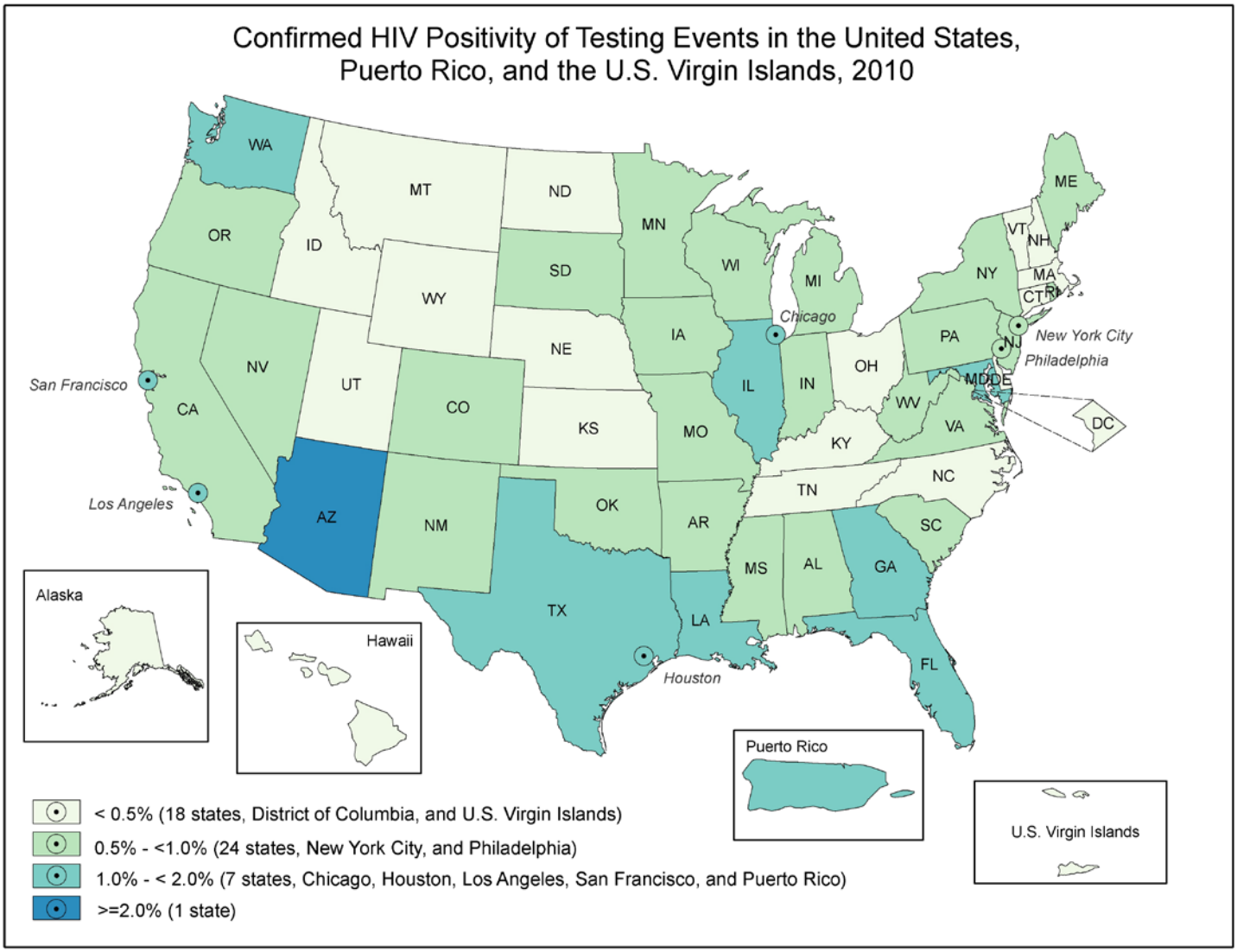
HIV Testing at CDC-Funded Sites, United States, Puerto Rico, and the U.S. Virgin Islands, 2010



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

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INTRODUCTION

Human immunodeficiency virus (HIV) testing is essential for improving the health of people living with HIV and reducing new HIV infections. HIV testing improves the health of people living with HIV by identifying undiagnosed HIV infection and linking persons with HIV to medical care, treatment, and prevention services. HIV testing also significantly reduces the risk of HIV transmission among those who learn they are living with HIV. Studies have shown that high-risk sexual behavior is reduced substantially after people become aware of their HIV positive status.[1] Of the estimated 1.1 million adults and adolescents living with HIV in the United States at the end of 2009, 18% were unaware of their infection.[2] Among all persons diagnosed with HIV infection in 2008, 33% progressed to Acquired Immunodeficiency Syndrome (AIDS) within one year of diagnosis.[3] Most of these persons were likely infected with HIV for years before they were diagnosed. HIV testing and early diagnosis of HIV allows persons living with HIV to benefit from medical care that helps reduce disease progression and from interventions that help prevent further HIV transmission. Nevertheless, approximately 55% of adults in the United States in 2009 were never tested for HIV.[4] To increase the number of persons who are aware of their HIV status, the Centers for Disease Control and Prevention (CDC) recommends HIV screening as part of routine medical care for all persons aged 13-64 years in health care settings.[5] CDC is currently updating guidelines from 2001 for persons seeking HIV testing services in non-health care settings (i.e., HIV testing sites, outreach).[6]

Since 1985, when the first HIV tests became available, CDC has funded HIV testing at health care and non-health care sites.[7] Staff at these sites collect information about the persons tested (e.g., demographic information, behavioral risk factors), current and prior test results, receipt of test results, and referrals. Information about clients is collected by a service provider for each HIV testing episode, sent to an appropriate health department, and then assessed for completeness and accuracy. This information is then reported by the appropriate health department to CDC on a regular basis. In 2010, CDC funded grantees to provide HIV testing and referral services primarily through five program announcements:

1. Program announcement 10-1001 funded comprehensive HIV prevention services for 59 health departments: 50 state health departments, six municipal or county health departments (Chicago, Houston, Los Angeles, New York City, Philadelphia, and San Francisco), District of Columbia, Puerto Rico, and the U.S. Virgin Islands.
2. Expanded Testing Initiative program announcements 07-768 and 10-10138 funded expanded testing for populations disproportionately affected by HIV for 30 health departments: 22 state health departments (Alabama, Arizona, California, Connecticut, Florida, Georgia, Illinois, Louisiana, Maryland, Massachusetts, Michigan, Mississippi, Missouri, New Jersey, New York State, North Carolina, Ohio, Pennsylvania, South Carolina, Tennessee, Texas, and Virginia), six municipal or county health departments (Chicago, Houston, Los Angeles, New York City, Philadelphia, and San Francisco), District of Columbia, and Puerto Rico.
3. Program Announcement 08-0803 funded HIV testing services for directly-funded community based organizations (CBOs) in Puerto Rico and the U.S. Virgin Islands.
4. Program announcement 10-1003 directly funded CBOs to provide HIV prevention interventions that may or may not include HIV testing.
5. Program announcement 06-618 directly funded CBOs, serving young men of color who have sex with men and young transgendered persons of color, to provide HIV prevention interventions that may or may not include HIV testing.

Monitoring and evaluation, which includes data quality assurance, is critical to the success of local HIV prevention and clinical care programs. Grantees are encouraged to develop and use data quality assurance protocols and procedures to improve and maintain high-quality data.[8] Additionally, as required in CDC program announcements that support CDC-funded testing activities, all CDC grantees must put in place processes to ensure program quality (e.g., providing HIV test results to clients promptly and linking confirmed HIV-positive clients to HIV medical care).

PURPOSE OF REPORT

This report is intended to be used in conjunction with other relevant information (e.g., progress reports, surveillance data, and census data) by HIV program managers and policy makers, HIV testing service providers, CDC Project Officers, evaluators, researchers, and others interested in the public health implications of HIV prevention program activity. HIV testing data should be utilized as a tool to learn systematically from our work, inform program practice, and more rigorously and credibly document our program progress. Finally, the ultimate goal of any data collection and utilization should be to contribute to greater program effectiveness. HIV testing data have been used at the national and local levels for HIV prevention policy, program decision-making, program monitoring, evaluation activities, research, presentations, and reports.[9-16]

This report provides data related to high-impact HIV prevention (specifically, HIV testing and linkage to care)[17] and the primary goals of the National HIV/AIDS Strategy for the United States: 1) reduce the number of persons who become HIV infected, 2) increase access to care and improve health outcomes for persons living with HIV, and 3) reduce HIV-related health disparities,[18] and answers the following national HIV testing monitoring and evaluation questions for CDC-funded HIV testing programs:

1. What is the total number of testing events that have been conducted?
    a. nationally and by health department — Table 1
    b. by gender (i.e., female, male, and transgender) — Table 2
    c. by age group
    d. by race/ethnicity
    e. by testing site type
    f. by use of rapid tests
    g. by gender (i.e., female, male, and transgender) and age group
    h. by gender (i.e., female, male, and transgender) and race/ethnicity
    i. by gender (i.e., female, male, and transgender) and testing site type
    j. by gender (i.e., female, male, and transgender) and use of rapid tests
2. What is the total number of newly identified confirmed HIV-positive testing events that have been conducted?
    a. nationally and by health department — Table 1
    b. by gender (i.e., female, male, and transgender) — Table 3
    c. by age group
    d. by race/ethnicity
    e. by testing site type

f. by use of rapid tests
g. by gender (i.e., female, male, and transgender) and age group
h. by gender (i.e., female, male, and transgender) and race/ethnicity
i. by gender (i.e., female, male, and transgender) and testing site type
j. by gender (i.e., female, male, and transgender) and use of rapid tests

3. Of all preliminary and confirmed HIV-positive testing events, what percentage of persons received their test results?

    a. nationally — Table 4
    b. by gender (i.e., female, male, and transgender)
    c. by age group
    d. by race/ethnicity
    e. by testing site type
    f. by use of rapid tests

4. Of all confirmed HIV-positive testing events, what was the percent distribution of persons tested by risk category?

    a. nationally — Table 5

    b. by gender (i.e., female and male)

5. For both confirmed and newly identified confirmed HIV-positive testing events, what percentages of persons were linked to HIV medical care?

    a. nationally — Table 6

6. For both confirmed and newly identified confirmed HIV-positive testing events, what percentages of persons were referred to HIV prevention services?

    a. nationally — Table 6

7. For both confirmed and newly identified confirmed HIV-positive testing events, what percentages of persons were referred to partner services?

    a. nationally — Table 6

CDC-funded HIV testing services are monitored with data reported by grantees in aggregate (e.g., tables of summary counts of information) through Annual Progress Reports (APRs) and at the individual test level through the National HIV Prevention Program Monitoring and Evaluation (NHM&E) system (e.g., data files with data on individual HIV tests). These NHM&E data, which represent a subset of all HIV testing data reported in the APRs, are submitted to CDC in a standardized format. This report includes data from all health departments for five program announcements, but primarily focuses on NHM&E test-level data. Analyses for all tables and figures in this report include NHM&E test-level data; however, Table 1also includes aggregate-level data reported to CDC as part of an extensive data quality assurance process. This report uses NHM&E testing data received and processed by CDC as of March 2012 for HIV testing events conducted during January 1st, 2010 to December 31st, 2010. Compared to previously published CDC annual HIV testing reports, this report documents the highest number of HIV testing events (3.26 million).

