



HHS Public Access

Author manuscript

AIDS Behav. Author manuscript; available in PMC 2017 November 30.

Published in final edited form as:

AIDS Behav. 2017 September ; 21(9): 2774–2783. doi:10.1007/s10461-016-1656-7.

Diagnosed HIV Infection in Transgender Adults and Adolescents: Results from the National HIV Surveillance System, 2009–2014

Hollie Clark¹, Aruna Surendera Babu², Ellen Weiss Wiewel³, Jenevieve Opoku⁴, and Nicole Crepaz¹

¹National Center for HIV, Viral Hepatitis, STD and TB Prevention, Division of HIV/AIDS Prevention, Centers for Disease Control and Prevention, 1600 Clifton Rd., NE, MSE46, Atlanta, GA 30333, USA

²ICF International, Atlanta, GA, USA

³Division of Disease Control, New York City Department of Health and Mental Hygiene, New York City, NY, USA

⁴District of Columbia Department of Health, HIV/AIDS, Hepatitis, STD and TB Administration, Strategic Information Division, Government of the District of Columbia, Washington, DC, USA

Abstract

Publications on diagnosed HIV infection among transgender people have been limited to state- or local-level data. We analyzed data from the National HIV Surveillance System and present results from the first national-level analysis of transgender people with diagnosed HIV infection. From 2009 to 2014, HIV surveillance jurisdictions from 45 states plus the District of Columbia identified and reported at least one case of newly diagnosed HIV infection for transgender people; jurisdictions from 5 states reported no cases for transgender people. Of 2351 transgender people with newly diagnosed HIV infection during 2009–2014, 84.0% were transgender women (male-to-female), 15.4% were transgender men (female-to-male), and 0.7% were additional gender identity (e.g., gender queer, bi-gender). Over half of both transgender women (50.8%; 1002/1974) and men (58.4%; 211/361) with newly diagnosed HIV infection were non-Hispanic black/African American. Improvements in data collection methods and quality are needed to gain a better understanding of HIV burden among transgender people.

Resumen

Las publicaciones sobre el diagnóstico de la infección por VIH entre personas transgénero se han limitado a los datos estatales o locales. Analizamos los datos del Sistema Nacional de Vigilancia del VIH y presentamos los resultados del primer análisis a nivel nacional de personas transgénero

Hollie Clark: HClark@cdc.gov.

Compliance with Ethical Standards

Ethical approval: This article does not contain any studies with human participants or animals performed by any of the authors. The findings and conclusions in this manuscript are those of the authors and do not necessarily represent the views of the Centers for Disease Control and Prevention.

Conflicts of interest: The authors declare no conflicts of interest.

con diagnóstico de infección por VIH. Del 2009 al 2014, las jurisdicciones de vigilancia del VIH de 45 estados más el Distrito de Columbia identificaron y reportaron al menos un caso de infección de VIH recientemente diagnosticada en personas transgénero; Jurisdicciones de 5 estados no reportaron casos en personas transgénero. De las 2.351 personas transgénero con infección por el VIH recién diagnosticada durante el periodo 2009–2014, el 84,0% eran mujeres transgénero (hombre a mujer), el 15,4% hombres transgéneros (mujer a hombre) y el 0,7% (género queer, bi-género). Más de la mitad de las mujeres (50,8%; 1002/1974) y los hombres (58,4%; 211/361) transgénero con infección por el VIH recientemente diagnosticada eran negros/ afroamericanos. Se necesitan mejoras en los métodos de recopilación de datos y en la calidad de los datos para comprender mejor la cantidad de VIH en la población transgénero.

Keywords

Transgender; HIV; Surveillance; AIDS; Blacks/African Americans; Hispanics or Latinos

Introduction

“Transgender” is a comprehensive term for identifying people whose sex assigned at birth does not match their current gender identity or expression [1, 2]. In this study, we use “transgender woman” to describe someone who was reported as having a male sex assigned at birth and who currently identifies as a woman, male-to-female (MTF) transgender, transfeminine, or something similar; “transgender man” to describe someone who was reported as having a female sex assigned at birth and who currently identifies as a man, female-to-male (FTM) transgender, transmasculine, or something similar; “additional gender identity” to describe someone who was reported as having another documented gender identity (e.g., gender queer, bigender); and “cisgender” to describe persons with congruence between their sex assigned birth and current gender identity (Table 1) [1, 2]. The National HIV/AIDS Strategy includes transgender populations among those in need of HIV prevention efforts and programs [3]. However, knowledge of actual HIV burden among transgender people in the United States is limited.

In the United States, transgender persons may be disproportionately affected by HIV infection. Among transgender women, the estimated (pooled) HIV prevalence of 21.7% (95% confidence interval 18.4–25.1) is 34 times as high as among other reproductive-age cisgender adults (15–49 years) [4]. In addition, the Centers for Disease Control and Prevention (CDC) reported that during 2013, transgender people had the highest percentage of newly confirmed HIV-positive testing events (1.9% of all HIV testing events), compared to cisgender males (0.9%) and cisgender females (0.2%) [5].

Reports involving state and city-level HIV surveillance data show that transgender people typically comprise about 1% (range 0.2–2%) of all newly diagnosed HIV infections, AIDS diagnoses, or people living with diagnosed HIV infection [6–16]. However, this percentage is likely to be an underestimate of the true number of transgender people with newly or previously diagnosed HIV in these jurisdictions. Two jurisdictions (Los Angeles County and New York City) have estimated that the number of newly diagnosed cases that they

classified as being among transgender people represented approximately half of the actual number of new diagnoses for this population [17, 18]. In 4 of 5 reports from jurisdictions that stratified HIV data by gender identity, 91–100% of transgender people with newly diagnosed or prevalent HIV infection were transgender women [11–14, 16].

