Individual counseling and visits to community health providers are also included.

Video Opportunities for Innovative Condom Education & Safer Sex (VOICES/VOCES)

(Implemented by 12 grantees)

Target Population: African and American and Hispanic/Latino people visiting STD clinics

Intervention Description: On the basis of a recent review of HIV prevention programs by CDC's DHAP, VOICES/VOCES no longer meets the CDC criteria for interventions that offer the greatest prevention benefit while being cost-effective, except when used among MSM participants. The CDC continues to support VOICES/VOCES with online resources; however, the DHAP no longer offers training or capacity-building assistance for this intervention. VOICES/VOCES is a single-session intervention designed to prevent new STD infections and increase condom use. The culturally specific, video-based intervention is delivered to small groups by a facilitator of the same gender in either English or Spanish. The video teaches accurate risk information, encourages condom use, corrects misinformation, and models gender- and culturally specific strategies for condom use. The group is opened for discussing strategies for condom use, and condoms are distributed for free.

Appendix C: Recommendation Categories

This appendix lists the program, policy, and evaluation recommendations made in Chapter 5 of the report, grouped by the type of action needed to address them.

Data Improvements

- Because of the national focus on prescription drug misuse and, in particular, addiction to narcotic painkillers, we recommend breaking down the item on nonmedical use of prescription drugs by type (i.e., narcotic painkillers, sedatives, tranquilizers, and stimulants). We also suggest adding perceived risk of harm by type of prescription drugs used nonmedically, as well as sources of these drugs.

- Future revisions to the Minority AIDS Initiative (MAI) cross-site instruments could consider distinguishing between protected sexual activity with a casual partner versus protected sex with an intimate partner to capture differential risk and behaviors.

- Future revisions to the cross-site instruments could add an item on the participant's knowledge and ease of access to pre-exposure prophylaxis (PreP), an effective behavioral intervention (EBI) for those engaging in sexual activity with individuals with a high likelihood of HIV infection.

- Consider revising the definition of the desirable responses to items regarding risk of unprotected sex. Specifically, we suggest retaining "great risk" as the desirable response for the unprotected anal sex item but revising the desirable responses to the vaginal sex item as "moderate" or "great" risk, and to the oral sex item as "slight," "moderate," or "great" risk.

Training and Technical Assistance

- Provide training to project officers on best practices in strategic planning. Training should include methods to select an EBI most appropriate for the identified target population, core elements of an implementation plan, and best practices in data collection for the cross-site evaluation.

- Provide grantees with support in selecting intervention approaches that have been designed for and shown to be effective with the target population.

Intervention Considerations

- Women reported less frequent use of protection during anal sex than did men. Grantees should use training methods and sexual efficacy skill-building components sensitive to gender and relationship dynamics and should ensure that protected sex messages are tailored specifically for heterosexual women.

- Young adults and men who have sex with men (MSM) who use prescription drugs nonmedically are at particularly high risk for addiction, escalation to other forms of drug abuse (e.g., injection drug use), and, relatedly, to HIV or hepatitis C virus (HCV) infection. We suggest prioritizing preventive interventions including messages about the consequences of prescription drug misuse to these subgroups. We also recommend risk reduction strategies focused on protected sex and access to clean needles as another way to lower disease threat for MSM and injection drug users.

- Grantees should use a health equity approach in interventions for Black and Hispanic MSM and emphasize approaches that include sociocultural determinants of health, proven behavioral risk reduction strategies, and improved access to health care.

- Minority-serving institutions should partner with MSM-related organizations in the community as well as with the social venues frequented by MSM. These partnerships can expand access to target populations and intervention settings and assist with implementation of programs that include the social networks of MSM.

- Intervention selection and implementation should have a balanced focus on both HIV prevention and substance use, integrated in a seamless approach.

- To increase responsivity to interventions among Black MSM, target risk factors specific to this population, including the high rate of sexually transmitted diseases; unrecognized HIV infection; disparities in access to HIV testing and treatment; racism; stigma; homophobia; and marginalization from families, communities, and religious organizations (Maulsby et al., 2013).

Content of Future Funding Opportunity Announcements

- Continue to prioritize individuals of color and ensure that MAI grantees place high priority on serving MSM, especially young MSM and MSM of color.

- Reach out to Asian and American Indian/Alaska Native communities who were underrepresented among Cohort 9 and 10 program participants.

- Continue to emphasize those who are homeless or unstably housed.
- Emphasize the importance of behavioral health equity in SAMHSA's MAI grant programs, ensuring that grantees target disparities in health service access, utilization, and outcomes.
- Consider changing requirements such that grantees provide risk reduction counseling only after testing. New research suggests that the provision of risk reduction counseling before testing is no more effective than testing information alone. However, full risk reduction counseling is necessary after testing.
- SAMHSA could consider allowing (and encouraging) grant funds to be allocated for PreP in interventions targeting MSM.