SELECT HIGHLIGHTS OF FINDINGS: UNITED STATES, PUERTO RICO, AND THE U.S. VIRGIN ISLANDS, 2010

Total number of HIV testing events[a]	**3,263,340**
Total number and percentage of persons with preliminary or confirmed HIV-positive testing events who received their HIV test results[b]	21,779 (94%)
Total number and percentage of confirmed HIV-positive testing events[c]	25,425 (0.8%)
Percentage of persons with a confirmed HIV-positive testing event who were linked to HIV medical care[b]	71%
Percentage of persons with a confirmed HIV-positive testing event who were referred to HIV prevention services[b]	59%
Percentage of persons with a confirmed HIV-positive testing event who were referred to HIV partner services[b]	73%

[a] Includes 2,459,422 test-level HIV testing events in NHM&E format and 803,918 aggregate-level HIV testing events.
[b] Excludes HIV testing records with missing or invalid data. The variables with the highest percentage of excluded HIV testing records were for referral to HIV prevention services (46.6%), followed by linkage to HIV medical care (43.3%), referral to partner services (24.6%), and results received (7.7%) (See Appendix on page 28). CDC is asking grantees to more systematically track linkage and referral data to reduce the number of missing or invalid data and better monitor program effectiveness to ensure that all newly identified persons are linked to HIV medical care, and to HIV prevention and partner services as appropriate.
[c] Percentage based on the total number of HIV testing events.

Total number and percentage of newly identified confirmed HIV-positive testing events[d]	**13,629 (0.6%)**
Female	2,862 (0.2%)
Male	10,630 (0.9%)
Transgender	103 (2.1%)
White	2,871 (0.4%)
Black/African American	7,429 (0.7%)
Hispanic	2,655 (0.5%)
Health care facilities	8,024 (0.5%)
Non-health care facilities	4,715 (0.8%)

[d] Percentage based only on test-level HIV testing events.

RESULTS

Number of HIV Testing Events and HIV Positivity

In 2010, 59 health departments reported to CDC 3,263,340 HIV testing events, of which 2,459,422 (75%) were available as test-level data (Table 1). The overall confirmed HIV positivity of testing events was 0.8%. The newly-identified confirmed HIV positivity of testing events reported by the 52 health departments providing test-level data was 0.6%.

Of the 52 health departments providing test-level data, the highest newly identified confirmed HIV positivity was in Arizona (1.7%), followed by San Francisco (1.2%) and Puerto Rico (1.1%); the lowest newly identified confirmed HIV positivity was in Montana (<0.1%), followed by District of Columbia (0.1%), Michigan (0.1%), Vermont (0.1%), and Wyoming (0.1%) (Table1).

Number of HIV Testing Events by Select Characteristics

Age group

In 2010, the highest percentage of all HIV testing events conducted was among persons aged 20-29 years (40%), followed by persons aged 30-39 years (21%); the lowest percentage of all HIV testing events conducted was among persons less than 13 years old (0.2%) (Table 2).

Gender

In 2010, the highest percentage of all HIV testing events conducted was among males (51%), followed by females (49%); the lowest percentage of all HIV testing events conducted was among transgender persons (0.2%) (Table 2).

Age group and gender

Among females in 2010, the highest percentage of all HIV testing events conducted was among those aged 20-29 years (43%), followed by those aged 30-39 years (21%); the lowest percentage of all HIV testing events conducted was among females less than 13 years old (0.2%) (Table 2).

Among males in 2010, the highest percentage of all HIV testing events conducted was among those aged 20-29 years (38%), followed by those aged 30-39 years (21%); the lowest percentage of all HIV testing events conducted was among males less than 13 years old (0.2%) (Table 2).

Among transgender persons in 2010, the highest percentage of all HIV testing events conducted was among those aged 20-29 years (48%), followed by those aged 30-39 years (23%); the lowest percentage of all HIV testing events conducted was among transgender persons less than 13 years old (0.4%) (Table 2).

Race/Ethnicity

In 2010, the highest percentage of all HIV testing events conducted was among blacks/African Americans (45%), followed by whites (28%) and Hispanics (21%); the lowest percentage of all HIV testing events conducted was among Native Hawaiians or Pacific Islanders (0.2%), followed by American Indians or Alaska Natives (0.5%) and multi-racial persons (1.1%) (Table 2).

Race/Ethnicity and gender

Among females in 2010, the highest percentage of all HIV testing events conducted was among blacks/African Americans (46%), followed by whites (27%) and Hispanics (22%); the lowest percentage of all HIV testing events conducted was among Native Hawaiians or Pacific Islanders (0.2%), followed by American Indians or Alaska Natives (0.5%) and multi-racial persons (1.1%) (Table 2).

Among males in 2010, the highest percentage of all HIV testing events conducted was among blacks/African Americans (44%), followed by whites (29%) and Hispanics (21%); the lowest percentage of all HIV testing events conducted was among Native Hawaiians or Pacific Islanders (0.3%), followed by American Indians or Alaska Natives (0.5%) and multi-racial persons (1.1%) (Table 2).

Among transgender persons in 2010, the highest percentage of all HIV testing events conducted was among blacks/African Americans (36%), followed by Hispanics (28%) and whites (23%); the lowest percentage of all HIV testing events conducted was among Native Hawaiians or Pacific Islanders (1.0%), followed by American Indians or Alaska Natives (1.5%) and multi-racial persons (3.0%) (Table 2).

Testing site type

In 2010, the highest percentage of all HIV testing events conducted was at health care facilities (67%), followed by non-health care facilities (23%); the lowest percentage of all HIV testing events conducted was at correctional facilities (8.3%) (Table 2).

Rapid test used in testing event

In 2010, a higher percentage of all HIV testing events included rapid tests (62%) than testing events that did not include rapid tests (38%) (Table 2).

HIV Positivity by Select Characteristics

Age group

In 2010, the highest newly identified confirmed HIV positivity was among persons aged 40-49 years (0.8%), followed by persons 50 years of age and older (0.7%); the lowest newly identified confirmed HIV positivity was among persons aged 13-19 years (0.2%), followed by persons less than 13 years old (0.4%) (Table 3). In 2010, persons aged 20-29 years accounted for the highest percentage of all HIV tests conducted (40%) and the highest percentage of all newly identified HIV-positive tests (36%) (Figure 1).

Gender

In 2010, the highest newly identified confirmed HIV positivity was among transgender persons (2.1%); the lowest newly identified confirmed HIV positivity was among females (0.2%), followed by males (0.9%) (Table 3). A similar percentage of all HIV tests conducted was among females and males (49% vs. 51%); however, males accounted for the majority of all newly identified HIV-positive tests (78%) (Figure 2).

Age group and gender

Among females in 2010, the highest newly identified confirmed HIV positivity was among those aged 40-49 years (0.5%) and 50 years of age and older (0.5%), followed by those aged 30-39 years (0.3%); the lowest newly identified confirmed HIV positivity was among females aged less than 13 years (0.1%), 13-19 years (0.1%), and 20-29 years (0.1%) (Table 3). In 2010, females aged 20-29 years

accounted for the highest percentage of all HIV tests conducted (43%), and females aged 40-49 years accounted for the highest percentage of all newly identified HIV-positive tests (27%) (Figure 3).

Among males in 2010, the highest newly identified confirmed HIV positivity was among those aged 40-49 years (1.0%), followed by those aged 20-29 years (0.9%) and 30-39 years (0.9%); the lowest newly identified confirmed HIV positivity was among males aged 13-19 years (0.4%) (Table 3). In 2010, males aged 20-29 years accounted for the highest percentage of all HIV tests conducted (38%) and the highest percentage of all newly identified HIV-positive tests (39%) (Figure 3).

Among transgender persons in 2010, the highest newly identified confirmed HIV positivity was among those aged 20-29 years (2.6%), followed by those aged 40-49 years (2.3%) (Table 3).

Race/Ethnicity

In 2010, the highest newly identified confirmed HIV positivity was among blacks/African Americans (0.7%), followed by Native Hawaiian or Pacific Islander (0.6%) and multi-racial persons (0.6%); the lowest newly identified confirmed HIV positivity was among whites (0.4%), Asians (0.4%), and American Indians or Alaska Natives (0.4%) (Table 3). In 2010, blacks/African Americans accounted for the highest percentage of all HIV tests conducted (45%) and the highest percentage of all newly identified confirmed HIV-positive tests (55%) (Figure 4).

Race/Ethnicity and gender

Among females in 2010, the highest newly identified confirmed HIV positivity was among blacks/African Americans (0.4%); the lowest newly identified confirmed HIV positivity was among whites (0.1%) and Asians (0.1%) (Table 3). In 2010, black/African American females accounted for the highest percentage of all HIV tests conducted (46%) and the highest percentage of all newly identified confirmed HIV-positive testing events (68%) (Figure 5).

Among males in 2010, the highest newly identified confirmed HIV positivity was among multi-racial persons (1.1%), followed by blacks/African Americans (1.0%); the lowest newly identified confirmed HIV positivity was among Asians (0.6%), followed by whites (0.7%), American Indians or Alaska Natives (0.7%), and Native Hawaiians or Pacific Islanders (0.7%) (Table 3). In 2010, black/African American males accounted for the highest percentage of all HIV tests conducted (44%) and the highest percentage of all newly identified confirmed HIV-positive testing events (51%) (Figure 5).

Among transgender persons in 2010, using numbers that provide a relatively reliable percentage (see Technical Notes), the highest newly identified confirmed HIV positivity was among blacks/African Americans (3.0%), followed by Hispanics (2.5%); the lowest newly identified confirmed HIV positivity was among whites (0.6%) (Table 3).

Testing site type

In 2010, the highest newly identified confirmed HIV positivity was at non-health care facilities (0.8%); the lowest newly identified confirmed HIV positivity was at correctional facilities (0.4%), followed by health care facilities (0.5%) (Table 3). Health care facilities accounted for the highest percentage of all HIV testing events conducted (67%) and the highest percentage of all newly identified confirmed HIV-positive testing events (59%) (Figure 6).

Rapid test used in testing event

In 2010, the newly identified confirmed HIV positivity was similar (0.6%) among testing events that did include rapid tests and testing events that did not include rapid tests (Table 3).

Receipt of HIV Test Results

In 2010, the percentages of testing events that were followed up with receipt of HIV test results were 80% among all HIV testing events and 93% among testing events of persons with newly identified HIV (Table 4).

