HIV Surveillance Annual Report 2021

Division of HIV and STD Programs
Department of Public Health
County of Los Angeles

HIV Surveillance Annual Report 2021, released June 29, 2022

COUNTY OF LOS ANGELES
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Dear Colleague:

Forty-one years ago, on June 5, 1981, the US Centers for Disease Control and Prevention (CDC) published a *Morbidity and Mortality Weekly Report* that described a rare lung infection among a cluster of gay men in Los Angeles which would later be known as the first cases of Acquired Immune Deficiency Syndrome (AIDS), a disease caused by the Human Immunodeficiency Virus (HIV). Since then, HIV has ravaged the globe with devastating impacts. Globally, an estimated 79.3 million people have been infected with HIV and nearly 36.3 million people have died from AIDS-related illness. Each year, nearly 700,000 people still die from HIV and an estimated 1.5 million people become newly infected with HIV.

On this 41st anniversary month of the first report of AIDS in the US, we are releasing the *Los Angeles County HIV Surveillance Annual Report, 2021*. This report provides community and academic partners, public health planners, policymakers, and other stakeholders with insights into the evolving HIV epidemic in Los Angeles County. The report also describes achievements in our shared public health response to HIV, outlines opportunities for improving our response, and offers critical data points to facilitate decision-making to achieve our shared *Ending the HIV Epidemic* goals.

The report includes HIV surveillance data reported to the Department of Public Health since the beginning of the HIV epidemic through December 31, 2021. Also included are annual estimates of the number of people newly infected with HIV and the number of people living with HIV based on a mathematical model developed by the CDC. Due to refinements in the model's methodology and increased HIV

surveillance data availability, prior year estimates going back to 2010, were adjusted.

The main findings from this report are summarized in an Executive Summary. Additional context for the epidemiologic and surveillance findings are described in detail in the various sections of the report. The *Data to Action* summary is presented at the end of each section to contextualize programmatic and policy implications for the local response to HIV.

Importantly, our surveillance data highlight disparities in HIV outcomes across race/ethnicity groups, age, gender, and key populations engaging in high-risk behavior. These findings reinforce the need to better understand the social and structural drivers of these inequities to ensure that health systems are strengthened for populations that experience challenges in access to and use of healthcare services and who are at greatest risk for poor health outcomes.

The Division of HIV and STD Programs continues to work in full partnership with a broad cross-section of community partners and stakeholders to evolve programs and services to meet the specific needs of populations that are most vulnerable to HIV. These efforts are done in coordination and alignment with the goals for *Ending the HIV Epidemic* in Los Angeles County by 2030. The current program priorities include enhancing HIV testing and screening efforts to ensure that we diagnose all HIV-positive persons as early as possible; characterizing the intersections of HIV and STD disease to maximize prevention and care; providing rapid and high-quality treatment for all persons living with HIV so that they achieve sustained viral suppression; implementing high impact interventions to prevent new HIV transmissions, and; identifying and characterizing foci where HIV is being transmitted so that we can respond quickly and provide services to populations that need them the most.

The *Los Angeles County HIV Surveillance Annual Report, 2021* is available at: http://publichealth.lacounty.gov/dhsp/Reports/HIV/2021AnnualHIVSurveillanceReport.pdf under the Reports link. We hope that you find this report helpful and look forward to our continued collaboration and partnership to end the HIV epidemic in Los Angeles County.

Sincerely yours,

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We would like to thank the following individuals and groups without whom this report would not be possible: (1) the community of persons living with HIV whose aggregated health information are described in this report; (2) Division of HIV and STD Programs (DHSP) staff that collect, manage, analyze and provide oversight for HIV case reporting and HIV surveillance in Los Angeles County: Felipe Arevalo, Essam Botros, Laura Cervantes, Victoria Dominguez, Raymond Embrack, Maggie Esquivel, Jesse Exconde, Alejandro Flores, Shnorik "Nora" Grigoryan, Erica Guerra, Mi Suk Harlan, Christina "Nina" Hohe, Virginia Hu, Eddie Javelosa, Andrea Kim, Grace Kim, Chun-Mai Kuo, Colleen Lam, Alice Lee, Keisha Macon, Carolina Magaña, Sameh Mansour, Monica Muñoz, Azita Naghdi, Erin Nguyen, Kathleen Poortinga, Sophia Rumanes, Mona Seino, Alexander Serrano, Zhijuan Sheng, Salvador Tello, Mary C. Vitale and Sherry Yin; (3) DHSP staff that support the analysis of STD case reporting data: Juli Carlos-Henderson, Janice Casil and Jianning Luo; (4) the National HIV Behavioral Surveillance and Medical Monitoring Project Teams at DHSP: Pierre Chambers, Angela Cristobal, Hugo Santa Cruz,Gia Olaes, Benny Deng, Shaunte Crosby, Mirza Garcia, Sara Alvarez, Sandra Duarte,Willie Sledge,Yingbo Ma and Ekow-Kwa Sey; (5) the participants supporting the Medical Monitoring Project and National HIV Behavioral Surveillance for Los Angeles County, from which select data are presented in this report.

Image Credit

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This report is inclusive of all gender, age, and racial/ethnic groups in Los Angeles County (LAC). Due to variability in some results for populations with very small numbers of HIV relative to the total number of persons with diagnosed HIV in LAC, data for children aged <13 years, transgender persons, Native Hawaiian and Pacific Islanders, American Indian and Alaska Natives, and persons of multiple race/ethnicities may be limited.

Notice to Health Care Providers and Laboratories Responsible for Disease Reporting

California Code of Regulations, Title 17, Section 2500 requires that all diagnosed or suspected cases of AIDS as defined by CDC must be reported within seven (7) days to the Health Officer. California Code of Regulations, Title 17, Section 2600/2641.5-2643.20 require both health care providers and laboratories to report HIV cases by name to the Health Officer within seven (7) days. In addition, Senate Bill (SB) 1184 requires each clinical laboratory to report all CD4+ T-cell tests within seven (7) days of completing a CD4+ T-cell test.17 CCR 2500(h) and (k).

Acute HIV Reporting: Effective June 2016, Title 17 CCR 2500(h) and (k) requires all health care providers report cases of acute HIV within one (1) working day to the local health officer of the jurisdiction in which the patient resides by telephone. If evidence of acute HIV is based on presence of HIV p24 antigen, providers shall not wait until HIV-1 RNA is detected before reporting to the local health officer. To report an acute HIV case, please call (213) 351-8516.

For more information on HIV reporting requirements, obtain a copy of HIV case report forms, or report a HIV case, please visit: http://publichealth.lacounty.gov/dhsp/ReportCase.htm#HIV_Reporting_Information or contact the Division of HIV and STD Programs, 600 South Commonwealth Avenue, Suite 1260, Los Angeles, CA 90005. Phone (213) 351-8516.

Table of Contents

List of Abbreviations

AIDS	Acquired Immune Deficiency Syndrome
AIAN	American Indian and Alaska Native
ART	Antiretroviral therapy
COVID-19	Coronavirus Disease 2019
CDC	Centers for Disease Control and Prevention
DHSP	Division of HIV and STD Programs
EHARS	Enhanced HIV/AIDS Reporting System
EHE	Ending the HIV Epidemic
HET	Heterosexuals at increased risk for HIV
HIV	Human Immunodeficiency Virus
HUD	U.S. Department of Housing and Urban Development
IDU	Injection drug use
LAC	Los Angeles County
MHS	Molecular HIV Surveillance
MSM	Men Who Have Sex with Men
NHPI	Native Hawaiian and Pacific Islander
OMB	Office of Management and Budget
PEP	Post-Exposure Prophylaxis
PLWH	Persons Living with HIV
PLWDH	Persons Living with Diagnosed HIV
PrEP	Pre-Exposure Prophylaxis
PWID	Persons who Inject Drugs
SPA	Service Planning Area
TG	Transgender Persons
US	United States
VL	Viral load

List of Figures

List of Tables

List of Data Tables

Executive Summary

The HIV Surveillance Annual Report 2021 describes the status of the HIV epidemic in Los Angeles County and demonstrates the use of HIV surveillance data to inform prevention, care, and treatment programs in Los Angeles County.

The report includes information on persons living with diagnosed HIV (PLWDH) collected from mandated HIV case reporting and population-based surveys conducted among key populations at increased risk for HIV and PLWDH. HIV case reporting data reflect information from reports received by the Department of Public Health for PLWDH from the beginning of the HIV epidemic through December 31, 2021. Population-based surveys include Los Angeles County data collected for the CDC-funded HIV Behavioral Surveillance System from 2004 to 2019 and Medical Monitoring Project from 2015 to 2019.

The report is divided into four sections: (1) HIV Epidemic Monitoring; (2) Vulnerable Populations; (3) HIV Surveillance to Partner Services Continuum; and (4) HIV Care Continuum. At the end of each section, a Data to Action summary is included to discuss program and policy implications for the data presented. We summarize Key findings for the four sections below and provide hyperlinks to the referenced Tables and Figures.

Report changes

The HIV Surveillance Annual Report 2021 includes new data reports on:

- HIV-positive pregnant women giving birth in Los Angeles County (pages 38-39)
- HIV drug resistance surveillance (pages 30-31)
- HIV and sexually transmitted disease (STD) co-infection (pages 48-50)
- Sexual behavior among PLWDH (page 47)
- Surveillance to HIV Partner Services continuum (pages 57-60)
- Antiretroviral therapy (ART) use and ART adherence among PLWDH (pages 71-72)

Key findings in HIV epidemic monitoring

- Nearly 9 out of 10 persons living with diagnosed HIV (PLWDH) in Los Angeles County (LAC) are male. Within the male population, Black males are disproportionately impacted by HIV compared with males in other race/ethnicity groups. For example, Black males represent approximately 4% of the LAC population, but 17% of PLWDH. In contrast, Latinx males represent 24% of the LAC population and 41% of PLWDH; white males represent 14% of the LAC population and 24% of PLWDH (Figure 1, Figure 2).
- In 2020, 1,401 persons aged 13 years and older were *newly diagnosed* with HIV, down from 1,560 persons in 2019 (Table 1). Nine percent of persons with a new HIV diagnosis in 2020 were classified as having acute HIV (i.e., infected within

60 days prior to HIV diagnosis). In contrast, 20% were classified as stage 3 at the time of diagnosis (Table 3).

- An estimated 1,400 (95% confidence interval [CI]: 900 - 1,990) persons aged 13 years and older acquired HIV in 2020. These new infections may or may not have been diagnosed that year (Figure 13). Notably the estimate of 1,400 new infections in 2020 is higher than prior published estimates of this indicator due to increased availability and quality of HIV surveillance data along with improvements in the CDC model used to generate the estimates. For additional context, estimates are not considered true values and should be interpreted along with a range of values that is likely to contain the true value with a certain degree of confidence (such as a 95% confidence interval). In 2020, the 95% confidence interval for the estimated number of new infections ranged from a low of 900 infections to a high of 1,990 infections.
- An estimated 59,400 (95% CI: 57,500 – 61,300) persons aged 13 years and older were living with HIV and an estimated 6,800 (95% CI: 4,800 – 8,700) persons were unaware of their infection (Figure 14). As noted above, estimates are not true values and should be interpreted with the 95% confidence interval in mind.
- Among persons living with HIV, the largest gaps in knowledge of HIV-positive status existed for younger persons, where approximately 42% of persons aged 13-24 years and 25% of persons aged 25-34 years with HIV were not aware of their HIV-positive status (Figure 15).
- There are disparities in HIV diagnosis by population and location. Rates of new HIV diagnosis are higher among males than females (Figure 6). In 2020, across age groups, young males aged 20-29 years and females aged 30-39 years had the highest rates of new HIV diagnosis (Figure 7, Figure 10). Black males and females had higher rates of HIV diagnosis compared with other race/ethnicity groups (Figure 8, Figure 11). Among males, the highest rates of HIV diagnoses were in the Hollywood Wilshire Health District, but rates were also elevated in the Central and Southeast Health Districts. Among females, the highest rates were in the Central Health District followed by the Southeast, South, and Inglewood Health Districts.
- In 2020, 12% of newly diagnosed HIV cases who received drug resistance testing within 90 days of diagnosis had laboratory results indicating resistance to one or more antiretroviral drugs. Of the three major drug classes, transmitted drug resistance continues to be highest in non-nucleoside reverse transcriptase (NNRTI) inhibitors (Figure 19).
- In 2020, molecular HIV surveillance identified high priority clusters where recent and rapid HIV transmission could be occurring. Persons in these clusters were more likely to be aged 20-29 years, Latinx, and have MSM transmission risk compared with persons newly diagnosed with HIV who were not associated with a priority cluster. They were also more likely to reside in the Southeast, San Antonio, Northeast, and Antelope Valley Health Districts, report methamphetamine use and anonymous partners, and have syphilis co-infection (Figure 20).
- Overall death rates for PLWDH have declined over time, with rates of death due to HIV falling below rates of death due to non-HIV-related causes. In 2020,

approximately three in four deaths among PLWDH were due to non-HIV causes, with two in five deaths due to other or unknown causes, a large increase from previous years due to delay in National Death Index (NDI) match and the inclusion of COVID-19 deaths in this category (Figure 22).

Key findings for Vulnerable Populations

- Between 2020-2021, 92% of HIV-positive pregnant women living with diagnosed HIV received at least one arm of ART during pregnancy and/or at labor and delivery. Among the four infants that had perinatal infection in 2020, all were born to mothers who were not confirmed to have received ART during pregnancy and/or delivery (Table 5).
- Persons living with HIV who are unhoused continue to experience suboptimal outcomes along the HIV care continuum. Compared with housed persons, unhoused persons had lower rates of receiving HIV care, retention in care, and achieving viral suppression in 2021 (Figure 45).
- HIV biobehavioral surveys in LAC confirm that in 2020 transgender (TG) women had the highest HIV positivity rate (1 in 3 were HIV-positive) compared with other populations at elevated risk of HIV. Black transgender (TG) women had the highest HIV positivity rate (52%) compared with Latinx (30%) and White (9%) TG women. MSM also had high positivity levels (21%) while persons who inject drugs (PWID) (2%) and heterosexual persons (HET) (<1%) had much lower positivity levels (Figure 28).
- Among MSM and TG women, PrEP knowledge was high, however use of PrEP among HIV-negative MSM and TG women in the past 12 months was low (Figure 31, Figure 35).
- Substantial disparities exist among PWID along the diagnosis and care cascade. About one in three PWID living with HIV did not know they were infected, while about one in five TG women and one in six MSM living with HIV did not know of their infection. Once diagnosed, PWID had lower levels of receipt of care, retention in care and viral suppression than those with MSM and heterosexual contact transmission risk (Figure 28).
- Based on self-reported information, sexually active PLWDH did not commonly engage in high-risk sexual activity but reported practicing a variety of prevention strategies with their partners, including having sex while virally suppressed, using condoms during sex, and having sex with partners on PrEP (Table 6).
- In 2020, approximately 4 in 10 PLWDH were diagnosed with an STD in the same year as their HIV diagnosis (Figure 36). Co-infection with HIV and either syphilis or gonorrhea was more common than co-infection with HIV and chlamydia (Figure 37). Among those coinfected with HIV and one or more STDs, the majority were among MSM.
- Persons with HIV and COVID-19 co-infection had higher levels of hospitalization, intensive care unit admission, intubation, and death compared with all COVID-19 patients, regardless of COVID-19 vaccination status. However, COVID-19

vaccination reduced the risk of these severe outcomes for both HIV and COVID-19 co-infected patients and COVID-19 patients (Figure 39).

Key findings in HIV surveillance to partner services continuum

- In 2020, two-thirds of persons newly diagnosed with HIV were assigned for a Partner Services interview and 62% of these persons were interviewed. The latter represented 40% of all persons newly diagnosed with HIV in 2020 (Figure 40).
- The Ending the HIV Epidemic (EHE) target for Partner Services is for 85% of newly diagnosed persons to be interviewed by Partner Services staff within 7 days of HIV diagnosis. Only 10% of persons newly diagnosed with HIV were interviewed within this 7-day window, 40% were interviewed within 30 days and 67% were interviewed within 60 days (Figure 41).
- Of the partners that were named by PLWDH during the Partner Services interview, 89% were located. Among those partners, 43% were HIV-positive and 32% were HIV-negative. About two-thirds of HIV-positive partners had been previously diagnosed with HIV, and among those newly diagnosed with HIV through Partner services, 79% were linked to care (Figure 42).

Key findings in the HIV care continuum

- The EHE target for linkage to care is 95% of PLWDH linked to care within 1 month of HIV diagnosis. Among persons aged 13 years and older newly diagnosed with HIV in 2020, 54% were linked to care within 7 days, and 76% were linked within 1 month of diagnosis (Figure 46).
- Populations with lowest linkage to care were women, Blacks, Whites, and those classified as Other race, persons aged 13 to 19 years, and persons whose transmission risk included heterosexual contact and MSM/IDU (Figure 47).
- Once linked to HIV care, performance along the HIV care continuum remains low. In 2021, only 7 in 10 PLWDH received care services, 5 in 10 were retained in care, and 6 in 10 were virally suppressed (Figure 49).
- Timeliness from HIV diagnosis to treatment initiation has improved over time but still needs improvement. Among persons newly diagnosed with HIV in 2020 with treatment information included in their case reports, 89% had initiated treatment within 3 months of diagnosis and 74% within 1 month of diagnosis (Figure 54).
- Timeliness from HIV diagnosis to viral suppression has also improved over time but early viral suppression is lagging. In 2021, only 51% of PLWDH were virally suppressed within 3 months of diagnosis while 76% of PLWDH were virally suppressed within 12 months of diagnosis (Figure 55).
- The greatest disparities in viral suppression were among Black sub-populations, women and transgender persons, persons aged 30-49 years, and persons whose transmission risk included injection drug use (Figure 56).
- By geographic area, unsuppressed viral load was highest in the Central Health District, followed by the South, Southeast, Harbor, Hollywood-Wilshire, West, and Northeast Health Districts (Figure 57).

- A major driver for the low viral suppression rates among PLWDH is delayed treatment among PLWDH and low adherence to ART among those on treatment. In a representative sample of PLWDH, only 8 in 10 were on ART, and 100% adherence to ART doses in the past 30 days was low at 54%. ART adherence was lower among Black (52%) and Latinx (50%) PLWDH compared to White (59%) PLWDH, and lower among those aged 18-29 years (38%) than other age groups (Table 9).

Progress against national Ending the HIV Epidemic goals

- New HIV infections: An estimated 1,400 new infections occurred in LAC in 2020. This highlights the significant gap in meeting the 2025 EHE target of no more than 380 new infections and 2030 EHE target of no more than 150 new infections (Table 1).
- New HIV diagnoses: 1,401 persons were newly diagnosed with HIV in 2020, also underscoring the wide gap in reaching the 2025 EHE target of 450 new diagnoses and 2030 EHE target of 180 new diagnoses (Table 1). Of note, the number of new diagnoses is expected to remain high until we have far fewer persons with newly acquired HIV and persons living with undiagnosed HIV each year.
- Knowledge of HIV-positive status: An estimated 89% of persons living with HIV were aware of their HIV status in 2020, falling 6 percentage points below the 2025/2030 EHE target of 95% (Table 1).
- Linkage to HIV care: 76% of persons newly diagnosed with HIV in 2020 were linked to care within 1 month, falling 19 percentage points below the 2025/2030 EHE target of 95% (Table 1).
- Viral suppression: Only 61% of PLWDH were virally suppressed, falling 34 percentage points below the 2025/2030 EHE target of 95% (Table 1).
- PrEP: An estimated 39% of priority populations were prescribed PrEP in 2020, falling 11 percentage points below the 2025/2030 EHE target of 50% (Table 1).

Ending the HIV Epidemic in Los Angeles County

Ending the HIV Epidemic in the US (EHE) is a federal plan, launched in 2020, that aims to reduce new HIV infections in the US by 75% by 2025 and by 90% by 2030. In February 2020, the US Department of Health and Human Services awarded 57 high burden states and counties, inclusive of LAC, with hundreds of millions of dollars to expand HIV prevention and care activities to accelerate progress towards achieving the national EHE goals.

Ending the HIV Epidemic in LAC focuses on four key pillars of diagnosing, preventing, treating, and responding to HIV. Within these pillars, LAC Public Health is committed to a local response that is high quality and rapidly deployed, prioritizing the highest impact interventions to optimize performance along the steps of the HIV care continuum, and using local evidence at the most granular level possible to identify where and among whom HIV is transmitted so that we can then target interventions to where they are needed most.

In Table 1, we list the key metrics that are being tracked to measure progress towards targets in the EHE initiative and progress to date in LAC. The forthcoming sections in this annual report provide additional detail to contextualize LAC achievements and identify where we need to improve HIV prevention and care activities to meet our set targets, reduce HIV transmission, and ensure that all Angelenos living with HIV can live long and healthy lives.

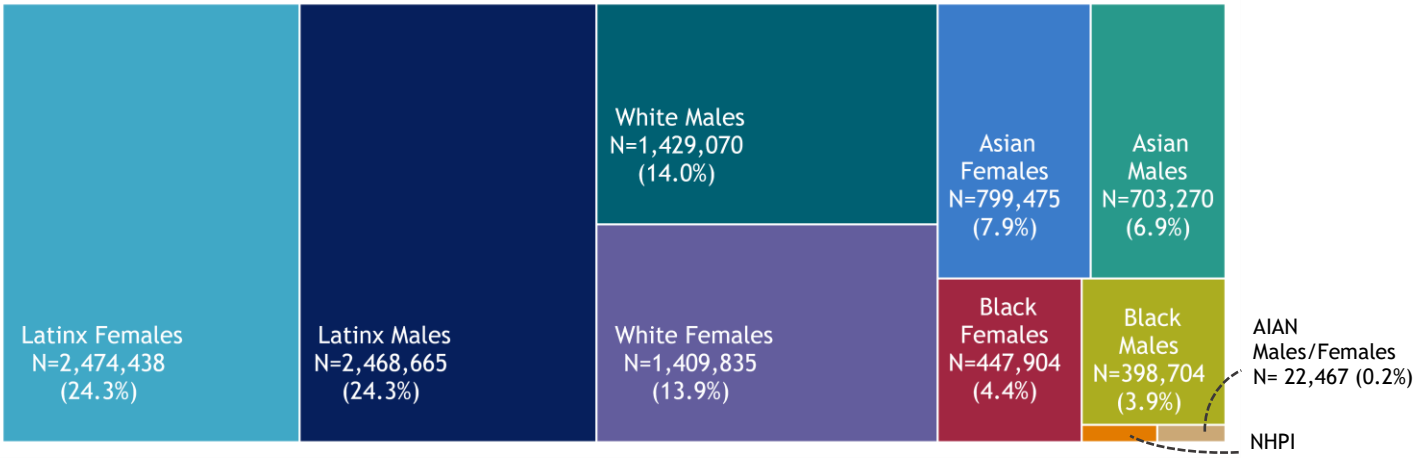
Table 1: Tracking achievements in national targets for the EHE initiative, 2020-2021

	EHE 2025 targets	EHE 2030 targets	LAC results
Estimated number of new infections[1]	380	150	1,400 [900-1,990] (2020)
Number of new HIV diagnoses[2]	450	180	1,401 (2020)
Estimated percentage of PLWH with knowledge of HIV-positive status[1]	95%	95%	89% [86% - 91%] (2020)
Percentage of PLWDH linked to HIV care within 1 month of diagnosis[2]	95%	95%	76% (2020)
Percentage of PLWDH with viral suppression[2]	95%	95%	61% (2021)
Percentage of HIV-negative persons with indications for PrEP having been prescribed PrEP[3]	50%	50%	39% (2020)

[1] Using the CD4-based model developed by the Centers for Disease Control and Prevention, modified for use by Los Angeles County.
[2] Using Los Angeles County HIV surveillance data in the CDC Enhanced HIV/AIDS Reporting system (eHARS). Retention in care and viral suppression are 2021 data among persons with HIV diagnoses through 2020 and living in LAC at year-end 2021.
[3] Using Los Angeles County data from the National HIV Behavioral Surveillance system, STD clinic data, online Apps survey, COE program data, and AHEAD dashboard.

HIV Epidemic Monitoring

Figure 1: Distribution of sex[4] and race/ethnicity among LAC residents in 2020 (N=10,178,592)[5]



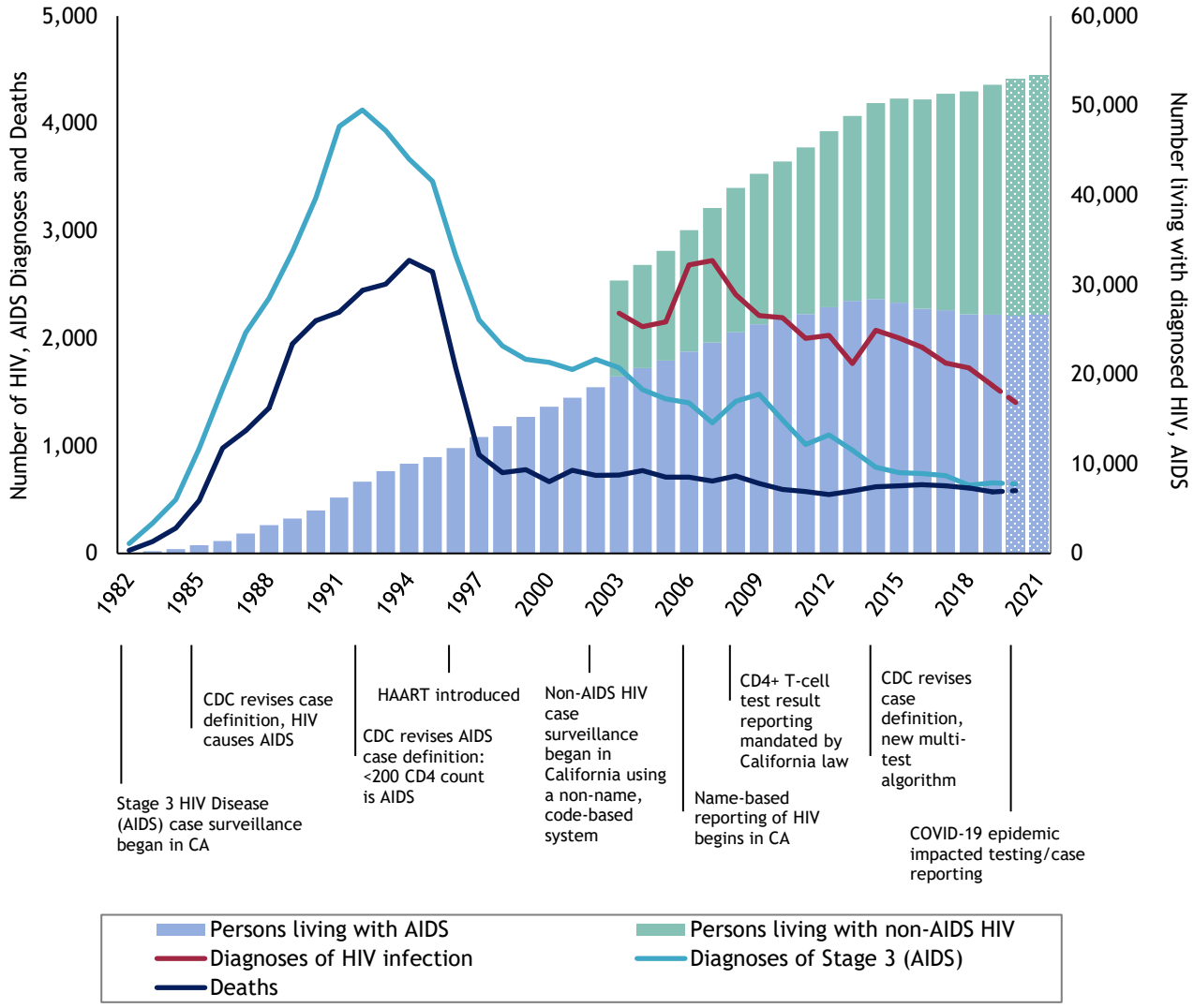
An estimated 10.2 million people resided in LAC in 2020. The Latinx population represented the largest population group (49%), followed by White (28%), Asian (15%), and Black populations (8%). Native Hawaiians and Pacific Islanders (NHPI) and American Indians and Alaska Natives (AIAN) represented less than 1% of the total LAC population and were presented for males and females combined due to limited visibility on the graph. Population estimates for multi-racial persons are not available.

Figure 2: Distribution of sex[4] and race/ethnicity among persons living with diagnosed HIV at year-end 2021, LAC (N=53,330)

In contrast, the populations most impacted by the HIV epidemic were Latinx males who represented 41% of all PLWDH followed by White males (24%) and Black males (17%). Combined, these groups of men represent over 80% of PLWDH in LAC. Altogether, AIAN, NHPI, and multi-racial men and women represented less than 5% of PLWDH in LAC. PLWDH with unknown race/ethnicity were not presented in the graph (n=69).

[4] Population estimates are not currently available for transgender persons, therefore male and female categories are based on sex at birth.
[5] Based on the 2020 population estimates provided by LAC Internal Services Department and contracted through Hedderson Demographic Services.

Figure 3: History of the HIV epidemic: HIV diagnoses, AIDS diagnoses, persons living with AIDS and non-AIDS HIV, and deaths among persons living with diagnosed HIV, LAC 1982-2021[6,7,8,9]

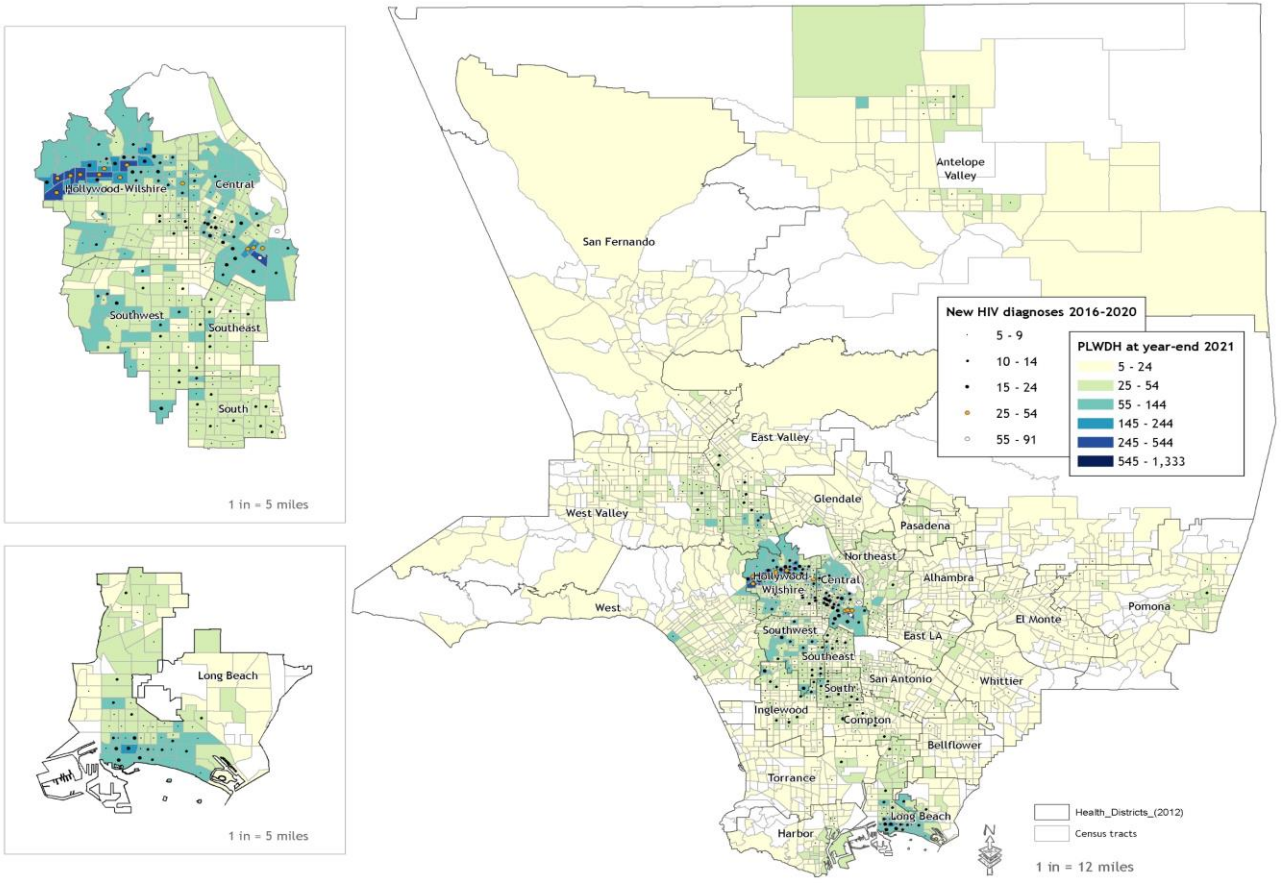


In LAC, AIDS reporting began in 1982 and the annual number of cases peaked in 1992 with more than 4,000 cases reported that year. In 1994, deaths reached an all-time high followed by a significant decline that coincided with the introduction of highly active antiretroviral treatment (HAART) for HIV in 1996. In 2006, names-based HIV reporting began in California, allowing for better tracking of trends in diagnosed HIV irrespective of disease stage. HIV epidemic trends thereafter have declined for diagnosed HIV and deaths. Note the number of deaths among PLWDH increased slightly between 2019 and 2020.

[6] Includes new diagnoses of HIV infection regardless of the disease stage at time of diagnosis.
[7] Persons living with non-AIDS HIV and AIDS in Los Angeles County (LAC) are based on last reported address at the end of each calendar year.
[8] Includes persons whose residence at death was in LAC or whose most recent known address before death was in LAC, when residence at death is missing.
[9] 2020 data for diagnoses of HIV/AIDS and deaths and 2020/2021 data for persons living with non-AIDS HIV and AIDS are provisional as indicated by the dashed line and patterned bar. 2021 diagnoses of HIV/AIDS and deaths are underreported/unreliable due to significant reporting delay, and therefore are not shown.

Geographic distribution of HIV

Figure 4: Geographic distribution[10] of persons living with diagnosed HIV at year-end 2021 and persons newly diagnosed with HIV in 2016-2020, LAC



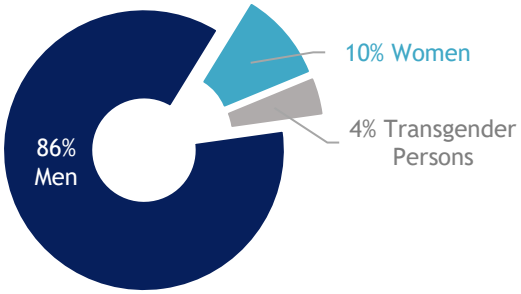
HIV in LAC is concentrated in certain geographic areas, with the highest density of new HIV diagnoses residing in the central and southern regions. Among all 26 Health Districts, Hollywood-Wilshire, Central, and Long Beach Health Districts were identified as three epicenters for HIV, reporting the largest numbers of new HIV diagnoses in 2016-2020 and persons living with diagnosed HIV at year-end 2021. We have zoomed in on the three epicenters with the highest concentration of new HIV diagnoses and PLWDH.