Grantee Monitoring

- Monitoring grantees' compliance to ensure that interventions are directed toward the most vulnerable populations should remain an evaluation and grant management priority.
- Ensure that MAI grantees continue to focus on increasing awareness of substance abuse- (SA-) and HIV-related services, decreasing barriers to such services, and emphasizing referrals and linkages to comprehensive and integrated care.
- While reviewing strategic plans, emphasize the need for integrating HIV and SA prevention services and balance between substance use and HIV prevention and intervention strategies.
- Provide more monitoring at the strategic planning stage. Consider having the cross-site team develop a checklist of core elements to look for in a strategic plan and encourage project officers to request resubmission of plans with inappropriate intervention selection, infeasible implementation elements, or poorly developed data collection plans.
- Train grantees on the "High Impact Prevention" approach from the Centers for Disease Control and Prevention and encourage grantees to direct their grant funds to the EBIs that meet these new criteria to ensure the most cost-effective use of their budgets.
- Monitor grantees for compliance with cross-site evaluation requirements, including attention to detail in collecting and linking pretest and posttest data.

Grantees' Implementation

- Continue to expand access to HIV testing, particularly among those at highest risk. Offer more intensive interventions to those identified as seropositive.
- To reach young adults, we recommend the innovative use of social media for information dissemination and social norms-changing campaigns. Given that young adults are highly influenced by social ecology, approaches that target norms and social networks may be particularly effective.
- For college students, we suggest intervening early in the freshman year, when decisions about substance use are most salient and prevention may be most efficacious.
- Consult with Asian/Pacific Islander behavioral health specialists to identify culturally appropriate ways to change beliefs and norms about the perceived harm of substance use and risky sexual activity in this subpopulation.
- Grantees that have identified marijuana use as a priority in their communities should expand use of social media as a means for influencing harm perceptions about marijuana use among young adults and MSM who have low perceptions of harm combined with high risk for HIV/HCV infection and low intervention responsivity.
- Prioritize attention to evaluation data collection protocols, particularly procedures linking pretest to posttest data. Use the cross-site evaluation technical assistance team as needed.
- For Black MSM, who had fewer gains from direct services than other MAI subgroups did, consider EBIs developed with strong involvement of the Black MSM community such as Many Men, Many Voices (3MV) (Wilton et al., 2009).

Appendix D: Multilevel Multivariate Analysis Technical Appendix

The dependent variables in the multivariate models are dichotomous outcomes, coded 1 if the participant had a positive outcome and 0 otherwise, suggesting a binomial distribution. A positive outcome is defined as meeting either one of two criteria:

- The participant reported engaging in the undesirable behavior at baseline and reduced the frequency or altogether ceased engaging in the behavior at exit; or
- The participant did not report engaging in the behavior at both baseline and at exit.

The structure of the Minority AIDS Initiative (MAI) participant-level data used in the multivariate analysis is hierarchical, with participants nested within grant sites. Participants of any given grantee are likely to have shared characteristics, violating the assumption of uncorrelated residuals underlying simple linear regression models. To account for this clustering by grantee, we used a multilevel approach, with participants as level 1 and grantees as level 2. Grantees were assumed to contribute a random component to the variation in the outcome measure. The logit transformation was specified as the link function for the models; that is, the models predicted the logarithm of the odds of having a successful outcome. The estimated effects of the predictors were transformed into odds ratios for displaying in the result tables.

If we suppose that η_{ij} represents the log odds of a positive outcome for the i^{th} participant of grantee *j*, and assume, for the sake of simplicity, that there is a single predictor in the model, then the level 1 equation is

$$\eta_{ij} = \beta_{0j} + \beta_{1j} X_{ij},$$

where β_{0j} is the intercept for grantee *j*, β_{1j} is the slope of predictor X for grantee *j*, and x_{ij} is the value of predictor X for the *i*th participant of grantee *j*. The level 2 equations are

$$\beta_{0j} = \gamma_{00} + u_{0j} \text{ and}$$
$$\beta_{1j} = \gamma_{10},$$

where γ_{00} is a cross-grantee component of the intercept and u_{0j} is the component of the intercept specific to grantee *j*. In this particular analysis, we did not have any hypotheses about variability in slopes across grantees, so γ_{10} represents a fixed slope across grantees. Combining the level 1 and level 2 equations yields the following single equation describing the multilevel models we estimated:

$$\eta_{ij} = \gamma_{00} + u_{0j} + \gamma_{10} X_{ij},$$

where γ_{00} and γ_{10} are fixed parameters and u_{0j} is the random parameter.