Age group

In 2010, the percentage of all testing events that were followed up with receipt of HIV test results was highest among persons 50 years of age and older (89%) and lowest among persons aged 13-19 years (72%) (Table 4). For persons with newly identified confirmed HIV, the percentage of testing events that were followed up with receipt of HIV test results was highest among persons less than 13 years old (100%) and lowest among persons aged 13-19 years (91%).

Gender

In 2010, the percentage of all testing events that were followed up with receipt of HIV test results was highest among transgender persons (94%) and lowest among females (75%) (Table 4). For persons with newly identified confirmed HIV, the percentage of testing events that were followed up with receipt of HIV test results was highest among transgender persons (99%) and lowest among females (92%), followed by males (93%).

Race/Ethnicity

In 2010, the percentage of all testing events that were followed up with receipt of HIV test results was highest among Asians (87%), followed by Native Hawaiians or Pacific Islanders (86%), and lowest among whites (77%) (Table 4). For persons with newly identified confirmed HIV, the percentage of testing events that were followed up with receipt of HIV test results was highest among American Indians or Alaska Natives (98%), followed by Asians (97%), Hispanics (97%), and lowest among blacks/African Americans (91%).

Testing site type

In 2010, the percentage of all testing events that were followed up with receipt of HIV test results was highest at non-health care facilities (92%) and lowest at health care facilities (75%) (Table 4). For persons with newly identified confirmed HIV, the percentage of testing events that were followed up with receipt of HIV test results was highest at correctional facilities (96%) and lowest at health care facilities (92%).

Rapid test used in testing event

In 2010, the percentage of all testing events that were followed up with receipt of HIV test results was higher among testing events that included rapid tests (98%) than testing events that did not include rapid tests (47%) (Table 4). For persons with newly identified confirmed HIV, the percentage of testing events that were followed up with receipt of HIV test results was higher among testing events that included rapid tests (99.6%) than testing events that did not include rapid tests (81%).

Confirmed HIV-Positive Testing Events by Risk Category

In 2010, the highest percentage of all confirmed HIV-positive testing events was among persons reporting male-to-male sexual contact (36%), followed by persons reporting high-risk heterosexual

contact (22%); the lowest percentage of all confirmed HIV-positive testing events was among persons reporting both male-to-male sexual contact and injection drug use (IDU) (1.4%) (Table 5).

Risk category and gender

Among females in 2010, the highest percentage of all confirmed HIV-positive testing events was among those reporting high-risk heterosexual contact (45%); the lowest percentage of all confirmed HIV-positive testing events was among females reporting IDU (4.2%) (Table 5).

Among males in 2010, the highest percentage of all confirmed HIV-positive testing events was among those reporting male-to-male sexual contact (48%); the lowest percentage of all confirmed HIV-positive testing events was among males reporting both male-to-male sexual contact and IDU (1.9%) (Table 5).

Linkage to HIV Medical Care, Referral to HIV Prevention Services, and Referral to Partner Services

In 2010, of persons with a confirmed HIV-positive testing event, 71% were linked to medical care; 59% were referred to HIV prevention services; and 73% were referred to partner services (Table 6). Of persons with newly identified confirmed HIV-positive testing events, 70% were linked to medical care; 62% were referred to HIV prevention services; and 72% were referred to partner services.

TABLES AND FIGURES

Table 1. Number of HIV testing events and HIV positivity by health department, United States, Puerto Rico, and the U.S. Virgin Islands, 2010

Health department	Total No. of HIV testing events	No. of confirmed HIV-positive testing events (all)	(%)	No. of Newly identified confirmed HIV-positive testing events[a]	(%)
Alabama[b]	63,973	479	(0.7)	----	----
Alaska	2,107	5	(0.2)	5	(0.2)
Arizona[c]	11,055	220	(2.0)	181	(1.7)
Arkansas[c]	46,585	248	(0.5)	57	(0.4)
California[c]	168,226	1,618	(1.0)	556	(0.8)
Los Angeles[b]	100,686	970	(1.0)	----	----
San Francisco	17,700	238	(1.3)	218	(1.2)
California (excludes Los Angeles and San Francisco)	49,840	410	(0.8)	338	(0.7)
Colorado	14,159	76	(0.5)	70	(0.5)
Connecticut[c]	24,592	104	(0.4)	92	(0.4)
Delaware	12,178	51	(0.4)	40	(0.3)
District of Columbia	112,507	80	(0.1)	76	(0.1)
Florida	409,464	4,554	(1.1)	2,123	(0.5)
Georgia	117,120	1,185	(1.0)	855	(0.7)
Hawaii	7,386	23	(0.3)	20	(0.3)
Idaho[c]	5,507	19	(0.3)	10	(0.2)
Illinois[c]	91,117	1,005	(1.1)	81	(0.7)
Chicago[b]	77,251	839	(1.1)	----	----
Illinois (excludes Chicago)[c]	13,866	166	(1.2)	81	(0.7)
Indiana	14,405	104	(0.7)	88	(0.6)
Iowa	5,896	29	(0.5)	27	(0.5)
Kansas[c]	30,015	70	(0.2)	51	(0.2)
Kentucky	26,941	102	(0.4)	90	(0.3)
Louisiana	99,494	993	(1.0)	913	(0.9)
Maine[c]	4,000	18	(0.5)	17	(0.4)
Maryland[c]	96,064	1,358	(1.4)	853	(1.0)
Massachusetts[b]	110,069	466	(0.4)	----	----
Michigan[c]	73,415	410	(0.6)	56	(0.1)
Minnesota	12,712	84	(0.7)	74	(0.6)
Mississippi[b]	98,816	833	(0.8)	----	----
Missouri	40,863	275	(0.7)	228	(0.6)
Montana[c]	4,875	6	(0.1)	1	(0.0)
Nebraska	10,009	29	(0.3)	29	(0.3)
Nevada[c]	26,738	240	(0.9)	171	(0.7)
New Hampshire	3,527	8	(0.2)	7	(0.2)
New Jersey	104,116	595	(0.6)	511	(0.5)
New Mexico	8,146	38	(0.5)	31	(0.4)
New York	323,992	2,176	(0.7)	1,721	(0.5)
New York City	182,143	1,260	(0.7)	1,016	(0.6)
New York State (excludes New York City)	141,849	916	(0.6)	705	(0.5)
North Carolina[b]	227,037	1,011	(0.4)	----	----
North Dakota[c]	3,727	5	(0.1)	4	(0.2)
Ohio	63,113	216	(0.3)	198	(0.3)
Oklahoma[c]	22,799	206	(0.9)	141	(0.6)
Oregon	14,351	109	(0.8)	86	(0.6)

Health department	Total No. of HIV testing events	No. of confirmed HIV-positive testing events (all)	(%)	No. of Newly identified confirmed HIV-positive testing events[a]	(%)
Pennsylvania[c]	160,278	991	(0.6)	811	(0.5)
Philadelphia	81,938	573	(0.7)	505	(0.6)
Pennsylvania (excludes Philadelphia)[c]	78,340	418	(0.5)	306	(0.4)
Rhode Island[c]	2,481	15	(0.6)	11	(0.5)
South Carolina	60,814	537	(0.9)	536	(0.9)
South Dakota[c]	1,457	7	(0.5)	6	(0.4)
Tennessee	122,844	389	(0.3)	294	(0.2)
Texas[c]	245,720	3,106	(1.3)	1,573	(0.7)
Houston	86,645	1,378	(1.6)	663	(0.8)
Texas (excludes Houston)[c]	159,075	1,728	(1.1)	910	(0.7)
Utah	6,669	16	(0.2)	16	(0.2)
Vermont	2,915	3	(0.1)	3	(0.1)
Virginia[c]	68,567	356	(0.5)	281	(0.4)
Washington	18,430	225	(1.2)	162	(0.9)
West Virginia	4,150	20	(0.5)	17	(0.4)
Wisconsin	13,043	106	(0.8)	98	(0.8)
Wyoming	6,464	9	(0.1)	6	(0.1)
Puerto Rico	33,031	574	(1.7)	352	(1.1)
U.S. Virgin Islands[b]	5,381	23	(0.4)	----	----
Total	**3,263,340[d]**	**25,425**	**(0.8)**	**13,629[e]**	**(0.6)**

[a] Newly identified confirmed HIV-positive testing event is defined as a testing event for which there is a current confirmed HIV-positive test result and no history of a previous HIV-positive test. Newly identified confirmed HIV-positive results are not available for aggregate-level data.

[b] Represents only aggregate-level data.

[c] Total numbers of HIV testing events and confirmed HIV-positive testing events are based on both test-level and aggregate-level data. Newly identified confirmed HIV-positive testing events are calculated only for test-level data (10,431 HIV testing events for Arizona, 12,667 HIV testing events for Arkansas, 67,540 HIV testing events for California, 23,339 HIV testing events for Connecticut, 5,452 HIV testing events for Idaho, 10,824 HIV testing events for Illinois, 22,345 HIV testing events for Kansas, 3,898 HIV testing events for Maine, 84,499 HIV testing events for Maryland, 47,988 HIV testing events for Michigan, 4,866 HIV testing events for Montana, 24,481 HIV testing events for Nevada, 1,816 HIV testing events for North Dakota, 22,786 HIV testing events for Oklahoma, 77,769 HIV testing events for Pennsylvania, 2,267 HIV testing events for Rhode Island, 1,336 HIV testing events for South Dakota, 127,492 HIV testing events for Texas, and 68,197 HIV testing events for Virginia).

[d] Includes 2,459,422 test-level HIV testing events in NHM&E format and 803,918 aggregate-level HIV testing events.

[e] Newly identified confirmed HIV-positive testing events calculated for 2,459,422 test-level HIV testing events.