[10] Census tract and health district information was based on most recently reported residential addresses. Person with no reported street address information were aggregated to the census tract or health district level data based on available ZIP code information. Source: HIV Surveillance data as of December 31, 2021; U.S. Department of Commerce, 2010 U.S. Census Tract; U.S. Department of Housing and Urban Development, HUD USPS ZIP Code – Census Tract Crosswalk Files, 2nd quarter 2018 was used for HIV diagnoses 2016-2020 and 4th quarter 2019 was used for PLWDH at year-end 2021.

Trends in HIV diagnosis

This section presents information among persons newly diagnosed with HIV in LAC. Trends are presented from 2006 when name-based HIV reporting began in California through year-end 2020. Due to reporting delays, the 2020 HIV diagnosis data are provisional as indicated by dashed lines or patterned bars. Further, all 2020 data should be interpreted with caution due to the effects of the COVID-19 pandemic on HIV testing in 2020. For additional data on HIV diagnosis trends by health district, refer to Table 4a.

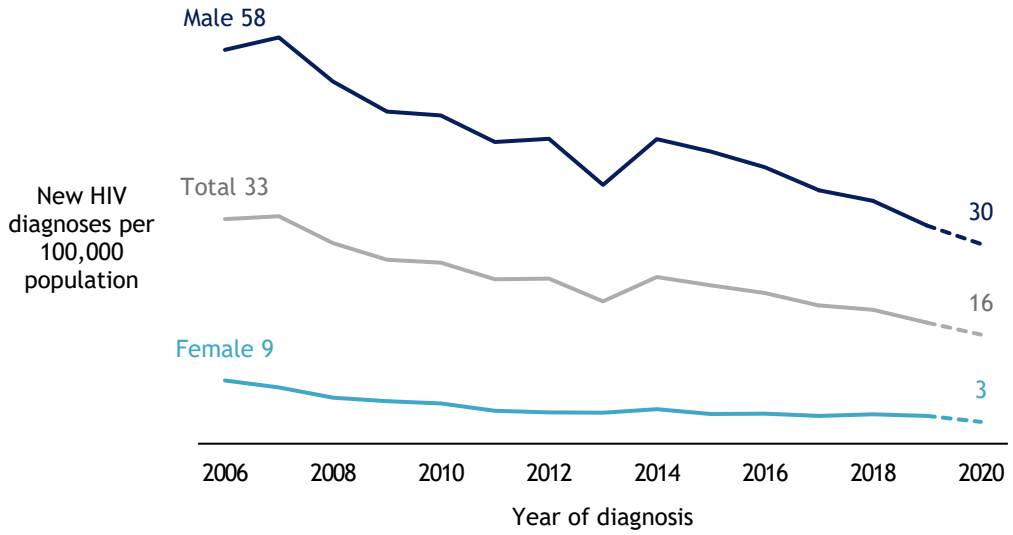
Figure 5: New HIV diagnoses by gender among persons aged ≥ 13 years, LAC 2020



Note: Among the 57 transgender persons newly diagnosed with HIV in 2020, all identified as transgender women. Since transgender reporting relies on accurate gender classification from laboratories and health care providers it is likely to be underreported.

Men made up most of the new HIV diagnoses in 2020 (N=1,201, 86%). Women (N=143, 10%) and transgender persons (N=57, 4%) represented a much lower number and percentage of new HIV diagnoses in 2020.

Figure 6: HIV diagnoses rates by sex[11] among persons aged ≥ 13 years, LAC 2006-2020[12]

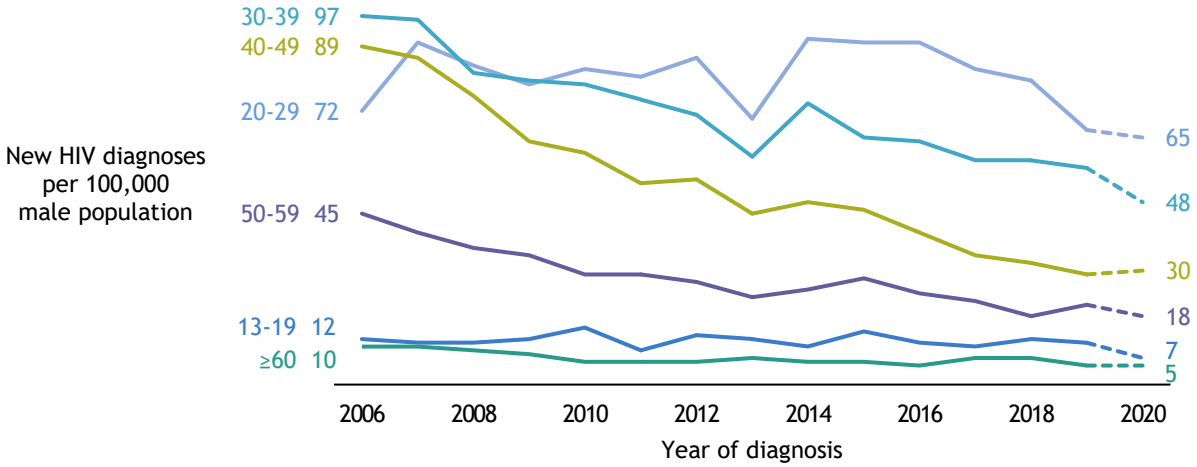


HIV diagnoses rates remain substantially higher among males than females but on the decline for both groups.

[11] Rates are presented by sex at due to the unavailability of population size estimates in LAC by gender categories.
[12] Due to reporting delay, 2020 HIV diagnosis data are provisional as indicated by the dashed line.

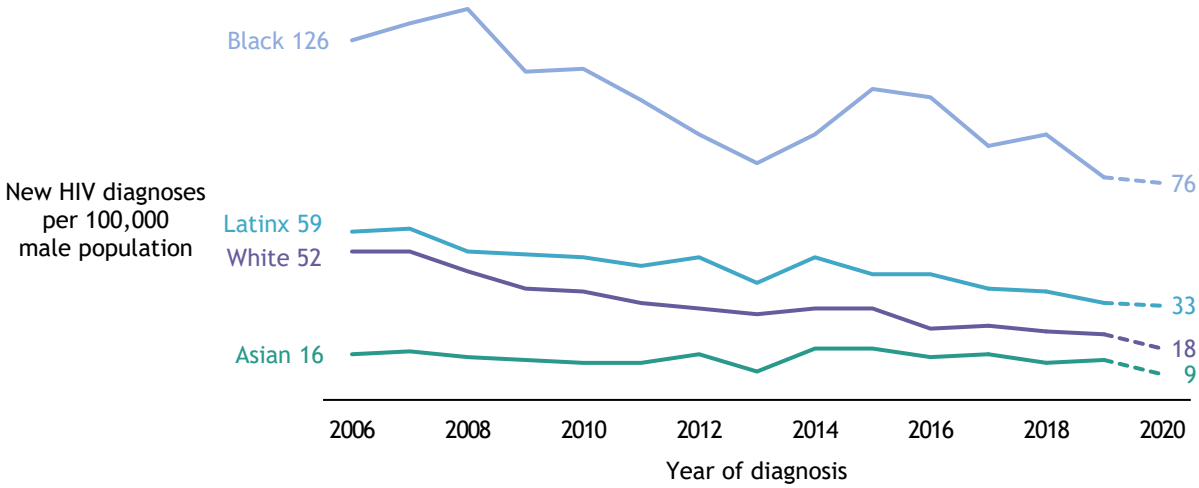
Trends in HIV diagnoses among males[13]

Figure 7: HIV diagnoses rates among males aged ≥ 13 years by age group, LAC 2006-2020[14]



Since 2006, HIV diagnoses rates have declined among males across age groups. Rates among males aged 20-29 years increased after 2006 and decreased since 2014.

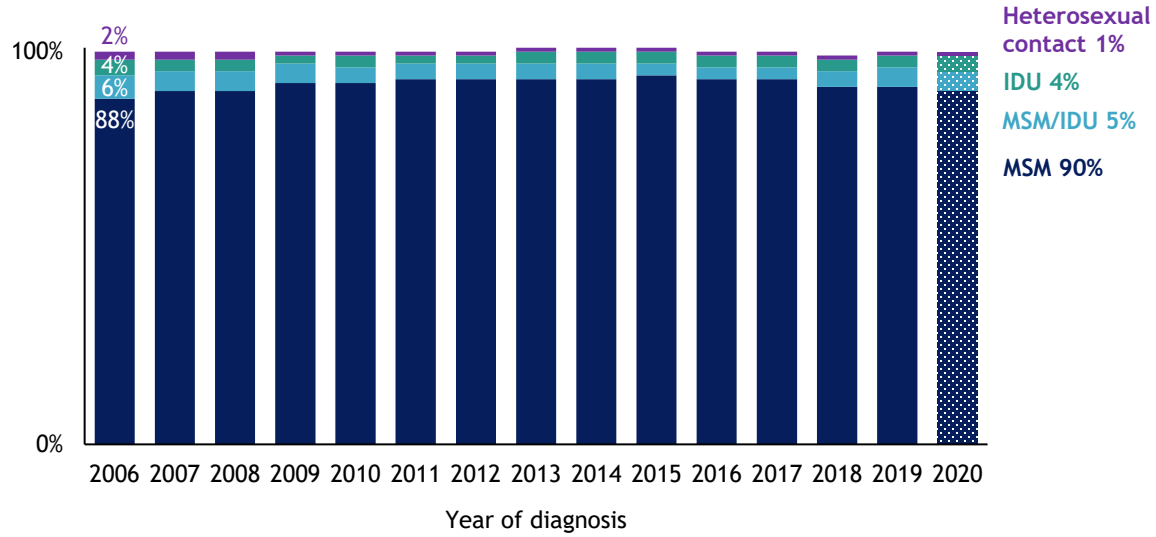
Figure 8: HIV diagnoses rates among males aged ≥ 13 years by race/ethnicity[15], LAC 2006-2020[14]



Between 2006 to 2013, HIV diagnoses rates declined for males in all race/ethnicity groups. After 2013, HIV diagnoses rates increased among Black, Latinx, and Asian males, and after 2015, rates declined in these groups. Though Blacks have higher HIV diagnoses rates than other race/ethnicity groups, the difference is narrowing.

[13] Based on sex at birth.
[14] Due to reporting delay, 2020 HIV diagnosis data are provisional as indicated by the dashed line.
[15] Native Hawaiian and Pacific Islanders (NHPI) and American Indians and Alaska Natives (AIAN) were not included in the analysis due to small numbers, while persons of multiple race/ethnicities were not included due to lack of denominator data to calculate rates. In 2020, NHPI, AIAN and multi-racial persons represented 0.2%, 0.5%, and 2.2% of males newly diagnosed with HIV, respectively.

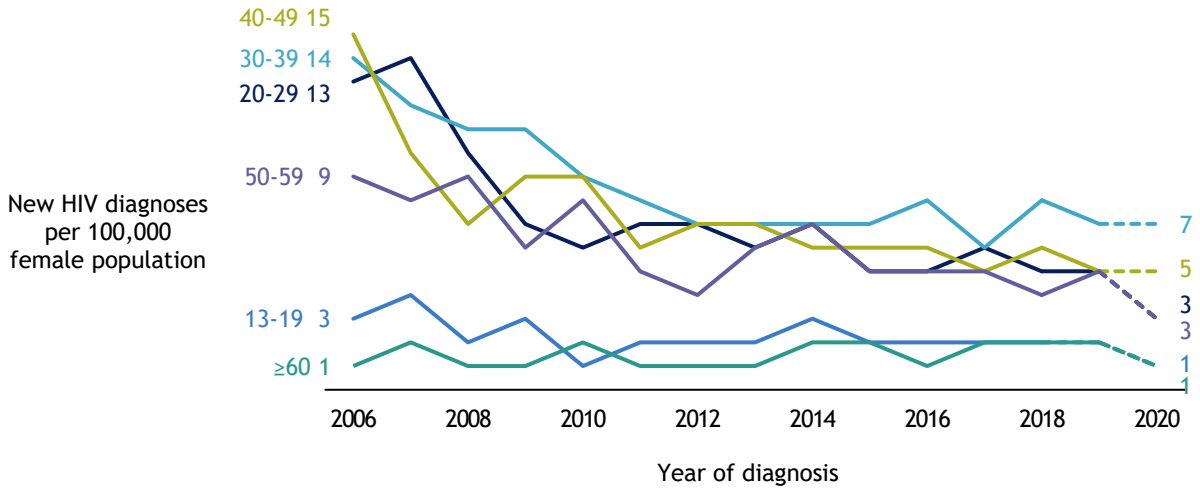
Figure 9: Transmission risk[16] among males newly diagnosed with HIV, LAC 2006-2020[17]



The primary HIV transmission risk for males is having sex with other men.

Trends in HIV diagnoses among females[18]

Figure 10: HIV diagnoses rates among females aged ≥ 13 years by age group, LAC 2006-2020[17]



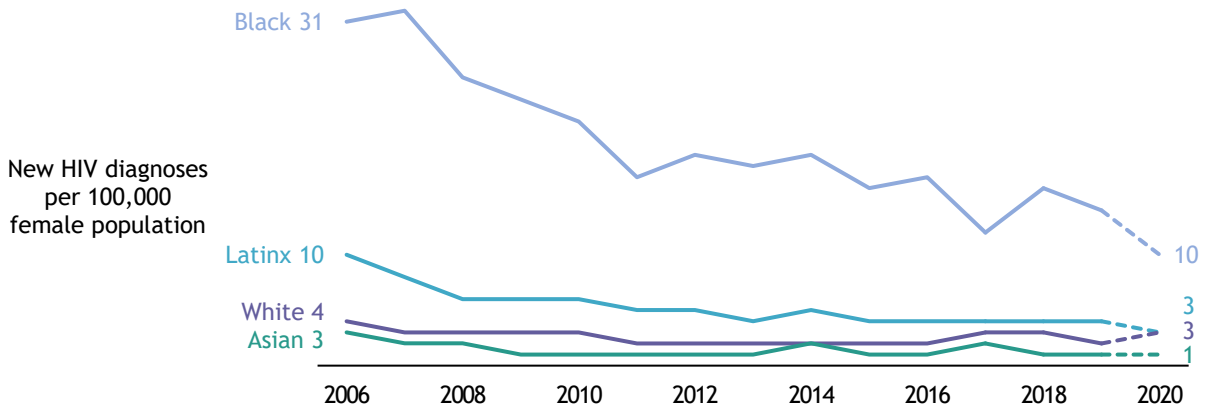
HIV diagnoses rates have declined for females between the ages of 20 and 59 years. Rates have remained low and relatively stable among females aged 13-19 years and aged 60 years and older.

[16] A diagnosis of HIV is counted only once in the hierarchy of transmission categories. Persons with more than one reported risk factor for HIV are classified in the transmission category listed first in the hierarchy. The exception is men who had sexual contact with other men and injected drugs; this group makes up a separate transmission category. Notpresented in the chart are less than 1% other risks, which include perinatal exposure, hemophilia, coagulation disorder, blood transfusion, and risk factor not reported/identified, due to small numbers. Persons without an identified risk factor were assigned a risk factor using CDC-recommended multiple imputation methods.

[17] Due to reporting delay, 2020 HIV diagnosis data are provisional as indicated by the patterned bar and dashed line.

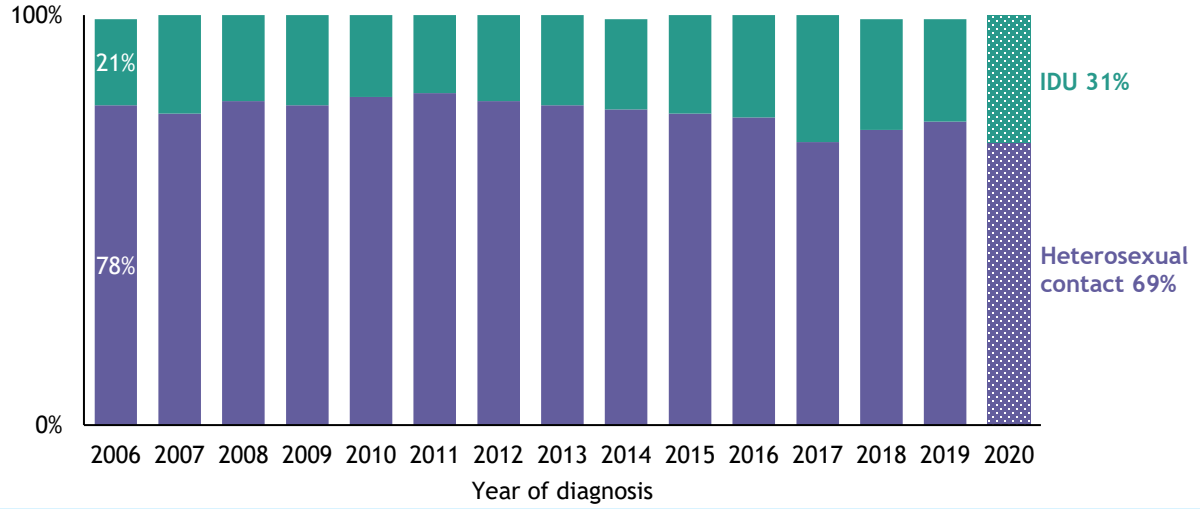
[18] Based on sex at birth.

Figure 11: HIV diagnoses rates among females aged ≥ 13 years by race/ethnicity[19], LAC 2006-2020[20]



Between 2006 to 2020, HIV diagnoses rates declined in all racial/ethnic groups. Although rates declined by 68% among Black females their rates remained the highest compared with other racial/ethnic groups.

Figure 12: Transmission risk among females newly diagnosed with HIV, LAC 2006-2020[20,21]



The primary HIV transmission route among females newly diagnosed with HIV was heterosexual contact, followed by injection drug use (IDU). In 2020, the percentage of cases with IDU as the primary transmission route increased to 31% compared to 25% in the previous year.

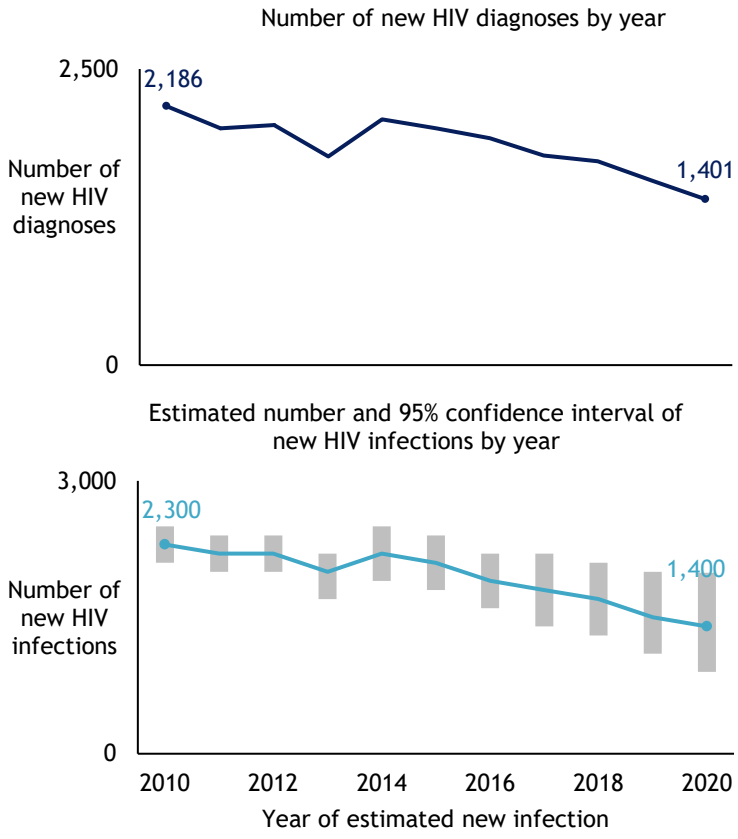
[19] Native Hawaiian and Pacific Islanders (NHPI) and American Indians and Alaska Natives (AIAN) were not included in the analysis due to small numbers, while persons of multiple race/ethnicities were not included due to lack of denominator data to calculate rates. In 2020, NHPI and AIAN represented 0% of females newly diagnosed with HIV, while multi-racial persons represented 1% of females newly diagnosed with HIV.
[20] Due to reporting delay, 2020 HIV diagnosis data are provisional as indicated by the dashed line and patterned bar.
[21] Not presented in the chart are less than 1% other risks, which include perinatal, hemophilia, coagulation disorder, blood transfusion, and risk factor not reported/identified, due to small numbers. Persons without an identified risk factor were assigned a risk factor using CDC-recommended multiple imputation methods.

HIV incidence and undiagnosed HIV

Several indicators important for planning, monitoring, and evaluating the local HIV response are not directly measured through HIV surveillance, including: (1) the number of persons who acquired HIV each year (i.e., new HIV infections), regardless of whether they received an HIV diagnosis and (2) the number of people living with HIV (PLWH) who do not yet know they have HIV (i.e., undiagnosed HIV). An estimate of these indicators can be computed using a mathematical model developed by the US Centers for Disease Control and Prevention.

Importantly, the model produces estimates (not true values) of these indicators, given that that the exact numbers of PLWH and persons newly infected with HIV cannot be directly measured **each year.** The estimates are presented with their 95% confidence intervals to show the range of values likely to contain the true value. Of note, estimates are also subject to change over time due to updates in surveillance data as well as methodological changes in CDC's model. Estimates in 2020 may be particularly unreliable due to disruptions in HIV testing and reporting during the COVID-19 pandemic. Below, we present estimates of newly acquired HIV (new HIV infection) and undiagnosed HIV among PLWH in LAC based on this model.

Figure 13: Number of persons newly diagnosed with HIV compared with the estimated number of persons with new HIV infection among PLWH aged ≥ 13 years, LAC 2010-2020[22,23]

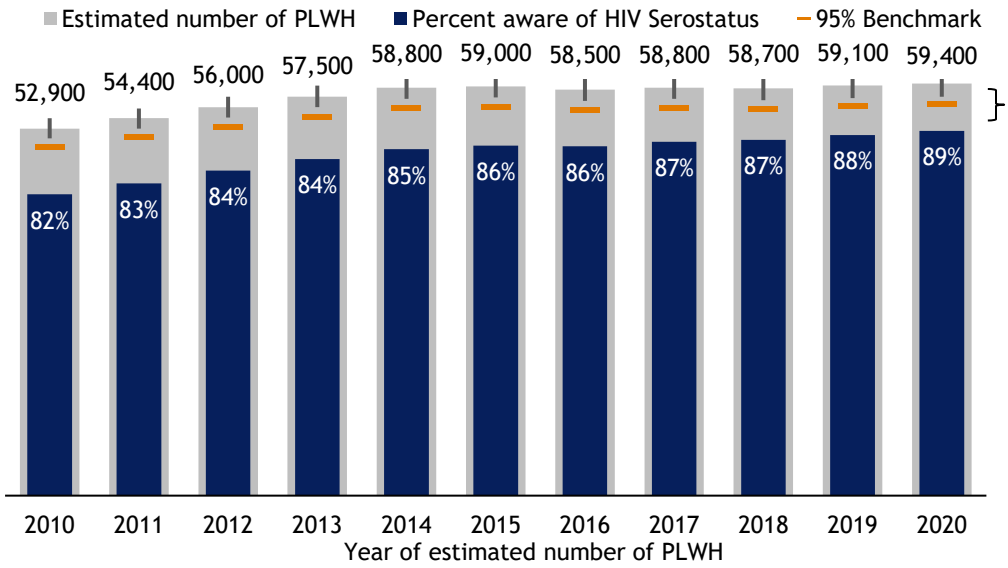


Note: The annual number of **new HIV diagnoses** is the number of PLWH who received an HIV diagnosis in a calendar year. This information is used to monitor trends in new HIV diagnosis and quantify the need for HIV care. A new HIV diagnosis is *not* equivalent to a new infection that was acquired in a calendar year. Many people live years before they are diagnosed while some are diagnosed soon after acquiring HIV. Based on local data, the majority of new HIV diagnoses each year were infections acquired over a year ago.

The annual number of **new HIV infections** reflect infections acquired in a calendar year. Some new infections are diagnosed soon after acquiring HIV, but the majority are not. When the number of new HIV infections is high, HIV continues to spread because most people with a new infection are not aware they are living with HIV. New infections provide information on recent transmission and serve as a barometer to assess whether HIV prevention programs are reducing transmission. Trends in new infections generally track with trends in new diagnoses unless transmission is very low or high in the population.

The number of persons newly diagnosed with HIV and the estimated number of persons who acquired HIV (new infection) have declined between 2010 and 2020. In 2020, 1,401 persons were newly diagnosed with HIV, reflecting both new and old infections. An estimated 1,400 persons acquired HIV in 2020, reflecting new infections, some of whom were not diagnosed.

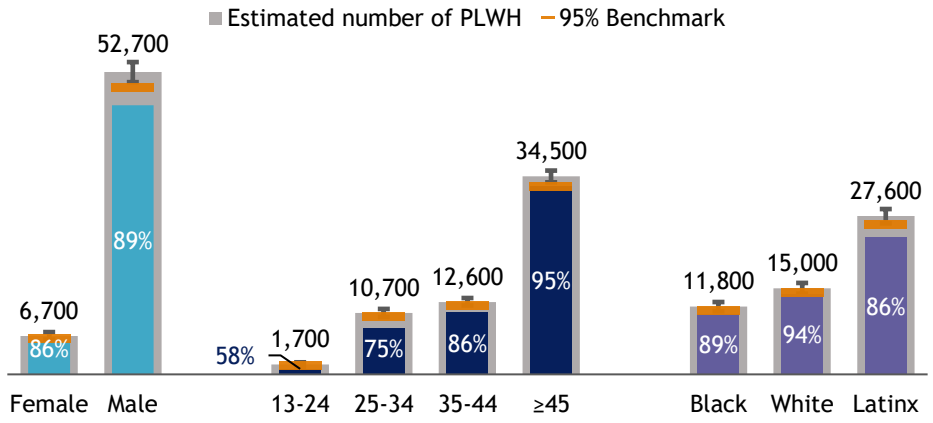
Figure 14: Awareness of HIV-positive status among PLWH aged ≥ 13 years, LAC 2010-2020[24,25,26]



Note: The EHE goal is to increase the percentage of PLWH who know their HIV status to at least **95%** by 2025.

In 2020, an estimated 89% of PLWH were aware of their HIV serostatus. Approximately 6,800 PLWH remained unaware of their HIV infection.

Figure 15: Awareness of HIV-positive status among PLWH aged ≥ 13 years by sex at birth, age group, and race/ethnicity, LAC 2020[24,25,26,27]

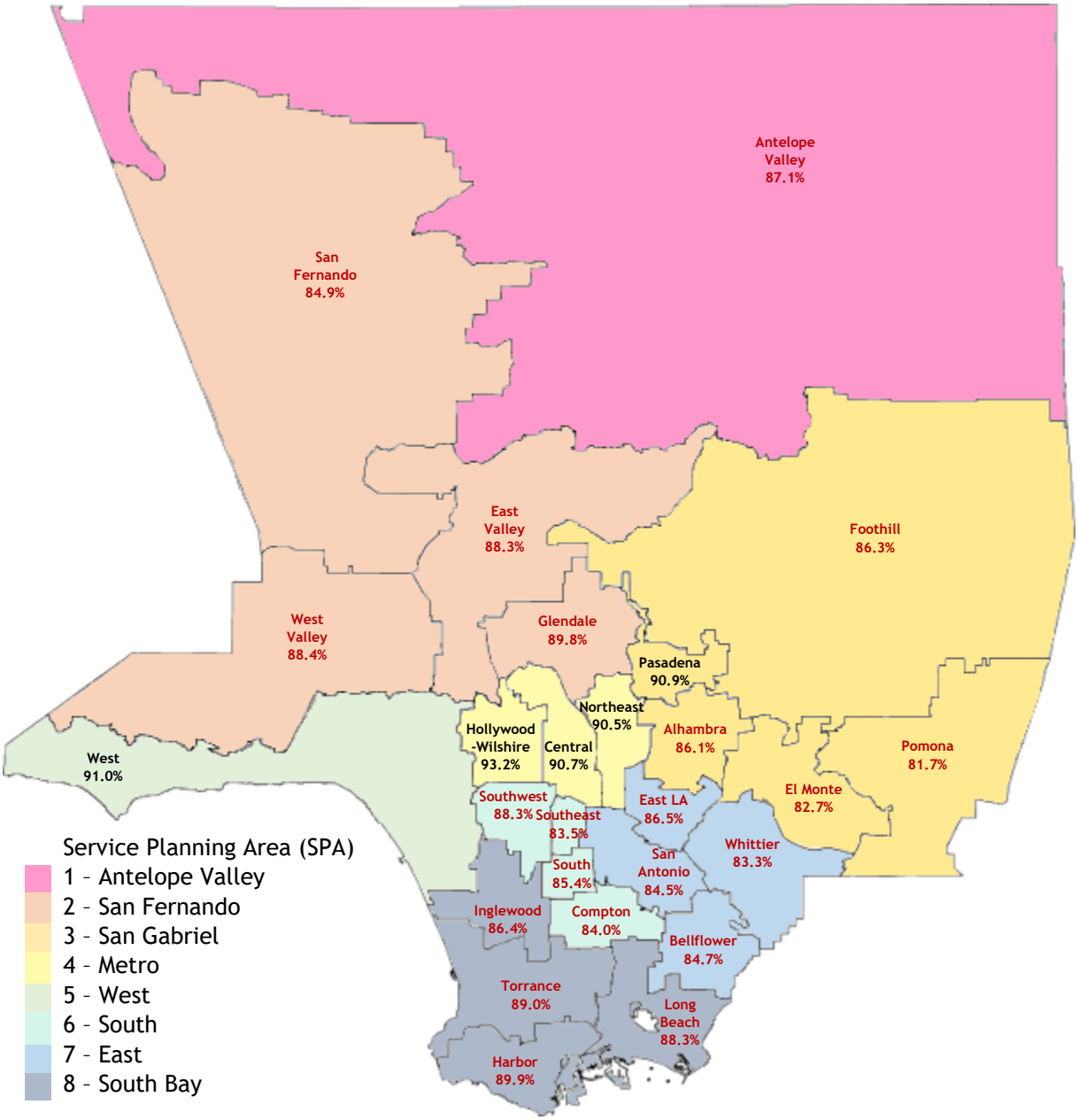


Changes since last surveillance report: Awareness of HIV-positive status decreased across all age, sex, and race/ethnicity groups. The largest decrease was observed among females (-6 percentage points).

The greatest disparities in awareness of HIV-positive serostatus are among young PLWH and Latinx PLWH.

[24] Estimated using the CD4-based model developed by the Centers for Disease Control and Prevention, modified for use by Los Angeles County.
[25] 2020 estimates should be interpreted with caution due to potential effects of the COVID-19 pandemic on HIV diagnosis and model accuracy.
[26] The numbers above the bars indicate the total estimated number of PLWH. The colored inner bars indicate the percentage of PLWH aware of HIV serostatus.
[27] Asians, Native Hawaiian and Pacific Islanders, American Indians and Alaska Natives, and persons of multiple races/ethnicities were not included in the analysis due to small numbers.

Figure 16: Percentage of PLWH aged ≥ 13 years who were aware of their HIV-positive status by Health District, LAC 2020[28,29]



The percentage of persons living with HIV who are aware of their HIV-positive status varies by location. None of the 26 Health Districts have met the EHE target for 95% of PLWH who know their HIV-positive status. There are five Health Districts nearing this target with at least 90% of PLWH aware of their HIV status. These Health Districts are noted in black and include West, Hollywood-Wilshire, Central, Northeast, and Pasadena.

[28] Based on HIV surveillance data as of December 31, 2021, for persons aged ≥ 13 years at year-end 2020.
[29] Estimated using the CD4-based model developed by the Centers for Disease Control and Prevention. In a change from previous methods, version 4.0 of the model includes a modified HIV incidence and prevalence estimation procedure. Estimates are rounded to the nearest 100 if >1,000 and to the nearest 10 if ≤ 1,000 to reflect model uncertainty. Text in red indicates health districts where less than 90% of HIV-infected persons were aware of their infection and text in black indicates more than 90%.

Stage of HIV disease at diagnosis

Information on stage of HIV disease at the time of diagnosis provides direct insight into the timeliness of a HIV diagnosis. The HIV surveillance case definition of HIV has four stages: Stage 0, 1, 2, and 3. Stage 0 HIV disease indicates early infection which includes acute HIV (infection occurred within 60 days of HIV diagnosis) and early but not acute HIV (infection occurred within 61-180 days of HIV diagnosis).

Table 2: HIV disease stage criteria

HIV disease stage	Acute HIV Status	Staging criteria
Stage 0	Acute HIV	Based on the difference in days between the first HIV-positive test result and last documented HIV-negative test result[30]. If the difference falls within 60 days, HIV is classified as stage 0 disease with acute HIV.
	Not Acute HIV or Unknown	Based on the difference in days between the first HIV-positive test result and last documented HIV-negative test result[30]. If the difference falls between 61 and 180 days, HIV is classified stage 0 disease with "not acute HIV" or "unknown if acute HIV".
Stage 1	N/A	Based on first CD4 test result within 90 days of HIV diagnosis. If CD4 ≥ 500 cells/μL, HIV is classified as Stage 1 disease.
Stage 2	N/A	Based on first CD4 test result within 90 days of HIV diagnosis. If CD4 is between 200-499 cells/μL, HIV is classified as Stage 2 disease.
Stage 3	N/A	Based on either first CD4 test result or a diagnosis of an opportunistic illness within 90 days of HIV diagnosis. If CD4<200 cells/μL, HIV is classified as Stage 3 disease.
Unknown	N/A	Based on first CD4 test result within 90 days of HIV diagnosis. If there is no CD4 test result within this timeframe, HIV is classified as unknown stage.

[30] The date of the last HIV-negative test is based on a laboratory result, or client's self-report of last HIV-negative test date when laboratory information is not available.