Researchers have found racial/ethnic disparities in HIV infection among transgender people, with higher percentages for confirmed or self-reported HIV infection among black/African American transgender women compared to transgender women from other racial/ethnic groups. A meta-analysis by Herbst, et al. found that black/African American transgender women have a higher percentage of confirmed HIV infection (56.3%) compared to whites (16.7%) or Hispanics or Latinos (16.1%) [19]. Using national HIV testing data from 2009 to 2011 collected by CDC-funded sites, Habarta, et al. found black/African American (adjusted odds ratio [AOR] 4.6 compared to white) or Hispanic or Latino (AOR 2.6) race/ethnicity to be associated with positive HIV test results for transgender women [20]. Other researchers have found racial/ethnic disparities for confirmed or self-reported HIV infection among large samples of transgender women from metropolitan areas [13, 21, 22].

Using qualitative and quantitative methods, researchers have identified several types of HIV-related risk behaviors among transgender people, including multiple sexual partners, unprotected receptive anal or vaginal sex, injecting hormones or drugs and/or sharing syringes and other drug paraphernalia, and commercial sex work [22–38]. Transgender people also experience factors related to stigma and marginalization that may increase their vulnerability to HIV infection, including discrimination and/or victimization, homelessness, incarceration, lack of healthcare insurance or healthcare access, mental health issues, suicidal ideation or attempts, and unemployment/underemployment [30, 39–46]. Although HIV-related risk behaviors and other mediating factors have been well documented in the literature, most of these studies have involved convenience samples from venues or smaller geographic regions.

A lack of nationally representative data sources for transgender populations has prompted professional, academic, and federal agencies or organizations to call for improved data collection efforts [47–53]. The United States Department of Health and Human Services (HHS) has committed to increasing the number of federally funded health and demographic surveys that collect and report sexual orientation and gender identity data and has added an objective to Healthy People 2020 aimed at transgender-specific data collection [54–56]. One approach for collecting information on transgender persons is a two-step model, which involves collecting both sex assigned at birth and current gender identify. The two-step model shows high comprehension among transgender survey respondents and compared to a one-question approach, has been shown to result in fewer missing responses and more accurate information [2, 52, 53]. This approach has been used by several national or multi-state data systems, including the CDC's National HIV Surveillance System (NHSS) [5, 57–59].

This study is the first to use NHSS data to examine diagnosed HIV infection among transgender people in the United States and describe socio-demographic and HIV-related characteristics of transgender people newly diagnosed with HIV infection. National-level

data on the number and characteristics of transgender people with newly diagnosed HIV infection can inform and guide HIV prevention and treatment efforts for transgender persons in the United States.

Methods

The CDC funds 57 jurisdictions in the United States, including 50 states, the District of Columbia and 6 dependent areas, to collect information on diagnosed HIV infection [60]. Jurisdictions apply document-based surveillance methods and collect information on persons with newly and previously diagnosed HIV infection from various document types, including case reports, laboratory reports, death certificates, birth certificates, and other documents. Jurisdictions report these data void of personally identifying information to the NHSS using a secure data system (the Enhanced HIV/AIDS Reporting System, or eHARS). By 2009, jurisdictions had the option to submit information on current gender identity to CDC using eHARS. During 2011, the fields used to collect information on transgender status were revised, updated in eHARS, and added to the HIV case report form for adults and adolescents (see Current gender identity, defined below). Of the 51 jurisdictions that we evaluated, 46 had identified and reported at least one transgender adult or adolescent with newly diagnosed HIV infection during 2009–2014.

We examined data on newly diagnosed HIV infection from 2009 through 2014 that jurisdictions had reported by June 30, 2016, excluding data from the 6 United States dependent areas. For adult and adolescent transgender people (> 13 years at the time of diagnosis) with newly diagnosed HIV infection during 2009 to 2014, we examined socio-demographic and HIV-related characteristics and calculated HIV case counts and percentages by each characteristic (Table 2).

Sex Assigned at Birth

Personnel from jurisdictions collect information on sex assigned at birth from documents such as birth certificates, laboratory reports, medical records, and death certificates. For the NHSS, a hierarchy is applied to select the document with the value that is most likely to accurately represent a person's sex assigned at birth (e.g., birth certificate has highest priority).

Current Gender Identity

Personnel from jurisdictions that collect information on gender identity use data sources such as HIV case report forms submitted by healthcare or HIV testing providers, medical records, or matches with other health department databases (e.g., Ryan White program data). We used information that was collected on HIV case report forms for adults and adolescents with diagnosed HIV infection, excluding data from laboratory reports and other document types. Laboratory personnel generally do not interact with patients and therefore may not have the opportunity to verify an individual's current gender identity. Further, current gender identity is rarely included in other document types (e.g., birth certificates, death certificates). After removing documents with errors (e.g., documents with a value of "female" for sex assigned at birth and "transgender-MTF" for current gender identity), we examined current

gender identity data that were reported to the NHSS on HIV case report forms. Persons with at least one HIV case report form containing a value for current gender identity that differed from the person's sex assigned at birth were considered to be transgender. We used the algorithm presented in Table 1 to assign transgender status and transmission category (described below).

Diagnoses of HIV Infection

We applied the 2008 revised HIV surveillance case definition, assigning a stage of 1, 2, 3 (AIDS), or unknown to cases based on laboratory evidence [61]. To assign transmission categories for people with diagnosed HIV infection, the CDC uses a hierarchical algorithm that incorporates individual HIV risk factors and assigned sex at birth [62, 63]. Therefore, a transgender woman who had sexual contact with an HIV-infected cisgender male is typically assigned a transmission category of male-to-male sexual contact (MSM). However, for this analysis, we combined the transmission categories of MSM and heterosexual contact into the common category "sexual contact", and MSM/injection drug use (IDU) into the common category "sexual contact/IDU." We maintained the original categories of "IDU" for people with diagnosed HIV infection attributable to injection drug use, "other" for people with diagnosed HIV infection attributable to hemophilia, blood transfusion, or other rare modes of transmission, and "no identified or reported risk (NIR)" for people with an unknown transmission category. For facilities where transgender people were initially diagnosed with HIV infection, we used the NHSS categories of inpatient, outpatient, emergency room, screening, diagnostic, or referral site, laboratory, and other/unknown. Screening, diagnostic, or referral sites include facilities that provide HIV counseling and testing services but not ongoing healthcare (e.g., blood bank, drug treatment center, family planning clinic, HIV counseling and testing site, etc.).