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Table 2. Number and percentage of HIV testing events by characteristics of persons tested and gender, 52 health departments providing test-level data in the United States, Puerto Rico, and the U.S. Virgin Islands, 2010

			Female		Male		Transgender	
Characteristics	**No. of HIV testing events[a]**	**(Column %)**	**No. of HIV testing events**	**(Column %)**	**No. of HIV testing events**	**(Column %)**	**No. of HIV testing events**	**(Column %)**
Age at test (years)								
<13	4,661	(0.2)	2,302	(0.2)	2,284	(0.2)	21	(0.4)
13-19	258,744	(10.5)	152,429	(12.7)	104,976	(8.4)	433	(8.8)
20-29	990,916	(40.3)	511,755	(42.6)	473,653	(38.0)	2,368	(48.1)
30-39	512,621	(20.8)	245,645	(20.5)	264,382	(21.2)	1,152	(23.4)
40-49	370,126	(15.0)	159,283	(13.3)	209,320	(16.8)	570	(11.6)
≥50	300,010	(12.2)	117,691	(9.8)	181,240	(14.5)	355	(7.2)
Invalid/Missing	22,344	(0.9)	11,449	(1.0)	10,317	(0.8)	23	(0.5)
Race/Ethnicity								
White	687,480	(28.0)	319,933	(26.6)	364,759	(29.3)	1,116	(22.7)
Black/African American	1,101,209	(44.8)	550,913	(45.9)	545,812	(43.8)	1,774	(36.0)
Hispanic	520,818	(21.2)	260,964	(21.7)	257,466	(20.7)	1,380	(28.0)
Asian	38,202	(1.6)	17,457	(1.5)	20,514	(1.6)	145	(2.9)
American Indian or Alaska Native	12,194	(0.5)	5,976	(0.5)	6,113	(0.5)	74	(1.5)
Native Hawaiian or Pacific Islander	5,752	(0.2)	2,094	(0.2)	3,595	(0.3)	49	(1.0)
Multi-race[b]	27,385	(1.1)	12,867	(1.1)	14,263	(1.1)	150	(3.0)
Declined/Don't know	64,563	(2.6)	29,780	(2.5)	33,020	(2.6)	232	(4.7)
Invalid/Missing	1,819	(0.1)	570	(0.0)	630	(0.1)	2	(0.0)
Testing site type								
Health care facilities	1,640,273	(66.7)	904,765	(75.4)	727,803	(58.4)	1,962	(39.9)
Non-health care facilities	574,716	(23.4)	235,373	(19.6)	335,126	(26.9)	2,712	(55.1)
Correctional facility[c]	203,618	(8.3)	40,412	(3.4)	162,629	(13.1)	130	(2.6)
Other facilities	33,548	(1.4)	16,756	(1.4)	16,633	(1.3)	114	(2.3)
Invalid/Missing	7,267	(0.3)	3,248	(0.3)	3,981	(0.3)	4	(0.1)
Rapid test used in testing event								
Yes	1,533,422	(62.3)	687,603	(57.3)	837,243	(67.2)	4,400	(89.4)
No	923,896	(37.6)	511,825	(42.6)	408,024	(32.7)	508	(10.3)
Invalid/Missing	2,104	(0.1)	1,126	(0.1)	905	(0.1)	14	(0.3)
Total	**2,459,422**	**(100.0)**	**1,200,554**	**(100.0)**	**1,246,172**	**(100.0)**	**4,922**	**(100.0)**

[a] Includes 7,774 testing events with missing, invalid, or other values for gender.
[b] HIV testing events for which more than one race was selected and ethnicity was not Hispanic or Latino.
[c] May be a health care or non-health care facility (CDC did not require distinction for reporting).

Table 3. HIV positivity by characteristics of persons tested and gender, 52 health departments providing test-level data in the United States, Puerto Rico, and the U.S. Virgin Islands, 2010

	Confirmed HIV-positive testing events (all)		Newly identified confirmed HIV-positive testing events[a]		Confirmed HIV-positive testing events[b]						Newly identified confirmed HIV-positive testing events[a,c]					
					Female		Male		Transgender		Female		Male		Transgender	
Characteristics	**No.**	**(% positive)[d]**	**No.**	**(% positive)[d]**	**No.**	**(% positive)[d]**	**No.**	**(% positive)[d]**	**No.**	**(% positive)[d]**	**No.**	**(% positive)[d]**	**No.**	**(% positive)[d]**	**No.**	**(% positive)[d]**
Age at test (years)																
<13	28	(0.6)	20	(0.4)	6	(0.3)	22	(1.0)	0	(0.0)	3	(0.1)	17	(0.7)	0	(0.0)
13-19	601	(0.2)	498	(0.2)	117	(0.1)	479	(0.5)	4	(0.9)	94	(0.1)	400	(0.4)	3	(0.7)
20-29	6,148	(0.6)	4,925	(0.5)	999	(0.2)	5,059	(1.1)	75	(3.2)	715	(0.1)	4,140	(0.9)	62	(2.6)
30-39	4,625	(0.9)	3,241	(0.6)	1,159	(0.5)	3,423	(1.3)	33	(2.9)	702	(0.3)	2,507	(0.9)	24	(2.1)
40-49	4,693	(1.3)	2,906	(0.8)	1,334	(0.8)	3,333	(1.6)	19	(3.3)	786	(0.5)	2,101	(1.0)	13	(2.3)
≥50	3,169	(1.1)	1,966	(0.7)	853	(0.7)	2,307	(1.3)	3	(0.8)	545	(0.5)	1,414	(0.8)	1	(0.3)
Invalid/Missing	84	(0.4)	73	(0.3)	19	(0.2)	60	(0.6)	0	(0.0)	17	(0.1)	51	(0.5)	0	(0.0)
Race/Ethnicity																
White	4,016	(0.6)	2,871	(0.4)	606	(0.2)	3,392	(0.9)	11	(1.0)	393	(0.1)	2,465	(0.7)	7	(0.6)
Black/African American	10,531	(1.0)	7,429	(0.7)	3,004	(0.5)	7,436	(1.4)	73	(4.1)	1,953	(0.4)	5,410	(1.0)	54	(3.0)
Hispanic	3,885	(0.7)	2,655	(0.5)	706	(0.3)	3,135	(1.2)	41	(3.0)	413	(0.2)	2,205	(0.9)	35	(2.5)
Asian	203	(0.5)	152	(0.4)	36	(0.2)	166	(0.8)	1	(0.7)	20	(0.1)	131	(0.6)	1	(0.7)
American Indian or Alaska Native	75	(0.6)	54	(0.4)	16	(0.3)	58	(0.9)	1	(1.4)	9	(0.2)	44	(0.7)	1	(1.4)
Native Hawaiian or Pacific Islander	40	(0.7)	32	(0.6)	6	(0.3)	32	(0.9)	1	(2.0)	4	(0.2)	26	(0.7)	1	(2.0)
Multi-race[e]	227	(0.8)	178	(0.6)	31	(0.2)	193	(1.4)	3	(2.0)	22	(0.2)	153	(1.1)	3	(2.0)
Declined/Don't know	363	(0.6)	252	(0.4)	82	(0.3)	267	(0.8)	3	(1.3)	48	(0.2)	193	(0.6)	1	(0.4)
Invalid/Missing	8	(0.4)	6	(0.3)	0	(0.0)	4	(0.6)	0	(0.0)	0	(0.0)	3	(0.5)	0	(0.0)
Testing site type																
Health care facilities	12,051	(0.7)	8,024	(0.5)	3,035	(0.3)	8,944	(1.2)	45	(2.3)	1,863	(0.2)	6,105	(0.8)	35	(1.8)
Non-health care facilities	6,120	(1.1)	4,715	(0.8)	1,175	(0.5)	4,845	(1.4)	85	(3.1)	801	(0.3)	3,836	(1.1)	66	(2.4)
Correctional facility[f]	978	(0.5)	724	(0.4)	248	(0.6)	726	(0.4)	2	(1.5)	175	(0.4)	547	(0.3)	1	(0.8)
Other facilities	145	(0.4)	118	(0.4)	20	(0.1)	123	(0.7)	2	(1.8)	18	(0.1)	99	(0.6)	1	(0.9)
Invalid/Missing	54	(0.7)	48	(0.7)	9	(0.3)	45	(1.1)	0	(0.0)	5	(0.2)	43	(1.1)	0	(0.0)
Rapid test used in testing event																
Yes	10,139	(0.7)	8,436	(0.6)	2,041	(0.3)	7,969	(1.0)	99	(2.3)	1,546	(0.2)	6,785	(0.8)	82	(1.9)
No	9,209	(1.0)	5,193	(0.6)	2,446	(0.5)	6,714	(1.6)	35	(6.9)	1,316	(0.3)	3,845	(0.9)	21	(4.1)
Invalid/Missing[g]	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Total	**19,348**	**(0.8)**	**13,629**	**(0.6)**	**4,487**	**(0.4)**	**14,683**	**(1.2)**	**134**	**(2.7)**	**2,862**	**(0.2)**	**10,630**	**(0.9)**	**103**	**(2.1)**

[a] Newly identified confirmed HIV-positive testing event is defined as a testing event for which there is a current confirmed HIV-positive test result and no history of a previous HIV-positive test.
[b] Excludes 44 confirmed HIV-positive testing events with a missing, invalid, or other value for gender.
[c] Excludes 34 newly identified confirmed HIV-positive testing events with a missing, invalid, or other value for gender.
[d] Denominators for calculating '% positive' are from Table 2.
[e] HIV testing events for which more than one race was selected and ethnicity was not Hispanic or Latino.
[f] May be a health care or non-health care facility (CDC did not require distinction for reporting).
[g] Not applicable.

Table 4. Receipt of HIV test results by characteristics of persons tested and test results, 52 health departments providing test-level data in the United States, Puerto Rico, and the U.S. Virgin Islands, 2010