Table 3: HIV disease stage among persons aged ≥ 13 years newly diagnosed with HIV, LAC 2020

	New HIV Diagnoses	Stage 0[31]				Stage 1[32]		Stage 2[33]		Stage 3[34]		Unknown[35]	
		Acute HIV		Not Acute HIV									
	N	N	%	N	%	N	%	N	%	N	%	N	%
Total	**1401**	**122**	**9%**	**83**	**6%**	**330**	**24%**	**368**	**26%**	**283**	**20%**	**215**	**15%**
Gender													
Man	1201	113	9%	75	6%	275	23%	323	27%	238	20%	177	15%
Woman	143	5	3%	<5	-	38	27%	27	19%	41	29%	29	20%
Transgender	57	<5	-	<5	-	17	30%	18	32%	<5	-	9	-
Race/Ethnicity[36]													
White	264	24	9%	7	3%	85	32%	53	20%	43	16%	52	20%
Black	298	28	9%	21	7%	71	24%	73	24%	46	15%	59	20%
Latinx	730	64	9%	48	7%	150	21%	201	28%	175	24%	92	13%
Asian	61	<5	-	<5	-	11	18%	29	48%	11	18%	<5	-
Multi-racial[37]	29	<5	-	<5	-	6	21%	6	21%	7	24%	6	21%
Age at Diagnosis													
13-19	38	<5	-	<5	-	10	26%	10	26%	<5	-	8	21%
20-29	504	50	10%	45	9%	131	26%	153	30%	53	11%	72	14%
30-39	413	37	9%	23	6%	100	24%	101	24%	91	22%	61	15%
40-49	244	20	8%	8	3%	44	18%	63	26%	68	28%	41	17%
50-59	147	12	8%	<5	-	31	21%	28	19%	50	34%	22	15%
60+	55	<5	-	<5	-v	14	25%	13	24%	17	31%	11	20%
Transmission Category[38]													
MSM	1,132	111	10%	74	7%	263	23%	309	27%	213	19%	162	14%
IDU	89	<5	-	<5	-	7	8%	16	18%	32	36%	15	17%
MSM/IDU	58	<5	-	<5	-	7	12%	17	29%	9	16%	14	24%
Hetereosexual	115	5	4%	<5	-	32	28%	24	21%	30	26%	23	20%

In 2020, 15% of new HIV diagnoses were diagnosed at Stage 0 (an indicator of recent infection). Over half of those diagnosed at Stage 0 had acute HIV at diagnosis. The proportion of PLWDH with acute HIV was highest among men, persons aged 20-29 years, and MSM.

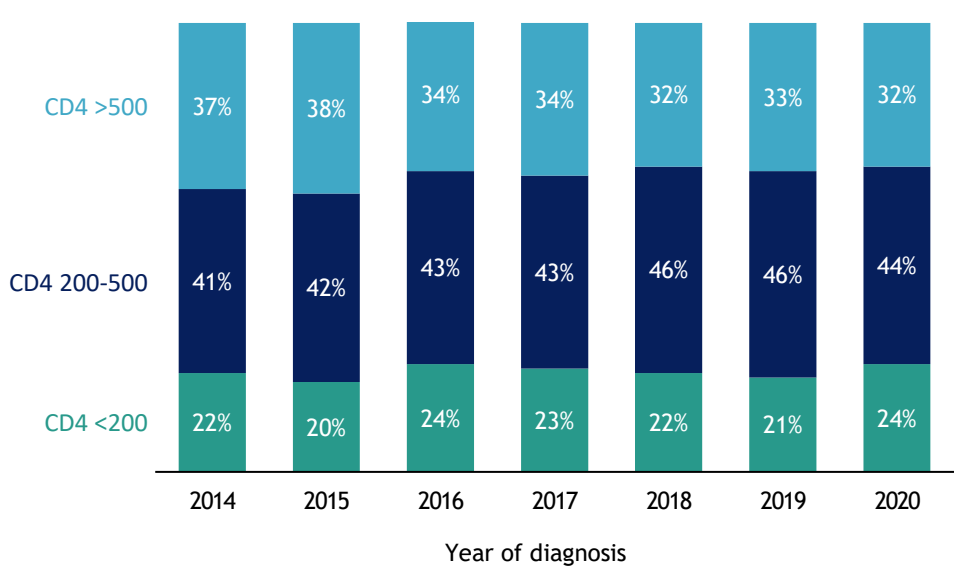
[31] Stage 0 includes those with acute infection at diagnoses (Acute HIV) and those with no evidence of acute infection at diagnosis (Not AcuteHIV). Acute HIV is based on the difference in days between the first HIV-positive test result and last HIV-negative test result. If the difference falls within 60 days, HIV is classified as acute HIV. If the difference falls between 61 and 180 days, HIV is classified as stage 0 disease, not acute. The number of newly diagnosed persons with stage 0 HIV disease are likely underestimated due to under-reporting of HIV-negative test results.
[32] The criterion for Stage 1 disease is CD4 ≥ 500 cells/µL within 90 days of diagnosis.
[33] The criterion for Stage 2 is CD4 between 200-499 cells/µL within 90 days of diagnosis.
[34] Stage 3 criteria include either CD4 < 200 cells/µL within 90 days of HIV diagnosis or a diagnosis of an opportunistic illness within 90 days of HIV diagnosis.
[35] Unknown stage includes persons without a CD4 test within 90 days of HIV diagnosis.
[36] American Indians and Alaska Natives and Native Hawaiian and Pacific Islanders were not included in the analysis because of small numbers.
[37] Multi-racial includes persons who reported two or more race/ethnicities.
[38] Seven individuals with unknown/other transmission category were not included.

Monitoring trends in CD4 counts at diagnosis

One approach for evaluating the timeliness of HIV diagnosis is based on baseline CD4+ T-cell counts within 1 month of HIV diagnosis. Early disease is defined as CD4 > 500 cells/µL within 1 month of HIV diagnosis, and late-stage disease is defined as CD4 < 200 cells/µL within 1 month of diagnosis.

National goal: Decrease the percentage of persons with late-stage HIV diagnoses by 25%

Figure 17: CD4+ T-cell count within 1 month of HIV diagnosis, LAC 2014-2020[39]



Note: To meet the national goal, the percentage of persons with late-stage HIV disease at diagnosis (i.e., CD4 < 200) needs to decrease from 24% of all diagnosis to 18% of all diagnosis.

One in four new HIV diagnoses presented with CD4+ T-cells < 200 cells/µL at the time of diagnosis in 2020, indicative of late HIV disease. The percentage of persons presenting with late HIV disease increased slightly between 2019 and 2020.

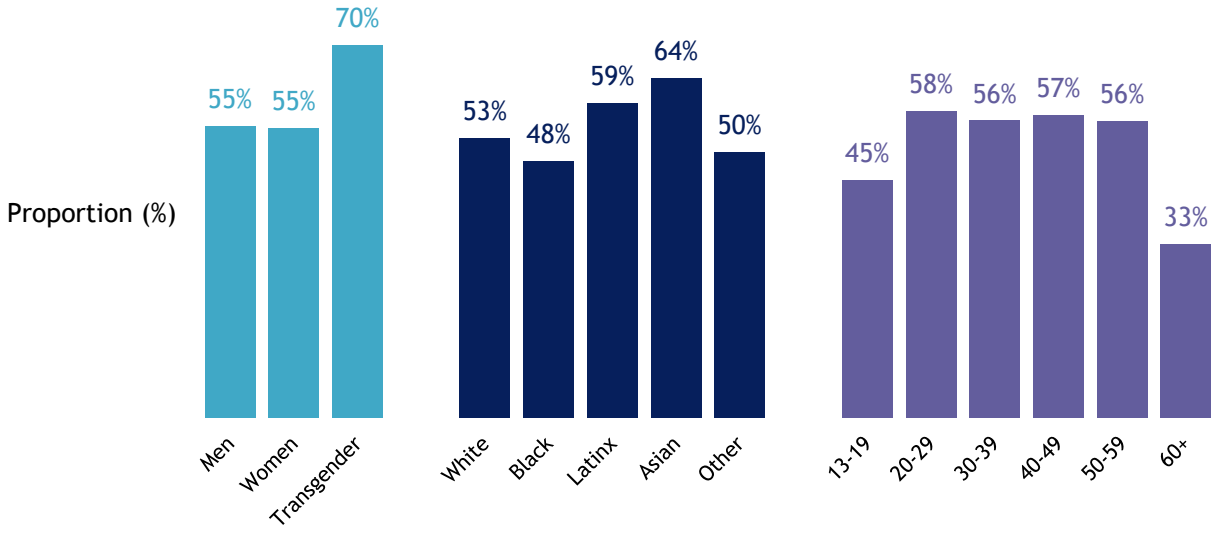
[39] Based on first CD4 test within 1 month of HIV diagnosis. Among persons newly diagnosed with HIV between 2014-2020, 50% had a CD4 test within this period. Sum of percentages in 2016 and 2019 do not add to 100% due to rounding error.

Molecular HIV surveillance, transmitted drug resistance, and cluster detection

Federal guidelines for the care and treatment of PLWDH recommend HIV viral genotype testing at initiation of HIV care to determine whether an individual's HIV strain is resistant to certain drugs. The genotype testing, which results in a genetic sequence report reflecting an individual's HIV viral strain, is reported to Public Health along with other HIV laboratory and clinical test results. Molecular HIV Surveillance (MHS) is the collection and analysis of HIV genotype data generated through HIV drug resistance testing.

Through a comparison of the viral genotype reports of PLWDH in the local area, it can be determined if there are multiple people with a highly similar HIV strain. Because HIV's genetic sequence constantly evolves, people whose viral strains are highly similar are likely to be in the same social HIV transmission network (i.e., transmission cluster); it is important to note that this information cannot be used to determine either direct transmission or the direction of transmission between any two individuals. Transmission clusters with numerous newly diagnosed HIV individuals may indicate that recent and rapid HIV transmission is occurring among a group of individuals. When a cluster is identified, it can inform the delivery of services and interventions to minimize transmission in a geographic area and prioritize efforts to those who need them the most.

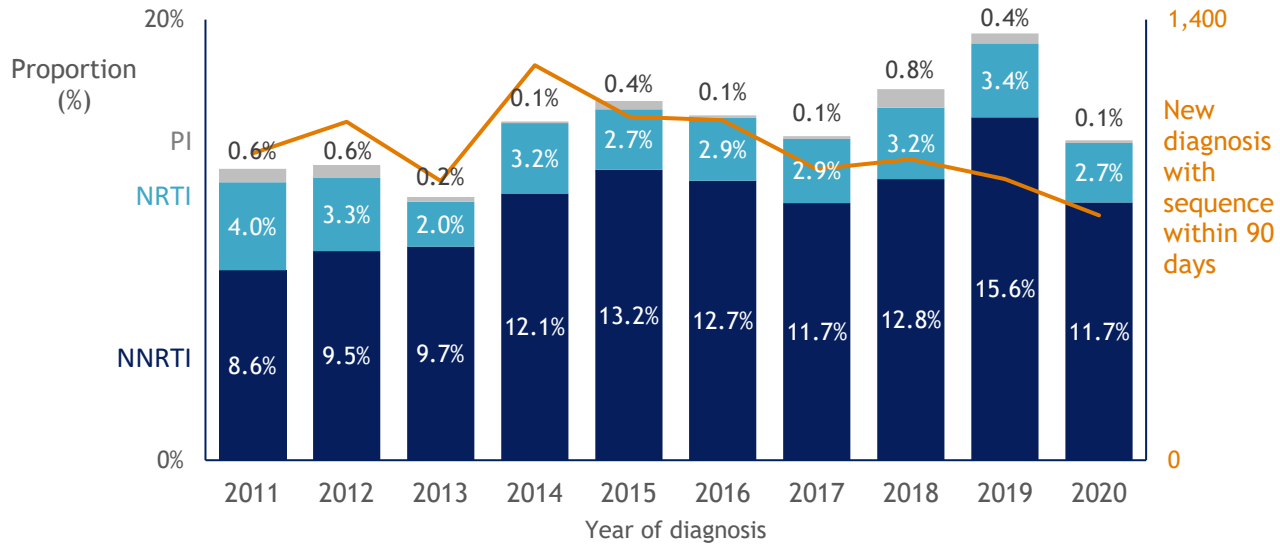
Figure 18: Proportion of new HIV diagnoses[40] with a genotype resistance test within 90 days of HIV diagnosis[41], LAC 2020



Genotypic resistance testing is recommended at entry into HIV care to guide treatment. In 2020, 56% of newly diagnosed cases received a genotype within 90 days of diagnosis. The proportion of new diagnoses with a genotype within 90 days was highest among transgender persons, Asisans, and those aged 20 to 29.

[40] Persons aged ≥ 13 years newly diagnosed with HIV in 2020. Data are provisional due to reporting delay.
[41] Race/ethnicity categories with fewer than 10 diagnoses (Native Hawaiian and Other Pacific Islander and American Indian/Alaska Native) and Multi-race persons were included in Other.

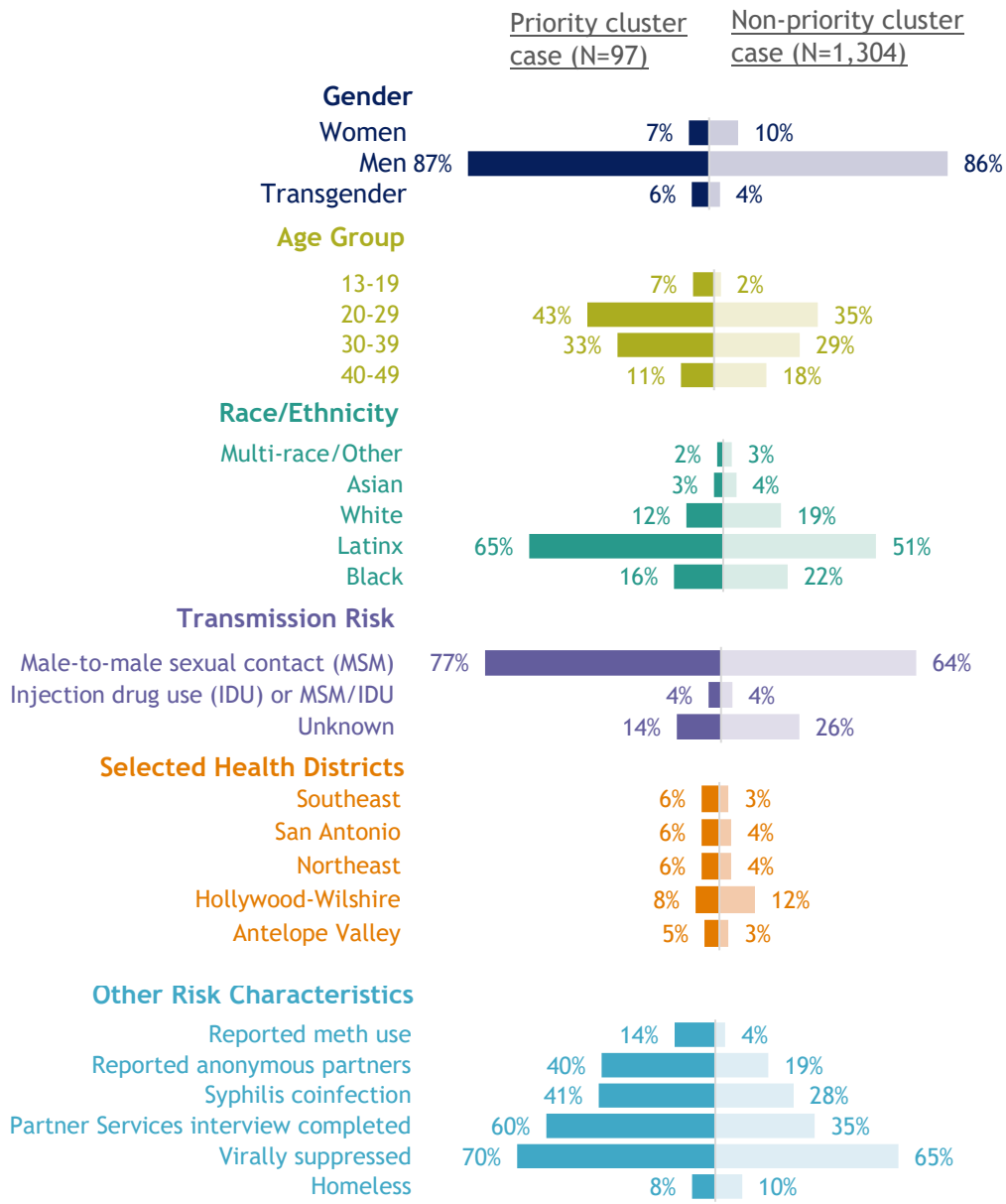
Figure 19: Proportion of transmitted drug resistance (TDR) by drug class[42] among persons aged ≥ 13 years newly diagnosed with HIV with a genotype within 90 days of diagnosis, LAC 2011-2020



From 2011 to 2020 the percentage of specimens from persons newly diagnosed with HIV were tested for HIV drug resistance with 90 days of diagnosis ranged from 50% to 60%. Within that timeframe the proportion of specimens showing evidence of resistance to one or more antiretroviral drugs remained between 11% and 19%. In 2020, about 14% of specimens expressed resistance to one or more antiretroviral drugs. Of the three major drug classes, transmitted drug resistance to non-nucleoside reverse transcriptase (NNRTI) inhibitors was the highest. The proportion of specimens with resistance to integrase inhibitors did not exceed more than 0.1% (data not shown).

[42] NNRTI= Non-nucleoside reverse transcriptase inhibitors; NRTI= Nucleoside reverse transcriptase inhibitor; PI= Protease inhibitor; Resistance can include multi-drug classes and individuals may have been represented in more than one category

Figure 20: Priority[43] cluster diagnoses compared to non-cluster diagnoses by selected characteristics[44], LAC 2020



Data in context: DHSP's multi-disciplinary cluster detection and response workgroup reviews high priority clusters on a monthly basis and plans tailored HIV prevention, testing, and care and treatment services for the clusters. In 2021, the workgroup collaborated with street-medicine teams to triangulate HIV transmission networks among people experiencing homelessness and strategized how to best deliver treatment and testing services to hard-to-reach populations.

In 2020, 7% of persons newly diagnosed with HIV were associated with a priority transmission cluster. These persons were more likely to be aged 20-29 years, Latinx, and have MSM transmission risk compared with persons newly diagnosed with HIV who were not associated with a priority cluster. Persons associated with a priority transmission cluster were also more likely to reside in the Southeast, San Antonio, Northeast, and Antelope Valley Health Districts; report methamphetamine use and anonymous partners; have syphilis co-infection; receive a partner services interview; and be virally suppressed.

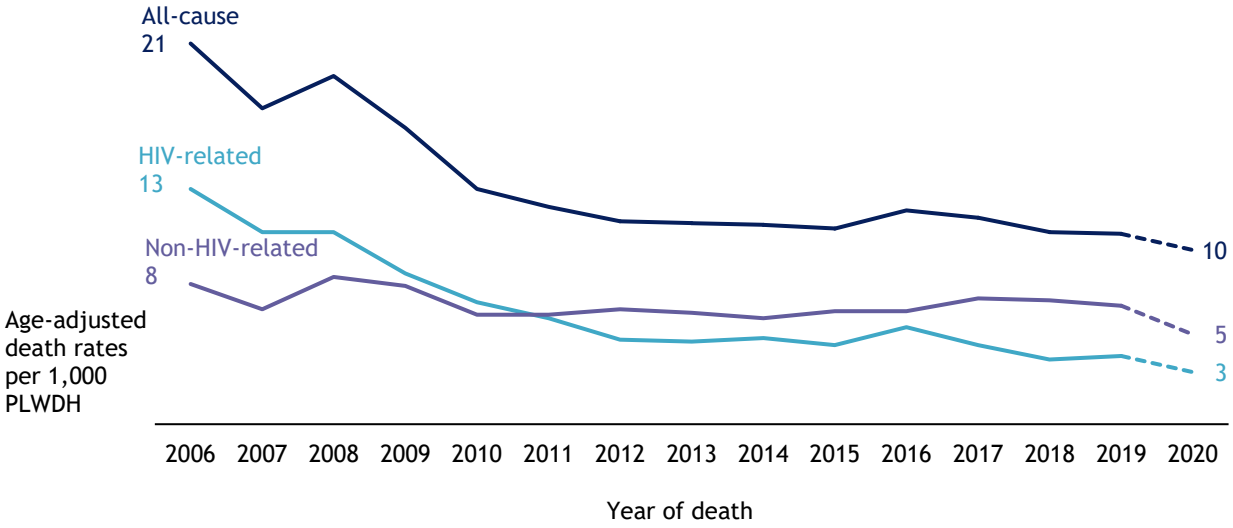
[43] Priority transmission clusters are identified by HIV-TRACE and have at least 5 people diagnosed within the prior 12 months at a 0.5% genetic distance threshold

[44] Age groups, race/ethnicity groups, and transmission risk categories with fewer than 5 persons are suppressed.

HIV mortality

Ultimately the most important goal in the public health response to HIV is for persons living with HIV to live long and healthy lives. Rapid access to and consistent use of high-quality services across the HIV care continuum is fundamental to achieving this goal. This section presents trends in cause of death and death rates among PLWDH.

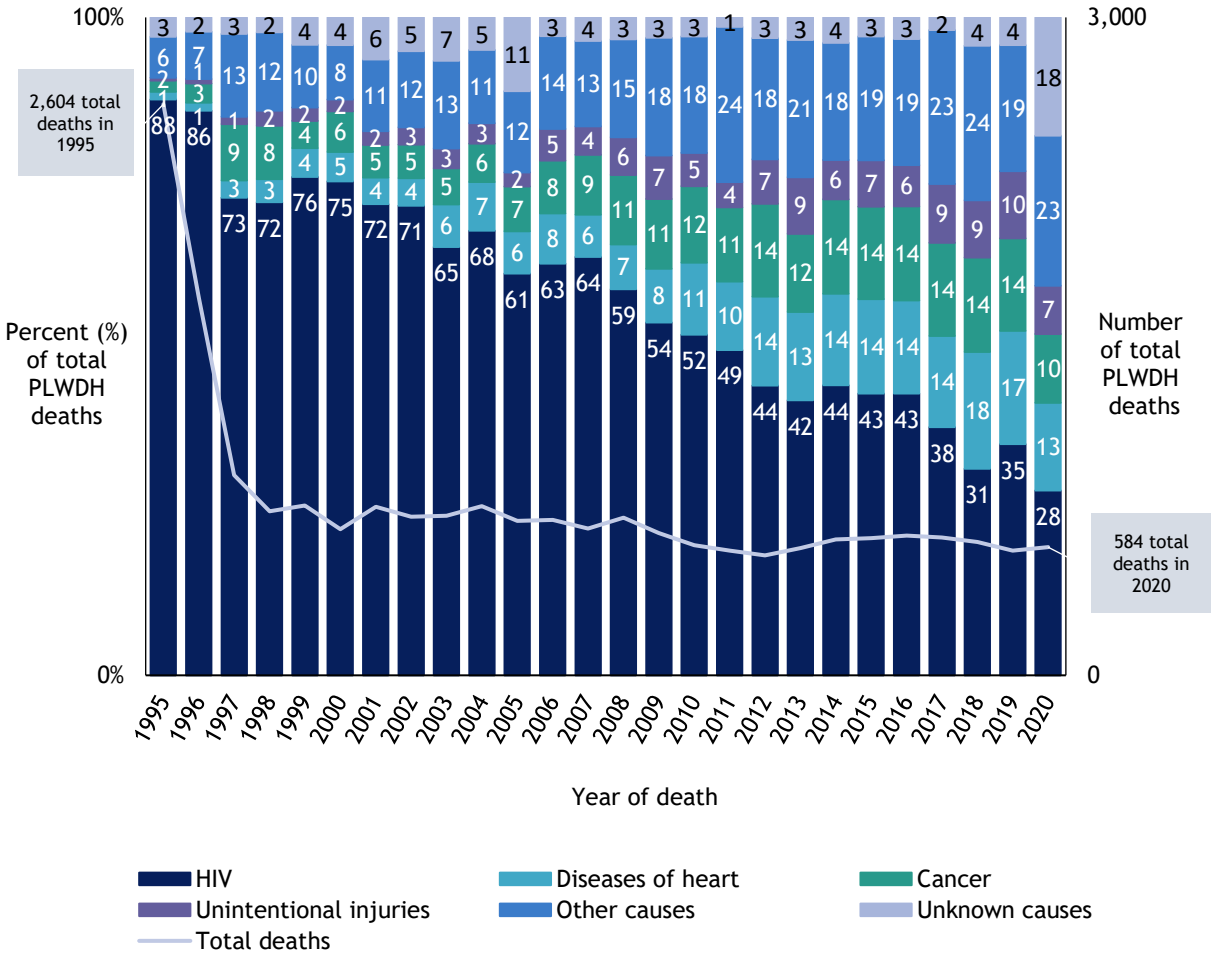
Figure 21: Age-adjusted death rates among persons aged ≥ 13 years living with diagnosed HIV, by HIV-related and non-HIV related cause of death, LAC 2006-2020[45,46]



The age-adjusted death rate among persons diagnosed with HIV dropped 52% from 2006 to 2020. The rate attributed to HIV-related and non-HIV-related death declined by 77% and 38%, respectively.

[45] Age-adjusted to the LAC 2010 population estimates. Persons newly diagnosed with HIV at death were excluded from the numerator. Includes persons with unknown cause of death (3.1% of all deaths).
[46] Due to reporting delay, 2020 death rate data among PLWDH are provisional as indicated by the dashed line.

Figure 22: Trends in main causes of death among persons aged ≥ 13 years living with diagnosed HIV, LAC 1995-2020[47]



The number of deaths among PLWDH decreased sharply following the introduction of highly active antiretroviral treatment in 1996 and has remained stable at approximately 500-600 deaths per year for the past decade. HIV as the leading cause of death among PLWDH declined from 88% of deaths in 1995 to 28% of deaths in 2020. In contrast, diseases of the heart as the cause of death among PLWDH increased from 1% in 1995 to 13% in 2020, followed by cancer from 2% to 10%, and unintentional injuries from <1% to 7%. Preliminary data for 2020 showed a spike among unknown causes of death, which could result from prolonged reporting delay and the lack of diagnoses during COVID-19 pandemic. In 2020, 133 PLWDH were classified as having 'Other causes' as their main cause of death; this included 30 PLWDH who died of COVID-19 disease.

[47] Annual percentages may not add to 100% due to rounding error.

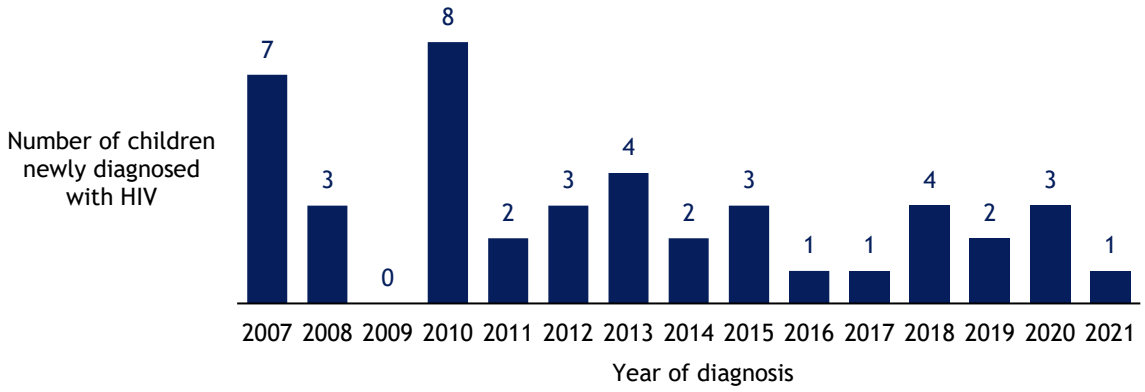
Data to Action: Progress and Opportunities in HIV Epidemic Monitoring

- In LAC, approximately 59,400 persons aged ≥ 13 years are living with HIV, and an estimated 6,800 of these persons have not yet been diagnosed. With improved HIV survival and accelerated HIV case finding efforts to identify all undiagnosed PLWH, the number of diagnosed PLWH who require high quality HIV care will continue to grow.
- HIV control occurs when the number of new HIV infections falls below the number of deaths among PLWH. Approximately 1,400 new infections and 600 HIV deaths occur each year, signaling that LAC is far from reaching "HIV epidemic control." To turn the tide, evidence-based prevention interventions with high impact, such as PrEP and partner services, will need to be more focused, accessible, and tailored to the specific needs of the populations and locations that need them most.
- Among PLWH, persons younger than 35 years of age, Latinx, and females had lower awareness of their HIV-positive status than their counterparts. These are the groups where capacity for HIV testing programs should expand to improve testing access and early HIV diagnosis.
- At least one in five persons with a new HIV diagnosis were diagnosed late in their disease stage. Women, Latinx persons, persons aged 40 years and older, and persons with injection drug use risk were more likely to have delayed diagnoses than other groups. HIV screening programs should be tailored to the needs of these populations to ensure that HIV care and treatment interventions are not delayed.
- HIV drug resistance testing is important to ensure that ART is effective among PLWDH initiating treatment. Efforts to improve rapid linkage to care may improve timeliness of genotype testing.
- Molecular HIV surveillance continues to serve as an important tool to laser focus the public health response in locations where recent and rapid transmission may be occurring.
- As people with HIV live longer and die increasingly from non-HIV-related causes, there is a need to evolve HIV services into an integrated disease management model that provides comprehensive health services for persons living with HIV throughout their lifecourse.

Vulnerable Populations

HIV among children

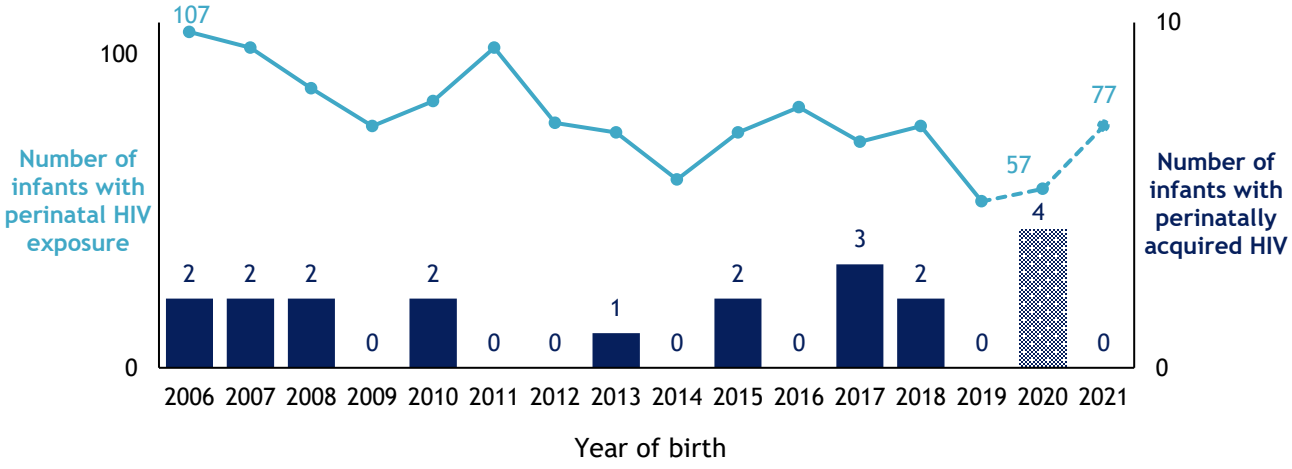
Figure 23: Number of children aged <13 years newly diagnosed with HIV, LAC 2007-2021[48]



Note: Of the 44 children diagnosed with HIV since 2007, the majority had perinatally acquired HIV.

New HIV diagnoses in children peaked in 2010 at 8 cases. In 2021, there was 1 newly identified case of HIV in a child aged <13 years.

Figure 24: Number of infants with perinatal HIV exposure and perinatally acquired HIV, LAC 2006-2021[49, 50]



to 2021, the number of perinatal exposures increased from 53 exposures to 77 exposures. At the time of writing there was no reported transmission of HIV from infected mothers to their babies in 2021.

[48] Year of diagnosis may not indicate year of birth, nor indicate infants newly diagnosed with HIV at birth. Data include children who were born in a foreign country and/or who may have first been diagnosed in a foreign country before moving to Los Angeles County.
[49] Due to reporting delay, 2020 and 2021 HIV data are provisional as indicated by the patterned bar and dashed line.
[50] The number of infants with perinatally acquired HIV includes perinatal transmissions among babies born and/or diagnosed in LAC for a given birth year. The number of infants with perinatal HIV exposure was derived from 7 pediatric HIV-specialty sites which serve over 90% of the HIV-exposed children and infected children seeking HIV evaluation and care in Los Angeles County. This is an underestimate of the total number of infants with perinatal HIV exposure in the County since HIV exposure reporting is not mandated.

Table 4: HIV incidence and perinatal transmission among infants aged <18 months, LAC 2006-2021[51]

Birth Year	Number of infants newly diagnosed with HIV	Live births	Number of HIV-exposed infants	Perinatal HIV incidence rate per 100,000 live births	Perinatal HIV transmission rate per 100 HIV-exposed infants
2006	2	151,837	107	1.3	1.9
2007	2	151,813	102	1.3	2.0
2008	2	147,684	89	1.4	2.2
2009	0	139,679	77	0	0
2010	2	133,160	85	1.5	2.4
2011	0	130,313	102	0	0
2012	0	131,697	78	0	0
2013	1	128,526	75	0.8	1.3
2014	0	130,150	60	0	0
2015	2	124,438	75	1.6	2.7
2016	0	123,092	83	0	0
2017	3	116,850	72	2.6	4.2
2018	2	116,063	77	1.7	2.6
2019	0	113,027	53	0	0
2020	4	102,610	57	3.9	7.0
2021	0	100,399	77	0	0

National targets for elimination of mother-to-child transmission of HIV

1. Perinatal HIV incidence <1 per 100,000 live births

2. Perinatal transmission rate <1 per 100 HIV-exposed infants

As of 2021, both perinatal HIV incidence and perinatal HIV transmission rates were within target for elimination of mother-to-child transmission of HIV in the US.

[51] Over 90% of the HIV exposed and infected infants identified in birth years 2020 and 2021 were born at and/or received care at one of the 7 pediatric HIV-specialty sites. Additionally, since 2018 the CA SOA has conducted a birth registry match with HIV+ women in IHARS and LAC birth certificates. At the time of writing, the birth registry match for 2021 was pending, therefore the number of 2021 exposed births may be an underestimate. This is an underestimate of the total number of infants with a perinatal HIV exposure in Los Angeles County since perinatal HIV exposure reporting is not mandated in California. For this reason, perinatal HIV transmission rates are not generalizable to Los Angeles County. Data for 2020 and 2021 are provisional due to reporting delay. Live birth data for 2006-2017 were derived from the Los Angeles Almanac and live birth data after 2017 were derived from the California Department of Public Health-California Vital Data (Cal-ViDa) Query Tool since this tool was not available for birth years prior to 2018.

Table 5: Demographic and clinical characteristics of pregnant persons with diagnosed HIV and exposed infants, LAC 2020-2021[52]

Characteristics	N=134[53]	(%)
Maternal age at delivery		
13-19	4	(3.0)
20-29	41	(30.8)
30-39	72	(54.1)
40+	16	(12.0)
Maternal race/ethnicity		
White	12	(9.0)
Black	41	(30.8)
Latinx	58	(43.6)
Other[54]	19	(14.3)
Race unknown	3	(2.3)
Maternal transmission risk		
Heterosexual sex	118	(88.7)
Perinatal exposure	9	(6.8)
IDU	3	(2.3)
Risk unknown/transfusion	3	(2.3)
Maternal timing of HIV test		
Tested HIV+ before pregnancy	105	(79.0)
Tested HIV+ during pregnancy	23	(17.3)
Tested HIV+ at time of delivery[55]	<5	(-)
Tested HIV+ sometime before birth	<5	(-)
Tested HIV+ sometime after birth	<5	(-)
Time of Diagnosis Unknown	<5	(-)
Receipt of any prenatal care		
Yes	113	(84.3)
No	11	(8.2)
Prenatal care status unknown	10	(7.5)
Receipt of antiretroviral therapy		
Yes	122	(91.7)

[52] Data are provisional due to reporting delay.
[53] Data include one set of twins born in 2021.
[54] Other race category includes Asian, Native Hawaiian and Pacific Islander, and Multi-Race.
[55] Of the 23 women diagnosed with HIV during pregnancy, 5 were diagnosed during the first trimester, 14 during the second trimester, and 4 during the third trimester.