Other Socio-demographic Characteristics

To collect information on race/ethnicity, the NHSS applies the Office of Management and Budget guidelines from 1997, which allow the identification of one or more race categories along with Hispanic or Latino ethnicity [62, 64]. We presented both age group and United States region of residence as of the time of diagnosis of HIV infection. Jurisdictions' methods for collecting information on country of birth have been described elsewhere [63]. For vital status, we used information on deaths that jurisdictions reported to the NHSS by June 30, 2016.

Results

Jurisdictions identified and reported 2351 transgender people with newly diagnosed HIV infection during 2009 to 2014, of whom 84.0% were transgender women, 15.4% were transgender men, and 0.7% had an additional gender identity (Table 2; data not shown for persons with an additional gender identity). Among 50 states and the District of Columbia, 46 had at least one new diagnosis of HIV for a transgender person during 2009–2014. The highest numbers of new diagnoses during 2009–2014 were reported from California, followed by New York, Georgia, and Texas. The annual number of cases did not vary

significantly during the 5 years. Due to small cell sizes, we did not present annual data for transgender people by state or those with an additional gender identity.

Transgender Women

Of the 1974 transgender women with newly diagnosed HIV infection during 2009–2014, half (50.8%) were non-Hispanic black/African American, 29.3% Hispanic or Latino, 10.7% non-Hispanic white, 6.1% multiple races, 1.9% Asian, 0.7% American Indian/Alaska Native, and 0.6% Native Hawaiian/other Pacific Islander (Table 2). Most transgender women were diagnosed with HIV infection at age 34 or younger: 8.3% at ages 13–19, 28.0% at ages 20–24, and 36.3% at ages 25–34. The largest proportion of cases (42.8%) resided in the South (includes Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia) at the time of diagnosis and most (69.1%) were born in the United States. Most transgender women (86.8%) were diagnosed with HIV attributable to sexual contact, and 17.4% were diagnosed with HIV infection, stage 3 (AIDS) within 3 months of their HIV diagnosis. Close to half (41.9%) of transgender women were diagnosed in outpatient settings, 22.5% in HIV screening, testing, or referral sites, and 12.4% in inpatient settings. Diagnoses were approximately equally distributed by year of diagnosis. Less than 5% (4.2%) of transgender women were known to be deceased.

Transgender Men

Similar to transgender women, over half (58.4%) of the 361 transgender men with newly diagnosed HIV infection were non-Hispanic black/African American; 15.2% were Hispanic or Latino, 15.5% non-Hispanic white, 8.6% multiple races, 1.4% Asian, and 0.8% American Indian/Alaska Native (Table 2). Over half (53.5%) of transgender men were newly diagnosed with HIV at age 34 or younger (6.4% were 13–19, 16.6% were 20–24, and 30.5% were 25–34) and over half (53.5%) resided in the South at the time of diagnosis. Approximately two-thirds (69.3%) were born in the United States. Over half (56.8%) had an unknown transmission category; 34.1% were diagnosed with HIV attributable to sexual contact, and 8.9% were diagnosed with HIV attributable to IDU. Nearly one-quarter (22.4%) were diagnosed with HIV infection, stage 3 (AIDS) within 3 months of their HIV diagnosis. Four-tenths (41.8%) were diagnosed in outpatient settings. Diagnoses for transgender men were approximately equally distributed by year. Less than 10% (6.4%) of transgender men were known to be deceased.

Discussion

Our analysis is the first to use national surveillance data to explore HIV diagnosis among transgender people. Among transgender people with newly diagnosed HIV during 2009–2014 with data reported to the NHSS, over three-quarters were transgender women. This finding is consistent with research involving data from HIV prevention and testing programs, behavioral interventions, and surveys that show high percentages of transgender women with self-reported or diagnosed HIV infection [24, 19]. Comparable literature on HIV infection among transgender men is scarce [65]. We identified 361 transgender men with newly diagnosed HIV during 2009–2014. Our results may be among the first to be reported in the

literature that include a large number of transgender men with diagnosed HIV infection in the United States.

Similar to Herbst, et al., we found disparities among transgender adults and adolescents with newly diagnosed HIV [19]. Over half of both transgender women and men with newly diagnosed HIV infection during 2009–2014 were black/African American. In their meta-analysis of studies on HIV among transgender populations, Herbst, et al. found the percentage of black/African American transgender women with confirmed HIV infection to be 3 times as high as the percentages for whites or Hispanics or Latinos [19]. We also found that close to half of both transgender women and transgender men resided in the South at the time of their HIV diagnosis. Other reports involving national HIV surveillance data have shown a higher HIV burden for the South, especially among blacks/African Americans [62, 66, 67]. Among 45 states and the District of Columbia, Georgia and Texas had the third and fourth highest numbers (respectively) of transgender people with newly diagnosed HIV infection during 2009–2014. A combination of factors—including HIV prevalence and the maturity and quality of a jurisdiction’s transgender-specific data collection methods—may contribute to these results. Georgia began collecting transgender-specific data during 2008. During recent years, Texas has attempted to improve transgender-specific data collection. California (including the jurisdictions of Los Angeles County and San Francisco) and New York (including the jurisdiction of New York City) where data collection methods have been in place longer than many other states, had the first and second highest percentages (respectively) of newly diagnosed HIV cases for transgender people among the 45 states and the District of Columbia.

To assign transmission categories to cases of newly diagnosed HIV infection, we used an alternate method and collapsed NHSS transmission categories into broader ones. Had we used the standard categories, 86.0% of transgender women would have been described as having HIV attributable to male-to-male sexual contact and 7.5% as having HIV attributable to male-to-male sexual contact and injecting drugs; 34.1% of transgender men would have been described as having HIV attributable to heterosexual contact (i.e., sex with a man previously diagnosed with or at high risk for HIV). For transgender men, we found that over half had no identified or reported risk (compared to 4.9% for transgender women). Researchers have identified factors such as sex, age, birth country, facility type at diagnosis, race/ethnicity, region of residence, and vital status as contributing to higher NIR percentages [63]. To identify potential reasons for the discrepancy in NIR percentages between transgender men and transgender women, we would need to perform additional analyses to examine such factors and further evaluate jurisdictions’ methods for collecting and reporting HIV risk factor and transmission category data for transgender men.