Characteristics	HIV testing events			HIV-negative testing events			Preliminary HIV-positive and confirmed HIV-positive testing events			Confirmed HIV-positive testing events			Newly identified confirmed HIV-positive testing events[a]		
	No.	Results received	(%)	No.	Results received	(%)	No.	Results received	(%)	No.	Results received	(%)	No.	Results received	(%)
Age at test (years)															
<13	4,548	3,736	(82.1)	4,474	3,681	(82.3)	41	40	(97.6)	28	28	(100.0)	20	20	(100.0)
13-19	238,248	172,383	(72.4)	236,889	171,281	(72.3)	773	716	(92.6)	586	535	(91.3)	484	442	(91.3)
20-29	913,427	699,245	(76.6)	904,104	690,975	(76.4)	7,333	6,851	(93.4)	6,000	5,576	(92.9)	4,804	4,461	(92.9)
30-39	475,100	385,338	(81.1)	468,709	379,476	(81.0)	5,484	5,174	(94.3)	4,489	4,224	(94.1)	3,128	2,939	(94.0)
40-49	344,009	297,714	(86.5)	337,729	291,879	(86.4)	5,587	5,274	(94.4)	4,520	4,259	(94.2)	2,757	2,559	(92.8)
≥50	279,915	249,087	(89.0)	275,497	244,967	(88.9)	3,824	3,639	(95.2)	3,032	2,870	(94.7)	1,851	1,724	(93.1)
Invalid/Missing	15,110	11,572	(76.6)	14,935	11,430	(76.5)	102	85	(83.3)	84	68	(81.0)	73	58	(79.5)
Gender															
Male	1,144,409	972,350	(85.0)	1,124,673	954,217	(84.8)	17,370	16,317	(93.9)	14,244	13,326	(93.6)	10,260	9,561	(93.2)
Female	1,113,587	837,408	(75.2)	1,105,686	830,498	(75.1)	5,520	5,221	(94.6)	4,319	4,068	(94.2)	2,722	2,516	(92.4)
Transgender	4,857	4,567	(94.0)	4,606	4,328	(94.0)	197	193	(98.0)	132	130	(98.5)	101	100	(99.0)
Invalid/Missing	7,504	4,750	(63.3)	7,372	4,646	(63.0)	57	48	(84.2)	44	36	(81.8)	34	26	(76.5)
Race/Ethnicity															
White	619,129	479,237	(77.4)	612,765	473,529	(77.3)	4,671	4,487	(96.1)	3,879	3,723	(96.0)	2,759	2,633	(95.4)
Black/African American	1,009,331	816,543	(80.9)	994,415	803,124	(80.8)	12,765	11,832	(92.7)	10,115	9,296	(91.9)	7,079	6,420	(90.7)
Hispanic	497,070	403,594	(81.2)	491,837	398,671	(81.1)	4,537	4,372	(96.4)	3,841	3,699	(96.3)	2,614	2,529	(96.7)
Asian	36,771	31,898	(86.7)	36,465	31,610	(86.7)	238	232	(97.5)	201	195	(97.0)	151	147	(97.4)
American Indian or Alaska Native	11,764	9,630	(81.9)	11,639	9,517	(81.8)	95	93	(97.9)	73	71	(97.3)	52	51	(98.1)
Native Hawaiian or Pacific Islander	5,589	4,778	(85.5)	5,528	4,723	(85.4)	51	47	(92.2)	40	36	(90.0)	32	30	(93.8)
Multi-race[b]	26,947	21,957	(81.5)	26,594	21,641	(81.4)	289	266	(92.0)	226	205	(90.7)	177	168	(94.9)
Declined/Don't know	62,182	50,117	(80.6)	61,554	49,582	(80.6)	487	440	(90.3)	357	328	(91.9)	247	219	(88.7)
Invalid/Missing	1,574	1,321	(83.9)	1,540	1,292	(83.9)	11	10	(90.9)	7	7	(100.0)	6	6	(100.0)
Testing site type															
Health care facilities	1,486,559	1,112,069	(74.8)	1,469,574	1,097,023	(74.6)	13,736	12,786	(93.1)	11,725	10,868	(92.7)	7,784	7,124	(91.5)
Non-health care facilities	563,497	516,146	(91.6)	554,444	507,579	(91.5)	7,877	7,568	(96.1)	5,933	5,663	(95.4)	4,539	4,321	(95.2)
Correctional facility[c]	179,738	154,222	(85.8)	178,273	152,864	(85.7)	1,212	1,140	(94.1)	883	849	(96.1)	629	605	(96.2)
Other facilities	33,474	29,722	(88.8)	33,097	29,403	(88.8)	235	201	(85.5)	144	126	(87.5)	117	105	(89.7)
Invalid/Missing	7,089	6,916	(97.6)	6,949	6,820	(98.1)	84	84	(100.0)	54	54	(100.0)	48	48	(100.0)
Rapid test used in testing event															
Yes	1,471,026	1,441,413	(98.0)	1,453,890	1,424,583	(98.0)	14,505	14,275	(98.4)	10,100	10,056	(99.6)	8,399	8,366	(99.6)
No	797,549	376,141	(47.2)	786,831	367,686	(46.7)	8,639	7,504	(86.9)	8,639	7,504	(86.9)	4,718	3,837	(81.3)
Invalid/Missing	1,782	1,521	(85.4)	1,616	1,420	(87.9)	----[d]	----[d]	----[d]	----[d]	----[d]	----[d]	----[d]	----[d]	----[d]
Total	**2,270,357[e]**	**1,819,075**	**(80.1)**	**2,242,337**	**1,793,689**	**(80.0)**	**23,144**	**21,779**	**(94.1)**	**18,739**	**17,560**	**(93.7)**	**13,117**	**12,203**	**(93.0)**

[a] Newly identified confirmed HIV-positive testing event is defined as a testing event for which there is a current confirmed HIV-positive test result and no history of a previous HIV-positive test.
[b] Includes testing events for which more than one race was selected and ethnicity was not Hispanic or Latino.
[c] May be a health care or non-health care facility (CDC did not require distinction for reporting).
[d] Not applicable.
[e] Excludes 189,042 testing events with missing values and 23 testing events with invalid values for variables required to determine whether the client received test results.

Table 5. Number and percentage of confirmed HIV-positive testing events by risk category and gender, 52 health departments providing test-level data in the United States, Puerto Rico, and the U.S. Virgin Islands, 2010

			Female		Male	
	No. of confirmed HIV-positive testing events[a]	(Column %)	No. of confirmed HIV-positive testing events	(Column %)	No. of confirmed HIV-positive testing events	(Column %)
Risk category						
Male-to-male sexual contact and injection drug use	273	(1.4)	----[b]	----[b]	273	(1.9)
Male-to-male sexual contact	6,975	(36.4)	----[b]	----[b]	6,975	(47.5)
Injection drug use	552	(2.9)	187	(4.2)	365	(2.5)
High-risk heterosexual contact	4,263	(22.2)	2,024	(45.1)	2,239	(15.2)
Low-risk heterosexual contact	1,840	(9.6)	725	(16.2)	1,115	(7.6)
Other[c]	70	(0.4)	70	(1.6)	----[b]	----[b]
No acknowledged risk[d]	659	(3.4)	208	(4.6)	451	(3.1)
Unknown[e]	2,006	(10.5)	621	(13.8)	1,385	(9.4)
Invalid/Missing	2,532	(13.2)	652	(14.5)	1,880	(12.8)
Total	**19,170**	**(100.0)**	**4,487**	**(100.0)**	**14,683**	**(100.0)**

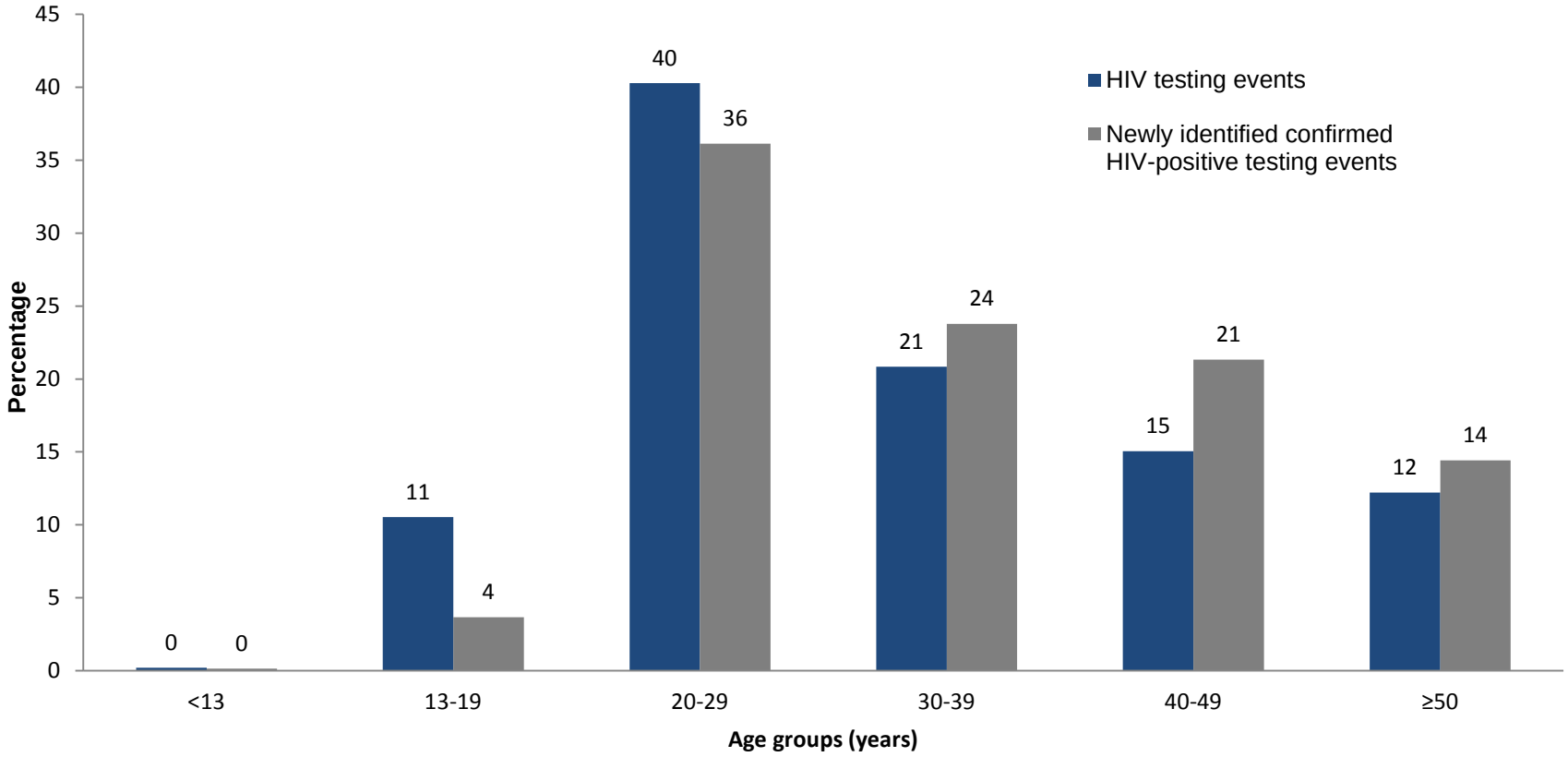
[a] Excludes 178 confirmed HIV-positive testing events with missing (19), invalid (25), or transgender (134) values for gender.
[b] Not applicable.
[c] Persons with other risk factors. See Box on page 26 in the Technical Notes.
[d] Client was asked, but no risk was identified.
[e] Client was not asked about risk factors or client declined to discuss risk factors.