In the rest of this appendix, we present detailed information about the multiple models we estimated for each of the four behavioral outcomes. The "best" models, selected on the basis of information content and model fit, are discussed in detail in Chapter 4.

Exhibit D.1. Multilevel Models: Binge (1)

Multilevel Mixed-Effects Models Predicting the Likelihood of Reducing Binge Drinking Between Baseline and Exit

	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6		Model 7	
	Param-eter	*p*-value	Param-eter	*p*-value	Param-eter	*p*-value	Param-eter	*p*-value	Param-eter	*p*-value	Param-eter	*p*-value	Param-eter	*p*-value
Fixed Effects (Odds Ratios)														
Intercept	6.457	<0.001	5.252	<0.001	6.271	<0.001	6.329	<0.001	6.518	<0.001	5.665	<0.001	7.319	<0.001
Days Binged at Baseline	0.955	<0.001	0.956	<0.001							0.958	<0.001		
Perceived Great Risk From Binge at Baseline			1.471	0.001							1.508	0.001		
Age 18–24													0.632	0.028
MSM					0.642	0.024			0.675	0.056	0.660	0.048		
Male							0.834	0.147	0.895	0.401	0.962	0.777		
Random Effects (Variance Components)														
Intercept	0.79	0.002	0.74	0.002	0.81	0.002	0.83	0.001	0.80	0.002	0.70	0.003	0.66	0.004

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Model Characteristics							
Number of Participants	2,400	2,282	2,364	2,373	2,364	2,248	2,398
Number of Grantees	40	40	40	40	40	40	40
Predictive Accuracy	81.9%	81.5%	82.1%	82.0%	82.1%	81.8%	82.0%
Akaike Information Criterion (Corrected)	11,910	11,323	11,756	11,787	11,757	11,193	11,856
Bayesian Information Criterion	11,916	11,329	11,762	11,793	11,763	11,199	11,862

Source: HIV Cohort 9 and Cohort 10 participant-level data reflective of services received through FY2015.

Exhibit D.2. Multilevel Models: Binge (2)

Multilevel Mixed-Effects Models Predicting the Likelihood of Reducing Binge Drinking Between Baseline and Exit

	Model 8		Model 9		Model 10		Model 11		Model 12		Model 13		Model 14	
	Parameter	*p*-value	Parameter	*p*-value	Parameter	*p*-value	Parameter	*p*-value	Parameter	*p*-value	Parameter	*p*-value	Parameter	*p*-value
Fixed Effects (Odds Ratios)														
Intercept	6.984	<0.001	5.354	<0.001	4.834	<0.001	4.637	<0.001	7.230	<0.001	3.828	<0.001	5.224	<0.001
Days Binged at Baseline	0.954	<0.001					0.955	<0.001	0.956	<0.001			0.954	<0.001
Perceived Great Risk From Binge at Baseline	1.460	0.002					1.460	0.002	1.501	0.001			1.423	0.005
Age 18–24	0.581	0.009							0.608	0.017			0.586	0.009
MSM									0.662	0.039			0.669	0.044
Male														
Black			1.200	0.292	1.323	0.155	1.241	0.281						
Hispanic					1.210	0.313	1.125	0.539						
Improved on Perception of Risk From Binge											1.742	<0.001	1.658	<0.001
Random Effects (Variance Components)														
Intercept	0.53	0.006	0.84	0.001	0.81	0.002	.71	0.003	0.53	0.006	0.73	0.002	0.44	0.009

	Model 8	Model 9	Model 10	Model 11	Model 12	Model 13	Model 14*
Model Characteristics							
Number of Participants	2,280	2,369	2,369	2,251	2,246	2,229	2,194
Number of Grantees	40	40	40	40	40	40	40
Predictive Accuracy	81.4%	82.1%	82.1%	81.6%	81.6%	81.5%	81.8%
Akaike Information Criterion (Corrected)	11,272	11,769	11,767	11,185	11,144	11,015	10,884
Bayesian Information Criterion	11,277	11,775	11,772	11,190	11,150	11,021	10,889

Source: HIV Cohort 9 and Cohort 10 participant-level data reflective of services received through FY2015.

* Reported in summary table in Chapter 4.