One of the goals of both the National HIV/AIDS Strategy and Healthy People 2020 is to reduce the proportion of persons with a diagnosis of HIV infection, stage 3 (AIDS) within 3 months of diagnosis of HIV [3, 56]. We found that for both transgender women and men, less than one-quarter were classified as stage 3 (AIDS) within 3 months of diagnosis. Using NHSS data from the same time period, the CDC found that approximately one-quarter of annual infections overall were classified as stage 3 at the time of diagnosis [68]. Although data from the CDC report are based on sex assigned at birth and therefore include

transgender people among the percentages for men and women, these percentages would not be greatly impacted by the exclusion of transgender people given their comparatively small number of diagnoses.

Our analysis is subject to the following limitations. These data may not represent the entire population of transgender people in the United States with newly diagnosed HIV during 2009–2014. Instead, they are limited to cases of newly diagnosed HIV that jurisdictions identified and reported to the NHSS and that could be classified as transgender using an algorithm (Table 1). Diagnosed HIV among transgender populations may be vastly underreported or misclassified due to data collection challenges for jurisdictions, including correctly identifying current gender identity from documentation in medical records and other data sources [16, 17, 69–71]. Also, some transgender people may not identify as transgender in healthcare settings due to fear of discrimination or because of previous negative experiences [41]. Errors during documentation on HIV case report forms or data entry could lead to misclassification of transgender status in NHSS data, which could increase or decrease the number of persons apparently transgender (compared to cisgender) or transgender man (compared to transgender woman). Our exclusion of data from laboratory reports may have affected our estimate of the number of transgender people with newly diagnosed HIV infection. Information on current gender identity has not been consistently captured in electronic or paper laboratory reports. Whether to include data from laboratory reports and other documents when classifying transgender status should be reassessed when data collection methods and data quality have improved for these sources.

We applied an algorithm that classified as transgender anyone with at least one HIV case report that included a value of current gender identity that differed from sex assigned at birth. Our algorithm incorporates feedback from jurisdiction-level personnel, who suggested that once a person is classified as transgender, the person should maintain this classification in surveillance data regardless of current gender identity values from subsequent reports. A person's gender identity and expression is fluid and may vary over time. However, the likelihood of someone identifying as transgender followed by cisgender seems more likely to be associated with errors in data collection or data entry, and/or by non-ascertainment of transgender identity at a given provider or facility, than with an actual change from transgender to cisgender identity. The methods used to classify transgender status among persons with diagnosed HIV infection should continue to be evaluated and improved.

As previously mentioned, jurisdictions with transgender-specific data collection methods in place for longer time periods may have more accurate data. Socio-demographic characteristics may be different for transgender people with newly diagnosed HIV who reside in states other than those we included in our analysis. Also, we excluded data for people with an additional gender identity, who comprised <1% of the study population and had small cell sizes.

Despite the limitations, our findings have several important implications for HIV prevention and care efforts and surveillance activities. First, we performed the first analysis of national surveillance data for transgender people with newly diagnosed HIV infection, providing results that can be used to supplement other analyses on HIV-related risk behaviors and/or

transmission categories for transgender people [5, 20, 57, 67, 72]. Second, racial and regional disparities are evident. Those who develop or implement HIV prevention and care programs should consider these disparities and tailor programs to the needs of transgender people. Third, HIV surveillance programs that do not currently have practices in place for collecting transgender-specific data should develop and implement such practices and continue to evaluate and improve upon them. Fourth, developing practices for capturing information from electronic and paper laboratory reports is essential to gaining a more complete picture of diagnosed HIV infection among transgender adults and adolescents. Finally, as national transgender population estimates become available, calculating HIV disease burden (e.g., HIV prevalence and diagnosis rates) among transgender people will become a reachable goal. Adequate population estimates have been published [73]. However, standard population estimates from the United States Census Bureau are unavailable, and further improvements to the quality of HIV surveillance data at the national and jurisdiction levels are needed [74].

In summary, our results showed a higher percentage of newly diagnosed HIV infection among transgender women than transgender men. Racial and regional disparities are evident. Improvements to data collection methods and data quality are needed. National and local agencies and providers serving transgender populations should tailor HIV prevention and treatment programs to be accepting of a person's stated gender identity and be sensitive to the unique healthcare needs of transgender people living with HIV.

Acknowledgments

The authors would like to thank the staff of HIV surveillance programs within state and city health departments. Publication of this manuscript would not have been possible without their dedication towards HIV surveillance activities and data collection. The authors thank Dr. Eduardo Valverde of CDC's National Center for HIV, Viral Hepatitis, STD, and TB Prevention, Division of HIV/AIDS Prevention for his assistance with Spanish translation. For their review and commentary, the authors thank Dr. Deb Karch, Mrs. Anna Satcher Johnson, Dr. Azfar Siddiqi, and Dr. H. Irene Hall of CDC's National Center for HIV, Viral Hepatitis, STD, and TB Prevention, Division of HIV/AIDS Prevention, and Dr. Sara Braunstein, Mr. Sonny Ly, and Dr. Lucia Torian of the New York City Department of Health and Mental Hygiene. Finally, the authors would like to acknowledge the dedication, work, and contribution of healthcare providers, community groups, and the transgender community.