Table 6. Linkage to HIV medical care, referral to HIV prevention services, and referral to partner services among confirmed and newly identified confirmed HIV-positive testing events, 52 health departments in the United States, Puerto Rico, and the U.S. Virgin Islands 2010

	Confirmed HIV-positive testing events		Newly identified confirmed HIV-positive testing events	
	No.	(Column %)	No.	(Column %)
Linkage to HIV medical care				
Yes	6,167	(70.8)	4,740	(69.8)
No	2,542	(29.2)	2,050	(30.2)
Total	**8,709[a]**	**(100.0)**	**6,790[b]**	**(100.0)**
Referral to HIV prevention services given				
Yes	6,076	(58.8)	4,995	(61.8)
No	4,260	(41.2)	3,094	(38.2)
Total	**10,336[c]**	**(100.0)**	**8,089[d]**	**(100.0)**
Referral to partner services given				
Yes	10,584	(72.5)	7,328	(71.9)
No	4,008	(27.5)	2,857	(28.1)
Total	**14,592[e]**	**(100.0)**	**10,185[f]**	**(100.0)**

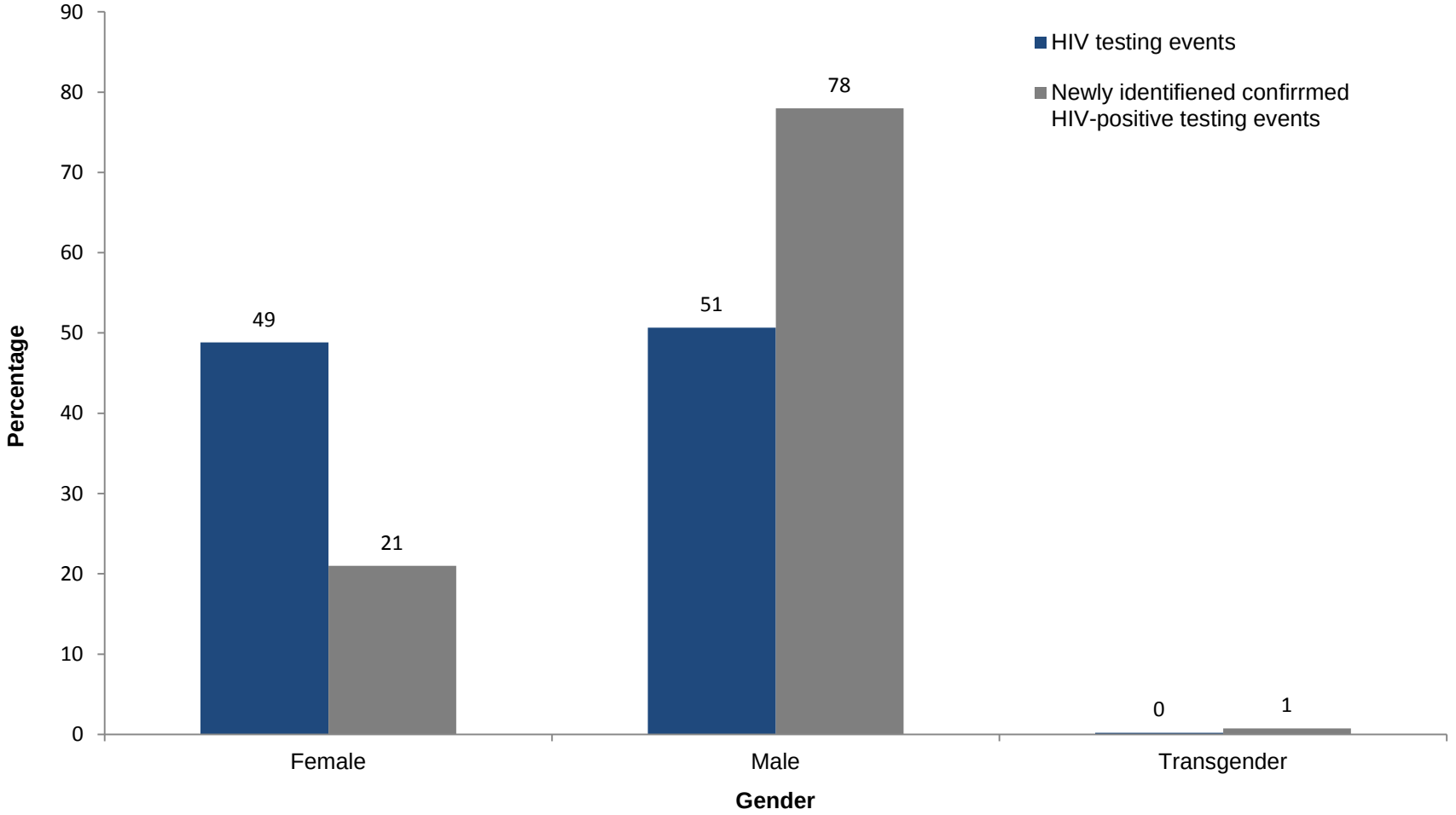
[a] Excludes 55% (10,639/19,348) of HIV testing events with missing, invalid, or “don’t know” values for the linkage to HIV medical care variables.
[b] Excludes 50% (6,839/13,629) of HIV testing events with missing, invalid, or “don’t know” values for the linkage to HIV medical care variables.
[c] Excludes 47% (9,0 12/19,348) of HIV testing events with missing or invalid values for the referral to HIV prevention services variable.
[d] Excludes 41% (5,540/13,629) of HIV testing events with missing or invalid values for the referral to HIV prevention services variable.
[e] Excludes 25% (4,756/19,348) of HIV testing events with missing or invalid values for the referral to partner services variable.
[f] Excludes 25% (3,444/13,629) of HIV testing events with missing or invalid values for the referral to partner services variable.

Figure 1. Distributions of all HIV testing events and all newly identified confirmed HIV-positive testing events by age group, 52 health departments providing test-level data in the United States, Puerto Rico, and the U.S. Virgin Islands, 2010



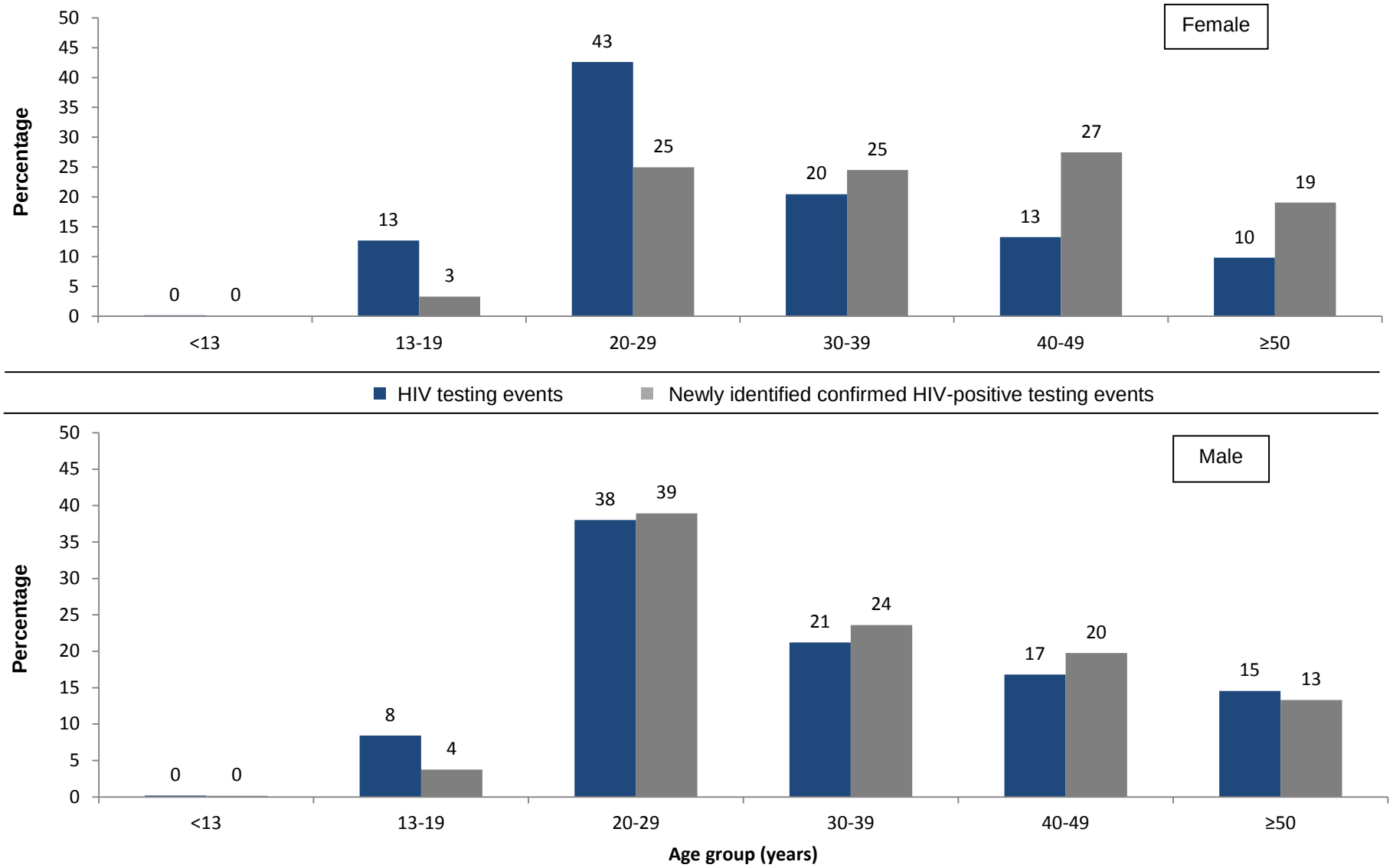
Note: Percentages may not add to 100 because of rounding and/or missing data. Bar height reflects unrounded values.

Figure 2. Distributions of all HIV testing events and all newly identified confirmed HIV-positive testing events by gender, 52 health departments providing test-level data in the United States, Puerto Rico, and the U.S. Virgin Islands, 2010



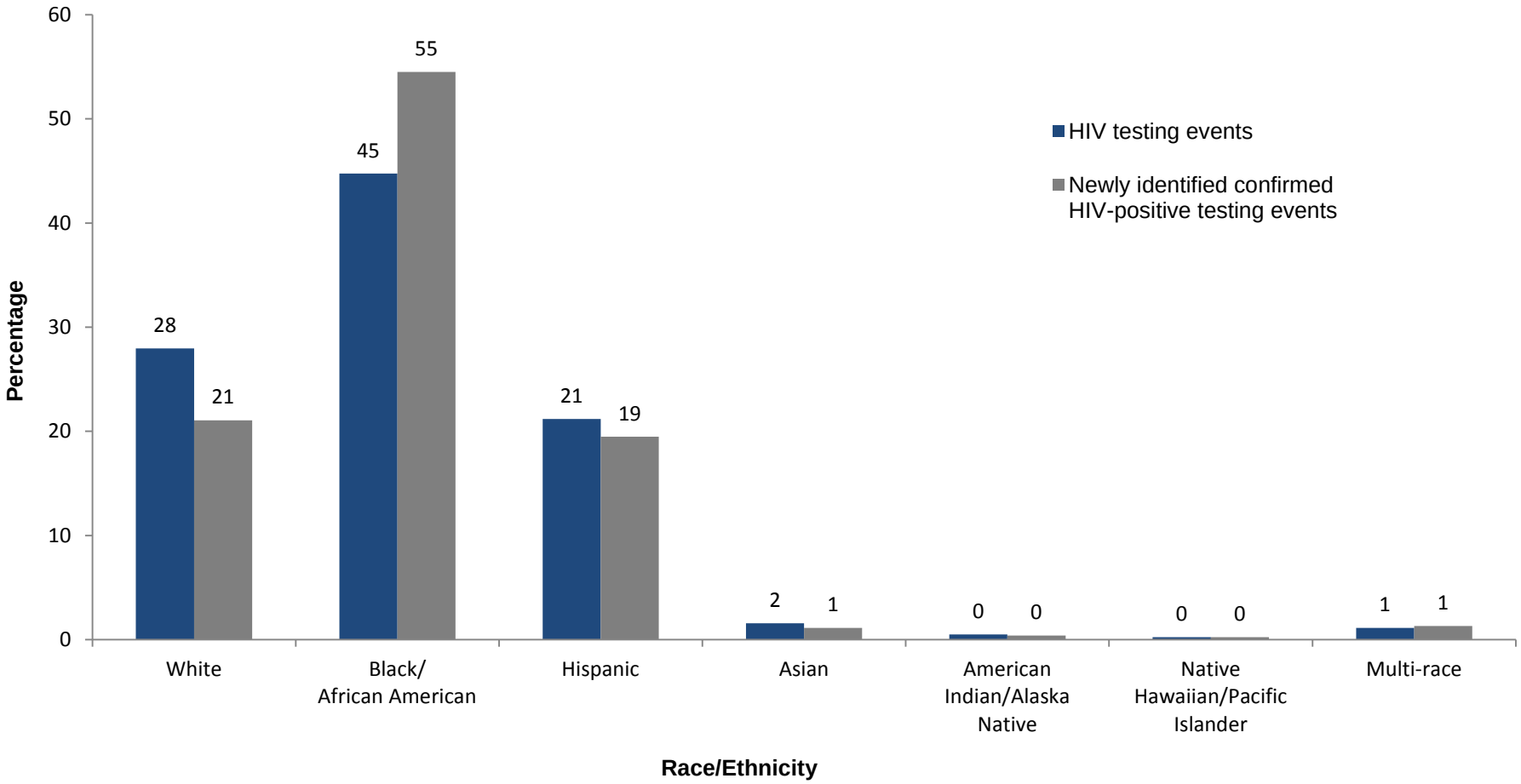
Note: Percentages may not add to 100 because of rounding and/or missing data. Bar height reflects unrounded values.