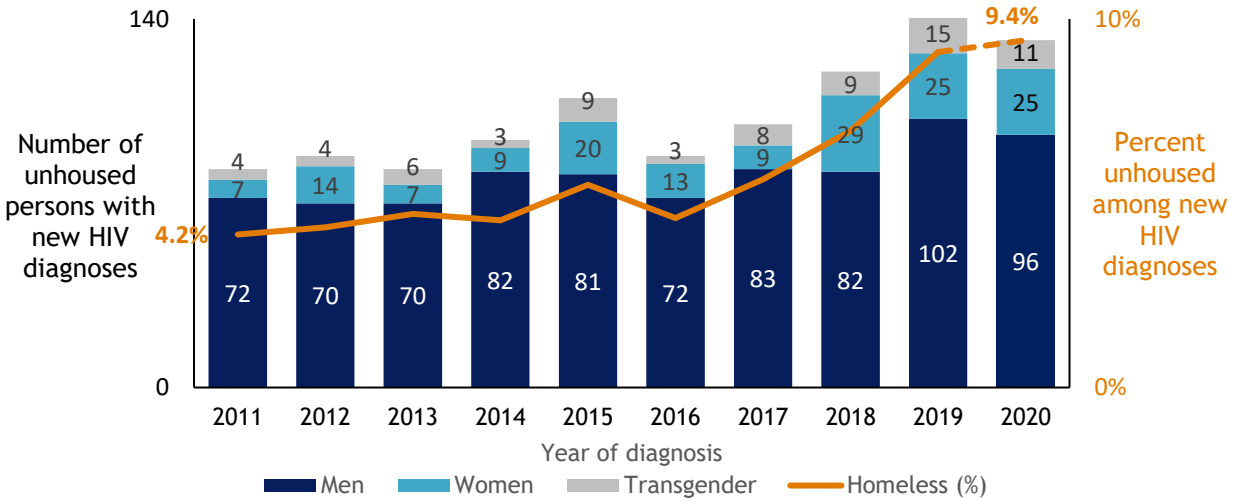
No	6	(4.5)
Unknown	5	(3.8)
Maternal ART use during pregnancy and delivery		
Prenatal and intrapartum ART	89	(66.9)
Prenatal ART only	30	(22.6)
Intrapartum ART only	3	(2.3)
Did not receive ART	6	(4.5)
ART use unknown	5	(3.8)
Type of delivery		
Vaginal	69	(51.5)
Elective C-section	36	(26.9)
Non-elective C-section	25	(18.7)
Delivery method missing/unknown	4	(3.0)
Was infant breastfed?		
Yes	5	(3.7)
No	121	(90.3)
Unknown	8	(6.0)
Infant ART use		
Received ART[56]	130	(97.0)
ART use unknown	4	(3.0)
Infant's HIV status		
HIV Negative	78	(58.2)
HIV Positive[57,58]	4	(3.0)
HIV Indeterminate[59]	52	(38.8)

In 2020-2021, there were 4 confirmed HIV infections among perinatally exposed babies born in Los Angeles County. Overall, 91.7% (122/134) of women living with diagnosed HIV who gave birth in LAC received at least one arm of ART during pregnancy and/or at labor and delivery. All infants (4/4) who were perinatally infected with HIV were born to persons who were not confirmed to have received ART during pregnancy and/or delivery. Prenatal care and ART use during pregnancy and labor and delivery are an essential component of prevention of perinatal HIV transmission.

[56] Of the 129 women living with diagnosed HIV who gave birth to 130 infants that received ART after birth, 123 received either prenatal and/or intrapartum ART while 6 did not receive any ART during pregnancy and/or delivery
[57] None of the women living with diagnosed HIV that delivered infants who were perinatally infected with HIV received prenatal or intrapartum ART
[58] 3 of the 4 infants that were perinatally infected with HIV received ART shortly after birth for the prevention of mother to child transmission
[59] Indeterminate status includes infants who have not had definitive testing to rule out HIV and/or those infants lost to follow-up

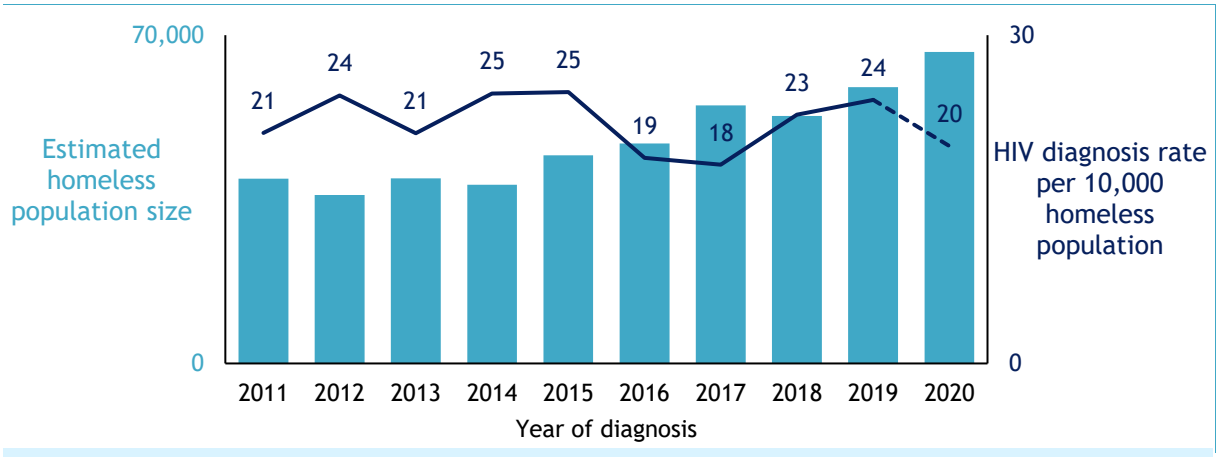
HIV among persons experiencing homelessness

Figure 25: Number of unhoused PLWDH by gender and percentage of persons aged ≥ 13 years newly diagnosed with HIV and unhoused at the time of diagnosis, LAC 2011-2020[60]



Since 2011, the percentage of persons newly diagnosed with HIV who were unhoused increased from 4.2% to 9.4%. In 2020, among 132 unhoused persons with a new HIV diagnosis, 96 (73%) were men, 25 (19%) were women, and 11 (8%) were transgender.

Figure 26: HIV diagnoses rates among persons aged ≥ 13 years experiencing homelessness, LAC 2011-2020[60,61]



Relatively stable HIV diagnoses rates among unhoused persons indicates that the increase in the unhoused population in Los Angeles County likely explains the increases in HIV diagnoses among unhoused PLWDH.

[60] Due to reporting delay, 2020 HIV diagnosis data are provisional as indicated by the patterned bar and dashed line.
[61] Data from Greater Los Angeles County Homeless Count, 2020 Results.

HIV biobehavioral surveillance

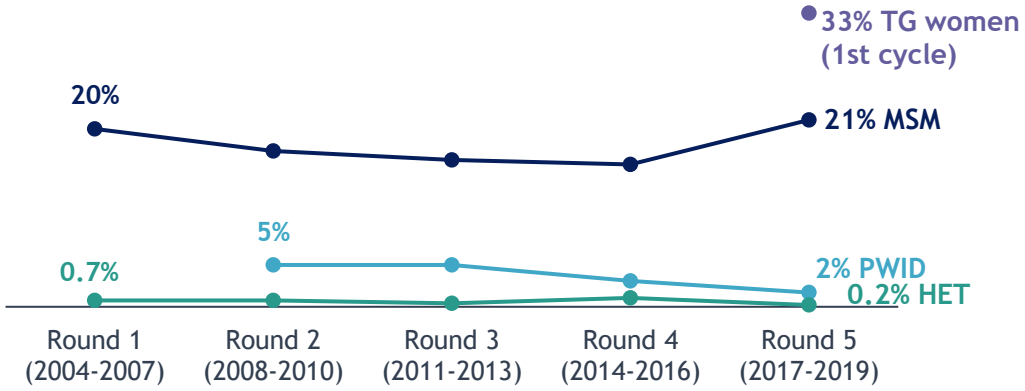
HIV biobehavioral surveys are surveillance tools that use probability-based sampling methods for estimating HIV prevalence and relevant behavioral and clinical indicators in a given population. Information from biobehavioral surveys helps us understand factors that may be associated with behavioral and clinical outcomes in vulnerable populations at increased risk for HIV or living with HIV.

National HIV Behavioral Surveillance (NHBS) is a CDC-funded HIV surveillance activity that allows state and local health departments to monitor HIV prevalence and risk behaviors among select populations at elevated risk for HIV. These populations include men who have sex with men (MSM), persons who inject drugs (PWID), heterosexuals at increased risk for HIV (HET), and transgender (TG) women. Probability-based sampling methods are used to recruit survey participants, including venue-based, time space sampling for the MSM survey and respondent driven sampling for PWID, HET, and TG surveys.

The Medical Monitoring Project (MMP) is another CDC-funded HIV surveillance activity that provides national and local data on behavioral and clinical outcomes in a representative sample of PLWH. MMP uses a 2-stage sampling strategy to select a sample of persons from which nationally and locally representative data are derived.

In this section, we highlight key findings from NHBS and MMP to date in LAC. While the data in this section provide the best estimates available for the populations presented, they are estimates (not true values) and thus any generalizations to broader population groups represented should be made with caution.

Figure 27: Trends in HIV Prevalence[62] by NHBS population, LAC 2004-2019[63]



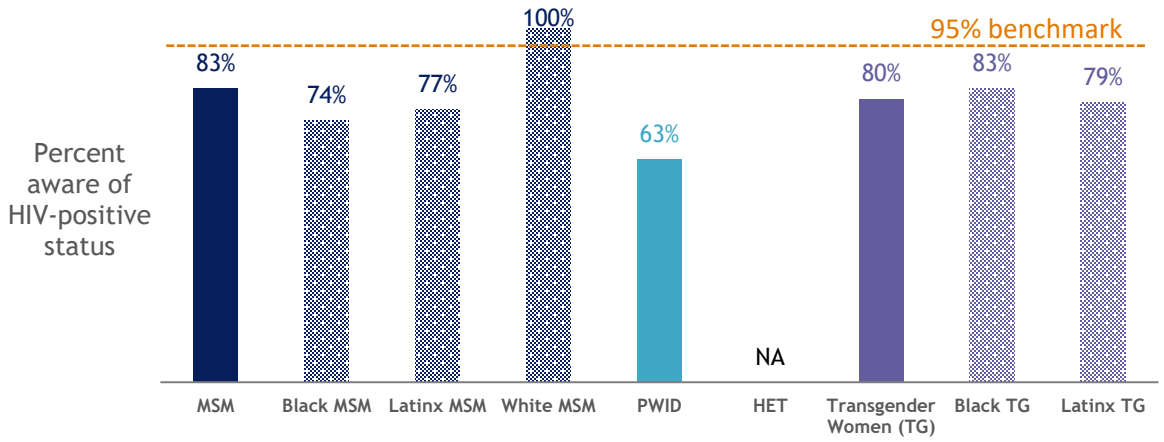
Note: Testing frequency among MSM and transgender women was high compared with PWID and HET. MSM (84%) and Transgender women (85%) reported high levels of HIV testing in the past year. By contrast, only 54% of PWID reported testing for HIV in the past year.

In the most recent surveillance round, transgender women had the highest HIV prevalence across the 4 surveyed populations. HIV prevalence was also high among MSM. By contrast, HIV prevalence among PWID and HET was low.

[62] "HIV Prevalence" refers to the percentage of participants with a confirmed positive HIV test result among the total number of participants tested in NHBS

[63] Participants were recruited into NHBS using a probability-based sampling method. MSM were recruited using time location sampling; PWID, HET, and Transgender Women were recruited using respondent driven sampling. MSM and HET were surveyed in all 5 NHBS rounds; PWID were surveyed starting in NHBS Round 2; Transgender women were surveyed starting in NHBS Round 5; Data are not weighted. The purpose of this figure is to provide a detailed summary of surveillance data collected as part of NHBS. Unweighted data provide an efficient and transparent way to do so.

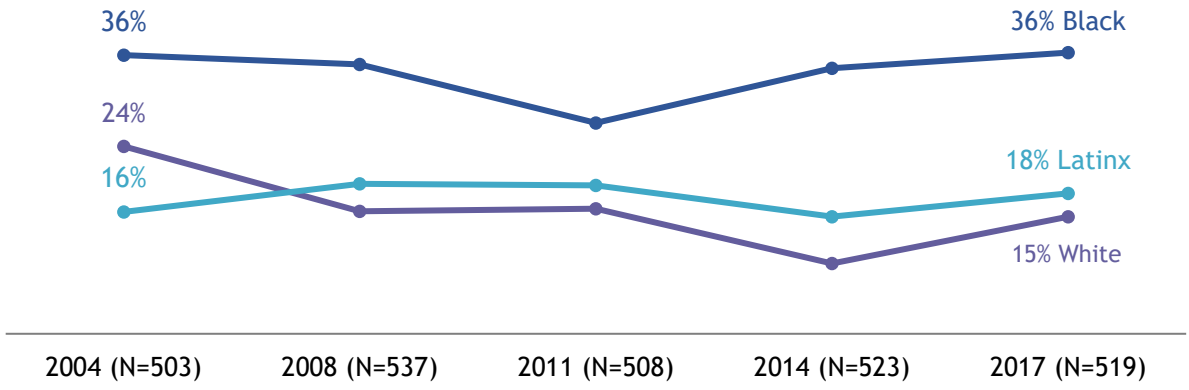
Figure 28: Awareness of HIV-positive status among participants aged ≥ 18 years living with HIV by NHBS population and race/ethnicity, LAC 2017-2019[64,65,66,67]



Among survey participants living with HIV, 83% of MSM and 80% of transgender women were aware of their HIV-positive status. Only 63% of PWID were aware of their HIV-positive status, however, the result for PWID may be unstable due to small number and must be interpreted with caution.

Men who have sex with men

Figure 29: Trends in HIV prevalence among NHBS-MSM participants by race/ethnicity, LAC 2004-2017



Over the course of 5 rounds of NHBS, spanning over a decade, HIV prevalence has consistently been highest among Black MSM. In the most recent surveillance round, 36% of Black MSM were living with HIV compared with 18% of Latinx MSM and 15% of White MSM.

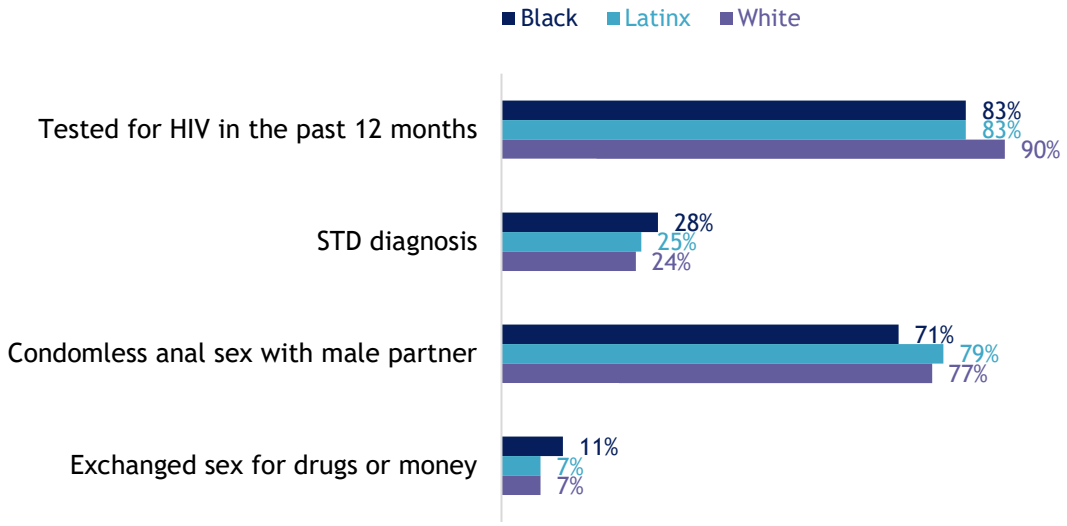
[64] National HIV Behavioral Surveillance (NHBS) is a national behavioral surveillance system designed to generate nationally representative estimates of HIV prevalence and behaviors among groups at highest risk for HIV infection. Data presented in this figure are not weighted. The purpose of this figure is to provide a detailed summary of surveillance data collected as part of NHBS. Unweighted data provide an efficient and transparent way to do so.

[65] **MSM**: Gay, bisexual, and other men who have sex with men; A total of 517 MSM participated in NHBS-MSM in 2017;
PWID: Persons who inject drugs; A total of 511 PWID participated in NHBS-PWID in 2018;
HET: Heterosexually active persons at increased risk for HIV infection; A total of 509 HET participated in NHBS-HET in 2019;
Transgender women (TG): Persons who (1) reported a gender identity of woman or transgender woman, and (2) were assigned male or intersex at birth. A total of 501 transgender women enrolled in NHBS-Trans in 2019.

[66] Awareness of HIV infection among PWID and HET is unstable due to small numbers.

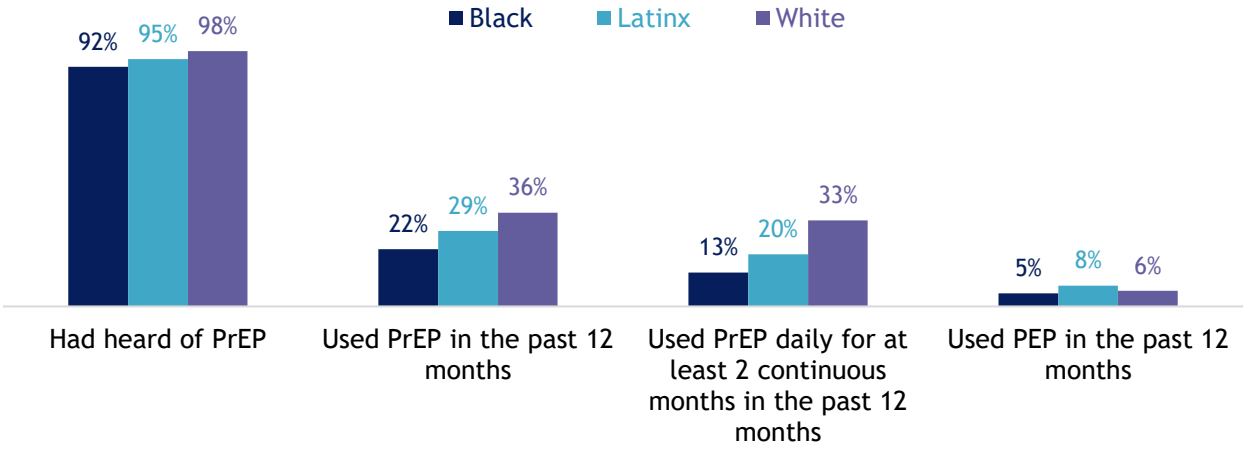
[67] Data on HIV testing in the past 12 months excludes participants diagnosed with HIV >12 months prior to the survey interview

Figure 30: HIV testing behavior, STD diagnosis, and sexual behavior among NHBS-MSM by race/ethnicity, LAC 2017[68]



In 2017, HIV testing within the previous 12 months was high among MSM of all race/ethnicity groups. Reports of condomless anal sex ranged from 71% among Black MSM to 79% among Latinx MSM.

Figure 31: PrEP and PEP among NHBS-MSM participants by race/ethnicity, LAC 2017

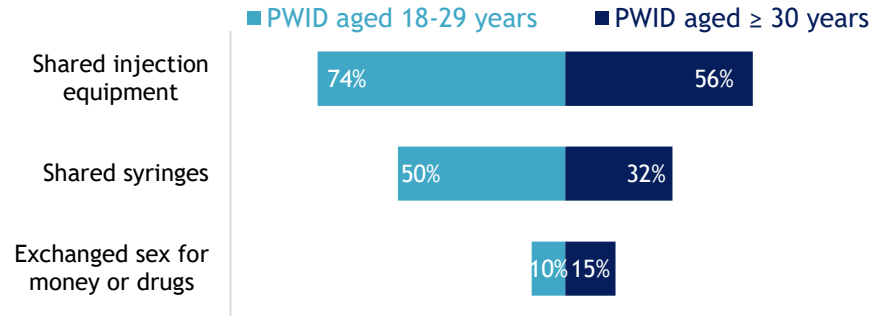


In 2017, knowledge of PrEP was high (≥92%) among MSM irrespective of race/ethnicity. Among participants who reported HIV-negative or unknown HIV status, 36% of White MSM had used PrEP within the past 12 months compared with 22% of Black MSM and 29% of Latinx MSM. Within the past 12 months, compared with Black and Latinx MSM, White MSM were more likely to have used PrEP consistently for 2 or more continuous months.

[68] There were 111 Black MSM, 148 White MSM, and 214 Latinx MSM NHBS participants in the 2017 surveillance round. All sexual behavior indicators reflect behavior in the 12 months prior to the interview. HIV testing in the past 12 months excluded participants who were diagnosed with HIV more than 12 months prior to the interview. STD diagnosis was based on respondent's self-reported of at least 1 STD diagnosis by a health care provider's diagnosis in the 12 months prior to the interview. Condomless anal sex refers to either or both condomless receptive and/or condomless insertive anal sex.

Persons who inject drugs

Figure 32: Injection drug use behavior and recent sexual behavior among NHBS-PWID participants by age group, LAC 2018[69]



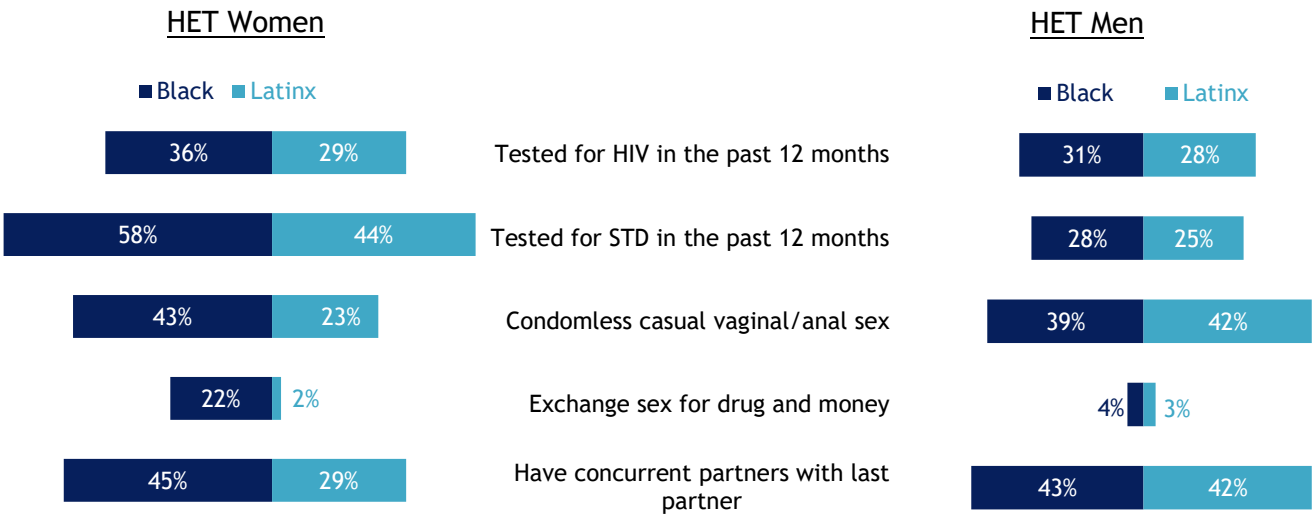
Note: HIV prevalence among PWID participants was low at 1.6%. No HIV infections were identified among PWID aged 18-29 years. By contrast 2% of PWID aged 30 years and older were living with HIV.

A higher percentage of PWID aged 18-29 years reported sharing syringes or injection equipment compared with PWID aged ≥30 years, while the reverse was found among PWID who reported exchanging sex for money or drugs.

[69] In the 2018 PWID NHBS surveillance round, there were 110 PWID aged 18-29 years and 401 PWID aged 30 years and older. All sexual behavior indicators reflect behavior in the 12 months prior to the survey interview. HIV testing in the past 12 months excludes participants who were diagnosed with HIV more than 12 months prior to the interview.

Heterosexuals at increased risk of HIV

Figure 33: Testing and sexual behavior among NHBS heterosexuals at increased risk of HIV (HET) by sex and race/ethnicity, LAC 2019[70]

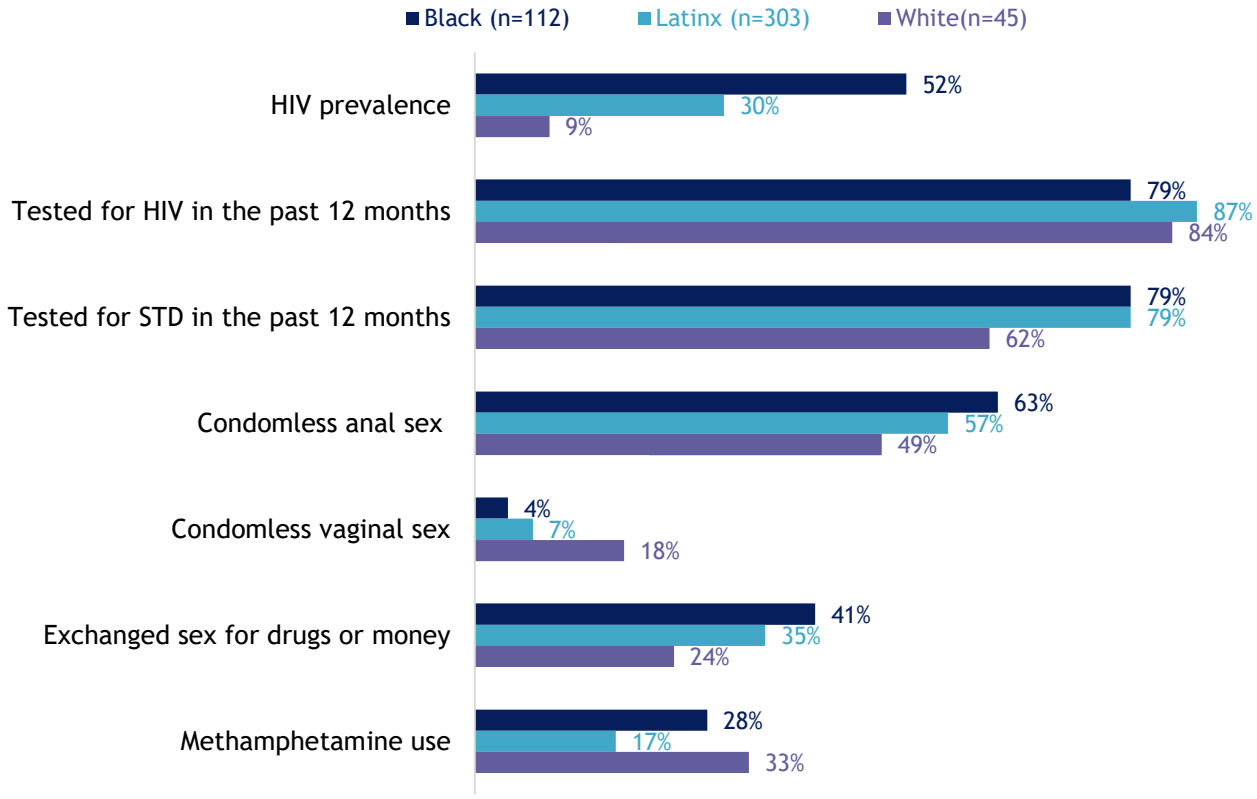


HET women were more likely to have tested for HIV and STD than HET men. Among HET women, more Black HET reported condomless sex with a casual partner, receiving money or drugs in exchange for sex, and having concurrent sexual partnerships than Latinx HET.

[70] 136 Black males, 118 Latinx males, 142 Black females, and 98 Latinx females participated in the 2019 NHBS-HET cycle. All sexual behavior indicators reflect sexual behavior with the opposite sex in the 12 months prior to the survey interview. Tested for HIV in the past 12 months excludes participants who reported being diagnosed with HIV more than 12 months prior to the interview. Tested for STD in the past 12 months included respondent's self-report of being tested for any STD other than HIV and hepatitis by a health care provider within 12 months prior to the interview. A casual partner is a sex partner that the respondent does not feel committed to or does not know very well. Having concurrent partners with last partner is measured by asking participants" when you were having a sexual relationship with last partner, did you have sex with other people?"

Transgender women

Figure 34: HIV prevalence, HIV/STD testing behavior, sexual behavior and drug use among NHBS-Transgender Women by race/ethnicity, LAC 2019[71,72]

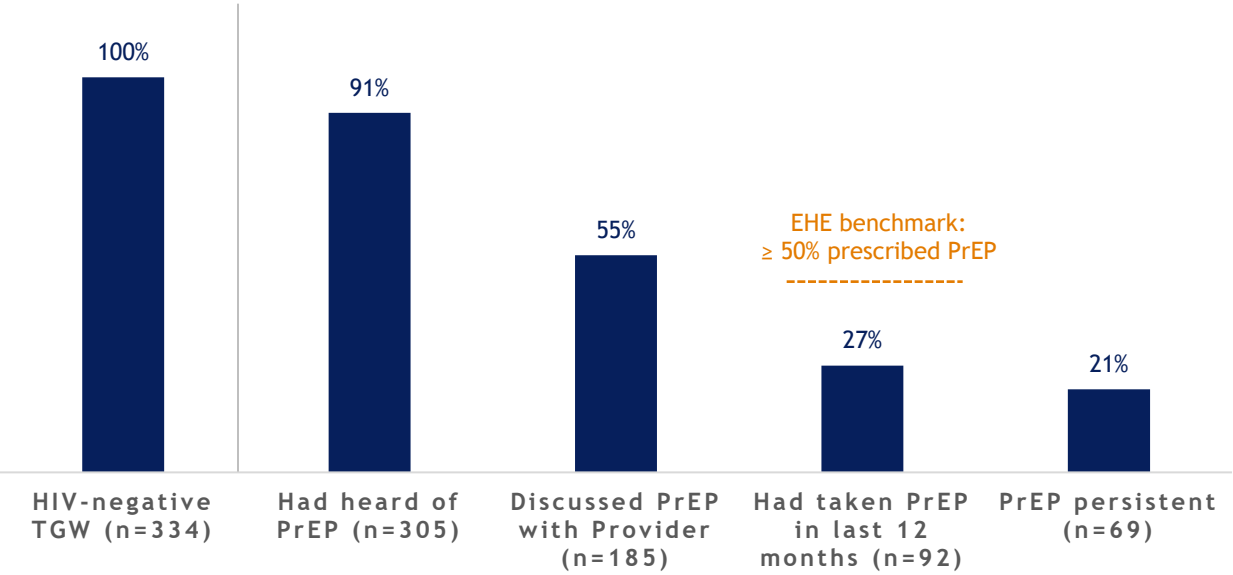


Among TG women, HIV prevalence was highest among Blacks (52%), followed by Latinx (30%), and White (9%). Black TG women were more likely to practice condomless anal sex and exchange sex for drugs or money but less likely to test recently for HIV than their Latinx and White counterparts.

[71] HIV prevalence refers to the percentage of participants with a confirmed positive NHBS HIV test result among the total number of participants tested in NHBS. Tested for HIV in the past 12 months excluded participants who reported being diagnosed with HIV more than 12 months prior to the interview. Tested for STD in the past 12 months included respondent's self-report of being tested for any STD other than HIV and hepatitis by a health care provider within 12 months prior to the interview. All sexual behavior indicators reflect behavior in the 12 months prior to the interview. Condomless anal sex refers to self-reports of either or both receptive and/or insertive anal sex without a condom. Condomless vaginal sex refers to self-reports of either or both receptive and/or insertive vaginal sex without a condom (vaginal sex refers to penis in the vagina or neovagina). Methamphetamine use includes self-reports of meth, crystal, speed, or crank use in 12 months prior to the interview.

[72] Estimates for White transgender women may be unstable and must be interpreted with cation due to small numbers.

Figure 35: PrEP cascade among NHBS-Transgender Women (TGW), LAC 2019[73]



The majority (91%) of HIV-negative transgender women had heard of PrEP and a little over half (55%) had discussed PrEP with a healthcare provider. Twenty-seven percent had taken PrEP in the last 12 months and 21% were PrEP persistent.

[73] PrEP persistent is defined as having taken PrEP every day or almost every day for at least 2 months in a row in the past 12 months.

Sexual behavior among men and women living with diagnosed HIV

Table 6: Sexual behavior during the 12 months before interview among men who had sex with men (MSM), men who had sex only with women (MSW), and women who had sex with men (WSM) with diagnosed HIV—Medical Monitoring Project, LAC, 2015-2019[74]

	MSM (N=548)		MSW (N=125)		WSM (N=105)	
Behavior	**%**	**95% CI**	**%**	**95% CI**	**%**	**95% CI**
Engaged in any high-risk sex[75]						
Yes	7.7	4.6–10.8	5.9	-	7.0	-
No	92.3	89.2–95.4	94.1	88.0–100.0	93.0	87.2–98.8
Engaged in any high-risk sex (among sexually active persons reporting vaginal or anal sex)						
Yes	12.0	7.2–16.7	10.5	-	14.6	-
No	88.0	83.3–92.8	89.5	79.2–99.8	85.4	73.8–96.9
Prevention strategies used by sexually active PLWDH with 1 or more partners						
Sex while having sustained viral suppression[76]						
Yes	66.1	59.5–72.6	71.7	58.2–85.1	56.6*	40.3–72.9
No	33.9	27.4–40.5	28.3	14.9–41.8	43.4*	27.1–59.7
Condom-protected sex with 1 or more partners						
Yes	54.4	48.0–60.8	72.4	60.3–84.4	64.3	49.7–78.8
No	45.6	39.2–52.0	27.6	15.6–39.7	35.7	21.2–50.3
Condomless sex with 1 or more partners on PrEP						
Yes	14.3	9.7–18.9	4.1	-	0*	
No	85.7	81.1–90.3	95.9	91.1–100.0	100*	
Sex with 1 or more partners with HIV						
Yes	61.8	55.5–68.1	16.4	7.8–25.0	18.4	-
No	38.2	31.9–44.5	83.6	75.0–92.2	81.6	69.7–93.5
Total	**100**		**100**		**100**	

Most sexually active PLWDH were not engaging in high-risk sex but using prevention strategies with their partners, including having sex when virally suppressed, using condoms during sex, and having sex with partners who were also HIV-positive.