Exhibit D.3. Multilevel Models: Marijuana Use (1)

Multilevel Mixed-Effects Models Predicting the Likelihood of Reducing Marijuana Use Between Baseline and Exit

	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6		Model 7	
	Param-eter	*p*-value	Param-eter	*p*-value	Param-eter	*p*-value	Param-eter	*p*-value	Param-eter	*p*-value	Param-eter	*p*-value	Param-eter	*p*-value
Fixed Effects (Odds Ratios)														
Intercept	10.590	<0.001	7.646	<0.001	7.927	<0.001	3.713	<0.001	12.570	<0.001	5.072	<0.001	5.277	<0.001
Age 18–24	0.514	<0.001												
Black MSM			0.684	0.011										
Homeless					0.625	<0.001								
Improved on Cigarette Use							3.161	<0.001						
Past-30-Day Cigarette Use at Baseline (Y/N)									0.328	<0.001				
Improved on Perception of Great Risk of Harm From Marijuana Use											2.001	<0.001		
Perception of Great Risk of Harm From Marijuana Use at Baseline													3.110	<0.001
Random Effects (Variance Components)														
Intercept	0.88	<0.001	1.11	<0.001	1.12	<0.001	1.22	<0.001	1.13	<0.001	1.04	<0.001	0.90	<0.001

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Model Characteristics							
Number of Participants	7,791	7,753	7,789	7,412	7,558	6,699	6,963
Number of Grantees	49	49	49	49	49	49	49
Predictive Accuracy	85.9%	85.9%	85.9%	86.6%	86.4%	85.7%	85.5%
Akaike Information Criterion (Corrected)	41,419	41,188	41,439	40,210	41,005	35,679	37,345
Bayesian Information Criterion	41,426	41,195	41,446	40,217	41,011	35,686	37,352

Source: HIV Cohort 9 and Cohort 10 participant-level data reflective of services received through FY2015.

Exhibit D.4. Multilevel Models: Marijuana Use (2)

Multilevel Mixed-Effects Models Predicting the Likelihood of Reducing Marijuana Use Between Baseline and Exit

	Model 8		Model 9		Model 10		Model 11		Model 12		Model 13		Model 14	
	Param-eter	*p*-value	Param-eter	*p*-value	Param-eter	*p*-value	Param-eter	*p*-value	Param-eter	*p*-value	Param-eter	*p*-value	Param-eter	*p*-value
Fixed Effects (Odds Ratios)														
Intercept	2.077	0.001	9.607	<0.001	6.935	<0.001	10.670	<0.001	3.609	<0.001	6.163	<0.001	6.881	<0.001
Improved on Binge Alcohol Use	4.280	<0.001												
Past-30-Day Binge Alcohol Use at Baseline			0.311	<0.001										
Past-30-Day Attendance in Substance Abuse Prevention Classes at Exit					1.113	0.233								
Average Days of Cigarette Use at Baseline							0.966	<0.001						
Family Cohesion Scale									1.295	<0.001				
Total Individual Dosage											1.001	0.017		
Total Group Dosage													1.000	0.120
Random Effects (Variance Components)														
Intercept	1.06	0.001	1.03	0.001	1.15	<0.001	1.16	<0.001	1.14	<0.001	1.27	0.001	1.14	0.002

	Model 8	Model 9	Model 10	Model 11	Model 12	Model 13	Model 14
Model Characteristics							
Number of Participants	2,340	2,393	7,750	7,558	7,459	3,910	4,391
Number of Grantees	39	41	49	49	48	31	33
Predictive Accuracy	85.2%	84.5%	85.9%	86.6%	86.1%	85.3%	87.4%
Akaike Information Criterion (Corrected)	12,173	12,415	41,199	40,724	39,818	21,354	23,622
Bayesian Information Criterion	12,178	12,421	41,205	40,731	39,825	21,361	23,628

Source: HIV Cohort 9 and Cohort 10 participant-level data reflective of services received through FY2015.

Exhibit D.5. Multilevel Models: Marijuana Use (3)

Multilevel Mixed-Effects Models Predicting the Likelihood of Reducing Marijuana Use Between Baseline and Exit

	Model 15		Model 16		Model 17		Model 18		Model 19		Model 20		Model 21	
	Param-eter	*p*-value	Param-eter	*p*-value	Param-eter	*p*-value	Param-eter	*p*-value	Param-eter	*p*-value	Param-eter	*p*-value	Param-eter	*p*-value
Fixed Effects (Odds Ratios)														
Intercept	11.674	<0.001	6.603	<0.001	4.087	<0.001	3.457	<0.001	3.639	<0.001	3.526	<0.001	3.969	<0.001
Age 18–24	0.502	<0.001							0.456	<0.001	0.458	<0.001	0.456	<0.001
Black MSM	0.660	0.006							0.637	0.014	0.639	0.014	0.636	0.013
Homeless	0.607	<0.001							0.857	0.352				
Improved on Cigarette Use			2.089	<0.001					1.987	<0.001	2.001	<0.001	2.003	<0.001
Past-30-Day Cigarette Use at Baseline (Y/N)			0.471	<0.001					0.498	<0.001	0.495	<0.001	0.494	<0.001
Average Days of Cigarette Use at Baseline			1.003	0.580										
Improved on Perception of Great Risk of Harm From Marijuana Use					1.695	<0.001			1.771	<0.001	1.772	<0.001	1.766	<0.001
Perception of Great Risk of Harm From Marijuana Use at Baseline					2.839	<0.001			2.474	<0.001	2.474	<0.001	2.470	<0.001
Improved on Binge Alcohol Use							3.242	<0.001						
Past-30-Day Binge Alcohol Use at Baseline (Y/N)							0.434	<0.001						
Family Cohesion Scale									1.185	0.001	1.190	0.001	1.190	0.001
State With Marijuana Decriminalization													0.793	0.351
Random Effects (Variance Components)														
Intercept	0.80	<0.001	1.22	<0.001	0.84	<0.001	0.97	0.002	0.54	<0.001	0.55	<0.001	0.54	0.001