References

1. GLAAD. GLAAD Media Reference Guide. 2014 Aug. [Accessed 18 Nov 2016] <http://www.glaad.org/reference>.
2. Tate CC, Ledbetter JN, Youssef CP. A two-question method for assessing gender categories in the social and medical sciences. *J Sex Res.* 2012; 50(8):767–776. [PubMed: 22989000]
3. White House Office of National HIV/AIDS Policy. [Accessed 18 Nov 2016] The National HIV/AIDS Strategy: Updated to 2020. <https://www.aids.gov/federal-resources/national-hiv-aids-strategy/nhas-update.pdf>. Published July 2015
4. Baral SD, Poteat T, Strömdahl S, et al. Worldwide burden of HIV in transgender women: a systematic review and meta-analysis. *Lancet Infect Dis.* 2013; 13:214–222. [PubMed: 23260128]
5. CDC. [Accessed 18 Nov 2016] CDC-Funded HIV Testing: United, States, Puerto Rico and the U.S. Virgin Islands, 2013. <http://www.cdc.gov/hiv/library/reports/index.html>. Published June 2015
6. [Accessed 18 Nov 2016] California Department of Public Health, Office of AIDS, HIV/AIDS Surveillance Section. HIV/AIDS Statistics 2013. Data as of December 23, 2014. <http://www.cdph.ca.gov/data/statistics/Pages/OAHIVAIDSStatistics.aspx>. Published January 1, 2015

7. [Accessed 18 Nov 2016] Division of HIV and STD Programs, Los Angeles County Department of Public Health. 2013 Annual HIV Surveillance Report. <http://publichealth.lacounty.gov/dhsp/Reports/HIV/2013AnnualHIVSurveillanceReport.pdf>. Published April 2014
8. San Francisco Department of Public Health. HIV Semi-annual Surveillance Report - HIV Cases Reported through June 2015. [Accessed 18 Nov 2016] <https://www.sfdph.org/dph/files/reports/default.asp>.
9. San Francisco Department of Public Health. Population Health Division. HIV Epidemiology Section. HIV Epidemiology Annual Report 2014. [Accessed 18 Nov 2016] <https://www.sfdph.org/dph/comupg/oprograms/HIVepiSec/HIVepiSecReports.asp>. Published August 2015.
10. Houston Department of Health and Human Services. [Accessed 18 Nov 2016] The 2013 Houston Area Integrated Epidemiologic Profile for HIV/AIDS Prevention and Care Services Planning. Reporting period: January 1 to December 31, 2011. http://www.houstontx.gov/health/HIV-STD/2013_Epi_Profile%20-APPROVED-05-09-13.pdf. Updated May 21, 2013
11. [Accessed 18 Nov 2016] Michigan Department of Health and Human Services, Department of Community Health, HIV, Body Art, Tuberculosis, Viral Hepatitis Section, Bureau of Disease Control, Prevention and Epidemiology. HIV among transgender persons in Michigan. http://www.michigan.gov/documents/mdhhs/Transgender_504239_7.pdf. Published 2015
12. New York City HIV/AIDS Surveillance Slide Sets. New York: New York City Department of Health and Mental Hygiene, 2014 HIV/AIDS among transgender persons in New York City, 2010–2014; <http://www1.nyc.gov/site/doh/data/data-sets/epi-surveillance-slide-sets.page>. Updated February 2016 [Accessed 18 Nov 2016]
13. Wiewel EW, Torian LV, Merchant P, et al. HIV diagnoses and care among transgender persons and comparison with men who have sex with men: New York City, 2006–2011. *Am J Public Health*. 2015:e1–e6.
14. [Accessed 18 Nov 2016] HIV/AIDS Epidemiology Unit, Public Health – Seattle & King County and the Infectious Disease Assessment Unit, Washington State Department of Health. HIV/AIDS Epidemiology Report 2015. www.kingcounty.gov/healthservices/health/communicable/hiv/epi.aspx
15. [Accessed 18 Nov 2016] Wisconsin Department of Health Services, Division of Public Health, AIDS/HIV Program. Wisconsin HIV/AIDS Surveillance Annual Review: New diagnoses, prevalent cases, and deaths through December 31, 2015. <https://www.dhs.wisconsin.gov/publications/p0/p00484.pdf>. Published April 2016
16. [Accessed 18 Nov 2016] Nevada Division of Public and Behavioral Health, HIV/AIDS Surveillance Program, Office of Public Health Informatics and Epidemiology, Bureau of Community Services. Nevada HIV/AIDS Epidemiologic Profile, 2009–2013. [http://dpbh.nv.gov/Programs/HIVOPHIE/dta/Publications/HIV/AIDS_Surveillance_Program_\(HIV-OPHIE\)-_Publications/](http://dpbh.nv.gov/Programs/HIVOPHIE/dta/Publications/HIV/AIDS_Surveillance_Program_(HIV-OPHIE)-_Publications/)
17. Wiewel, EW., Torian, LV., Merchant, P., et al. Transgender persons with HIV in New York City (NYC): Implementation of HIV surveillance, number of new diagnoses of HIV, linkage to care, viral suppression, and comparison with men who have sex with men; 2014 CSTE Annual Conference; Abstract# 2712. Presented June 24, 2014.
18. [Accessed 18 Nov 2016] Division of HIV and STD Programs, Los Angeles County Department of Public Health. Los Angeles County Transgender Population Estimates 2012. <http://publichealth.lacounty.gov/dhsp/Reports.htm>
19. Herbst JH, Jacobs ED, Finlayson TJ, et al. Estimating HIV prevalence and risk behaviors of transgender persons in the United States: a systematic review. *AIDS Behav*. 2008; 12(1):1–17. [PubMed: 17694429]
20. Habarta N, Wang G, Mulatu MS, Larish N. HIV testing by transgender status at Centers for Disease Control and Prevention funded sites in the United States, Puerto Rico, and US Virgin Islands, 2009–2011. *Am J Public Health*. 2015; 105:1917–1925. [PubMed: 26180964]
21. Wilson EC, Chen Y, Arayasirikul S, et al. Differential HIV risk for racial/ethnic minority trans*female youths and socioeconomic disparities in housing, residential stability, and education. *Am J Public Health*. 2015; 105:e41–e47. [PubMed: 25905826]