[74] The MMP is a national HIV surveillance system funded by the US Centers for Disease Control and Prevention to provide locally and nationally representative data on behavioral and clinical outcomes in a sample of persons living with HIV. Data about sexual practices were collected using in-person or telephone interviews. Persons who reported no anal, vaginal, or oral sex in the 12 months before interview were categorized according to self-reported sexual orientation. Data presented in this table include 548 MSM, 125 MSW, and 105 WSM. Due to the small numbers of men and women who had sex with transgender/non-binary persons and women who had sex with women they were not included in the analysis. Percentages and confidence intervals (CI) incorporate weighted percentages. Percentages might not sum to 100 because of rounding. Estimates with an absolute CI width ≥30, estimates with an absolute CI width between 5 and 30 and a relative CI width >130%, and estimates of 0% or 100% are marked with an asterisk (*) and should be interpreted with caution.

[75] High-risk sex is defined as: vaginal or anal sex with at least 1 partner with an HIV-negative or unknown status while not having sustained viral suppression (defined as HIV viral load <200 copies/mL documented in the medical record at every measure in the 12 months before interview), a condom was not used, and the partner was not on PrEP. PrEP use was only measured among the 5 most recent partners.

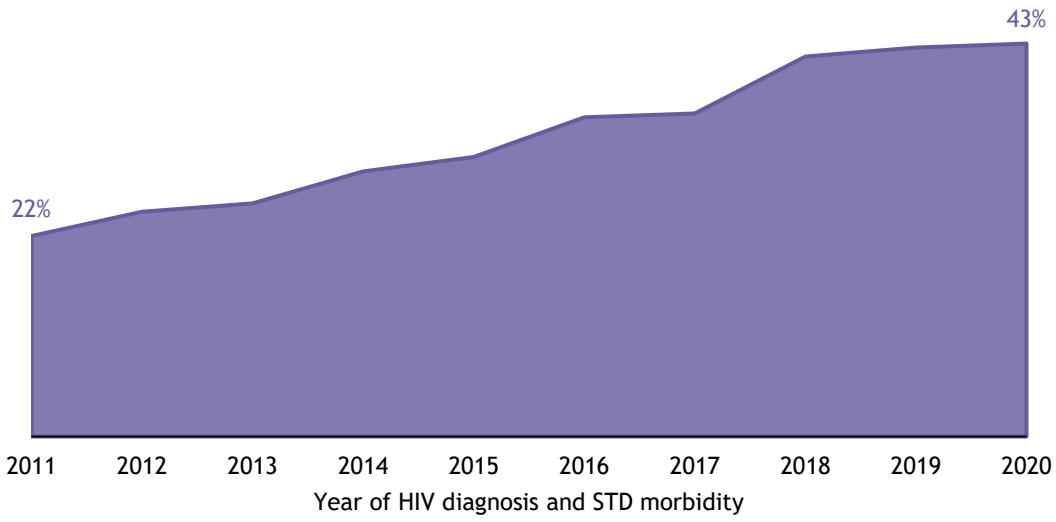
[76] HIV viral load <200 copies/mL documented in the medical record at every measure in the 12 months before interview.

HIV co-infected populations

STD and HIV co-infection

HIV and other STDs are syndemic in LAC. Persons with syphilis, gonorrhea, and/or chlamydia are at an increased risk of acquiring HIV due to biological and behavioral factors. STDs among PLWH can also increase HIV viral load and the risk of forward HIV transmission. We examined the co-occurrence of HIV and STD diagnoses in the same year among persons with newly diagnosed HIV. This method estimates the percentage of HIV-STD co-infections around the time of HIV diagnosis. Note that a person may be living with HIV for months or years before they are diagnosed, and other STDs may remain untreated. The cities of Long Beach and Pasadena are not included in this analysis due to reporting delays (these cities have their own health departments and report STD cases directly to the State, who then shares the data with LAC.

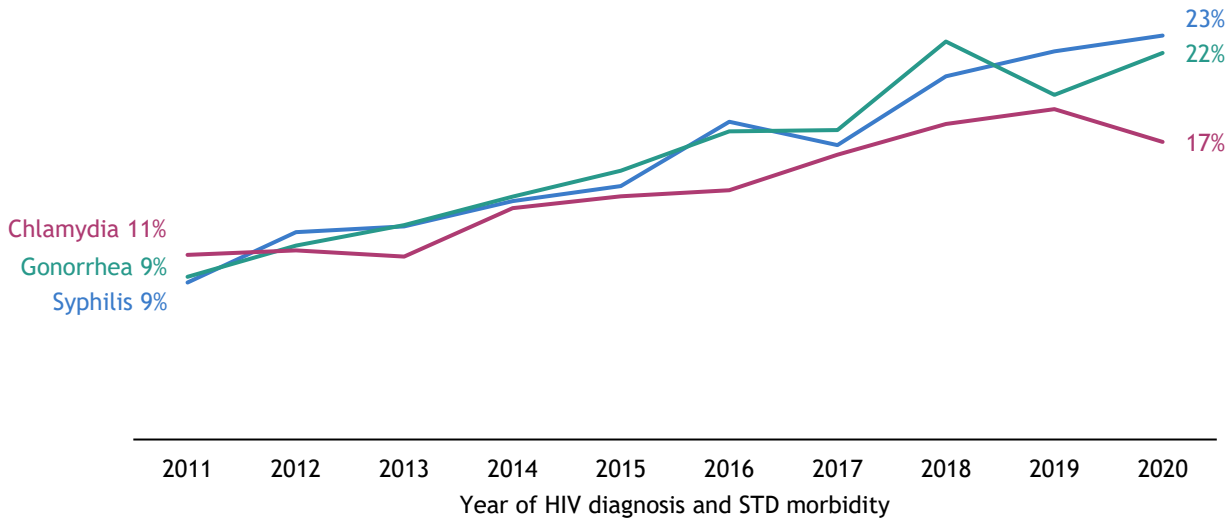
Figure 36: Percentage of persons newly diagnosed with HIV aged ≥ 13 years who had syphilis, gonorrhea, and/or chlamydia in the same calendar year as HIV diagnosis, LAC (excluding Long Beach and Pasadena), 2011-2020[77,78,79,80]



The percentage of persons newly diagnosed with HIV who had one or more STDs in the same year nearly doubled from 22% in 2011 to 43% in 2020. This increasing trend reflects the rise in total STD cases over the same period.

[77] PLWDH with more than one STD case per year are counted only once.
[78] DHSP prioritizes HIV, syphilis, and congenital syphilis cases for investigation.
[79] STD cases in the cities of Long Beach and Pasadena are reported to their respective health departments.
[80] Due to reporting delay and time needed for case investigations, data are shown through 2020 instead of 2021.

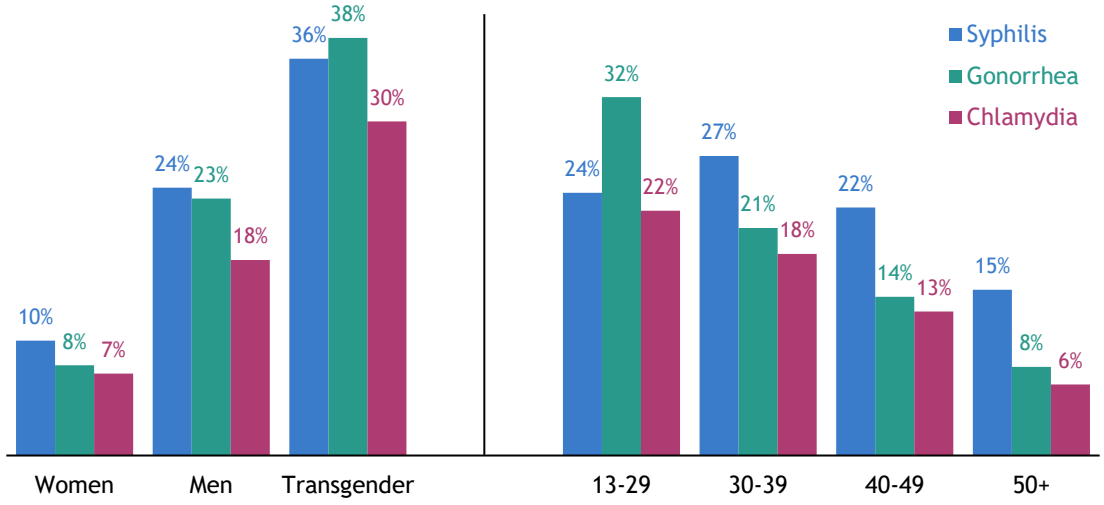
Figure 37: Percentage of persons newly diagnosed with HIV aged ≥ 13 years who had syphilis, gonorrhea, and/or chlamydia in the same calendar year as HIV diagnosis by STD, LAC (excluding Long Beach and Pasadena), 2011-2020[81,82,83]



Co-infections for all three STDs showed similar increasing trends from 2011 to 2020. In 2020, syphilis among newly diagnosed HIV cases was the highest at 23%, followed closely by gonorrhea at 22%. This reflects a rapid rise in the total number of syphilis cases in LAC over the same period.

[81] DHSP prioritizes HIV, syphilis, and congenital syphilis cases for investigation.
[82] STD cases in the cities of Long Beach and Pasadena are reported to their respective health departments.
[83] Due to reporting delay and time needed for case investigations, data are shown through 2020 instead of 2021.

Figure 38: Percentage of persons newly diagnosed with HIV aged ≥ 13 years who had syphilis, gonorrhea, and/or chlamydia in the same calendar year as HIV diagnosis by STD, gender, and age group, LAC (excluding Long Beach and Pasadena), 2020[84,85,86]



In 2020, percentages of syphilis, gonorrhea, and/or chlamydia co-infections among PLWDH were highest in the transgender population. Among both women and men living with diagnosed HIV, syphilis co-infection was higher than co-infection with other STDs. By age group, syphilis co-infection was highest among PLWDH aged 30 years or older, while co-infection with gonorrhea was highest among PLWDH aged 13-29 years.

[84] DHSP prioritizes HIV, syphilis, and congenital syphilis cases for investigation.
[85] STD cases in the cities of Long Beach and Pasadena are reported to their respective health departments.
[86] Due to reporting delay and time needed for case investigations, 2020 is shown as the latest year.

COVID-19 and HIV co-infection

Persons living with HIV may be at increased risk for severe outcomes of COVID-19 disease. However, little is known about the characteristics of PLWDH who are co-infected with COVID-19 and the severity of COVID-19 disease in this population.

Using surveillance data on persons living with diagnosed HIV through December 2021 and newly diagnosed cases of COVID-19 infection reported to Public Health from January 2021 through March 2022, we calculated the COVID-19 co-infection rate among PLWDH, describe demographic and clinical characteristics of persons with COVID-19 and HIV co-infection, and calculated mortality rates for person with COVID-19 and HIV co-infection. All data presented in this section are unadjusted and should be interpreted cautiously.

Note that COVID-19 and HIV co-infection data are for Los Angeles County excluding Long Beach and Pasadena, as each of these cities have their own health departments and do not directly report COVID-19 data to LAC.

Table 7: COVID-19 and HIV co-infection among PLWDH aged ≥ 13 years, LAC (excluding Long Beach and Pasadena), January 2021 to March 2022[87]

	COVID-19 and HIV Co-infected Cases	PLWDH Population[88]	COVID-19 and HIV Co-infected Cases per 10,000 PLWDH
Total	**6,048**	**48,410**	**1,249**
Gender			
Women	721	5,400	**1,335**
Men	5,221	42,052	1,242
Transgender	106	958	1,106
Age Group[89]			
12 to 17	6	36	1,667
18 to 29	655	3,478	**1,883**
30 to 49	2,913	19,843	1,468
50 to 64	2,013	19,311	1,042
65 to 79	430	5,329	807
≥80	31	413	751
Race/Ethnicity			
American Indian and Alaska Native	37	290	1,276
Asian	210	1,800	1,167
Black	1119	9,800	1,142
Latinx	3,227	22,577	**1,429**
Native Hawaiian and Pacific Islander	5	64	781
White	1205	12,090	997

[87] COVID-19 rates in the population were not included as a comparison due to high proportion of missingness for race, age, and gender
[88] Includes PLWDH at year-end 2021
[89] Age groups reflect the categories reported for COVID-19 surveillance. In this analysis, the 12-17 age group excludes persons aged 12 years for persons with HIV and COVID-19 co-infection.

	COVID-19 and HIV Co-infected Cases	PLWDH Population[88]	COVID-19 and HIV Co-infected Cases per 10,000 PLWDH
Other	245	1,789	1,369
SPA[90]			
Antelope Valley [1]	163	1,221	1,335
San Fernando [2]	1041	7,989	1,303
San Gabriel [3]	480	3,568	1,345
Metro [4]	2,080	18,226	1,141
West [5]	245	2,535	966
South [6]	948	6,820	1,390
East [7]	506	3,911	1,294
South Bay [8]	519	3,673	**1,413**
Transmission Category			
Male-Male sexual contact (MSM)	4,294	33,241	1,292
Heterosexual contact	336	2,608	1,288
Injection Drug User (IDU)	178	1,595	1,116
MSM/IDU	321	2,329	**1,378**
Other/Undetermined	919	8,637	1,064
Viral Suppression[91]			
Suppressed[92]	4,629	28,634	**1,617**
Not Suppressed	1,143	18,587	615
Experienced homelessness			
Yes	597	4,358	**1,370**
No	5,451	44,052	1,237

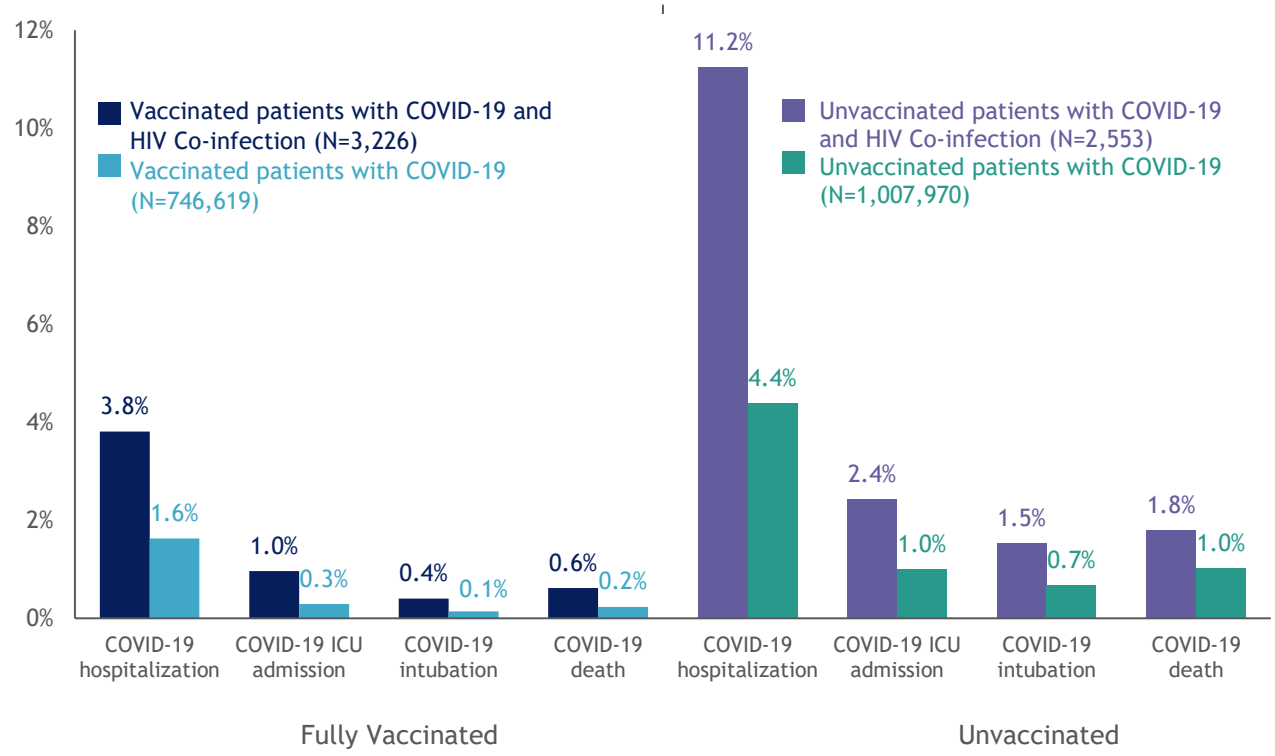
Rates of COVID-19 and HIV co-infection among PLWDH were highest among females, persons aged 18 to 29 years, Latinx persons, residents of SPA 8 (South Bay), persons with MSM/IDU transmission risk, persons with suppressed HIV viral load (i.e., proxy for persons on HIV treatment), and unhoused persons.

[90] Valid address is missing for 66 COVID-19 and HIV co-infected cases; therefore SPA is unknown

[91] Viral suppression data include persons diagnosed through 2020 and living in LAC at year-end 2021 (i.e., excludes persons newly diagnosed in 2021 because they have not yet had time to achieve viral suppression).

[92] HIV RNA <200 copies/mL within the prior year.

Figure 39: COVID-19 clinical characteristics among COVID-19 patients aged ≥ 13 years by HIV co-infection status and vaccination status[93], LAC, January 2021 to March 2022[94]



Regardless of vaccination status, patients with HIV and COVID-19 co-infection had higher levels of severe illness, including hospitalization, intensive care unit admission, intubation, and death compared with all COVID-19 patients. Vaccination for COVID-19 reduced the risk of severe outcomes for both HIV and COVID-19 co-infection patients and COVID-19 patients.

[93] COVID-19 vaccination status is the person's vaccination status at time of COVID-19 infection; excludes 269 HIV and COVID-19 co-infected patients and 69,162 COVID-19 patients who were partially/not fully vaccinated.
[94] COVID-19 vaccines were available for priority groups in mid-December 2020 and for the wider community in April 2021.

Table 8: COVID-19 deaths among PLWDH and HIV co-infection aged ≥ 13 years, LAC (excluding Long Beach and Pasadena), January 2021 to March 2022

	Deaths among Persons with COVID-19 and HIV Co-infection	COVID-19 and HIV Co-infection Mortality Rate per 100,000 PLWDH[95]	Expected number of deaths[96]
Gender			
Women	7	130	10
Men	58	138	56
Transgender	2	**209**	1
Age Group[97]			
12 to 17	0	0	0
18 to 29	3	86	3
30 to 49	13	66	22
50 to 64	43	223	26
65 to 79	33	619	10
≥80	8	**1,937**	2
Race/Ethnicity			
American Indian and Alaska Native	0	0	1
Asian	2	111	1
Black	15	**153**	17
Latinx	35	**155**	28
Native Hawaiian and Pacific Islander	0	0	0
White	13	108	15
Other	2	112	4
SPA[98]			
Antelope Valley [1]	3	**246**	3
San Fernando [2]	6	75	10
San Gabriel [3]	7	196	8
Metro [4]	9	49	19
West [5]	0	0	2
South [6]	10	147	14
East [7]	4	102	6
South Bay [8]	5	136	7
Transmission Category			
Male-Male sexual contact (MSM)	37	111	40
Heterosexual contact	4	153	5
Injection Drug User (IDU)	6	**376**	5
MSM/IDU	5	215	7
Other/Undetermined	15	174	10

Mortality rates for persons with HIV and COVID-19 co-infection were highest among transgender persons, persons aged 80 years and older, Black and Latinx persons, residents of SPA 1, and persons with IDU transmission risk. Overall, deaths among persons with HIV and COVID-19 co-infection were similar to the expected number of all deaths for PLWDH. However, deaths among certain groups (persons aged 50 years and older and Latinx) were higher than expected.

[95] Mortality rate is crude and presented per 100,000 population

[96] Expected number of deaths was calculated based on the pre-COVID-19 death rate among PLWH (2019) multiplied by the number of COVID-19 and HIV co-infected cases.

[97] Age groups reflect the categories reported for COVID-19 surveillance. In this analysis, the 12-17 age group excludes persons aged 12 years for persons with HIV and COVID-19 co-infection.

[98] The sum may not add up to the total due to missing information on Service Planning Area for some individuals. These individuals are not included in a specific SPA category but included in the total.

Data to Action: Progress and Opportunities for Vulnerable Populations

- The recent increase in perinatal exposures may reflect improved reporting of pregnancy status in HIV case reports. Nonetheless, the uptick warrants attention to ensure that all HIV-positive pregnant women receive interventions to prevent perinatal transmission.
- HIV prevalence and high-risk sexual behavior are high among MSM and transgender women, especially those of Black race. Persons who identify as MSM or TG women should be tested annually as part of routine health checks and, if tested HIV-positive, immediately linked to HIV care and educated on strategies to prevent transmission of HIV to their partners.
- Though the prevalence of HIV is relatively low among persons who inject drugs (PWID), high risk injection behavior in this population is concerning, particularly among younger PWID. As shown in the next section, PWID also have the poorest outcomes across the HIV continuum of care. Current HIV prevention, testing, and care services for PWID should be evaluated to assess whether the needs of PWID are incorporated to successfully prevent and manage disease.
- PrEP use is a biomedical intervention that can minimize the risk of acquiring HIV among HIV-negative persons. Yet PrEP use in populations at highest risk for HIV, including MSM and TG women, is very low. Public Health should strengthen partnerships with heath care providers and programs that serve vulnerable populations to ensure that PrEP is discussed and offered to all persons at high risk of acquiring HIV.
- Prevention strategies among PLWDH are working. The vast majority of sexually active PLWDH are not engaging in high-risk sex but practicing safe sexual behavior with their partners. These best practices should be shared with the broader community through sex positive education programs and communication messages.
- An integrated disease surveillance system that is flexible to reporting and investigation of multiple diseases, including HIV, concurrently will advance disease co-infection surveillance and facilitate a comprehensive response for coinfected individuals. HIV policies on data security and confidentiality should be reviewed to consider inclusion of information on HIV cases in broader disease surveillance systems.

Data to Action: Progress and Opportunities for Vulnerable Populations

- The public health response to HIV should include STD prevention and care. All persons with a new diagnosis of HIV should be screened for syphilis, and all persons with a new diagnosis for syphilis should be screened for HIV. Syphilis infection should be considered an indication for starting PrEP among HIV-negative persons.
- Persons living with diagnosed HIV and coinfected with COVID-19 have higher levels of severe COVID-19 outcomes regardless of vaccination status. This information should be used to prioritize PLWDH for receipt of COVID-19 vaccines and therapeutics.
- HIV surveillance data among populatons at high risk for HIV highlight disparities in HIV outcomes and access to prevention services among the Black population and young PWID. Further investigation is needed to identify underlying socio-econcomic, social determinants of health, and structural factors, including racism and other forms of stigma and discrimination, that may be driving these health inequities. Addressing these root causes will help to establish stronger systems of care to better support these populations.

HIV Surveillance to Partner Services Continuum

EHE Partner Services Target

- 85% of persons with a new diagnosis of HIV interviewed by Partner Services staff within 7 days of HIV diagnosis by 2025

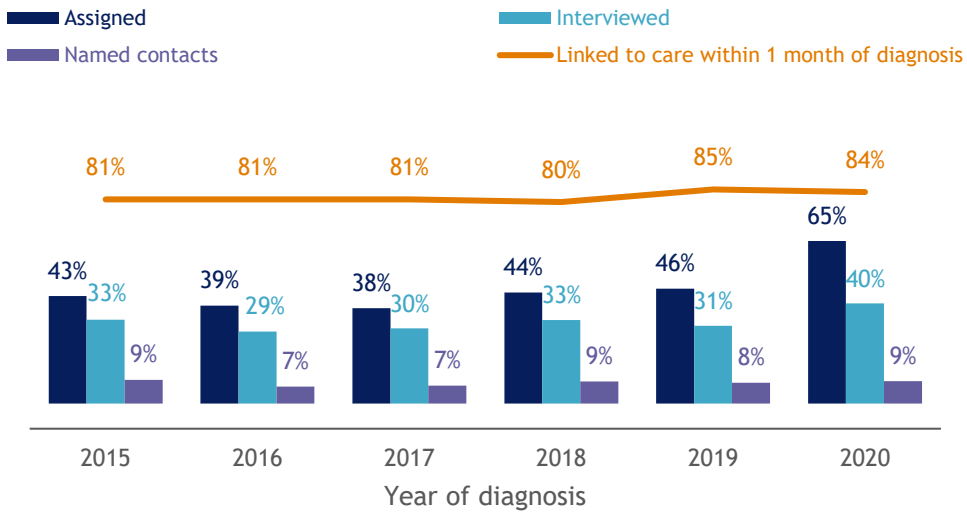
Partner Services (PS) are a broad array of public health field services offered to persons with HIV or other sexually transmitted diseases (STDs) and their sexual or substance-using partners (e.g., needles and syringe sharing partners) to improve the health of infected persons, adapt strategies to change behavior to protect partners, and reduce HIV and STD transmission. An important component of Partner Services is partner notification, a process through which persons newly diagnosed with STDs and/or HIV are interviewed to elicit information about their partners, who can then be confidentially notified of their possible exposure and referred to interventions to reduce their risk of acquiring HIV.

All people newly diagnosed with HIV should receive Partner Services. The EHE target for Partner Services is "85% of persons with a new diagnosis of HIV is interviewed by Partner Services staff within 7 days of HIV diagnosis" and is intended to accelerate receipt of health services, both for PLWDH and their partners. Historically, not all newly reported HIV cases were prioritized for Partner Services, creating missed opportunities for linking persons to HIV care and, for partners of PLWDH, to receive status neutral services. Through close coordination between the HIV Surveillance and Partner Services Programs, routine program analysis and dashboards have been implemented to track achievements and gaps along the HIV Surveillance to Partner Services continuum.

The steps in the continuum start from a new diagnosis of HIV and are tracked through the follwing evaluation metrics: referral to HIV Partner Services, PS interview, linkage to care, contact tracing, locating contacts, determining the HIV status of contacts, and adminstering interventions to contacts. Achievements in each of the steps in the continuum increases the likelihood of infected persons and their partners to be linked to effective interventions for prevention, care, and treatment of HIV disease, and ultimately, reductions in community transmission of HIV.

Trends in the HIV Partner Services continuum

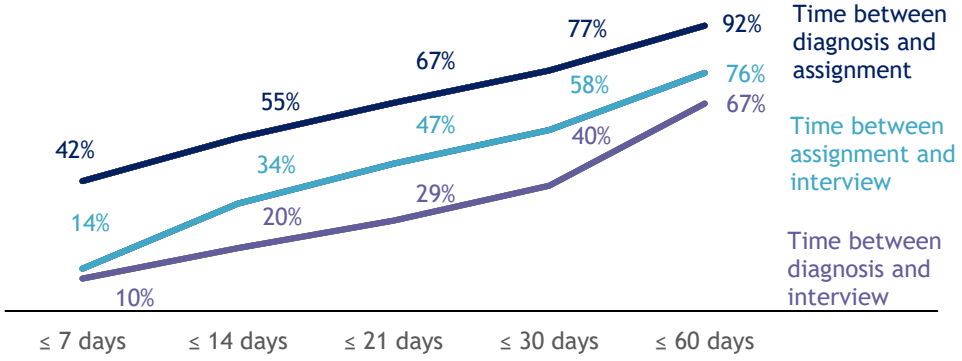
Figure 40: The percentage of new HIV diagnoses aged ≥ 13 assigned[99] to partner services, interviewed[100], named contacts[101], and linkage to care within 1 month[102], LAC (excluding Long Beach and Pasadena), 2015-2020



Data in context:
In 2020, due to closer coordination and data sharing between the HIV surveillance and the Partner Services units, encouraging increases in case assignment (+19 percentage points) and interviews (+9 percentage points) were observed from the previous year.

In 2020, 65% of newly diagnosed HIV-positive persons in LAC were assigned for a Partner Services interview, 40% were interviewed and 9% provided contact information of sexual and/or needle sharing partners. Those assigned but not interviewed were largely due to refusal by the client or inability to locate the client.

Figure 41: Time from HIV diagnosis to HIV Partner Services assignment and interview, LAC (excluding Long Beach and Pasadena), 2020



Data in context:
New HIV case reports are routed from surveillance to the Partner Services unit where they are assigned to public health investigators (PHI). PHIs make multiple attempts to contact the patient for interview/linkage-to-care and partner elicitation.

In 2020, 10% of HIV PS interviews were within 7 days of HIV diagnosis, 40% within 30 days, and 67% within 60 days. This delay in interview is driven primarily by the time from HIV diagnosis to case assignment for Partner Services (due to delays in case reporting to HIV surveillance).

[99] New HIV diagnoses assigned for partner services within 12 months of report among LAC HIV diagnoses (excluding Long Beach and Pasadena).
[100] New HIV diagnoses interviewed by public health investigators among new LAC HIV diagnoses (excluding Long Beach and Pasadena).
[101] New HIV diagnoses who identified ≥1 sexual and/or cluster contact during interview among new LAC HIV diagnoses (excluding Long Beach and Pasadena).
[102] Linked to care within 1 month of diagnosis among cases interviewed by public health investigators.

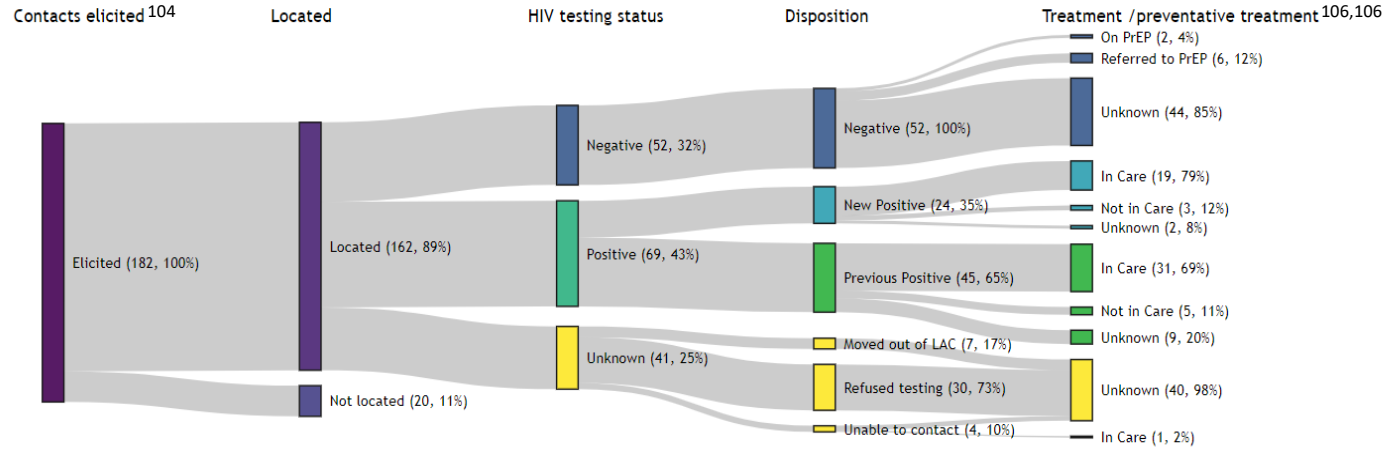
Elicited contacts

An important component of Partner Services is partner notification, a process through which infected persons are interviewed to elicit information about their partners, who can then be confidentially notified of their possible exposure or potential risk.

Notifying contacts of their risk of HIV is a cornerstone public health intervention designed to reduce the forward transmission of HIV. As part of a HIV partner notification model, every named contact is investigated by a Partner Services staff and once located, triaged for follow-up services according to their HIV status. Newly identified HIV in a contact will trigger a response to immediately link the contact to care. If the contact had a prior HIV positive diagnosis, their HIV care status should be assessed, and, if out of care, the contact should be linked or re-linked back to care. Contacts that test negative should be provided with high quality services to reduce their risk of acquiring HIV, including referral to pre-exposure prophylaxis (PrEP).

Figure 42: HIV partner services continuum[103] among named contacts, LAC, (excluding Long Beach and Pasadena), 2020

Data in context:
This Sankey diagram depicts the flow of clients in each step of the HIV PS cascade. Each column represents a step in the cascade. Within each step, clients are grouped into categories represented by the colored rectangles (nodes). The gray lines show the proportion of clients moving from one node to the next.



In 2020, 182 named contacts of persons newly diagnosed with HIV were elicited. Most contacts were located (89%). Of those located, many tested HIV positive (43%), followed by HIV negative (32%) and unknown status (25%). Of contacts who tested HIV positive, most were previously diagnosed as HIV positive (65%). Of those newly diagnosed with HIV, 79% were linked to care. Of contacts with unknown testing status, the majority refused testing (73%).

[103] The HIV partner services continuum includes the following steps: 1) identifying people who were named as sexual or social contacts by index cases, 2) locating elicited contacts, 3) confirming contacts' HIV serostatus, and 4) connecting contacts who tested positive to HIV treatment and contacts who tested negative to preventative HIV treatment.
[104] 182 contacts named by 114 index cases newly diagnosed with HIV in 2020.
[105] PLWDH diagnosed through 2020 who have at least one care visit within year 2021 are considered engaged in care. Care status is available for contacts regardless of HIV testing disposition.
[106] PrEP information is unknown for clients without comorbid STD.

Data to Action: Progress and Opportunities in the HIV Partner Services Continuum

- Partner Services is the key to the delivery of life-saving HIV interventions and prevention strategies for PLWDH and their partners. The program's role in ending the HIV epidemic in Los Angeles County is critical; however, the current program infrastructure is not sufficient to meet the high demands of both the HIV and STD program priorities for preventing and controlling disease. Significant resources, policy change and greater acceptance and compliance are urgently needed for Partner Services to have its intended impact. High quality human resources to implement expanded PS activities are needed. The realignment of PS training, use of communication and information technology tools, and modernization of data systems are also needed to successfully implement, monitor, and evaluate PS program goals.
- Important strides have been made to strengthen coordination between HIV Surveillance and Partner Services to ensure that Partner Services staff have the information they need to respond to new HIV diagnoses and persons who are not virally suppressed. Nonetheless, LAC remains far below the EHE target of having 85% of PLWDH interviewed by a Partner Services staff within 7 days of diagnosis. HIV Surveillance staff must work closely with diagnosing laboratories and providers to ensure that case reports are received within 24 hours of HIV diagnosis, and once case reports are received, accelerate referral of newly diagnosed HIV cases and persons with unsuppressed viral load within 24 hours of receiving the case report to Partner Services.
- Many partners are refusing HIV testing when offered by the Partner Services program. Partner testing strategies should be evaluated and improved to include approaches for addressing testing hesitancy, addressing stigma and fear with accessing HIV testing among vulnerable populations, and incentives to improve testing uptake for those that do not have a prior diagnosis of HIV.
- Surveillance and Partner Services data systems should evolve to include outcomes required to evaluate the performance of Partner Services program metrics. At minimum, outcomes for index patients should include linkage to care, re-engagement to care, treatment status, viral suppression, STI testing, and partner notification. Outcomes for partners should include HIV and STD testing, for HIV-positive partners: linkage to care, care and treatment status, relinkage to care, and viral suppression, and for HIV-negative partners: PrEP referral and PrEP use.