	Model 15	Model 16	Model 17	Model 18	Model 19	Model 20	Model 21
Model Characteristics							
Number of Participants	7,745	7,412	6,699	2,340	6,135	6,137	6,137
Number of Grantees	49	49	49	39	48	48	48
Predictive Accuracy	86.0%	86.7%	85.7%	85.7%	87.0%	87.0%	87.0%
Akaike Information Criterion (Corrected)	41,200	40,436	36,119	12,265	33,890	33,898	33,902
Bayesian Information Criterion	41,207	40,443	36,126	12,271	33,897	33,905	33,908

Source: HIV Cohort 9 and Cohort 10 participant-level data reflective of services received through FY2015.

Exhibit D.6. Multilevel Models: Marijuana Use (4)

Multilevel Mixed-Effects Models Predicting the Likelihood of Reducing Marijuana Use Between Baseline and Exit

	Model 22		Model 23		Model 24		Model 25		Model 26*		Model 27*	
	Param-eter	*p*-value	Param-eter	*p*-value	Param-eter	*p*-value	Param-eter	*p*-value	Param-eter	*p*-value	Param-eter	*p*-value
Fixed Effects (Odds Ratios)												
Intercept	7.220	<0.001	5.118	<0.001	5.920	<0.001	5.313	<0.001	7.067	<0.001	8.771	<0.001
Age 18–24	0.414	<0.001	0.487	<0.001	0.485	<0.001	0.490	<0.001	0.477	<0.001	0.409	<0.001
Black MSM	0.662	0.014	0.718	0.086								
Black					0.835	0.157			0.805	0.094	0.761	0.022
MSM					0.720	0.020	0.720	0.019	0.723	0.021	0.695	0.005
Homeless												
Average Days of Marijuana Use at Baseline			0.934	<0.001	0.934	<0.001	0.934	<0.001	0.934	<0.001		
Improved on Cigarette Use	2.055	<0.001	1.949	<0.001	1.937	<0.001	1.987	<0.001	1.943	<0.001	2.078	<0.001
Past-30-Day Cigarette Use at Baseline (Y/N)	0.469	<0.001	0.633	<0.001	0.633	<0.001	0.645	<0.001	0.630	<0.001	0.477	<0.001
Improved on Perception of Great Risk of Harm From Marijuana Use			1.744	<0.001	1.731	<0.001	1.732	<0.001	1.723	<0.001		
Perception of Great Risk of Harm From Marijuana Use at Baseline			2.010	<0.001	2.040	<0.001	2.004	<0.001	2.038	<0.001		
Improved on Binge Alcohol Use												
Past-30-Day Binge Alcohol Use at Baseline (Y/N)												
Family Cohesion Scale	1.235	<0.001	1.129	0.028	1.126	0.034	1.123	0.037	1.126	0.034	1.235	<0.001
State With Marijuana Decriminalization	0.709	0.214							0.740	0.147	0.672	0.141
Random Effects (Variance Components)												
Intercept	0.73	<0.001	0.36	0.002	0.34	0.002	0.36	0.002	0.32	0.003	0.67	<0.001

	Model 22	Model 23	Model 24	Model 25	Model 26*	Model 27*
Model Characteristics						
Number of Participants	7,063	6,137	6,057	6,131	6,057	6,965
Number of Grantees	48	48	48	48	48	48
Predictive Accuracy	87.0%	87.8%	87.9%	87.7%	87.9%	87.1%
Akaike Information Criterion (Corrected)	38,721	33,804	33,422	33,780	33,419	38,215
Bayesian Information Criterion	38,727	33,811	33,428	33,787	33,426	38,222

Source: HIV Cohort 9 and Cohort 10 participant-level data reflective of services received through FY2015.

* Reported in summary table in Chapter 4.