Figure 3. Distributions of all HIV testing events and all newly identified confirmed HIV-positive testing events by age group and gender, 52 health departments providing test-level data in the United States, Puerto Rico, and the U.S. Virgin Islands, 2010



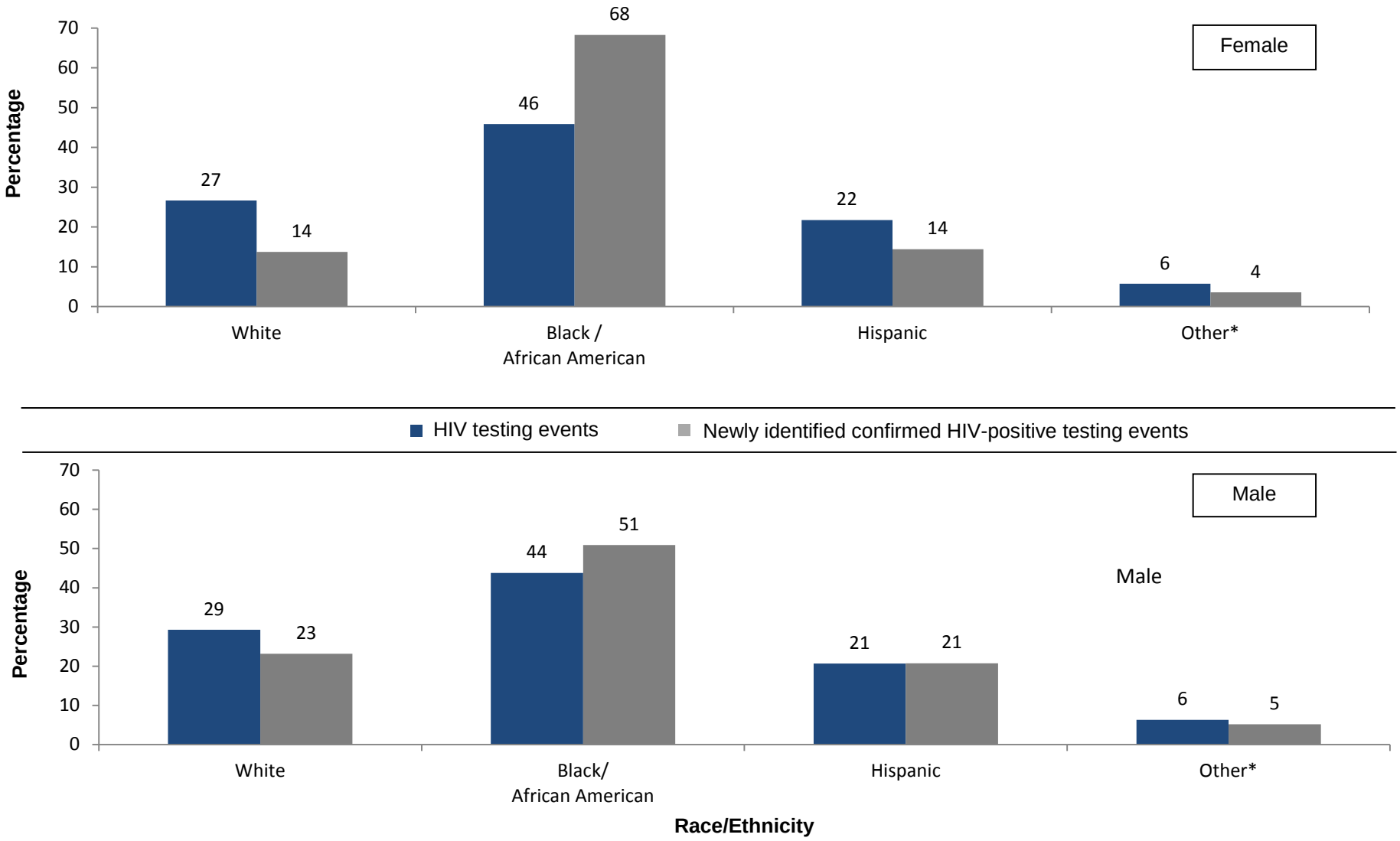
Note: Percentages may not add to 100 because of rounding and/or missing data. Bar height reflects unrounded values.

Figure 4. Distributions of all HIV testing events and all newly identified confirmed HIV-positive testing events by race/ethnicity, 52 health departments providing test-level data in the United States, Puerto Rico, and the U.S. Virgin Islands, 2010



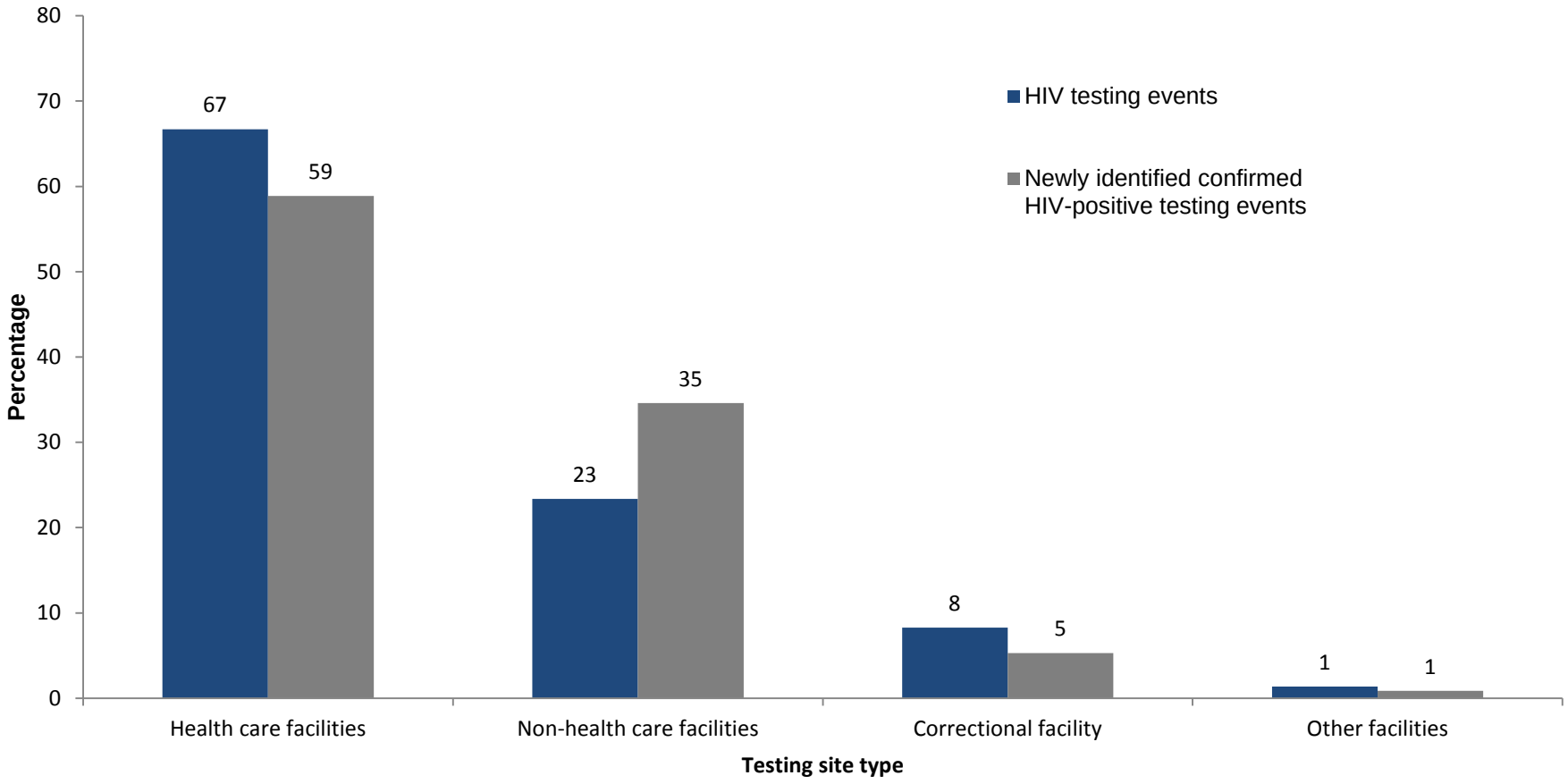
Note: Percentages may not add to 100 because of rounding and/or missing data. Bar height reflects unrounded values.

Figure 5. Distributions of all HIV testing events and all newly identified confirmed HIV-positive testing events by race/ethnicity and gender, 52 health departments providing test-level data in the United States, Puerto Rico, and the U.S. Virgin Islands, 2010



Note: Percentages may not add to 100 because of rounding and/or missing data. Bar height reflects unrounded values.
*All other race/ethnicity categories, including “declined/don’t know”.

Figure 6. Distributions of all HIV testing events and all newly identified confirmed HIV-positive testing events by testing site type, 52 health departments providing test-level data in the United States, Puerto Rico, and the U.S. Virgin Islands, 2010



Note: Percentages may not add to 100 because of rounding and/or missing data. Bar height reflects unrounded values.