HIV Care Continuum

EHE HIV Care Continuum Targets

- Increase the percentage of newly diagnosed persons linked to care within 1 month to at least 95% by 2025
- Increase the percentabe of persons living with diagnosed HIV who are virally suppressed to at least 95% by 2025

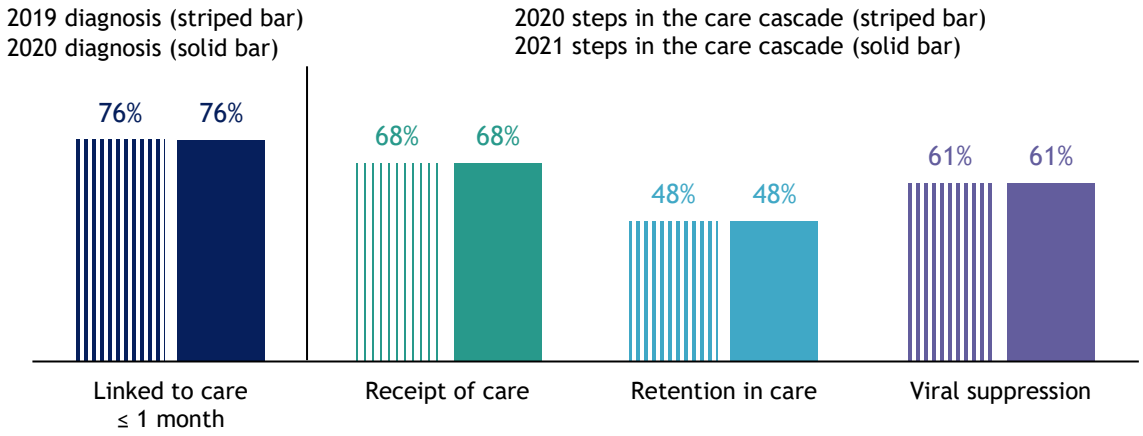
HIV Care Cascade

The HIV Care Continuum is a series of steps starting from when a person living with HIV receives a HIV-positive diagnosis through the achievement of viral suppression. By monitoring these steps at a population level, we can quantify progress at the local and national level. A deeper analysis of the steps along the HIV continuum of care can identify gaps in HIV care delivery. Knowing where and among whom the shortfalls persist along the HIV care cascade can inform where improvements are needed to support individuals in achieving and maintaining viral suppression, improving their health, and effectively eliminating further transmission to others.

The HIV care continuum includes the following: (1) among persons receiving a diagnosis of HIV in a given calendar year, the percentage of persons who were linked to HIV care within 1 month of diagnosis (defined as ≥ 1 CD4/VL/Genotype test reported within 1 month of HIV diagnosis); and (2) among all persons living with diagnosed HIV, the percentage of persons who (a) received HIV care (defined as ≥ 1 CD4/VL/Genotype test per year), (b) were retained in HIV care (defined as ≥ 2 CD4/VL/Genotype tests at least three months apart per year), and (c) were virally suppressed (defined using most recent viral load) per year.

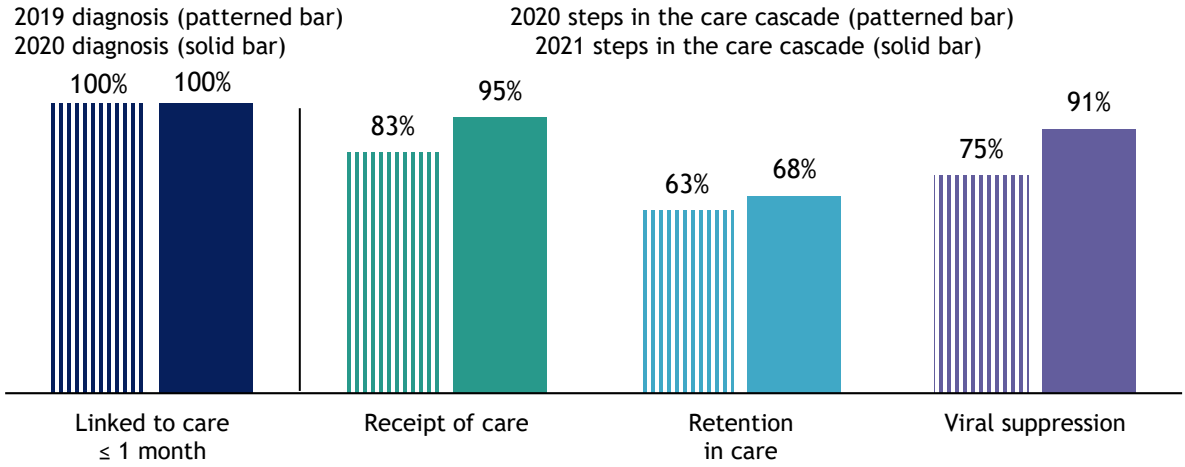
The base population for measuring linkage to HIV care is persons who received a HIV-positive diagnosis in a given calendar year, whereas the base population for the downstream steps in the continuum of care is all persons who were diagnosed with HIV through the prior calendar year and living in LAC with diagnosed HIV in the current year. The latter ensures that there is at least one year of follow-up to measure receipt in care, retention in care, and viral suppression. For additional data on the HIV care continuum by demographic variables, transmission risk, and health district, refer to Tables 5A and 6A.

Figure 43: HIV care continuum[107] among persons aged ≥ 13 years, LAC 2019-2020[108] and 2020-2021[109]



Linkage to care within 1 month of diagnosis remained stable for persons diagnosed with HIV in 2020 compared to persons diagnosed in 2019, as did progress along the subsequent steps in the care cascade in 2021 compared to 2020.

Figure 44: HIV care continuum[107] among children aged <13 years, LAC, 2019-2020[108] and 2020-2021[109]



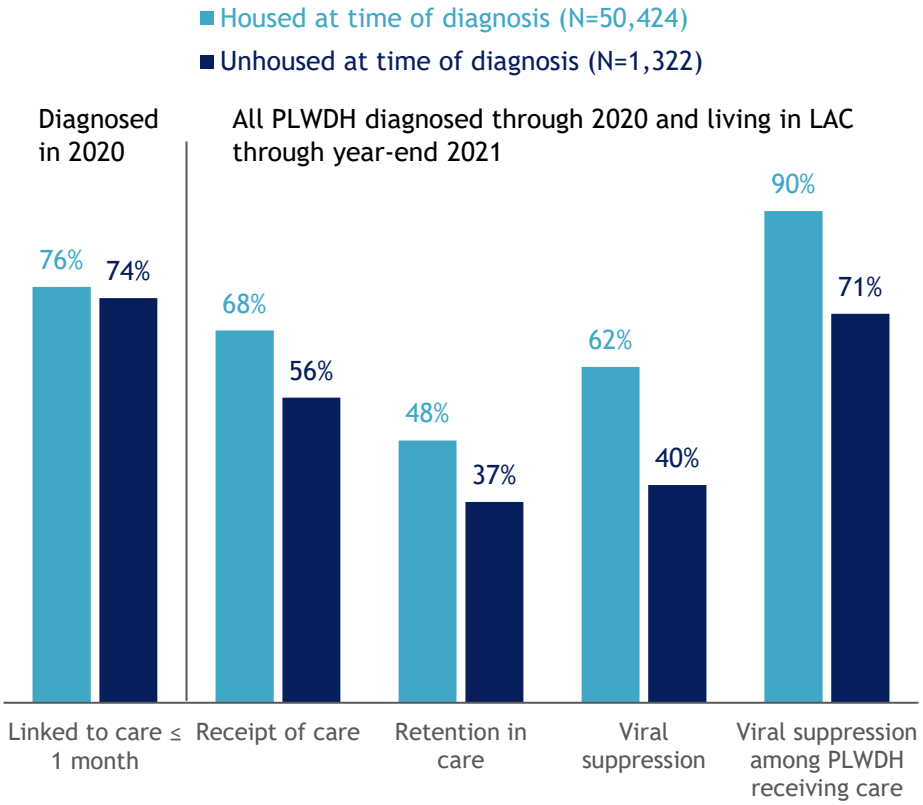
Children aged < 13 years fared better than adolescents and adults at key steps along the continuum of HIV care: 100% of children diagnosed with HIV in 2019 and 2020 were linked to HIV care within 1 month. Receipt of care, retention in care, and viral suppression improved in 2021 compared to 2020.

[1] [illegible] of all persons living with diagnosed HIV who (1) received HIV care (defined as ≥ 1 CD4/VL/Genotype test per year, (2) were retained in HIV care (defined as ≥ 2 CD4/VL/Genotype tests at least three months apart, per year), and (3) were virally suppressed (defined using most recent viral load, per year). PLWDH without a VL test in the measurement year were categorized as having unsuppressed viral load.

[108] The 2019-2020 HIV care continuum denominator includes persons diagnosed in 2019 to calculate linkage to care ≤ 1 month of diagnosis, and all PLWDH diagnosed through 2019 and living in LAC at year-end 2020 to calculate receipt of care, retention in care, and viral suppression.

[109] The 2020-2021 HIV care continuum denominator includes persons diagnosed in 2020 to calculate linkage to care ≤ 1 month of diagnosis, and all PLWDH diagnosed through 2020 and living in LAC at year-end 2021 to calculate receipt of care, retention in care, and viral suppression.

Figure 45: HIV care continuum among persons aged ≥ 13 years who were unhoused at the time of HIV diagnosis, LAC 2020-2021[110]



Note: Linkage to care levels were similar by housing status. This may be due to robust support services that are in place to facilitate linkage to care after diagnosis. In LAC this is facilitated by HIV testing providers, Partners Services, linkage and retention programs, and community embedded Disease Intervention Specialists. However, the complexities of a person's life circumstances determine the ability to succeed in subsequent steps in the care cascade.

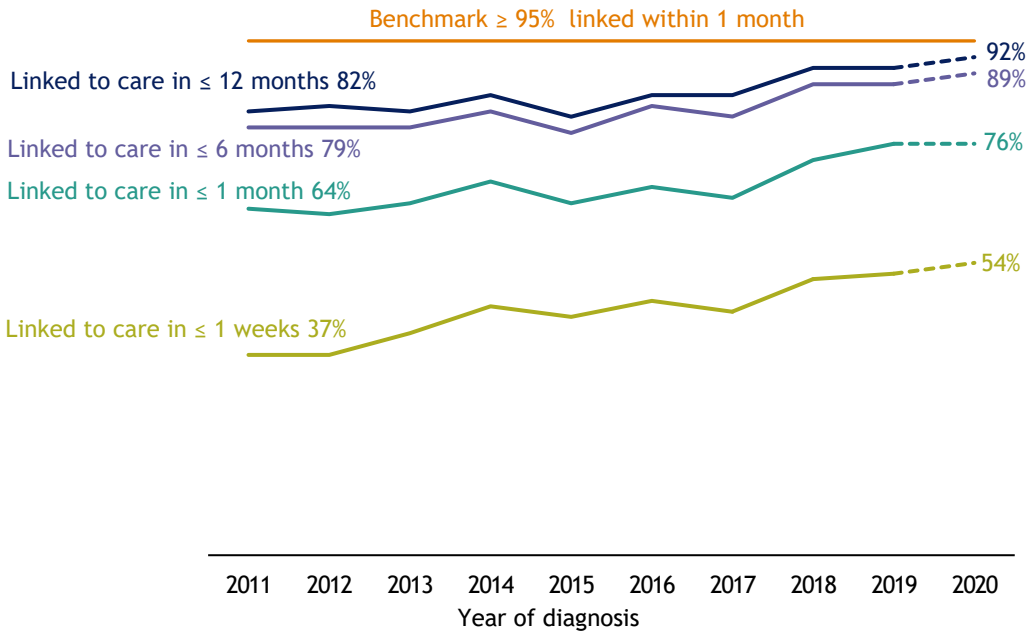
Unhoused persons had poorer outcomes in the HIV care continuum compared with housed persons, with the greatest disparity observed in viral suppression.

[110] Linkage to care: numerator includes persons newly diagnosed with HIV in 2020 with ≥1 CD4/VL/Genotype test reported within 1 month of HIV diagnosis; denominator includes persons who were diagnosed with HIV in 2020.
Receipt of care: numerator includes PLWDH with ≥1 CD4/VL/Genotype test in 2021; denominator includes PLWDH diagnosed through 2020 and living in LAC at year-end 2021 based on most recent residence.
Retention in care: numerator includes PLWDH with ≥2 CD4/VL/Genotype tests at least 3 months apart in 2021; denominator includes PLWDH diagnosed through 2020 and living in LAC at year-end 2020 based on most recent residence.
Viral suppression: numerator includes PLWDH whose last VL test in 2021 was suppressed (HIV-1 RNA < 200 copies/mL); denominator includes PLWDH diagnosed through 2020 and living in LAC at year-end 2021 based on most recent residence. PLWDH without a VL test in 2021 were categorized as having unsuppressed viral load.

Linkage to HIV care

Linkage to HIV care is the first step in the HIV care continuum. It is the necessary precursor for receiving antiretroviral therapy to treat HIV. Linkage to HIV care is typically tracked as being linked to HIV care within 1 month of HIV diagnosis. However, initiating HIV care services should occur faster, ideally within days, to ensure that treatment of HIV can be started immediately.

Figure 46: Time from HIV diagnosis to linkage to care among persons aged ≥ 13 years newly diagnosed with HIV by year of HIV diagnosis, LAC 2011-2020[111,112]



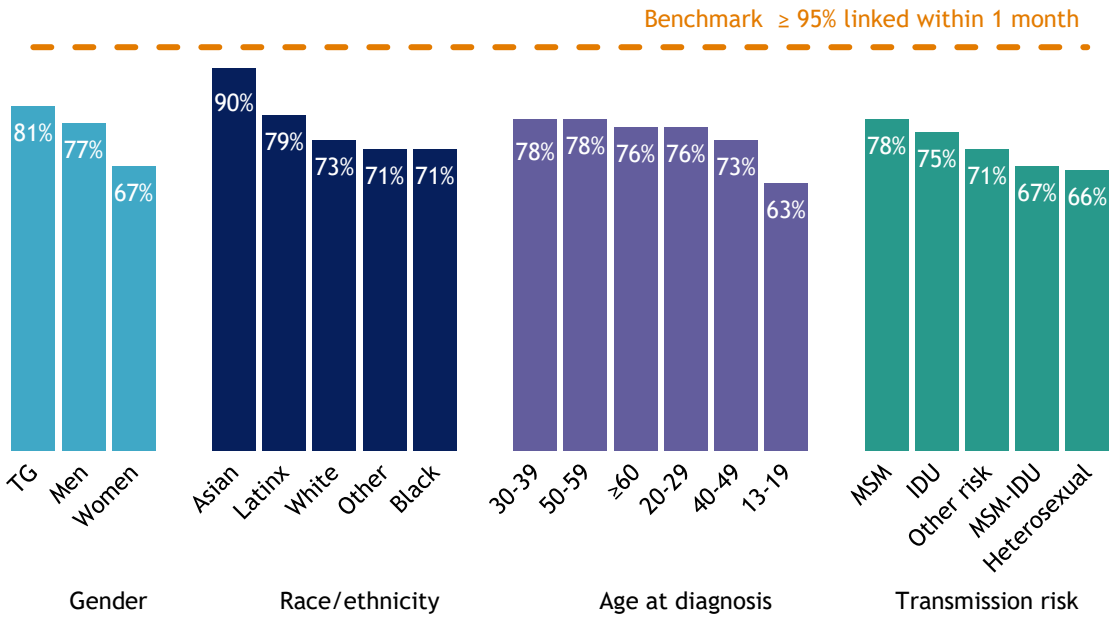
Data in context: Though not shown, populations and locations with lowest rates of linking to care within 1 week were females, adolescents, persons with heterosexual transmission risk, and persons residing in Foothill, El Monte, Alhambra, Antelope Valley, and Pomona Health Districts.

Though timeliness of linkage to care has improved over time, only 76% of persons who were newly diagnosed in 2020 were linked to HIV care within 1 month and only 54% were linked to HIV care within 1 week.

[111] Includes persons diagnosed with HIV in each calendar year with ≥1 CD4/VL/Genotype test reported within 1 and 2 weeks, as well as 1, 6, and 12 months of diagnosis.
[112] Due to reporting delay, 2020 HIV linkage to care data are provisional as indicated by the dashed line.

The next two figures describe specific populations of PLWDH who were linked to HIV care within 1 month of diagnosis and we gauge where strategies for linkage to HIV care may require re-direction.

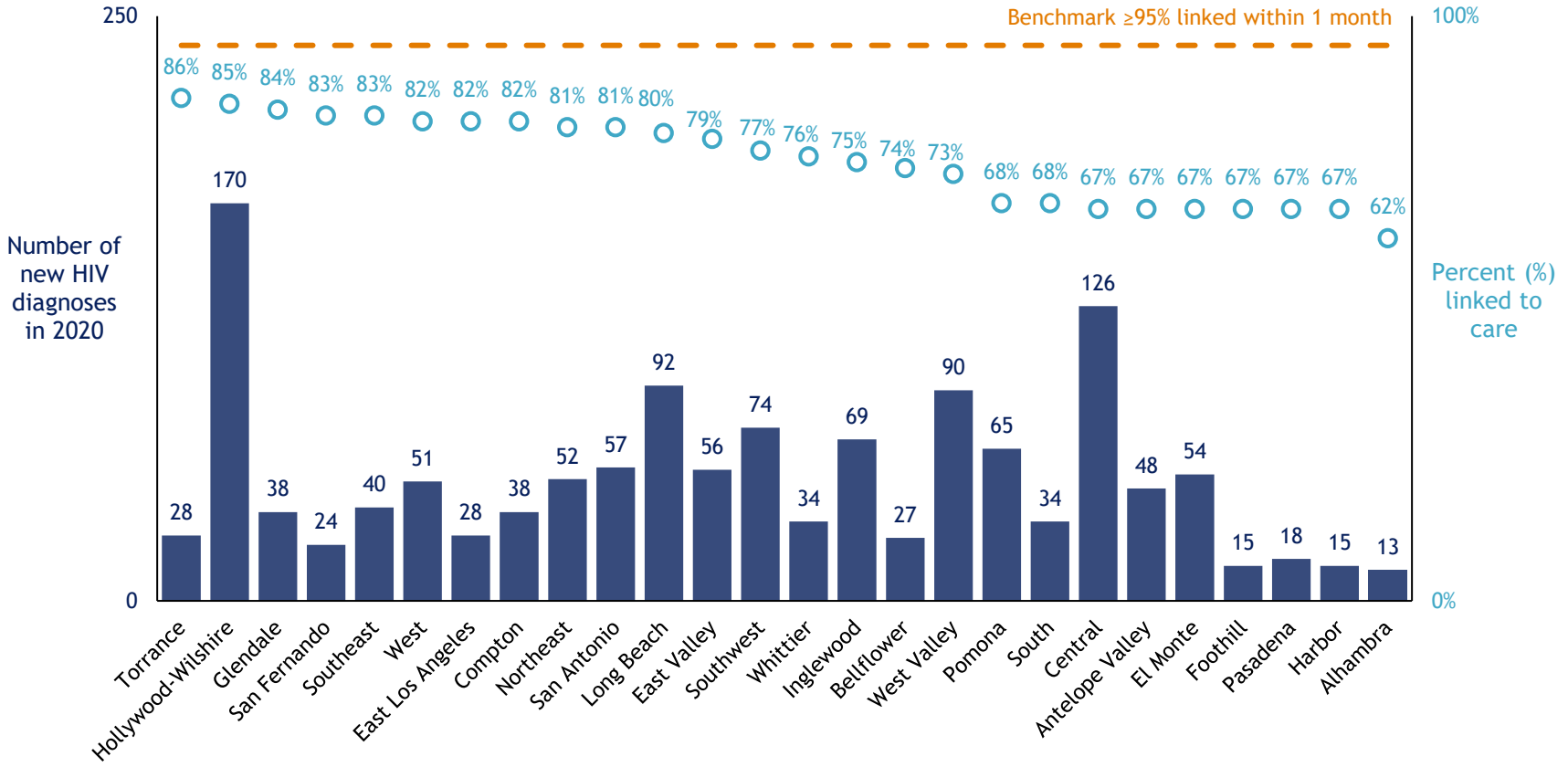
Figure 47: Persons aged ≥ 13 years newly diagnosed with HIV in 2020 and **linked to care** within 1 month of diagnosis[113] by select demographics[114] and risk[115] characteristics, LAC



Among persons newly diagnosed with HIV in 2020, groups that were least likely to be linked to HIV care within 1 month of diagnosis were women (67%), Blacks and those whose race/ethnicity was classified as 'Other' (71%), persons aged 13-19 years (63%), and persons with heterosexual (66%) and MSM/IDU (67%) transmission risk.

[113] Linked to care: numerator includes persons newly diagnosed with HIV in 2020 with no CD4/VL/Genotype test reported within 1 month of HIV diagnosis; denominator includes persons who were diagnosed with HIV in 2020.
[114] Other race/ethnicity includes American Indian, Alaska Native, Native Hawaiian and Pacific Islander, persons of multiple race/ethnicities, and persons with unknown race/ethnicity.
[115] Other risk includes risk factor not reported/identified.

Figure 48: Persons aged ≥ 13 years newly diagnosed with HIV in 2020 and linked to care within 1 month of diagnosis by Health District, LAC[116,117]



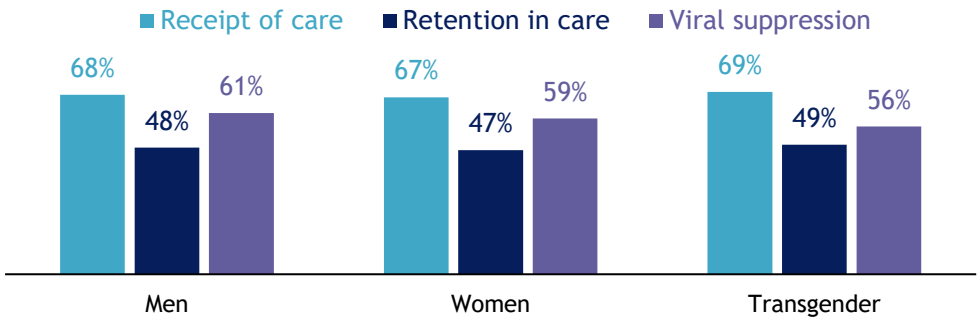
None of the Health Districts have met the EHE target for timely linkage to HIV care (at least 95% linked to care within 1 month) highlighting that the need to identify solutions for improving linkage to care spans across LAC. Lowest achievement in linkages was observed in Alhambra Health District where only 62% of cases were linked within 1 month of HIV diagnosis.

[116] Linked to care: numerator includes persons newly diagnosed with HIV in 2020 with no CD4/VL/Genotype test reported within 1 month of HIV diagnosis; denominator includes persons who were diagnosed with HIV in 2020.
[117] Health Districts are based on 2012 boundaries.

Receipt of care, retention in care, and viral suppression

Entering and staying in HIV care is necessary to ensure that adherence to HIV treatment occurs and viral suppression is achieved. The figures in this section track how LAC performed with respect to receipt of care, retention in care, and viral suppression in 2021 across different populations of PLWDH. Identifying disparities allows us to determine whether interventions are needed to help people stay in care, get back in care, and ensure they are taking their medication as prescribed.

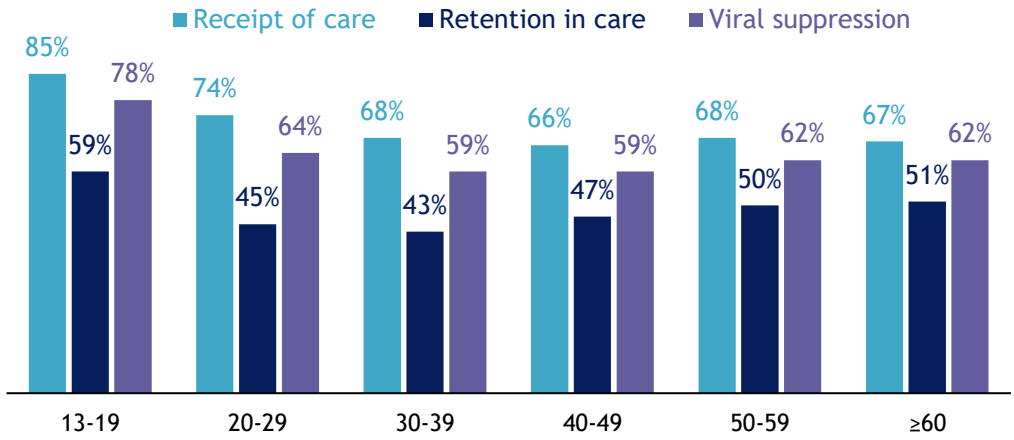
Figure 49: Receipt of care, retention in care, and viral suppression by gender among PLWDH aged ≥ 13 years diagnosed through 2020 and living in LAC at year-end 2021[118]



Change since last surveillance report: Receipt of care and retention in care increased across all gender groups, while viral suppression decreased among transgender persons.

The percentage of PLWDH who were receiving HIV care and retained in care in 2021 were similar across gender groups, while the percentage who were virally suppressed in 2021 was slightly lower among transgender persons.

Figure 50: Receipt of care, retention in care, and viral suppression by age group among PLWDH aged ≥ 13 years diagnosed through 2020 and living in LAC at year-end 2021[118]

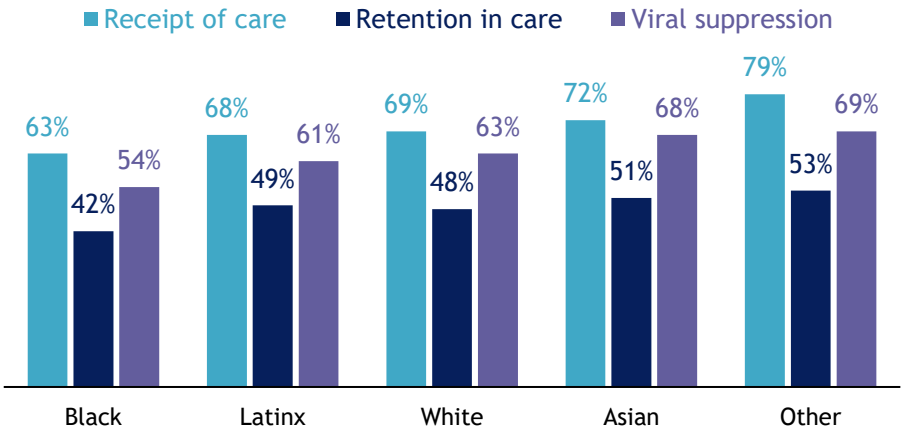


Change since last surveillance report: Receipt of care, retention in care, and viral suppression increased among adolescents, while for other age groups, the care continuum indicators remained stable.

Adolescents had better HIV care outcomes than their counterparts in 2021, while persons aged 30-49 years had the poorest outcomes across the care cascade.

[118] Receipt of care: numerator includes PLWDH with ≥1 CD4/VL/Genotype test in 2021; denominator includes PLWDH diagnosed through 2020 and living in LAC at year-end 2021 based on most recent residence.
Retention in care: numerator includes PLWDH with ≥2 CD4/VL/Genotype tests at least 3 months apart in 2021; denominator includes PLWDH diagnosed through 2020 and living in LAC at year-end 2021 based on most recent residence.
Viral suppression: numerator includes PLWDH whose last VL test in 2021 was suppressed (HIV-1 RNA < 200 copies/mL); denominator includes PLWDH diagnosed through 2020 and living in LAC at year-end 2021 based on most recent residence. PLWDH without a VL test in 2021 were categorized as having unsuppressed viral load.

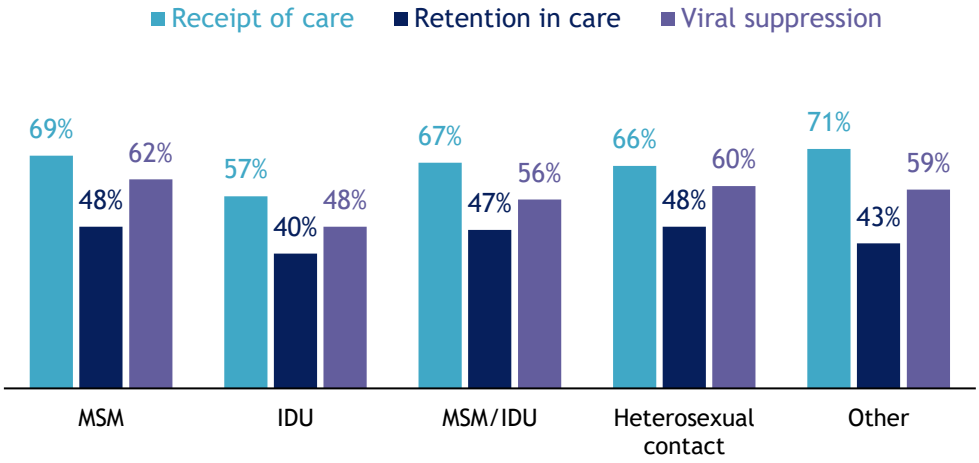
Figure 51: Receipt of HIV care, retention in HIV care, and viral suppression by race/ethnicity among PLWDH aged ≥ 13 years diagnosed through 2020 and living in LAC at year-end 2021[119,120]



Changes since last surveillance report: Receipt of care, retention in care, and viral suppression remained stable or increased slightly across race/ethnicity groups.

Across the continuum, Blacks had the worst HIV care outcomes compared with other groups.

Figure 52: Receipt of HIV care, retention in HIV care, and viral suppression by transmission risk category among PLWDH aged ≥ 13 years diagnosed through 2020 and living in LAC at year-end 2021[120,121]



Changes since last surveillance report: Receipt of care decreased among IDU and MSM/IDU, while retention in care decreased in the other risk group. Viral suppression declined for IDU.

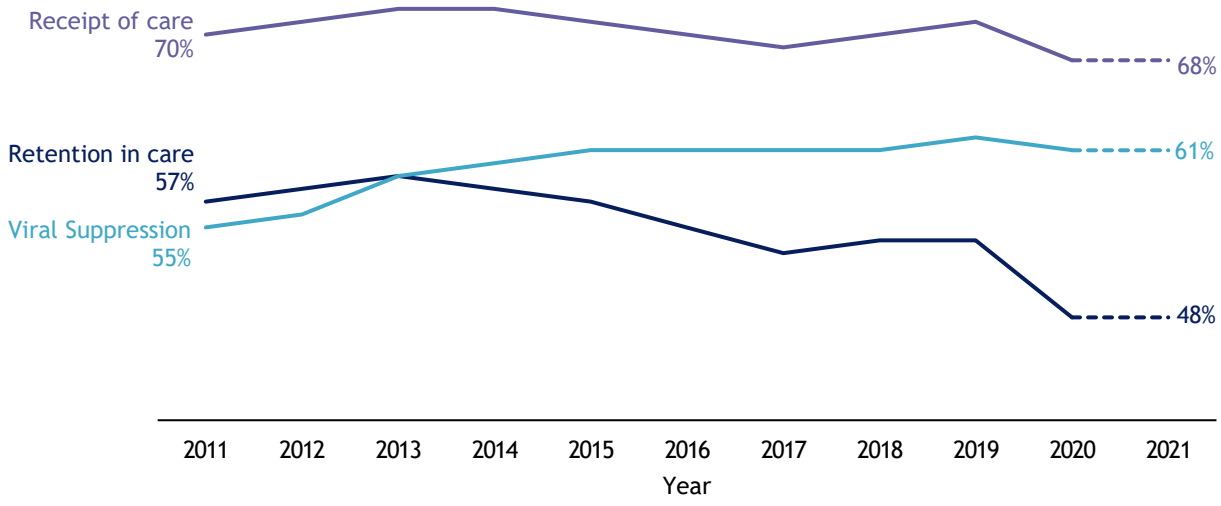
Persons whose HIV transmission risk is IDU had the lowest levels of receipt of care, retention in care, and viral suppression.

[119] Other race/ethnicity includes American Indian, Alaska Native, Native Hawaiian and Pacific Islander, persons of multiple race/ethnicities, and persons with unknown race/ethnicity.

[120] Receipt of care: numerator includes PLWDH with ≥1 CD4/VL/Genotype test in 2021; denominator includes PLWDH diagnosed through 2020 and living in LAC at year-end 2021 based on most recent residence.
Retention in care: numerator includes PLWDH with ≥2 CD4/VL/Genotype tests at least 3 months apart in 2021; denominator includes PLWDH diagnosed through 2020 and living in LAC at year-end 2021 based on most recent residence.
Viral suppression: numerator includes PLWDH whose last VL test in 2021 was suppressed (HIV-1 RNA < 200 copies/mL); denominator includes PLWDH diagnosed through 2020 and living in LAC at year-end 2021 based on most recent residence. PLWDH without a VL test in 2021 were categorized as having unsuppressed viral load.

[121] Other transmission risk includes perinatal, hemophilia, coagulation disorder, blood transfusion, and risk factor not reported/identified. Persons without an identified risk factor were assigned a risk factor using CDC-recommended multiple imputation methods.

Figure 53: Trends in receipt of HIV care, retention in care and viral suppression for PLWDH aged ≥ 13 years living in LAC at calendar year-end and diagnosed with HIV through the previous calendar year, 2011-2021[122,123]



There has been minimal progress in the HIV continuum of care since 2011, with improvements only seen in the percentage of PLWDH with viral suppression (+6 percentage points). There were declines in percentage of PLWDH receiving care and retained in care after 2019, likely due to the impact of COVID-19 on health care service delivery, which may have delayed further improvements in viral suppression.