22. Nuttbrock L, Hwahng S, Bockting W, et al. Lifetime risk factors for HIV/sexually transmitted infections among male-to-female transgender persons. *J Acquir Immun Def Syndr*. 2009; 52(3): 417–421.
23. Reback C, Fletcher JB. HIV prevalence, substance use, and sexual risk behaviors among transgender women recruited through outreach. *AIDS Behav*. 2014; 18:1359–1367. [PubMed: 24287786]
24. De Santis JP. HIV infection risk factors among male-to-female transgender persons: a review of the literature. *JANAC*. 2009; 20(5):362–372. [PubMed: 19732695]
25. Rowiak S, Chesla C, Dawson Rose C, Holzemer WL. Transmen: the HIV risk of gay identity. *AIDS Educ Prev*. 2011; 23(6):508–520. [PubMed: 22201235]
26. Reisner SL, Perkovich B, Mimiaga MJ. A mixed methods study of the sexual health needs of New England transmen who have sex with nontransgender men. *AIDS Pat Care and STDs*. 2010; 24(8): 501–513.
27. Reisner SL, White JM, Mayer KH, Mimiaga MJ. Sexual risk behaviors and psychosocial health concerns of female-to-male transgender men screening for STDs at an urban community health center. *AIDS Care*. 2014; 26(7):857–864. [PubMed: 24206043]
28. Stevens S. Meeting the substance abuse treatment needs of lesbian, bisexual and transgender women: implications from research to practice. *Subst Abuse Rehabil*. 2012; 3(Suppl 1):27–36. [PubMed: 24474874]
29. Kellogg T, Clements-Nolle K, Dilley J, et al. Incidence of human immunodeficiency virus among male-to-female transgendered persons in San Francisco. *JAIDS*. 2001; 28:380–384. [PubMed: 11707676]
30. Wilson EC, Garofalo R, Harris RD, et al. Transgender female youth and sex work: HIV risk and a comparison of life factors related to engagement in sex work. *AIDS Behav*. 2009; 13(5):902–913. [PubMed: 19199022]
31. Sanchez T, Finlayson T, Murrill C, et al. Risk behaviors and psychosocial stressors in the New York City House Ball community: a comparison of men and transgender women who have sex with men. *AIDS Behav*. 2010; 14(2):351–358. [PubMed: 19763812]
32. Shackle, MD. *The handbook of lesbian, gay, bisexual, and transgender public health: A practitioner's guide to service*. Binghamton: The Haworth Press; 2006.
33. Bockting, W., Avery, E., editors. *Transgender health and HIV prevention: needs assessment studies from transgender communities across the United States*. Binghamton: The Haworth Medical Press; 2005.
34. Wilson EC, Santos GM, Raymond HF. Sexual mixing and the risk environment of sexually active transgender women: data from a respondent-driven sampling study of HIV risk among transwomen in San Francisco, 2010. *BMC Infect Dis*. 2014; 14:430. [PubMed: 25100405]
35. Feldman J, Romine RS, Bockting WO. HIV risk behaviors in the U.S. transgender population: prevalence and predictors in a large internet sample. *J Homosex*. 2014; 61(11):1558. 15588. [PubMed: 25022491]
36. Poteat T, Wirtz AL, Radix A, et al. HIV risk and preventive interventions in transgender women sex workers. *Lancet*. 2015; 385(9964):274–286. [PubMed: 25059941]
37. Santos GM, Rapues J, Wilson EC. Alcohol and substance use among transgender women in San Francisco: prevalence and association with human immunodeficiency virus infection. *Drug Alcohol Rev*. 2014; 33(3):287–295. [PubMed: 24628655]
38. Wansom T, Guadamuz TE, Vasan S. Transgender populations and HIV: unique risks, challenges and opportunities. *J Virus Erad*. 2016; 2:87–93. [PubMed: 27482441]
39. Garofalo R, Deleon J, Osmer E, et al. Overlooked, misunderstood and at-risk: exploring the lives and HIV risk of ethnic minority male-to-female transgender youth. *J Adolescent Health*. 2008; 38:230–236.
40. Brennan J, Kuhns LK, Johnson AK, et al. Syndemic theory and HIV-related risk among young transgender women: the role of multiple, co-occurring health problems and social marginalization. *Am J Public Health*. 2012; 102:1751–1757. [PubMed: 22873480]