Exhibit D.7. Multilevel Models: Protected Vaginal Sex (1)

Multilevel Mixed-Effects Models Predicting the Likelihood of Reducing Unprotected Vaginal Sex Between Baseline and Exit

	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6		Model 7	
	Param-eter	*p*-value	Param-eter	*p*-value	Param-eter	*p*-value	Param-eter	*p*-value	Param-eter	*p*-value	Param-eter	*p*-value	Param-eter	*p*-value
Fixed Effects (Odds Ratios)														
Intercept	1.225	0.096	0.903	0.384	1.031	0.810	1.140	0.253	0.782	0.087	0.591	0.001	0.658	0.009
Female	0.852	0.076											0.813	0.024
Age 18–24			1.510	<0.001							1.578	<0.001	1.586	<0.001
African American/Black					1.170	0.165								
Hispanic							0.953	0.694						
Improved on Perception of Risk From Unprotected Vaginal Sex									1.546	<0.001	1.615	<0.001	1.625	<0.001
Random Effects (Variance Components)														
Intercept	0.42	<0.001	0.34	<0.001	0.41	<0.001	0.41	<0.001	0.41	<0.001	0.33	<0.001	0.34	<0.001

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Model Characteristics							
Number of Participants	3,485	3,498	3,444	3,444	3,446	3,444	3,482
Number of Grantees	46	46	46	46	46	46	46
Predictive Accuracy	63.1%	63.4%	63.6%	63.2%	63.2%	63.5%	63.8%
Akaike Information Criterion (Corrected)	15,169	15,218	14,989	14,985	15,018	15,015	14,957
Bayesian Information Criterion	15,175	15,224	14,995	14,991	15,024	15,021	14,963

Source: HIV Cohort 9 and Cohort 10 participant-level data reflective of services received through FY2015.

Exhibit D.8. Multilevel Models: Protected Vaginal Sex (2)

Multilevel Mixed-Effects Models Predicting the Likelihood of Reducing Unprotected Vaginal Sex Between Baseline and Exit

	Model 8		Model 9		Model 10		Model 11		Model 12		Model 13	
	Param-eter	*p*-value	Param-eter	*p*-value	Param-eter	*p*-value	Param-eter	*p*-value	Param-eter	*p*-value	Param-eter	*p*-value
Fixed Effects (Odds Ratios)												
Intercept	0.671	0.001	1.272	.099	1.355	0.060	1.146	0.222	0.977	0.853	0.737	0.043
Intention to Have Safe Sex in the Next 6 Months at Baseline	2.264	<0.001										
There Are People You Talk to About Personal Issues Having to Do With Sex at Baseline			0.874	0.217								
Binge Alcohol Use Reported in the Past 30 Days at Baseline					0.865	0.341						
Marijuana Use Reported in the Past 30 Days at Baseline							0.997	0.456				
Perceived Great Risk of Harm From Vaginal Sex Without a Condom at Baseline									1.232	0.015	1.141	0.139
Improved on Perception of Risk From Unprotected Vaginal Sex											1.485	<0.001
Random Effects (Variance Components)												
Intercept	0.42	<0.001	0.41	<0.001	0.55	0.004	0.41	<0.001	0.43	<0.001	0.43	<0.001

	Model 8	Model 9	Model 10	Model 11	Model 12	Model 13
Model Characteristics						
Number of Participants	3,468	3,480	1,070	3,375	3,467	3,446
Number of Grantees	46	46	38	46	46	46
Predictive Accuracy	64.9%	63.3%	65.9%	62.9%	63.4%	63.6%
Akaike Information Criterion (Corrected)	15,236	15,142	4,724	14,694	15,099	15,027
Bayesian Information Criterion	15,242	15,148	4,729	14,700	15,105	15,033

Source: HIV Cohort 9 and Cohort 10 participant-level data reflective of services received through FY2015.

Exhibit D.9. Multilevel Models: Protected Vaginal Sex (3)

Multilevel Mixed-Effects Models Predicting the Likelihood of Reducing Unprotected Vaginal Sex Between Baseline and Exit

	Model 14		Model 15		Model 16		Model 17	
	Parameter	*p*-value	Parameter	*p*-value	Parameter	*p*-value	Parameter	*p*-value
Fixed Effects (Odds Ratios)								
Intercept	1.017	0.901	1.456	0.045	0.629	0.002	1.886	<0.001
Total Individual Dosage	1.000	0.759						
Total Group Dosage			1.000	0.154				
Sexual Self-Efficacy Scale					1.045	<0.001		
Abuse in Past 3 Months Scale							0.649	<0.001
Random Effects (Variance Components)								
Intercept	0.38	0.002	0.53	0.004	0.46	<0.001	0.42	<0.001

	Model 14	Model 15	Model 16	Model 17
Model Characteristics				
Number of Participants	1,948	1,984	3,466	3,438
Number of Grantees	30	30	46	46
Predictive Accuracy	63.2%	65.0%	64.6%	64.2%
Akaike Information Criterion (Corrected)	8,516	8,724	15,152	14,993
Bayesian Information Criterion	8,521	8,730	15,158	14,999

Source: HIV Cohort 9 and Cohort 10 participant-level data reflective of services received through FY2015.