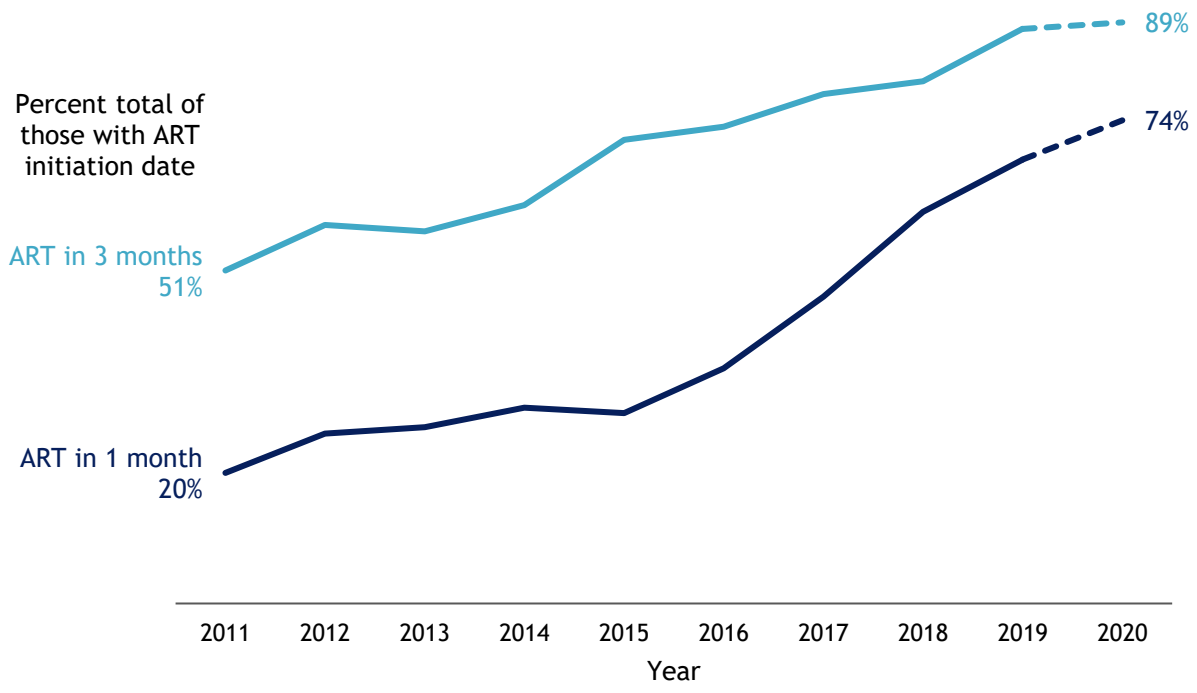
[122] Receipt of care: numerator includes PLWDH with ≥1 CD4/VL/Genotype test in the calendar year; denominator includes PLWDH diagnosed through the previous calendar year and living in LAC at calendar year-end based on most recent residence.
Retention in care: numerator includes PLWDH with ≥2 CD4/VL/Genotype tests at least 3 months apart in the calendar year; denominator includes PLWDH diagnosed through the previous calendar year and living in LAC at calendar year-end based on most recent residence.
Viral suppression: numerator includes PLWDH whose last VL test in the calendar year was suppressed (HIV-1 RNA<200 copies/mL); denominator includes PLWDH diagnosed through the previous calendar year and living in LAC at calendar year-end based on most recent residence. PLWDH without a VL test in the calendar year were categorized as having unsuppressed viral load.
[123] Due to reporting delay, 2021 HIV data are provisional as indicated by the dashed line.

HIV treatment

Antiretroviral therapy (ART) coverage is not routinely monitored as a step in the HIV care continuum as treatment is presumed to occur once a patient is linked to care.

HIV case reporting includes information on ART for PLWDH but relies on HIV providers to complete this information on HIV case reports, which is not commonly done. To fill this information gap, Public Health collects supplemental information on a subset of persons newly diagnosed with HIV through the National Medical Monitoring Project (MMP) to understand progress and gaps in HIV treatment and other HIV care services for PLWDH. Below we provide information from HIV case reporting and MMP on the status of treatment among PLWDH in Los Angeles County.

Figure 54: Time from HIV diagnosis to treatment initiation among persons aged ≥ 13 years newly diagnosed with HIV by year of diagnosis[124], LAC 2011-2020



The time from diagnosis to starting HIV treatment is improving. The percent who started ART within 1 month of diagnosis increased from 20% in 2011 to 74% in 2020. The probability of initiating ART within 3 months of diagnosis increased from 51% in 2011 to 89% in 2020.

[124] Data represent a subset of persons newly diagnosed with HIV and reported in LAC. It includes 5,560 persons newly diagnosed with HIV between 2011 and 2020 for whom ART initiation date is complete and excludes 12,670 persons newly diagnosed with HIV between 2011 and 2020 for whom ART initiation date is incomplete.

Table 9: Antiretroviral therapy (ART) prescription, ART dose adherence, and sustained viral suppression, among adults living with diagnosed HIV, by selected characteristics—Medical Monitoring Project, LAC, 2015-2019

	Prescription of ART[125]		100% ART dose adherence[126]		Sustained viral suppression[127]	
	%[128]	95% CI	%	95% CI	%	95% CI
Total	**79.2**	75.2–83.2	**48.2**	44.1–52.3	**63.6**	59.3–67.9
Gender						
Men	78.5	74.0–83.0	49.3	50.2–59.3	64.4	59.6–69.1
Women	85.1	76.6–93.7	41.0	35.4–57.3	60.3	49.7–70.9
Age at time of interview (years)						
18–29	67.5	53.3–81.7	30.6	23.7–51.8	44.1	30.6–57.5
30–39	73.3	62.7–83.9	37.6	32.6–52.9	54.7	44.3–65.0
40–49	80.3	73.1–87.6	43.7	39.9–56.0	60.8	52.6–69.0
≥50	82.8	77.1–88.5	58.0	58.0–69.3	72.1	65.9–78.2
Sexual orientation						
Gay or lesbian	77.6	71.9–83.3	49.1	47.9–58.9	64.1	58.4–69.8
Heterosexual	86.1	80.6–91.7	48.1	47.1–61.8	63.9	56.5–71.4
Bisexual	73.2	60.9–85.6	43.0	36.7–65.2	59.9	45.6–74.2
Race/ethnicity						
Black	75.4	66.5–84.2	44.5	42.2–61.3	53.8	44.5–63.0
Latinx[129]	80.1	74.0–86.3	44.5	43.9–56.1	64.1	57.5–70.7
White	82.2	75.1–89.3	57.6	51.8–67.0	71.1	63.7–78.4

In a representative sample of PLWDH, only 79% were on ART and 48% had 100% ART dose adherence in the past 30 days. Among those who said they had been prescribed ART, 100% ART dose adherence in the past 30 days was 54% (data not shown). ART adherence and viral suppression was lower among Black and Latinx PLWDH than White PLWDH.

[125] Prescription of ART was based on documentation in the medical record in the 12 months before interview.
[126] In past 30 days, 100% adherence to ART doses.
[127] All documented viral load measurements in the 12 months before interview are undetectable or <200 copies/mL. The median of documented viral load tests during the past 12 motnhs per participants was 3.
[128] Percentages are weighted percentages. Confidence intervals (CI) incorporate weighted percentages.
[129] Latinx might be of any race. Persons are classified in only 1 race/ethnicity category.

Table 10: Antiretroviral therapy (ART) adherence and reasons for missing ART doses among persons with diagnosed HIV taking ART—Medical Monitoring Project, LAC, 2015-2019[130]

ART adherence in the past 30 days	%	95% CI
How many days did you miss at least 1 dose of any of your HIV medicines?		
0	53.7	49.5–57.9
1–2	33.6	29.6–37.6
3–5	8.2	5.9–10.6
6–10	3.5	1.7–5.3
11+	1.0	0.2–1.7
How often did you take your HIV medicines in the way you were supposed to?		
Always	64.7	60.6–68.7
Almost always	23.6	20.0–27.2
Usually	7.0	4.8–9.2
Sometimes	2.9	1.2–4.6
Rarely	1.4	0.4–2.3
Never	0.4	0.0–0.8
How often were you troubled by ART side effects?		
Always	4.7	2.8–6.7
Most of the time	3.1	1.8–4.3
About half of the time	6.8	4.5–9.1
Rarely	14.4	11.5–17.2
Never	71.1	67.2–74.9
Top reasons for last missed ART dose among persons who ever missed a dose[131]		
Forgot to take HIV medicines		
Yes	50.6	46.4–54.8
No	49.4	45.2–53.6
Change in your daily routine or were out of town		
Yes	31.0	27.0–34.9
No	69.0	65.1–73.0
Fell asleep early or overslept		
Yes	22.8	19.1–26.5
No	77.2	73.5–80.9

Among persons who missed ART doses in the past 30 days, the majority missed 1-2 days of doses. The top reason cited for missing doses was forgetting to take their medicine.

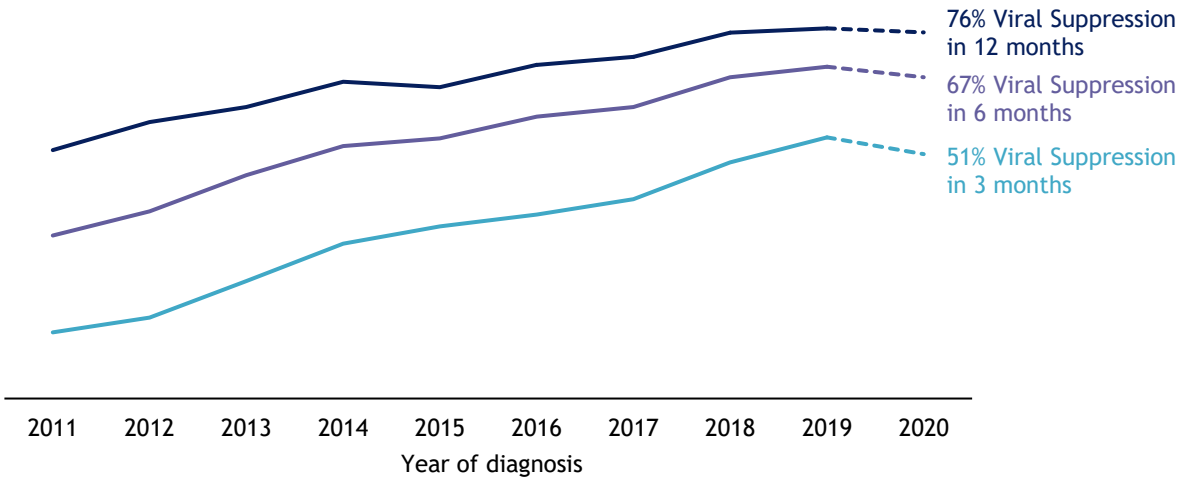
[130] Percentages are weighted percentages and CIs incorporate weighted percentages.
[131] Persons could report more than 1 reason for missed last dose.

Viral load monitoring

To end the HIV epidemic, viral suppression should be reached soon after HIV diagnosis for all PLWDH but as described earlier, this is dependent on how rapidly HIV-positive persons are linked into HIV care and receive HIV treatment.

This section highlights where we are locally in our viral suppression achievements and highlights opportunities for where to target interventions to improve viral suppression in the population.

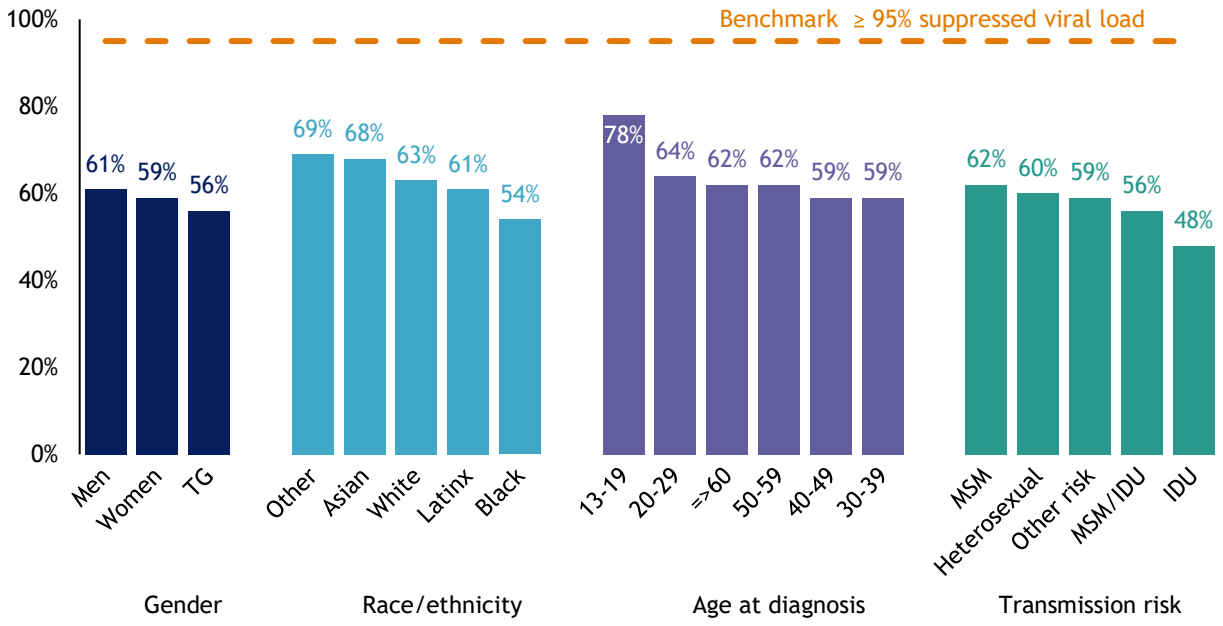
Figure 55: Time from diagnosis to viral suppression among persons diagnosed with HIV by year of HIV diagnosis, LAC 2011-2020[132,133]



Though time from HIV diagnosis to viral suppression has improved over time, LAC is still underperforming in this area, with only 51% of persons newly diagnosed with HIV in 2020 achieving viral suppression within 3 months.

[132] Analysis includes persons newly diagnosed with HIV in each calendar year and living in LAC at year-end 2020 with or without VL testing. Numerator includes persons achieved viral suppression within 3, 6, or 12 months of diagnosis. Denominator includes persons newly diagnosed with HIV in select calendar year, with or without a viral load test result in the observed months.
[133] Due to reporting delay, 2020 HIV data are provisional as indicated by the dashed line.

Figure 56: Suppressed viral load by selected demographic and risk characteristics among persons aged ≥ 13 years diagnosed through 2020 and living in LAC at year-end 2021[134,135]

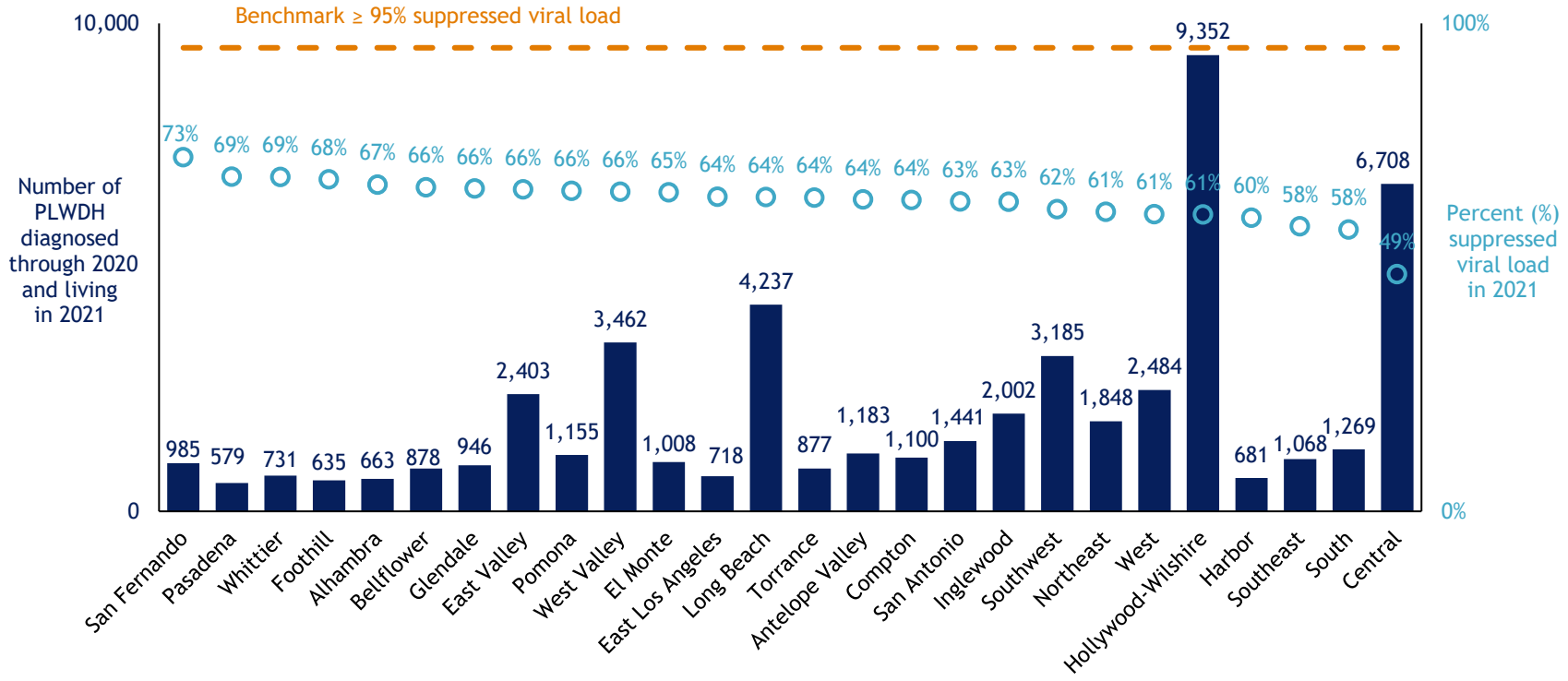


LAC is not within the target for viral suppression for PLWDH. In 2021, the largest disparities were observed among transgender persons, Blacks, persons aged 30-49 years, and persons with IDU transmission risk.

[134] Suppressed viral load: numerator includes PLWDH whose last VL test in 2021 was suppressed (HIV-1 RNA < 200 copies/mL); denominator includes PLWDH diagnosed through 2020 and living in LAC at year-end 2021 based on most recent residence. PLWDH without a VL test in 2021 were categorized as having unsuppressed viral load.

[135] Other race/ethnicity includes American Indians and Alaska Natives, Native Hawaiian and Pacific Islander, persons of multiple race/ethnicities, and persons with unknown race/ethnicity.

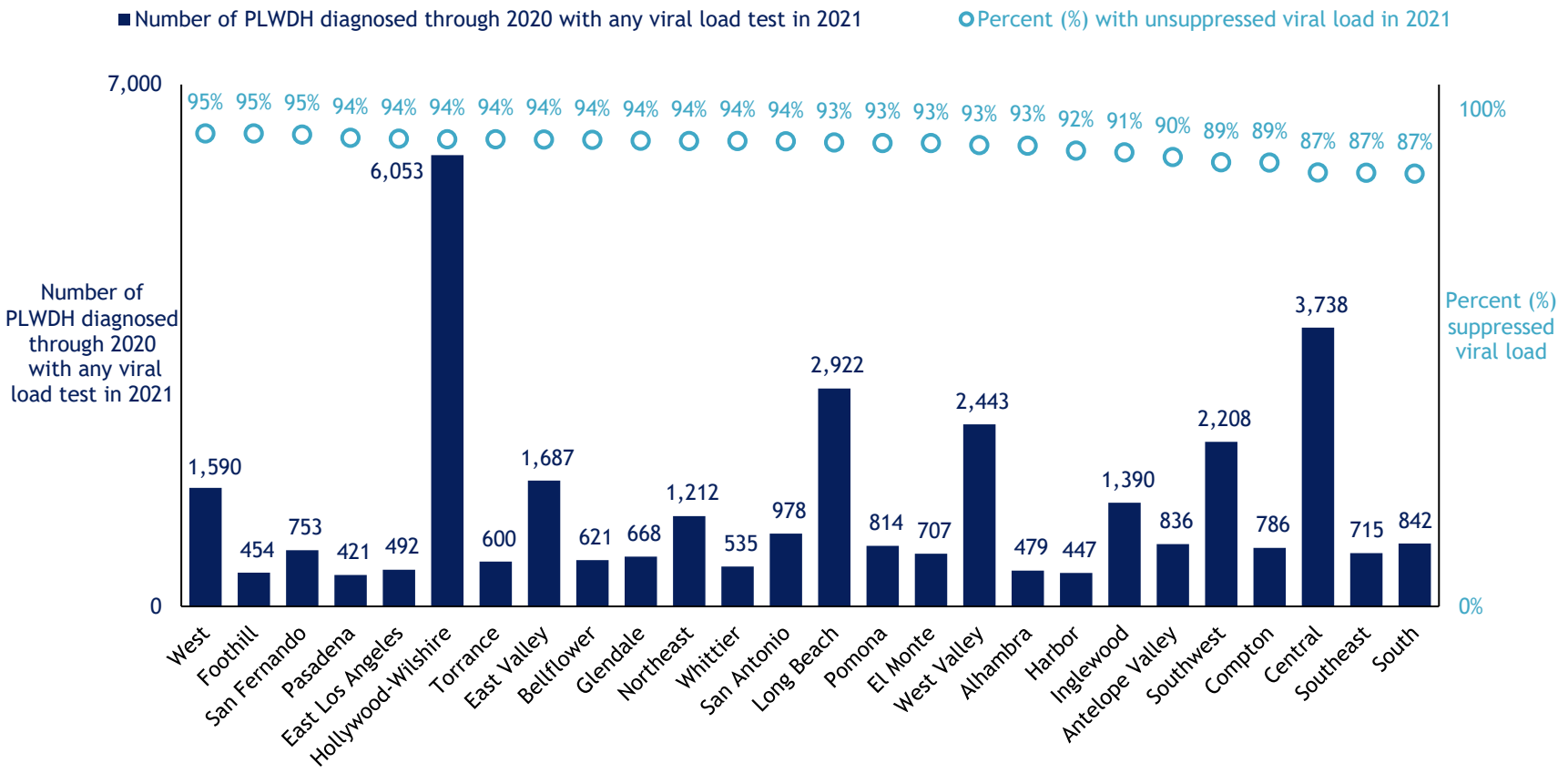
Figure 57: Suppressed viral load by Health District among persons aged ≥ 13 years diagnosed through 2020 and living in LAC at year-end 2021[136,137]



Suppressed viral load varies widely across LAC Health Districts. In 2021, no Health District achieved the EHE target for viral suppression (95% or higher with suppressed viral load). In the Central Health District less than half (49%) of PLWDH were virally suppressed and in the South and Southeast Health Districts, less than 60% of PLWDH were virally suppressed. These Health Districts are noted as high risk locations where higher levels of transmission may be occurring.

[136] Suppressed viral load: numerator includes PLWDH whose last VL test in 2021 was suppressed (HIV-1 RNA < 200 copies/mL); denominator includes PLWDH diagnosed through 2020 and living in LAC at year-end 2021 based on most recent residence. PLWDH without a VL test in 2021 were categorized as having unsuppressed viral load.
[137] Health Districts are based on 2012 boundaries.

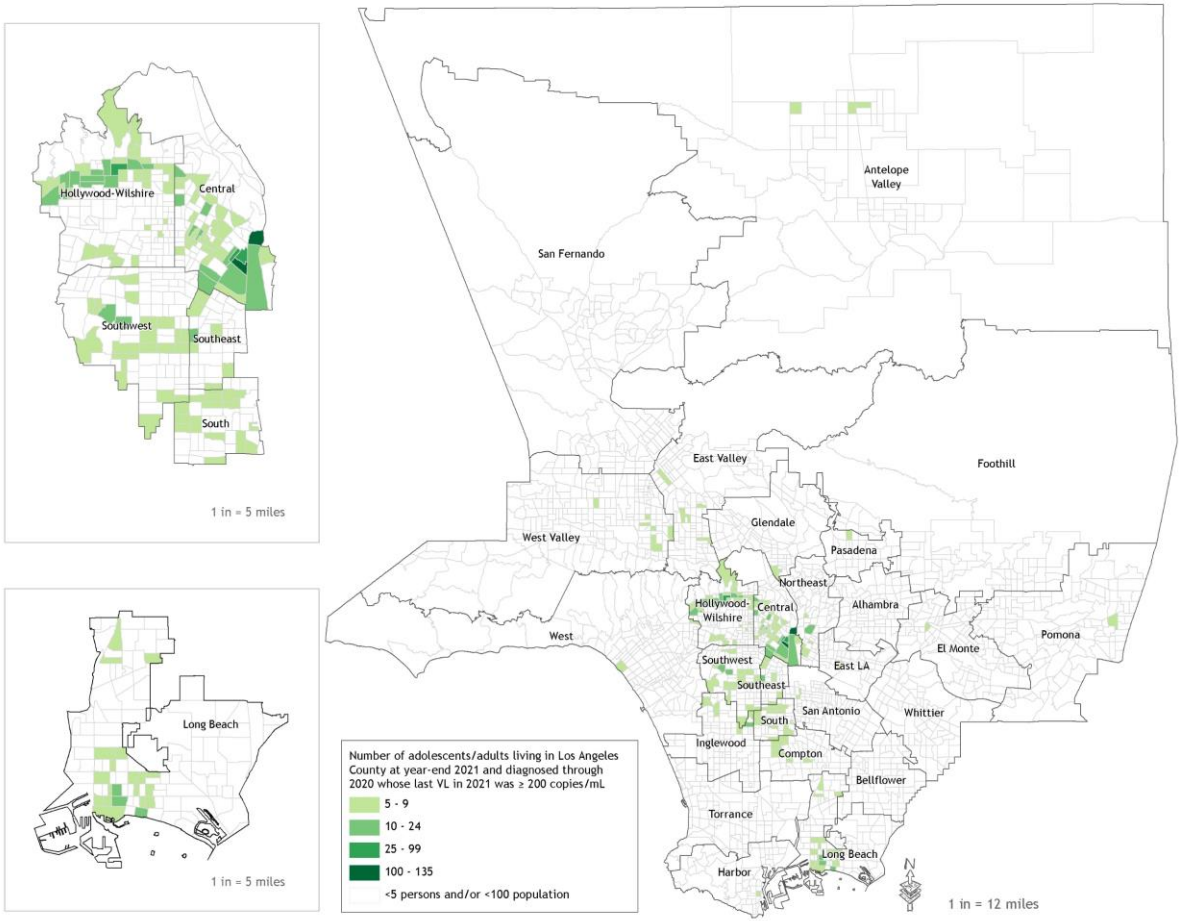
Figure 58: Suppressed viral load among persons aged ≥ 13 years receiving HIV care and who had any viral load test in 2021 by Health District, LAC[138,139]



Once in care, the goal is for all PLWDH to achieve viral suppression as soon as possible. In the majority of Health Districts at least 90% of PLWDH in care, with at least one viral load test in 2021, were suppressed. However, in the South, Southeast, Central, Compton, and Southwest Health Districts, less than 90% of PLWDH were virally suppressed.

[138] Suppressed viral load: numerator includes PLWDH whose last VL test in 2021 was suppressed (HIV-1 RNA < 200 copies/mL); denominator includes PLWDH diagnosed through 2020 and living in LAC at year-end 2021 based on most recent residence who had any viral load test in 2021. PLWDH without a VL test in 2021 were categorized as having unsuppressed viral load.
[139] Health Districts are based on 2012 boundaries.

Figure 59: Unsuppressed viral load by census tract among persons aged ≥ 13 years diagnosed through 2020 and living in LAC at year-end 2021 (N=1,687)[140]



Census tracts located in Central and Hollywood-Wilshire Health Districts had the highest levels of unsuppressed viral load. These are locations where a robust public health response is needed to identify networks of ongoing transmission and deploy rapid interventions to minimize transmission. Other emerging hotspots of transmission that require close monitoring are in Southwest, Southeast, South, and Long Beach Health Districts. We have zoomed in on the 6 HDs with the highest levels of unsuppressed VL in the maps to the left.

[140] Unsuppressed viral load: numerator includes PLWDH whose last VL test in 2021 was unsuppressed (HIV-1 RNA ≥ 200 copies/mL); denominator includes PLWDH diagnosed through 2020 and living in LAC at year-end 2021 based on most recent residence. PLWDH without a VL test in 2021 were considered virally unsuppressed. Analysis excludes PLWDH diagnosed through 2020 and living at year-end 2021 who (1) had missing census tract information, (2) were receiving care but never had a viral load test, (3) were not receiving care for >12 months at year-end 2021, or (4) were in census tracts with small sample sizes (<5 persons with unsuppressed viral load or population size <100 persons). Exclusions represented 68% of PLWDH diagnosed through 2020 and living in 2021 whose last viral load was unsuppressed.

Table 11: Viral load dynamics among persons living with diagnosed HIV and receiving HIV care, LAC 2019-2021[141]

	Number of PLWDH with ≥1 viral load test 2019-2021	Viral suppression based on last viral load test	Sustained viral suppression[2]
	N	%	%
Total	34,726	85%	74%
Gender			
Men	30,240	85%	75%
Women	3,846	83%	71%
Transgender	640	76%	59%
Race/ethnicity[142]			
White	9,278	91%	83%
Black	6,634	78%	63%
Latinx	15,706	84%	73%
Asian	1,305	91%	86%
NHPI	53	89%	81%
AIAN	213	77%	64%
Multi-racial	1,527	82%	71%
Age group			
<13	12	92%	92%
13-19	37	89%	70%
20-29	1,810	71%	58%
30-39	6,468	78%	66%
40-49	7,158	82%	71%
50-59	10,695	87%	77%
≥60	8,546	92%	83%

Data in context: Examining sustained viral suppression takes into account all of an individual's viral loads measures during a specific timeframe. Compared to the examination of the last viral load test results only, sustained viral suppression offers a more robust and realistic assessment of treatment success.

Using the last viral load test, 85% of PLWDH in HIV care were virally suppressed. However, using the results of all viral load tests in a 3-year period, only 74% had sustained viral suppression (i.e., all viral loads suppressed). Populations with lowest levels of sustained viral suppression were transgender persons, Blacks, American Indians and Alaska Natives (AIAN), and persons aged 20-39 years.

[141] Analysis includes persons diagnosed with HIV through 2018, had ≥ 1 viral load test in 2019-2021 and living in LAC during 2019-2021.[2] "Sustained viral suppression" is defined for any PLWDH included this analysis with all reported viral load test results as undetectable or <200 copies/mL during the 3-year period.

[142] Does not include 10 persons whose racial/ethnic information is unknown.

Data to Action: Gaps and opportunities in the HIV care continuum

- The COVID-19 pandemic continued to impact health service delivery in 2021, resulting in reduced provision of and access to HIV care services.
- Only 76% of PLWDH were linked to HIV care within 1 month of diagnosis, falling below the EHE target of 95% linked to care within 1 month. More work is needed to improve mechanisms to ensure that newly diagnosed persons are promptly linked to HIV care at the time of diagnosis.
- Gaps in linkage to care within 1 month of diagnosis are particularly high among Blacks and those whose race/ethnicity was classified as 'Other', young persons aged 13-19 years, females, and persons with heterosexual and MSM/IDU risk. Targeted interventions are needed to link these populations immediately to care after HIV diagnosis. Special attention is needed in the Alhambra Health District where linkage rates are very low despite low burden of HIV disease.
- Across the care cascade, the levels of receipt of care, retention in care, and viral suppression was low in 2021. Groups with greatest disparities in the HIV care continuum are unhoused persons, those with injection drug use risk, and Blacks. Person-centered interventions that respond directly to the challenges and needs of these populations continue to be necessary.
- Of concern is that only 8 in 10 PLWDH were estimated to be on treatment and 5 in 10 had 100% adherence to their ART doses in the past 30 days, based on a representative survey of PLWDH. Delayed treatment and suboptimal adherence has hindered progress towards achieving viral suppression among PLWDH. More work is needed to ensure that treatment is started immediately after HIV diagnosis. Rapid ART programs should be scaled across the County and prioritized for PLWDH groups with the lowest treatment coverage rates (e.g., Black and young PLWDH).
- Viral suppression is measured using the last viral load test for PLWDH in HIV care but this does not consider how soon after an HIV diagnosis PLWDH are reaching viral suppression nor whether suppression is maintained over time. Sustained viral suppression (74%) is 11 percentage points lower than viral suppression (85%) based on the last viral load. Interventions to improve sustained viral suppression will be critical to ending the HIV epidemic.
- Hollywood-Wilshire Health District had the highest counts of unsuppressed viral load, followed by Central, Long Beach, and Southwest Health Districts. The response must be more intensive in these areas to ensure that all PLWDH are linked and all out-of-care PLWDH are re-linked, and so that viral suppression can be achieved.

Data in Action: Gaps and opportunities in the HIV care continuum

- Among PLWDH in care, lower levels of viral suppression are disproportionately occurring in low income areas, with lowest levels of viral suppression in the South, Southeast, Central, Compton, and Southwest Health Districts. In-depth assessements at the Heath District level are needed to understand the social and structural barriers that may be impacting access to and use of health services so that stronger systems of HIV care can be established for PLWDH, particularly for those residing in low income areas.
- Information reported by HIV providers for HIV surveillance provide direct information on care services for HIV patients. More attention is requested from providers to document complete information on patient visits, including treatment information when reporting to Public Health. This will improve our understanding and response to the HIV care continuum among persons living with HIV.
- Outcomes in the HIV care continuum rely on availability and access to laboratory testing to measure linkage to HIV care, receipt of care, retention in care, and viral suppression among PLWDH. The availability of laboratory testing for PLWDH may have been reduced because of the COVID-19 pandemic on health services delivery, although the impact of this bias is not yet known. Nonetheless coordination should be strengthened with laboratory partners to ensure that reported laboratory data are timely, complete, and of high quality.
- Health information systems should be leveraged to routinely monitor and evaluate the quality of HIV services provided to PLWDH receiving care, inform quality management of services, and evaluate the impact of quality services on HIV survival.

Technical Notes

Surveillance of HIV in Los Angeles County

Surveillance of HIV, including AIDS in Los Angeles County (LAC) is conducted through active and passive surveillance, and electronic case reporting to identify and collect information on persons with newly diagnosed HIV identified at hospitals, clinics, private physician offices, laboratories, community-based organizations, and hospices. Active HIV surveillance requires staff to routinely contact and visit sites to facilitate the completion of HIV case reports. Providers participating in passive HIV surveillance submit case reports to the LAC Department of Public Health (Public Health) Division of HIV and STD Programs (DHSP). In the past two years, 43% of LAC's case reports for newly diagnosed HIV were collected through active surveillance activities. Forty-five percent were collected through electronic case reporting process involving major healthcare providers. Twelve percent were passive case reports by other providers, either by mail or through the LAC designated HIV case reporting phone line.

HIV surveillance database

The Enhanced HIV/AIDS Reporting System (eHARS) is a CDC-developed information system for collecting, storing, and retrieving HIV surveillance data. Case definitions are based on CDC documents "Stage-3-Defining Opportunistic Illnesses in HIV Infection" and "Revised Surveillance Case Definition for HIV Infection — United States, 2014".[143]

Reporting delay

HIV reporting delay is defined as the time interval between HIV diagnosis or death and the reporting of HIV diagnosis or death to the Public Health department. Completeness of reporting among persons with newly diagnosed HIV in 2021 is estimated to be 72%. Therefore, HIV diagnosis data presented in this report are for HIV diagnosis through 2020. Data completeness for 2020 HIV diagnosis data is 92% based on CDC's Standard Evaluation Report (SER). All data presented in this report are considered provisional and subject to change as additional reports are submitted for HIV cases and as HIV surveillance data quality improves with further evaluation of the surveillance system and data repository. Because reporting delays can impact the reliability of data presented in this report, caution should be applied when interpreting the results.

Underreporting

HIV surveillance data may not be representative of all persons living with HIV (PLWH) because not all persons are aware of their infection or not all persons have been reported to the Public Health department. Many factors, including the extent to which testing is routinely offered to specific groups and the availability of, and access to, medical care and testing services, may influence HIV testing patterns. Additionally, the results of anonymous tests are not required to be reported in

[143] CDC. Revised Surveillance Case Definition for HIV Infection – United States, 2014. *MMWR* 2014; 63(No. RR03):1-10.

California. As such, LAC HIV surveillance data are likely an underestimate of the true numbers of all PLWH in LAC.

Population rates
Population rates presented in this report are per 100,000 population, except for rates presented for the persons experiencing homelessness which are presented per 10,000 homeless population. The population denominators used to compute the rates in the general population were based on 2010-2020 estimates provided by LAC Internal Services Department and contracted through Hedderson Demographic Services. Population denominators for persons experiencing homelessness were derived from the Greater Los Angeles County Homeless Count, 2020 Results (https://www.lahsa.org/documents?id=4558-2020-greater-los-angeles-homeless-count-presentation).