41. James, SE., Herman, JL., Rankin, S., et al. Transgender Survey. Washington, DC: National Center for Transgender Equality; 2016. The report of the 2015 U.S. <http://www.transequality.org/sites/default/files/docs/USTS-Full-Report-FINAL.PDF> [Accessed 9 Dec 2016]
42. Poteat T, Sari L, Reisner SL, Radix A. HIV epidemics among transgender women. *Curr Opin HIV AIDS*. 2014; 9:168–173. [PubMed: 24322537]
43. Reisner SL, White JM, Bradford JB, Mimiaga MJ. Transgender health disparities: comparing full cohort and nested matched-pair study designs in a community health center. *LGBT Health*. 2014; 1(3):177–184. [PubMed: 25379511]
44. Reisner SL, Bailey Z, Sevelius J. Racial/ethnic disparities in history of incarceration, experiences of victimization, and associated health indicators among transgender women in the U.S. *Women Health*. 2014; 54(8):750–767. [PubMed: 25190135]
45. Fletcher JB, Kisler KA, Reback CJ. Housing status and HIV risk behaviors among transgender women in Los Angeles. *Arch Sex Behav*. 2014; 43:1651–1661. [PubMed: 25190499]
46. Nuttbrock L, Bockting W, Rosenblum A, et al. Gender abuse, depressive symptoms, and HIV and other sexually transmitted infections among male-to-female transgender persons: a three-year prospective study. *Am J Public Health*. 2013; 103:300–307. [PubMed: 22698023]
47. The health of lesbian, gay, bisexual, and transgender people: building a foundation for better understanding. Washington, DC: National Academies Press (US); 2011. Institute of Medicine (US) Committee on Lesbian, Gay, Bisexual, and Transgender Health Issues and Research Gaps and Opportunities.
48. Collecting sexual orientation and gender identity data in electronic health records: workshop summary. Washington, DC: National Academies Press (US); 2013. Institute of Medicine (US) Board on the Health of Select Populations.
49. Gay and Lesbian Medical Association. Healthy People 2010 companion document for lesbian, gay, bisexual, and transgender (LGBT) health. San Francisco, CA: Gay and Lesbian Medical Association; 2001. http://www.glma.org/_data/n_0001/resources/live/HealthyCompanionDoc3.pdf [Accessed 18 Nov 2016]
50. U.S. Department of Health and Human Services. [Accessed 18 Nov 2016] U.S. Department of Health and Human Services Secretary’s recommended actions to improve the health and well-being of lesbian, gay, bisexual, and transgender communities. 2011. <http://www.hhs.gov/programs/topic-sites/lgbt/index.html>
51. The Joint Commission. Advancing effective communication, cultural competence, and patient- and family-centered care for the lesbian, gay, bisexual, and transgender (LGBT) community: A field guide. Oakbrook Terrace, IL: The Joint Commission; 2011. http://www.jointcommission.org/assets/1/18/LGBTFieldGuide_WEB_LINKED_VER.pdf [Accessed 18 Nov 2016]
52. Sausa, LA., Sevelius, J., Keatley, J., Iñiguez, JR., Reyes, M. Policy recommendations for inclusive data collection of trans people in HIV prevention, care & services. San Francisco, CA: University of California, San Francisco, Center of Excellence for Transgender HIV Prevention; 2009. <http://www.transhealth.ucsf.edu/pdf/data-recommendation.pdf> [Accessed 18 Nov 2016]
53. The Fenway Institute. Policy focus: Asking patients questions about sexual orientation and gender identity in clinical settings—a study in four health centers. [Accessed 18 Nov 2016] http://thefenwayinstitute.org/wpcontent/uploads/COM228_SOGI_CHARN_WhitePaper.pdf.
54. [Accessed 18 Nov 2016] U.S. Department of Health and Human Services, Office of Minority Health. Improving data collection for the LGBT community (fact sheet). http://minorityhealth.hhs.gov/assets/pdf/checked/1/Fact_Sheet_LGBT.pdf
55. [Accessed 18 Nov 2016] U.S. Department of Health and Human Services, LGBT Issues Coordinating Committee. Advancing LGBT health and well-being—2014 report. <http://www.hhs.gov/sites/default/files/lgbt/resources/reports/dhhs-lgbt2014annualreport.pdf>
56. U.S. Department of Health and Human Services. [Accessed 18 Nov 2016] Healthy People 2020. Lesbian, gay, bisexual, and transgender health. <http://www.healthypeople.gov/2020/topics-objectives/topic/lesbian-gay-bisexual-and-transgender-health>
57. CDC. [Accessed 18 Nov 2016] Behavioral and Clinical Characteristics of Persons Receiving Medical Care for HIV Infection—Medical Monitoring Project, United States, 2013 Cycle (June

- 2013–May 2014). HIV Surveillance Special Report 16. <http://www.cdc.gov/hiv/pdf/library/reports/surveillance/cdc-hiv-hssr-mmp-2013.pdf>. Published January 2016
58. Health Resources and Services Administration. [Accessed 18 Nov 2016] Ryan White HIV/AIDS Program Annual Client-Level Data Report 2014. <http://hab.hrsa.gov/data/servicesdelivered/2014RWHAPDataReport.pdf>. Published December 2015
59. Baker, KE., Hughes, M. Sexual orientation and gender identity data collection in the Behavioral Risk Factor Surveillance System. Washington, D.C.: The Center for American Progress; <https://cdn.americanprogress.org/wp-content/uploads/2016/03/29090401/BRFSSdatacollect-brief-03.31.16.pdf>. Published March 29, 2016 [Accessed 18 Nov 2016]
60. CDC. [Accessed 18 Nov 2015] HIV surveillance supported by the Division of HIV/AIDS Prevention. http://www.cdc.gov/hiv/pdf/prevention_ongoing_surveillance_system_2013.pdf. Published June 2013
61. CDC. Revised surveillance case definitions for HIV infection among adults, adolescents, and children aged 18 months and for HIV infection and AIDS among children aged 18 months to 13 years—United States, 2008. MMWR. 2008; 57(RR-10):1–12.
62. CDC. HIV Surveillance Report, 2014. 26 [Accessed 18 Nov 2016] <http://www.cdc.gov/hiv/library/reports/surveillance/>. Published November 2015.
63. Harrison KM, Kajese T, Hall HI, Song R. Risk Factor redistribution of the national HIV/AIDS surveillance data: an alternative approach. Public Health Rep. 2008; 123:618–627. [PubMed: 18828417]
64. Office of Management and Budget. Revisions to the standards for the classification of federal data on race and ethnicity. Federal Register. 1997; 62:58781–58790. [Accessed 18 Nov 2016] <http://go.usa.gov/vSdR>.
65. Reisner SL, Murchison GR. A global research synthesis of HIV and STI biobehavioural risks in female-to-male transgender adults. Glob Public Health. 2016; 11(7–8):866–887. [PubMed: 26785800]
66. CDC. Diagnosed HIV infection among adults and adolescents in metropolitan statistical areas—United States and Puerto Rico, 2014. HIV Surveillance Supplemental Report 2016. 21(1) [Accessed 18 Nov 2016] <http://www.cdc.gov/hiv/library/reports/surveillance/>. Published May 2016.
67. Reif S, Wells Pence B, Hall I, et al. HIV diagnoses, prevalence and outcomes in nine southern states. J Community Health. 2015; 40(4):642–651. [PubMed: 25524210]
68. CDC. Monitoring selected national HIV prevention and care objectives by using HIV surveillance data—United States and 6 dependent areas—2013. HIV Surveillance Supplemental Report 2015. 20(2) [Accessed 18 Nov 2016] <http://www.cdc.gov/hiv/library/reports/surveillance/>. Published July 2015.
69. Deutsch MB, Buchholz D. Electronic health records and transgender patients—Practical recommendations for the collection of gender identity data. J Gen Intern Med. 2015; 30(6):843–847. [PubMed: 25560316]
70. Deutsch MD, Keatley J, Sevelius J, Shade SB. Collection of gender identity data using electronic medical records: survey of current end-user practices. JANAC. 2014; 25(6):657–663. [PubMed: 24880490]
71. Sizemore LA, Rebeiro PF, McGoy SL. Improving HIV surveillance among transgender populations in Tennessee. LGBT Health. 2016; 3(3):208–213. [PubMed: 26698656]
72. Mizuno Y, Frazier EL, Huang P, Skarbinski J. Characteristics of transgender women living with HIV receiving medical care in the United States. LGBT Health. 2015; 2(3):228–234. [PubMed: 26788671]
73. Flores, AR., Herman, JL., Gates, GJ., Brown, TNT. How many adults identify as transgender in the United States?. Los Angeles, CA: The Williams Institute; <http://williamsinstitute.law.ucla.edu/wpcontent/uploads/How-Many-Adults-Identify-as-Transgender-in-the-United-States.pdf>. Published June 2016 [Accessed 18 Nov 2016]
74. Howden, LM., Meyer, JA. [Accessed 18 Nov 2016] Age and Sex Composition: 2010. <http://www.census.gov/prod/cen2010/briefs/c2010br-03.pdf>. Published May 2011