Exhibit D.10. Multilevel Models: Protected Vaginal Sex (4)

Multilevel Mixed-Effects Models Predicting the Likelihood of Reducing Unprotected Vaginal Sex Between Baseline and Exit

	Model 18		Model 19		Model 20		Model 21*	
	Parameter	*p*-value	Parameter	*p*-value	Parameter	*p*-value	Parameter	*p*-value
Fixed Effects (Odds Ratios)								
Intercept	0.407	<0.001	0.393	<0.001	1.067	0.739	0.455	0.001
Female	0.812	0.025	0.742	0.002	0.832	0.046	0.784	0.012
Age 18–24	1.594	<0.001	1.596	<0.001	1.596	<0.001	1.640	<0.001
Improved on Perception of Risk From Unprotected Vaginal Sex	1.588	<0.001	1.551	<0.001	1.653	<0.001	1.593	<0.001
Intention to Have Safe Sex in the Next 6 Months at Baseline	2.216	<0.001					2.121	<0.001
Sexual Self-Efficacy Scale			1.046	<0.001			1.027	0.001
Abuse in Past 3 Months					0.647	<0.001	0.689	<0.001
Random Effects (Variance Components)								
Intercept	0.35	<0.001	0.38	<0.001	0.34	<0.001	0.39	<0.001

	Model 18	Model 19	Model 20	Model 21*
Model Characteristics				
Number of Participants	3,397	3,399	3,370	3,314
Number of Grantees	46	46	46	46
Predictive Accuracy	66.3%	64.8%	65.0%	67.6%
Akaike Information Criterion (Corrected)	14,966	14,911	14,746	14,693
Bayesian Information Criterion	14,973	14,917	14,752	14,699

Source: HIV Cohort 9 and Cohort 10 participant-level data reflective of services received through FY2015

* Reported in summary table in Chapter 4.

Exhibit D.11. Multilevel Models: Protected Anal Sex (1)

Multilevel Mixed-Effects Models Predicting the Likelihood of Reducing Unprotected Anal Sex Between Baseline and Exit

	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6		Model 7	
	Param-eter	*p*-value	Param-eter	*p*-value	Param-eter	*p*-value	Param-eter	*p*-value	Param-eter	*p*-value	Param-eter	*p*-value	Param-eter	*p*-value
Fixed Effects (Odds Ratios)														
Intercept	2.061	<0.001	1.084	0.681	1.230	0.261	1.091	0.670	1.918	0.004	1.777	0.002	1.303	0.145
Female	0.399	<0.001												
MSM			1.963	0.004										
African American/Black					1.652	0.031								
Perceived Great Risk of Harm From Anal Sex Without a Condom at Baseline							1.634	0.006						
Improved on Perception of Risk From Sex While High									0.760	0.171				
Had Sex While Drunk or High in Past 3 Months at Baseline											0.719	0.064		
Number of Sexual Partners in Past 3 Months at Baseline													1.045	0.164
Random Effects (Variance Components)														
Intercept	0.34	0.108	0.44	0.067	0.44	0.053	0.53	0.044	0.51	0.047	0.59	0.043	0.48	0.050

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Model Characteristics							
Number of Participants	701	700	696	698	692	635	683
Number of Grantees	41	41	41	41	41	41	41
Predictive Accuracy	68.6%	68.9%	67.2%	66.0%	67.5%	67.1%	66.9%
Akaike Information Criterion (Corrected)	3,061	3,059	3,034	3,049	3,020	2,776	2,978
Bayesian Information Criterion	3,065	3,063	3,038	3,053	3,025	2,780	2,983

Source: HIV Cohort 9 and Cohort 10 participant-level data reflective of services received through FY2015.

Exhibit D.12. Multilevel Models: Protected Anal Sex (2)

Multilevel Mixed-Effects Models Predicting the Likelihood of Reducing Unprotected Anal Sex Between Baseline and Exit

	Model 8		Model 9		Model 10		Model 11		Model 12*	
	Parameter	*p*-value	Parameter	*p*-value	Parameter	*p*-value	Parameter	*p*-value	Parameter	*p*-value
Fixed Effects (Odds Ratios)										
Intercept	1.997	0.001	2.959	0.001	1.017	0.961	1.158	0.511	1.307	0.295
Total Individual Dosage	0.998	0.013								
Total Group Dosage			0.999	0.019						
Female					0.452	0.031	0.403	<0.001	0.440	0.003
MSM					1.177	0.625				
African American/Black					1.758	0.015	1.695	0.021	1.782	0.020
Perceived Great Risk of Harm From Anal Sex Without a Condom					1.644	0.006	1.642	0.006	1.624	0.011
Had Sex While Drunk or High in Past 3 Months at Baseline									0.694	0.044
Random Effects (Variance Components)										
Intercept	0.11	0.587	0.58	0.130	0.32	0.137	0.30	0.144	0.39	0.115