TECHNICAL NOTES

Interpretation of HIV Testing Data

When interpreting data output in this report, several points should be considered. First, some data findings may be influenced by whether testing sites promoted and followed policies of routine or targeted HIV testing. For example, the number of HIV testing events may be lower in geographic locations or sites with targeted testing; and correspondingly, the HIV positivity in these locations or sites may be higher. Second, the population of persons using CDC-funded sites or other publicly-funded sites for HIV testing is not necessarily representative of all persons who are tested in the United States. For example, in 2006, 17% of an estimated 17.7 million persons who reported being tested for HIV in the preceding 12 months were tested at sites that were primarily publicly funded.[19] Also, this report does not include information about HIV testing services that were supported by the Departments of Defense, Justice, Labor, and Veterans Affairs; Centers for Medicare and Medicaid Services; Health Resources and Services Administration; Substance Abuse and Mental Health Services Administration; agencies of the U.S. Public Health Service other than CDC; state and local health departments; and the private sector. Third, it is not possible to link the results of repeat HIV testing events for the same person if, for example, a person has more than one testing event that is represented in these data. However, the definition of newly identified confirmed HIV positivity used in this report minimizes this limitation for persons who are newly identified, because records for which there is a current HIV-positive test result and a history of a previous HIV-positive test are excluded. Fourth, the HIV testing data are collected for HIV prevention program activities in conjunction with a health service delivery, which means the information collected by service providers is not routinely validated through research or epidemiologic investigation. Fifth, for this report, when small numbers were used to calculate percentages, they were considered "relatively unreliable" (e.g., 1 divided by 10 equaling 10% that compared to other percentages does not seem reliable or accurate), and the percentage was not mentioned in the narrative. Finally, the comparability of these data across health departments may be limited due to differences in data collection, quality assurance, or quality improvement activities that occur at the state or local levels. Comparability within a health department may be limited as well.

Missing and Invalid Data

The Appendix shows the number and percentage of missing and invalid data for 13 characteristics included in this report. Data were considered to be missing if a response was expected but no data value was found. For some characteristics, expected denominators for calculating the percentage of missing values are dependent on responses to previous questions (e.g., only the number of records marked "yes" for the "previous HIV test" variable are used in the denominator for calculating the percentage missing for the previous test result) or a combination of questions (e.g., the algorithm used to calculate the "test result" variable is based on responses to the "test technology" and "test result" variables). Of 13 characteristics, eight variables had less than 5.0% missing data. The highest percentages of missing data were observed for the "referral to HIV prevention services" (47%), "linkage to HIV medical care" (43%), and "referral to partner services" (24%) variables. Invalid data values were identified based on CDC-provided data value codes, logical ranges, and skip patterns. All 13 characteristics had less than 5.0% invalid data.

Definitions

HIV testing event

An HIV testing event is a sequence of one or more HIV tests conducted with the client to determine his or her HIV status. During one testing event, a client may be tested once (e.g., one rapid test or one conventional test) or multiple times (e.g., one rapid test followed by one conventional test to confirm a preliminary HIV-positive test result). Analyses of data for this report are limited to a maximum of three tests for each testing event (a

brief assessment in 2009 indicated that more than three tests in an HIV testing event occurred in only 0.01% of all testing events).

Invalid HIV test
An HIV test is considered invalid if all of the following variables have missing data: test election (i.e., anonymous or confidential), test technology (i.e., conventional, rapid, or "other"), specimen type (e.g., blood, oral mucosal transudate, or urine), test result (i.e., negative, positive, indeterminate, "invalid," or "no result"), and results received (i.e., yes or no).

Invalid HIV testing event
A record without a valid HIV test is considered an invalid HIV testing event. Such records (<0.1% of the total records for 2010) are not included in this report.

Confirmed HIV-positive result
A testing event with a positive test result for a conventional HIV test (positive EIA test confirmed by supplemental testing, e.g., Western blot) or a nucleic acid amplification test (NAAT).

Newly identified confirmed HIV-positive result
A confirmed HIV-positive test result associated with a client who does not self-report having previously tested HIV-positive.

Preliminary HIV-positive result
A testing event with a positive test result from a rapid HIV test.

Age
The age of the client at the testing event and determined by calculating the difference between the year of a client's birth and the year of the HIV testing event.

Gender
The client's self-reported current gender identity. This may include one's social status, self-identification, legal status, and biology. Current gender identity is submitted to CDC as Male, Female, Male-to-Female Transgender (an individual whose physical or birth sex is male, but whose gender expression and/or gender identity is female), and Female-to-Male Transgender (an individual whose physical or birth sex is female, but whose gender expression and/or gender identity is male). For this report, gender is reported as Male, Female, and Transgender.

Race/Ethnicity
Race is defined as a client's self-reported classification of the biological heritage with which they most closely identify. Ethnicity is defined as a client's self report of whether they are Hispanic or Latino. Up to five races and one ethnicity (i.e., Hispanic or Latino) for a client are allowed and submitted to CDC as separate variables. For this report, a "race/ethnicity" variable was created by combining the race and ethnicity variables using the following categories and hierarchy:

- Hispanic ("Hispanic or Latino" in the ethnicity variable regardless of the race variables)
- Remaining clients who selected "Not Hispanic or Latino" for the ethnicity variable were categorized as:
    - White
    - Black/African American
    - Asian
    - American Indian or Alaska Native
    - Native Hawaiian or Pacific Islander

    - Multi-race (clients who selected more than one race)
- Declined
- Don't know
- Invalid
- Missing

Testing site type
Testing site type is defined as the setting at which HIV testing is provided, and for this report, classified into the following categories:

- Health care facilities (includes inpatient facilities, outpatient facilities, and emergency rooms)
- Non-health care facilities (includes HIV counseling and testing sites and community settings)
- Correctional facility (for reporting, CDC did not require whether health care or non-health care)
- Other facilities (includes blood banks/plasma centers and other facilities)
- Invalid
- Missing

Rapid test used in testing event
This calculated variable indicates whether a rapid test technology was used in the HIV testing event. The value "yes" includes all testing events that used a rapid test alone or in combination with additional HIV tests.

Results received
This calculated variable indicates whether the client received HIV test results from the initial testing site or obtained the results from another agency for at least one HIV test in the testing event, irrespective of the HIV test technology or how many tests were conducted.

Risk category
Risk factor information for NHM&E data (e.g., IDU, sex with a male, sex with a female, sex without a condom, sex with a person who is HIV-positive) is collected from the client for risks during the 12 months prior to the HIV testing event (see Box page 26). The "sex with a male" and "sex with a female" variables are used with the "gender" variable to determine whether a client is heterosexual or MSM. For this report, mutually exclusive risk categories are created for confirmed HIV-positive testing events using a combination of risk factors and gender of the client (males and females only). In a two-step process, the risk categories are ordered hierarchically based on the most likely presumed risk for exposure to HIV (see step 2 in the Box for the hierarchical order of risk categories). For example, a male reporting having sex with a male and sex with an anonymous partner is assigned to the risk category "male-to-male sexual contact."

"High-risk heterosexual contact" category includes clients who reported heterosexual contact and at least one risk factor (other than IDU or MSM). Similarly, "low-risk heterosexual contact" includes clients who reported heterosexual contact but did not report any other risk factors. "No acknowledged risk" indicates that the client was asked about risk factors but no risk factors were identified including information used to determine whether a client is heterosexual or MSM. Clients who declined to discuss risk factors or were not asked about risk factors are categorized into the "unknown" category. The "other" category includes female-to-female sexual contact with no history of IDU.

Linkage to HIV medical care
This calculated variable indicates whether a client with confirmed HIV-positive test results was referred and then linked to HIV medical care (i.e., attended the first appointment).

Referral to HIV prevention services

This variable indicates whether a client with confirmed HIV-positive test results was given a referral to HIV prevention services.

Referral to partner services

This variable indicates whether a client with confirmed HIV-positive test results was given a referral to partner services.

Box. Process used to categorize reported risk factors

Step 1 **Risk factors reported by client** *The provider documents each risk factor reported. More than one risk factor may be applicable to one client.*	**Step 2** **Risk categories assigned through a hierarchy** *Each client is classified into a risk category by using a combination of reported risk factor(s) and a client's gender. This classification is based on a presumed hierarchy of risk for exposure to HIV.*
• Sex with male • Sex with female • Injection drug use (IDU) • Sex without using a condom • Sex with a person who is an IDU • Sex with a man who had sex with a man • Sex with a person who is HIV-positive • Exchange of sex for drugs/money/or something they need • Sex while intoxicated and/or high on drugs • Sex with a person of unknown HIV status • Sex with a person who exchanges sex for drugs/money • Sex with an anonymous partner • Sex with a person who has hemophilia or is a transfusion/transplant recipient • Sex with a transgender person • Client was asked, but no risk was identified • Client was not asked about risk factors • Client declined to discuss risk factors	**Male-to-male sexual contact and injection drug use** **Male-to-male sexual contact** **Injection drug use** **High-risk heterosexual contact** (Heterosexual contact and at least one sex related risk factor identified) **Low-risk heterosexual contact** (Heterosexual contact but no sex related risk factor identified) **Other** (Female-to-female sexual contact with no history of IDU) **No acknowledged risk** (Client was asked, but no risk was identified) **Unknown** (Client was not asked about risk factors or client declined to discuss risk factors)

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Appendix

Number and percentage of missing and invalid data values, 52 health departments providing test-level data in the United States, Puerto Rico, and the U.S. Virgin Islands, 2010

Characteristics	Total HIV testing events (2,459,422)			
	Missing		Invalid	
	No.	(%)	No.	(%)
Date of HIV testing	0	(0.0)	0	(0.0)
Age at test	13,461	(0.5)	8,883	(0.4)
Gender	5,718	(0.2)	2,056	(0.1)
Race/Ethnicity	1,796	(0.1)	23	(0.0)
Testing site type	2,073	(0.1)	5,194	(0.2)
Test technology	2,100	(0.1)	4	(0.0)
Test result	3,458	(0.1)	0	(0.0)
Results received	189,042	(7.7)	23	(0.0)
Previous test result[a]	21,409	(1.6)[b]	17	(0.0)[b]
Risk category	2,231	(11.6)[c]	301	(1.6)[c]
Linkage to HIV medical care	8,332	(43.1)[d]	45	(0.2)[d]
Referral to HIV prevention services	9,012	(46.6)[d]	0	(0.0)[d]
Referral to partner services	4,717	(24.4)[d]	39	(0.2)[d]

[a] Based on "self-reported result" and only when a previous HIV test was indicated.
[b] Based on 1,366,213 testing events with a history of previous HIV test.
[c] Based on 19,170 confirmed HIV-positive testing events.
[d] Based on 19,348 confirmed HIV-positive testing events.