Table 1

Algorithm for assigning transgender status to persons newly diagnosed with HIV

Assigned sex at birth	Current gender identity ^a	Transgender status ^b
Male	Missing or male	Cisgender male
Male	Female	Transgender woman
Male	Transgender – MTF	Transgender woman
Male	Additional gender identity	Additional gender identity
Female	Missing or female	Cisgender female
Female	Male	Transgender man
Female	Transgender – FTM	Transgender man
Female	Additional gender identity	Additional gender identity

^a MTF = male-to-female. FTM = female-to-male. Additional gender identity = other documented, yet unspecified gender identities (e.g., gender queer).

^b Persons with any Adult Case Report Form document indicating a transgender woman, transgender man, or additional gender identity were included in the analysis. Adult Case Report Form documents with conflicting values for assigned sex at birth and current gender identity (e.g., assigned sex at birth = male, current gender identity = Transgender – FTM) were excluded.

Diagnosed HIV Infection among Transgender Adults and Adolescents (≥ 13 years) - United States and District of Columbia, 2009–2014

Table 2

Characteristic	Transgender status						Total ^a	
	Transgender women (male-to-female)		Transgender men (female-to-male)					
	No.	%	No.	%	No.	%	No.	%
Race/Ethnicity								
American Indian/Alaska Native	13	0.7	3	0.8	16	0.7		
Asian	37	1.9	5	1.4	42	1.8		
Black/African American	1,002	50.8	211	58.4	1,213	51.9		
Hispanic or Latino ^b	578	29.3	55	15.2	633	27.1		
Multiple race	121	6.1	31	8.6	152	6.5		
Native Hawaiian/other Pacific Islander	11	0.6	-	-	11	0.5		
White	212	10.7	56	15.5	268	11.5		
Age group								
13–19	164	8.3	23	6.4	187	8.0		
20–24	552	28.0	60	16.6	612	26.2		
25–34	716	36.3	110	30.5	826	35.4		
35–44	343	17.4	76	21.1	419	17.9		
45–54	157	8.0	62	17.2	219	9.4		
55	42	2.1	30	8.3	72	3.1		
Region of residence ^c								
Northeast	384	19.5	68	18.8	452	19.4		
Midwest	263	13.3	62	17.2	325	13.9		
South	844	42.8	193	53.5	1,037	44.4		
West	483	24.5	38	10.5	521	22.3		
Birth country								
United States	1,365	69.1	250	69.3	1,615	69.2		
Other country	290	14.7	34	9.4	324	13.9		

Characteristic	Transgender status					
	Transgender women (female-to-male)			Transgender men (male-to-female) ^d		
	No.	%	%	No.	%	%
Unknown/Missing	319	16.2	77	21.3	396	17.0
Transmission category						
Sexual contact	1,714	86.8	123	34.1	1,837	78.7
Injection drug use (IDU)	14	0.7	32	8.9	46	2.0
Sexual contact/IDU	148	7.5	-	-	148	6.3
Other	1	0.1	1	0.3	2	0.1
No identified/reported risk	97	4.9	205	56.8	302	12.9
Stage of HIV infection within 3 months of diagnosis						
Stages 1, 2, or unknown	1,630	82.6	280	77.6	1,910	81.8
Stage 3 (AIDS)	344	17.4	81	22.4	425	18.2
Facility type at HIV diagnosis						
Inpatient	244	12.4	61	16.9	305	13.1
Outpatient	828	41.9	151	41.8	979	41.9
Emergency room	41	2.1	5	1.4	46	2.0
Screening/diagnostic/referral ^d	445	22.5	45	12.5	490	21.0
Lab	2	0.1	-	-	2	0.1
Other	181	9.2	19	5.3	200	8.6
Unknown	233	11.8	80	22.2	313	13.4
Diagnosis year						
2009	315	16.0	60	16.6	375	16.1
2010	323	16.4	52	14.4	375	16.1
2011	327	16.6	69	19.1	396	17.0
2012	341	17.3	68	18.8	409	17.5
2013	312	15.8	52	14.4	364	15.6
2014	356	18.0	60	16.6	416	17.8
Vital status						
Living/Unknown	1,891	95.8	338	93.6	2,229	95.5

Characteristic	Transgender status				Total ^a
	Transgender women (male-to-female)	%	Transgender men (female-to-male)	%	
Deceased	No. 83	% 4.2	No. 23	% 6.4	No. 106 % 4.5
Total	No. 1,974	% 100	No. 361	% 100	No. 2,335 % 100

Note: Excludes data for people with incongruent information for sex assigned at birth and current gender identity or with missing information for residence at diagnosis of HIV infection.

^aData not presented for people with additional gender identity (n=16).

^bHispanics or Latinos can be of any race.

^cRegion of residence at time of HIV diagnosis: Midwest—Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, Wisconsin. Northeast—Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont. South—Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia. West—Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, Wyoming.

^dFacility, agency, or organization that provides HIV counseling and testing services, but does not provide ongoing HIV-related medical care, social services, or other health services.