	Model 8	Model 9	Model 10	Model 11	Model 12*
Model Characteristics					
Number of Participants	282	485	690	691	626
Number of Grantees	27	27	41	41	41
Predictive Accuracy	59.9%	68.9%	66.5%	66.6%	68.8%
Akaike Information Criterion (Corrected)	1,226	2,146	3,031	3,031	2,756
Bayesian Information Criterion	1,230	2,150	3,035	3,036	2,760

Source: HIV Cohort 9 and Cohort 10 participant-level data reflective of services received through FY2015.

* Reported in summary table in Chapter 4.

Appendix E: Full List of Interventions Implemented by Cohort 9 and Cohort 10 Grantees

This Appendix provides a complete list of the direct-service interventions implemented by Cohort 9 and Cohort 10 grantees, as reported in SAMHSA's Prevention Management Reporting and Training System (PMRTS), before February 23, 2015.

- 3 Steps in 30 Days
- 3-Day Harm Reduction Workshop
- Adaptation of Holistic Health and Recovery Program (HHRP)
- BASIC Integrated Curriculum (Making Proud Choices & Toward No Drugs)
- Be Proud! Be Responsible!
- Behavioral Health Counseling
- Booster
- Brief Alcohol Screening and Interventions for College Students (BASICS)
- Brief Strategic Family Therapy (BSFT)
- Challenging College Alcohol Abuse (environmental)
- CLEAR
- Community Trials Intervention To Reduce High Risk Drinking (environmental)
- Comparative Risk Counseling Services (CRCS)
- Coping with Work and Family Stress
- Creating Lasting Family Connections/Creating Lasting Connections
- d-up: Defend Yourself!
- Educational Theatre

- Gathering of Native Americans
- Get Connected
- Health Belief Model
- Healthy Alternatives to Reduce the Risk of HIV Program (HAARP)
- Hillsborough County Sheriff's Office Substance Abuse Treatment Program (Tampa, Florida)
- HIV 101 (basic HIV education)
- Holistic Health and Recovery Program (HHRP)
- Individual Substance Abuse/Risk Reduction Counseling
- Integrated SA [substance abuse] and HIV/STI [sexually transmitted infection] Brief Motivational Interview
- Let's Talk
- Let's Talk Integrated SA/HIV multi-session long intervention
- Life on the Outside Support Group (Living in Balance Supplemental Sessions)
- Life on the Yard
- Life Skills Training
- Liver Wellness & Hepatitis Prevention (aka Hepatitis 101)
- Living in Balance
- Living in Balance: Moving From a Life of Addiction to a Li~~f~~ve of Recovery
- Many Men, Many Voices
- MIP [Modelo de Intervención Psicomédica]
- Modified Long Beach AIDS Community Demonstration Project
- Monthly Events
- Motivational Enhancement Therapy
- Motivational Interviewing
- Motivational Interviewing-based HIV Risk Reduction

- Mpowerment
- Nia
- NIDA [National Institute on Drug Abuse] Community Outreach Model
- P3 [Positive Peer Prevention] Curriculum (adaptation of Many Men, Many Voices & Motivational Enhancement Therapy/Cognitive Behavioral Therapy)
- P333 [A community-based prevention program designed to address substance abuse, HIV infection, and HCV infection among underserved and high-risk Chinese, Filipino, and Vietnamese adults, with special focus on men who have sex with men (Toleran et al., 2013)]
- P333 & Popular Opinion Leader
- Peer Coaching
- Peer Network
- Popular Opinion Leader
- Positive Transitions
- PRIME for Life (PFL)
- Program to Encourage Active, Rewarding Lives for Seniors (PEARLS)
- Project START
- Project Towards No Drug Abuse (Project TND)
- PROMISE
- Protocol-Based HIV Counseling and Testing (PBC)
- Rapid HIV Testing
- RAPP
- Recovery Readiness Support Group
- RESPECT
- Safe in the City
- Safety Counts
- Say It Straight (SIS)

- Screening, Brief Intervention, and Referral to Treatment (SBIRT)
- Seeking Safety
- Self-Help in Eliminating Life-Threatening Diseases (SHIELD)
- Sisters Informing Sisters on Topics about AIDS (SISTA)
- SISTA with integrated SA component
- STD 101 (basic STD education)
- Street Smart
- Strengthening Families & RAPP
- Strengthening Families Program
- Video Opportunities for Innovative Condom Education & Safer Sex (VOICES/VOCES)