All rates are subject to random variation. This variation is inversely related to the number of cases and a small number of cases can result in unstable rates. Conforming to standard criterion used by the National Center for Health Statistics, rates presented in this report were considered unreliable when the relative standard error of the rate was greater than or equal to 30%, which corresponded to rates based on less than or equal to 12 observations.

Geographic information
Residence at HIV diagnosis was used to determine the geographic location of persons newly diagnosed with HIV. For AIDS diagnoses, the residential information at time of AIDS diagnosis was used to determine the geographic location. For AIDS cases for whom the specific residential information at time of diagnosis was not available, the residence at time of HIV diagnosis information was used, provided that the address was within LAC jurisdiction.

A person was considered living in LAC at each respective year-end based on their last available address at any time on or before that year-end. If a person's exact address, city, or ZIP Code was in LAC or that person used the LAC name, that person was considered to be residing in LAC at the end of the respective year. A CDC SAS program was used to calculate last known residence at each respective year-end.

Caution should be used when interpreting geographic level (Health District or census tract) case counts and rates because these values are inclusive of correctional populations and may be artificially inflated when an institution was housed within a given census tract.

Maps
For 5-year HIV diagnoses (2016-2020), the census tract was assigned based on projected geo-coordinates (X, Y) of the person's address at diagnosis. When a detailed street address was not available, the ZIP Code was used to assign a census tract using the U.S. Department of Housing and Urban Development (HUD) United States Postal Service ZIP Code Crosswalk Files, 2nd quarter 2018.

For PLWDH at year-end 2021, the census tract was assigned based on projected geo-coordinates (X, Y) of the most current residential information. When a detailed street address was not available, the ZIP Code of the most current residence was used to assign a census tract using the U.S. Department of Housing and Urban Development (HUD) United States Postal Service ZIP Code Crosswalk Files, 4th quarter 2019.

For persons whose last viral load in 2021 was ≥ 200 copies/mL, the census tract was assigned based on projected geo-coordinates (X, Y) of the most current residential information. When a detailed street address was not available, the ZIP Code of the most current residence was used to assign a census tract using the U.S. Department of Housing and Urban Development (HUD) United States Postal Service ZIP Code Crosswalk Files, 4th quarter 2019.

The following criteria were applied to the data presented in maps to protect the confidentiality, privacy, and security of PLWDH in LAC. If 2021 census tracts had a population of less than 100 persons or counts of the outcome of interest was less than 5 observations in a census tract (e.g., HIV diagnoses counts, unsuppressed viral load counts), the count was set to missing.

Gender and sex at birth

Surveillance collects information about both sex assigned at birth ("sex at birth") and individuals' current gender identity ("gender"). This report displays data by gender when counts are presented. This report displays data by sex at birth when rates are presented due to the unavailability of population size estimates in LAC by gender categories. For gender, this report displays the following gender categories: men, women, and transgender. Transgender individuals are people whose current gender identity is reported as trans women or trans men or whose current gender identity differs from their sex assigned at birth. Persons who are reported as female at birth and have no other gender identity noted are classified as women. Persons who are reported as male at birth and have no other gender identity noted are classified as men. This report likely underestimates the number of transgender people affected by HIV because gender status information is often incomplete in HIV case reports.

Race and ethnicity

Mandated collection of race and ethnicity information for persons newly diagnosed with HIV was implemented on January 1, 2003, as per OMB Statistical Policy Directive 15. A minimum of 5 race categories are collected for HIV surveillance including: American Indian and Alaska Native, Asian, Black, Native Hawaiian and Pacific Islander, and White. Additionally, systems must be able to retain information when multiple racial categories are reported.

Race and ethnicity in this report were grouped using the following criteria exclusively: A person was considered 'Latinx' if indicated 'Latino' or 'Latina' in the race or ethnicity field, regardless of any other race information found for the person. When not indicated as 'Latino' or 'Latina', a person was considered 'American Indian and

Alaska Native (AIAN)' if the race field contained AIAN information, regardless of any other race information found for this person. Asians and Pacific Islanders were categorized into two separate groups: Asian or Native Hawaiian and Pacific Islander (NHPI). This categorization was based on an extensive review among available reporting sources, including electronic medical records, original case report forms, Ryan White client registry, and STD Case Watch. In addition, information on extended race, country of birth, and full name were also considered in the review. Persons identified with presumed NHPI race were included in the NHPI group regardless of their identification of Asian race in the records. Except for AIAN and NHPI groups, a person was categorized as 'Multi-racial' when two or more races were reported in the above race fields. All other persons reported with only one single race were placed in the corresponding race/ethnicity category.

HIV transmission risk categories

For surveillance purposes, a diagnosis of HIV is counted only once in the hierarchy of transmission categories. Persons with more than one reported risk factor for HIV are classified in the transmission category listed first in the hierarchy. The exception is men who had sexual contact with other men and injected drugs; this group makes up a separate transmission category.

Persons whose transmission category is classified as male-to-male sexual contact include men who have ever had sexual contact with other men and men who have ever had sexual contact with both men and women. Persons whose transmission category is classified as heterosexual contact are persons who have ever had heterosexual contact with a person known to have, or to be at high risk for HIV (e.g., a person who injects drugs). The heterosexual contact category excludes men who have ever had sexual contact with both men and women.

Transfusion or hemophilia transmission category is limited to persons who received blood transfusion no later than 1985 or persons who had been investigated and confirmed as having received transfusion of contaminated blood after 1985.

Newly diagnosed HIV cases reported without a transmission category were classified as "undetermined" transmission category. These included cases that were being followed up by LAC staff; cases whose risk factor information was missing because they died, declined to be interviewed, or were lost to follow-up; and cases who were interviewed or for whom other follow-up information was available, but no risk factor was identified.

Because a substantial proportion of persons newly diagnosed with HIV are reported without an identified risk factor, multiple imputation was used to assign a transmission risk category. Multiple imputation is a statistical approach in which each missing transmission category is replaced with a set of plausible values that represent the uncertainty about the true, but missing value. The plausible values were analyzed by using standard procedures, and the results from these analyses were combined to produce the final results.

Estimates of HIV incidence and undiagnosed HIV

HIV incidence and undiagnosed HIV are approximated using CDC's CD4 depletion model.[144] The CD4-based model uses HIV surveillance data and the first CD4 value after HIV diagnosis to estimate HIV incidence (diagnosed and undiagnosed persons infected with HIV), HIV prevalence (diagnosed and undiagnosed persons living with HIV), and percentage of undiagnosed HIV. The date of HIV acquisition is estimated for each person with a CD4 test using the model. To account for persons without a CD4 test result, persons with CD4 test results are assigned a weight based on the year of HIV diagnosis, sex, race/ethnicity, transmission category, age at diagnosis, disease classification, and vital status at the end of the specified year.

Based on the estimated time from HIV infection to diagnosis, the diagnosis delay distribution can be estimated by using standard survival analysis for right truncated data and used to estimate annual HIV incidence. HIV prevalence, which represents counts of persons with diagnosed or undiagnosed HIV at year-end each year, is estimated by subtracting reported cumulative deaths from cumulative infections. The number of persons with undiagnosed HIV is estimated by subtracting the number of persons living with diagnosed HIV from total prevalence. The percentage of diagnosed (or undiagnosed) HIV is determined by dividing the number of persons living with diagnosed (or undiagnosed) HIV by the total prevalence for each year.

The CD4 model relies on a series of assumptions: (1) the CD4 depletion model is accurate; (2) persons received no treatment before the first CD4 test; (3) all data adjustments (e.g., multiple imputation for missing values of transmission category, weighting to account for cases without a CD4 test) are unbiased; and (4) a person's infection, diagnosis, and death occur in a "closed" population (no migration) or balanced population (approximately the same number of infected people moved into or out of the area under consideration). Of note, the model estimates are impacted by a 12-month reporting delay. Therefore, in this report, estimates from the CD4 model are presented through 2020.

National HIV Behavioral Surveillance

The National HIV Behavioral Surveillance (NHBS) system was designed to generate estimates of HIV prevalence and behavioral indicators in priority populations through nationally representative surveys in these populations. These surveys are funded by the US Centers for Disease Control and Prevention and implemented by local health departments. Time location sampling, a method of recruiting participants from venues where eligible participants are known to socialize during specific time periods, was used to recruit MSM participants. Respondent driven sampling, a peer-driven chain-referral sampling method, was used to recruit PWID, heterosexual persons at elevated risk for HIV (HET) and Transgender women participants. In addition to population specific eligibility criteria, NHBS participants were residents of LAC and at least 18 years of age. Participants who provided informed consent completed an

[144] Song R, Hall HI, Green TA, Szwarcwald CL, Pantazis N. Using CD4 Data to Estimate HIV Incidence, Prevalence, and Percent of Undiagnosed Infections in the United States. *J Acquir Immune DeficSyndr*. 2017; 74(1):3-9.

interviewer-administered, anonymous standardized questionnaire about HIV-related behaviors and underwent confidential rapid HIV and standard Hepatitis B and C testing. All testers received HIV counseling and referrals for social and medical services as needed.

Medical Monitoring Project

The MMP is a national HIV surveillance system funded by the US Centers for Disease Control and Prevention and implemented by local health departments. The aim of MMP is to provide locally and nationally representative data on behavioral and clinical outcomes in a sample of persons receiving HIV medical care. MMP uses a two-stage probability-based sampling strategy that draws from the National HIV Surveillance System (NHSS) to select survey participants. The first stage is selecting the geographic areas to participate, and the second stage is selecting adults diagnosed with HIV and reported to NHSS within those participating areas.

Sampled persons were recruited to participate in person, by telephone, or by mail. To be eligible for MMP, the person had to be living with diagnosed HIV, aged ≥18 years, and residing in an MMP project area. A trained interviewer conducted either a computer-assisted telephone interview or an in-person interview. Persons who agreed to participate were interviewed over the telephone or in a private location. The interview included questions about demographics, health care use, met and unmet needs for ancillary services, sexual behavior, depression and anxiety, gynecologic and reproductive history (females only), drug and alcohol use, and use of prevention services.

Procedure for obtaining MMP weights: To generate locally and nationally representative data, survey data are weighted using base weights that reflect individuals' probability of selection at the national level and within each project area. Unique national and project area base weights were calculated for all 9,700 sampled cases. For a small group of cases, the base weights were adjusted for multiplicity. The weights were adjusted for nonresponse based on the national, city-state combination, or project area nonresponse analysis. The national nonresponse-adjusted weights were post stratified to national population totals, and each project area and city-state combinations were post stratified to project area and city-state specific population totals. In 2019, no trimming was required for the post stratified weights at the national, city-state combination or project area level. Thus, the post stratified weight was the final MMP weight.

The national and city-state combination design variables were constructed ensuring that each design stratum had at least two clusters to calculate variances. The report also presented weight statistics and variance estimates that reflected the complex sampling design, and these were reviewed as part of the quality assurance process.

HIV Care Continuum

LA County has aligned with the targets set in the Ending the HIV Epidemic (EHE) in the US initiative to track progress along the HIV care continuum, which includes

increasing the proportion of newly diagnosed patients linked to clinical care with one month of their diagnosis to 95% by 2025 and increasing the proportion of persons with diagnosed HIV who are virally suppressed to 95% by 2025.

Biomarkers such as HIV viral load (VL), CD4+ T-cell counts, and HIV genotype testing are used as markers to approximate early HIV and achievements in the HIV care continuum. Since the start of mandatory name-based HIV reporting in California in 2006, laboratories have been required to report all tests that are indicative of HIV, including tests for HIV diagnosis, a component of HIV, or antibodies to or antigen of HIV (Title 17 CCR 2641.30) to their local health department. In 2008, the reporting of all CD4 tests was mandated in California. These laboratory tests are used to estimate early HIV and initial linkage to care for persons newly diagnosed with HIV and to monitor receipt of care, retention in care, and degree of viral suppression among diagnosed PLWDH in care.

Stage 0 HIV disease: Stage 0 is designed to capture early HIV which includes acute HIV and infections within 180 days before HIV diagnosis. Stage 0 infection is based on a sequence of discordant HIV test results in which a negative or indeterminate result was within 180 days of a positive result. The date of negative HIV test is based on laboratory documentation and, for this analysis, patient's self-report of last negative test in the absence of laboratory documentation. Stage 0 cases are likely underestimated due to under-reporting of HIV negative test results.

Linkage to care: Linkage to care was defined as having a VL, CD4, or HIV genotype test performed within 1 week, 2 weeks, 1 month, 6 months, or 12 months after a new HIV diagnosis.

Receipt of care: Receipt of care was defined as having at least one VL, CD4, or HIV genotype test reported during a twelve-month period.

Retention in care: Retention in care was defined as two or more VL, CD4, or HIV genotype tests performed at least three months apart during a twelve-month period.

HIV viral suppression: Viral suppression was defined as having one or more VL tests with HIV-1 RNA < 200 viral copies per milliliter of blood plasma**.** Unsuppressed viral load was defined as having one or more VL tests with HIV-1 RNA ≥ 200 viral copies per milliliter of blood plasma.

Sustained viral suppression: Sustained viral suppression was defined for a person when all reported VL values were < 200 copies/mL during a specified time period.

Persons living with diagnosed HIV: Because of the need for at least 12 months of follow-up to monitor achievements in the HIV care continuum after linkage to care, the denominator used to calculate receipt of care, retention in care, and viral suppression was restricted to persons diagnosed with HIV through 2020 and living in LAC as of December 31, 2021.

Death information ascertainment: Death information among persons living with diagnosed HIV is obtained through medical chart review, provider reports, autopsy reports by the Los Angeles County Department of Medical Examiner, and routine record linkages with Los Angeles County/California Vital Statistics registry, Social Security Death Master File (SSDMF), and National Death Index (NDI). Caution should be applied when interpreting trends based on reported deaths and associated causes. This particularly relevant for more recent years as death information is provisional due to reporting delay. Moreover, potential misclassification in causes of deaths may have occurred in 2020 during the COVID-19 pandemic. Cause of death information was based on the first-listed underlying cause of death. International Classification of Diseases (ICD)-10 codes B20-B24 were used to denote HIV/AIDS-related deaths that occurred in 1999 or later. ICD-9 codes 042-044 were used to denote HIV/AIDS-related deaths that occurred before 1999.

COVID-19 and HIV Co-infection: Confirmed COVID-19 cases (i.e., persons with at least one positive lab result indicating COVID-19 infection) in Los Angeles County were downloaded from the Los Angeles County Department of Public Health COVID-19 surveillance system and matched to HIV surveillance data using probabilistic matching in SAS 9.4.

COVID-19 deaths: Cases were classified as COVID-19 associated deaths if they had COVID-19 listed as a cause of death or contributing condition on their death certificate or if the death occurred within 60 days of the first positive COVID-19 test and did not have a traumatic or accidental cause of death.

Data Tables

Table 1A: Counts, percentages and rates of HIV and stage 3 (AIDS) diagnoses, and deaths among persons aged ≥ 13 years living with diagnosed HIV by sex, age group, race/ethnicity, and transmission category, LAC 2020-2021[1]

	Male[2]												Female[2]												Total											
	2020 HIV Diagnoses			2020 AIDS Diagnoses			PLWDH as of 2021[3]			2020 Deaths[4]			2020 HIV Diagnoses			2020 AIDS Diagnoses			PLWDH as of 2021[3]			2020 Deaths[4]			2020 HIV Diagnoses			2020 AIDS Diagnoses			PLWDH as of 2021[3]			2020 Deaths[4]		
	N	(%)	Rt	N	(%)	Rt	N	(%)	Rt	N	(%)	Rt	N	(%)	Rt	N	(%)	Rt	N	(%)	Rt	N	(%)	Rt	N	(%)	Rt	N	(%)	Rt	N	(%)	Rt	N	(%)	Rt
Age Group (Yr)																																				
13-19	34	(3)	7	<5	(-)	-	63	(<1)	14	<5	(-)	-	<5	(-)	-	<5	(-)	-	33	(1)	7	<5	(-)	-	38	(3)	4	5	(1)	1	96	(<1)	11	<5	(-)	-
20-29	483	(38)	65	94	(17)	13	3,356	(7)	448	9	(2)	1	21	(15)	3	6	(7)	1	318	(5)	44	<5	(-)	-	504	(36)	34	100	(15)	7	3,674	(7)	250	11	(2)	1
30-39	363	(29)	48	183	(33)	24	9,586	(20)	1,268	48	(9)	6	50	(35)	7	25	(28)	3	902	(15)	123	5	(7)	1	413	(29)	28	208	(32)	14	10,488	(20)	705	53	(9)	4
40-49	209	(17)	30	114	(20)	17	9,680	(20)	1,403	58	(11)	8	35	(24)	5	27	(30)	4	1,406	(24)	202	13	(17)	2	244	(17)	18	141	(22)	10	11,086	(21)	800	71	(12)	5
50-59	125	(10)	18	108	(19)	16	13,797	(29)	2,035	164	(32)	24	22	(15)	3	18	(20)	3	1,763	(30)	251	17	(23)	2	147	(10)	11	126	(19)	9	15,560	(29)	1,128	181	(31)	13
≥60	44	(3)	5	54	(10)	6	10,860	(23)	1,179	230	(45)	25	11	(8)	1	13	(14)	1	1,546	(26)	137	38	(51)	3	55	(4)	3	67	(10)	3	12,406	(23)	605	268	(46)	13
Race/Ethnicity[5]																																				
White	227	(18)	18	89	(16)	7	12,973	(27)	1,023	154	(30)	12	37	(26)	3	21	(23)	2	836	(14)	66	11	(15)	1	264	(19)	10	110	(17)	4	13,809	(26)	546	165	(28)	7
Black	257	(20)	76	99	(18)	29	8,871	(19)	2,606	106	(21)	31	41	(29)	10	21	(23)	5	1,912	(32)	489	26	(35)	7	298	(21)	41	120	(19)	16	10,783	(20)	1,475	132	(23)	18
Latinx	671	(53)	33	325	(58)	16	21,605	(46)	1,076	201	(39)	10	59	(41)	3	42	(47)	2	2,742	(46)	135	27	(36)	1	730	(52)	18	367	(57)	9	24,347	(46)	603	228	(39)	6
Asian	57	(5)	9	21	(4)	3	1,827	(4)	297	12	(2)	2	<5	(-)	-	<5	(-)	-	185	(3)	26	<5	(-)	-	61	(4)	5	22	(3)	2	2,012	(4)	151	15	(3)	1
Native Hawaiian and Other Pacific Islander	<5	(-)	-	<5	(-)	-	76	(<1)	724	<5	(-)	-	<5	(-)	-	<5	(-)	-	6	(<1)	55	<5	(-)	-	<5	(-)	-	<5	(-)	-	82	(<1)	381	<5	(-)	-
American Indian/Alaska Native[6]	6	(<1)	61	<5	(-)	-	270	(1)	2,744	7	(1)	71	<5	(-)	-	<5	(-)	-	43	(1)	411	<5	(-)	-	7	(<1)	34	<5	(-)	-	313	(1)	1,541	7	(1)	34
Multi-race[7]	28	(2)	-	21	(4)	-	1,657	(4)	-	29	(6)	-	<5	(-)	-	5	(6)	-	238	(4)	-	8	(11)	-	29	(2)	-	26	(4)	-	1,895	(4)	-	37	(6)	-
Transmission Category[7,8]																																				
Male-to-male sexual contact (MSM)	1,132	(90)	-	488	(88)	-	41,860	(88)	-	402	(79)	-	-	(-)	-	-	(-)	-	-	(-)	-	-	(-)	-	1,132	(81)	-	488	(75)	-	41,860	(79)	-	402	(69)	-
Injection drug use (IDU)	45	(4)	-	28	(5)	-	1,445	(3)	-	30	(6)	-	44	(31)	-	28	(31)	-	1,283	(21)	-	30	(40)	-	89	(6)	-	56	(9)	-	2,728	(5)	-	61	(10)	-
MSM/IDU	58	(5)	-	31	(6)	-	2,932	(6)	-	64	(13)	-	-	(-)	-	-	(-)	-	-	(-)	-	-	(-)	-	58	(4)	-	31	(5)	-	2,932	(5)	-	64	(11)	-
Hemophilia/transfusion	<5	(-)	-	<5	(-)	-	60	(<1)	-	<5	(-)	-	<5	(-)	-	<5	(-)	-	42	(1)	-	<5	(-)	-	<5	(-)	-	<5	(-)	-	102	(<1)	-	<5	(-)	-
Heterosexual contact[9]	16	(1)	-	11	(2)	-	877	(2)	-	12	(2)	-	99	(69)	-	60	(67)	-	4,488	(75)	-	41	(55)	-	115	(8)	-	70	(11)	-	5,365	(10)	-	53	(9)	-
Perinatal exposure	<5	(-)	-	<5	(-)	-	105	(<1)	-	<5	(-)	-	<5	(-)	-	<5	(-)	-	141	(2)	-	<5	(-)	-	<5	(-)	-	<5	(-)	-	246	(<1)	-	<5	(-)	-
Other risk[10]	7	(1)	-	<5	(-)	-	63	(<1)	-	<5	(-)	-	<5	(-)	-	<5	(-)	-	14	(<1)	-	<5	(-)	-	7	(<1)	-	<5	(-)	-	77	(<1)	-	<5	(-)	-
Total[5,11]	1,258	[90]	30	557	[86]	13	47,342	[89]	1,113	509	[87]	12	143	[10]	3	90	[14]	2	5,968	[11]	135	75	[13]	2	1,401	[100]	16	647	[100]	7	53,310	[100]	615	584	[100]	7

[1] Data are provisional due to reporting delay. Rate per 100,000. Rates for 2021 are based on population estimates for 2020. Rates based on fewer than 12 observations may not be reliable (see Technical Notes).

[2] Male and female categories are based on sex at birth.

[3] Persons living with HIV are based on most recent known address at the end of 2021 in Los Angeles County.

[4] Includes persons whose residence at death was in Los Angeles County (LAC) or whose most recent known address before death was in LAC, when residence at death is missing.

[5] Persons with unknown race/ethnicity are not shown but are included in the total.

[6] Includes all non-Latinx persons who have been reported with American Indian/Alaska Native race, regardless of whether any other race or ethnicity information is reported.

[7] Rates for multi-race and transmission category are not calculated because of the lack of denominator data.

[8] Persons without an identified risk factor are assigned a risk factor using multiple imputation (MI) methods (see Technical Notes). Due to rounding, the sum may not add up to the total.

[9] Heterosexual contact with a person known to have, or to be at high risk for, HIV infection.

[10] Other risk includes risk factor not reported/identified.

[11] Percent of total cases that are male and female is shown in this row.

Table 2A: Counts, percentages and rates of HIV and stage 3 (AIDS) diagnoses, and deaths among persons aged ≥ 13 years living with diagnosed HIV by sex, Service Planning Area (SPA), and Health District (HD), LAC 2020-2021[1]

SPA/HD[3]	Male[2]												Female[2]												Total											
	2020 HIV Diagnoses			2020 AIDS Diagnoses			PLWDH as of 2021[4]			2020 Deaths[5]			2020 HIV Diagnoses			2020 AIDS Diagnoses			PLWDH as of 2021[4]			2020 Deaths[5]			2020 HIV Diagnoses			2020 AIDS Diagnoses			PLWDH as of 2021[4]			2020 Deaths[5]		
	N	(%)	Rt	N	(%)	Rt	N	(%)	Rt	N	(%)	Rt	N	(%)	Rt	N	(%)	Rt	N	(%)	Rt	N	(%)	Rt	N	(%)	Rt	N	(%)	Rt	N	(%)	Rt	N	(%)	Rt
Antelope Valley [1]	**42**	**(3)**	**26**	**12**	**(2)**	**7**	**936**	**(2)**	**578**	**19**	**(4)**	**12**	**6**	**(4)**	**4**	**<5**	**(-)**	**-**	**285**	**(5)**	**171**	**<5**	**(-)**	**-**	**48**	**(3)**	**15**	**15**	**(2)**	**5**	**1,221**	**(2)**	**372**	**22**	**(4)**	**7**
Antelope Valley	42	(3)	26	12	(2)	7	936	(2)	578	19	(4)	12	6	(4)	4	<5	(-)	-	285	(5)	171	<5	(-)	-	48	(3)	15	15	(2)	5	1,221	(2)	372	22	(4)	7
San Fernando [2]	**187**	**(15)**	**20**	**69**	**(12)**	**7**	**7,076**	**(15)**	**746**	**77**	**(15)**	**8**	**21**	**(15)**	**2**	**15**	**(17)**	**2**	**913**	**(15)**	**93**	**10**	**(13)**	**1**	**208**	**(15)**	**11**	**84**	**(13)**	**4**	**7,989**	**(15)**	**414**	**87**	**(15)**	**5**
East Valley	52	(4)	27	21	(4)	11	2,265	(5)	1174	25	(5)	13	<5	(-)	-	<5	(-)	-	208	(3)	108	<5	(-)	-	56	(4)	14	24	(4)	6	2,473	(5)	640	26	(4)	7
Glendale	34	(3)	23	10	(2)	7	866	(2)	578	14	(3)	9	<5	(-)	-	<5	(-)	-	91	(2)	56	<5	(-)	-	38	(3)	12	11	(2)	4	957	(2)	306	15	(3)	5
San Fernando	24	(2)	11	5	(1)	2	865	(2)	388	7	(1)	3	<5	(-)	-	<5	(-)	-	144	(2)	64	<5	(-)	-	24	(2)	5	5	(1)	1	1,009	(2)	224	8	(1)	2
West Valley	77	(6)	20	33	(6)	9	3,080	(7)	805	31	(6)	8	13	(9)	3	11	(12)	3	470	(8)	118	7	(9)	2	90	(6)	12	44	(7)	6	3,550	(7)	455	38	(7)	5
San Gabriel [3]	**157**	**(12)**	**21**	**55**	**(10)**	**7**	**3,637**	**(8)**	**486**	**46**	**(9)**	**6**	**8**	**(6)**	**1**	**9**	**(10)**	**1**	**516**	**(9)**	**65**	**<5**	**(-)**	**-**	**165**	**(12)**	**11**	**64**	**(10)**	**4**	**4,153**	**(8)**	**269**	**49**	**(8)**	**3**
Alhambra	13	(1)	9	7	(1)	5	588	(1)	405	11	(2)	8	<5	(-)	-	<5	(-)	-	89	(1)	56	<5	(-)	-	13	(1)	4	8	(1)	3	677	(1)	222	13	(2)	4
El Monte	50	(4)	27	17	(3)	9	911	(2)	497	14	(3)	8	<5	(-)	-	<5	(-)	-	126	(2)	67	<5	(-)	-	54	(4)	15	21	(3)	6	1,037	(2)	279	15	(3)	4
Foothill	13	(1)	10	<5	(-)	-	582	(1)	452	<5	(-)	-	<5	(-)	-	<5	(-)	-	75	(1)	54	<5	(-)	-	15	(1)	6	<5	(-)	-	657	(1)	244	<5	(-)	-
Pasadena	17	(1)	28	7	(1)	11	525	(1)	860	<5	(-)	-	<5	(-)	-	<5	(-)	-	60	(1)	93	<5	(-)	-	18	(1)	14	8	(1)	6	585	(1)	465	<5	(-)	-
Pomona	64	(5)	28	20	(4)	9	1,031	(2)	448	13	(3)	6	<5	(-)	-	<5	(-)	-	166	(3)	68	<5	(-)	-	65	(5)	14	23	(4)	5	1,197	(2)	252	13	(2)	3
Metro [4]	**315**	**(25)**	**60**	**142**	**(25)**	**27**	**17,091**	**(36)**	**3,252**	**142**	**(28)**	**27**	**33**	**(23)**	**7**	**17**	**(19)**	**3**	**1,135**	**(19)**	**229**	**20**	**(27)**	**4**	**348**	**(25)**	**34**	**159**	**(25)**	**16**	**18,226**	**(34)**	**1,787**	**162**	**(28)**	**16**
Central	107	(9)	64	66	(12)	39	6,253	(13)	3,720	63	(12)	37	19	(13)	13	9	(10)	6	592	(10)	407	14	(19)	10	126	(9)	40	75	(12)	24	6,845	(13)	2,184	77	(13)	25
Hollywood-Wilshire	160	(13)	71	55	(10)	24	9,109	(19)	4,018	68	(13)	30	10	(7)	5	5	(6)	2	387	(6)	179	<5	(-)	-	170	(12)	38	60	(9)	14	9,496	(18)	2,142	72	(12)	16
Northeast	48	(4)	37	21	(4)	16	1,729	(4)	1,322	11	(2)	8	<5	(-)	-	<5	(-)	-	156	(3)	118	<5	(-)	-	52	(4)	20	24	(4)	9	1,885	(4)	715	13	(2)	5
West [5]	**48**	**(4)**	**17**	**15**	**(3)**	**5**	**2,308**	**(5)**	**829**	**21**	**(4)**	**8**	**<5**	**(-)**	**-**	**<5**	**(-)**	**-**	**227**	**(4)**	**76**	**<5**	**(-)**	**-**	**51**	**(4)**	**9**	**19**	**(3)**	**3**	**2,535**	**(5)**	**438**	**25**	**(4)**	**4**
West	48	(4)	17	15	(3)	5	2,308	(5)	829	21	(4)	8	<5	(-)	-	<5	(-)	-	227	(4)	76	<5	(-)	-	51	(4)	9	19	(3)	3	2,535	(5)	438	25	(4)	4
South [6]	**163**	**(13)**	**40**	**75**	**(13)**	**18**	**5,581**	**(12)**	**1,357**	**82**	**(16)**	**20**	**23**	**(16)**	**5**	**15**	**(17)**	**3**	**1,239**	**(21)**	**283**	**14**	**(19)**	**3**	**186**	**(13)**	**22**	**90**	**(14)**	**11**	**6,820**	**(13)**	**803**	**96**	**(16)**	**11**
Compton	34	(3)	31	17	(3)	15	952	(2)	859	15	(3)	14	<5	(-)	-	<5	(-)	-	192	(3)	161	<5	(-)	-	38	(3)	17	19	(3)	8	1,144	(2)	498	16	(3)	7
South	29	(2)	39	17	(3)	23	1,052	(2)	1,414	8	(2)	11	5	(3)	6	5	(6)	6	264	(4)	333	6	(8)	8	34	(2)	22	22	(3)	14	1,316	(2)	857	14	(2)	9
Southeast	35	(3)	50	14	(3)	20	902	(2)	1,294	13	(3)	19	5	(3)	7	<5	(-)	-	196	(3)	286	<5	(-)	-	40	(3)	29	16	(2)	12	1,098	(2)	794	14	(2)	10
Southwest	65	(5)	42	27	(5)	17	2,675	(6)	1,713	46	(9)	29	9	(6)	5	6	(7)	4	587	(10)	343	6	(8)	4	74	(5)	23	33	(5)	10	3,262	(6)	996	52	(9)	16
East [7]	**134**	**(11)**	**25**	**56**	**(10)**	**10**	**3,395**	**(7)**	**632**	**34**	**(7)**	**6**	**12**	**(8)**	**2**	**6**	**(7)**	**1**	**516**	**(9)**	**92**	**7**	**(9)**	**1**	**146**	**(10)**	**13**	**62**	**(10)**	**6**	**3,911**	**(7)**	**355**	**41**	**(7)**	**4**
Bellflower	27	(2)	18	11	(2)	7	785	(2)	530	7	(1)	5	<5	(-)	-	<5	(-)	-	125	(2)	80	<5	(-)	-	27	(2)	9	11	(2)	4	910	(2)	298	10	(2)	3
East Los Angeles	25	(2)	31	7	(1)	9	679	(1)	832	9	(2)	11	<5	(-)	-	<5	(-)	-	71	(1)	84	<5	(-)	-	28	(2)	17	9	(1)	5	750	(1)	451	9	(2)	5
San Antonio	51	(4)	29	27	(5)	16	1,271	(3)	735	9	(2)	5	6	(4)	3	<5	(-)	-	229	(4)	128	<5	(-)	-	57	(4)	16	30	(5)	9	1,500	(3)	426	11	(2)	3
Whittier	31	(2)	23	11	(2)	8	660	(1)	490	9	(2)	7	<5	(-)	-	<5	(-)	-	91	(2)	64	<5	(-)	-	34	(2)	12	12	(2)	4	751	(1)	271	11	(2)	4
South Bay [8]	**181**	**(14)**	**28**	**74**	**(13)**	**12**	**6,910**	**(15)**	**1,077**	**83**	**(16)**	**13**	**23**	**(16)**	**3**	**10**	**(11)**	**1**	**1,078**	**(18)**	**159**	**13**	**(17)**	**2**	**204**	**(15)**	**15**	**84**	**(13)**	**6**	**7,988**	**(15)**	**605**	**96**	**(16)**	**7**
Harbor	14	(1)	16	11	(2)	13	591	(1)	686	7	(1)	8	<5	(-)	-	<5	(-)	-	104	(2)	116	<5	(-)	-	15	(1)	9	13	(2)	7	695	(1)	395	8	(1)	5
Inglewood	58	(5)	35	32	(6)	19	1,703	(4)	1013	20	(4)	12	11	(8)	6	<5	(-)	-	365	(6)	202	5	(7)	3	69	(5)	20	32	(5)	9	2,068	(4)	592	25	(4)	7
Long Beach	85	(7)	43	25	(4)	13	3,843	(8)	1,963	42	(8)	21	7	(5)	3	7	(8)	3	472	(8)	229	7	(9)	3	92	(7)	23	32	(5)	8	4,315	(8)	1,074	49	(8)	12
Torrance	24	(2)	13	6	(1)	3	773	(2)	403	14	(3)	7	<5	(-)	-	<5	(-)	-	137	(2)	68	<5	(-)	-	28	(2)	7	7	(1)	2	910	(2)	231	14	(2)	4
Total[6,7]	**1,258**	**[90]**	**30**	**557**	**[86]**	**13**	**47,342**	**[89]**	**1,113**	**509**	**[87]**	**12**	**143**	**[10]**	**3**	**90**	**[14]**	**2**	**5,968**	**[11]**	**135**	**75**	**[13]**	**2**	**1,401**	**[100]**	**16**	**647**	**[100]**	**7**	**53,310**	**[100]**	**615**	**584**	**[100]**	**7**

[1] Data are provisional due to reporting delay. Rate per 100,000. Rates for 2021 are based on population estimates for 2020. Rates based on fewer than 12 observations may not be reliable (see Technical Notes).

[2] Male and female categories are based on sex at birth.

[3] Service Planning Area and Health District are based on 2012 boundaries.

[4] Persons living with HIV are based on most recent known address at the end of 2021 in Los Angeles County.

[5] Includes persons whose residence at death was in Los Angeles County (LAC) or whose most recent known address before death was in LAC, when residence at death is missing.

[6] Percent of total cases that are male and female is shown in this row.

[7] The sum may not add up to the total due to persons with no information on Service Planning Area/Health District who are not shown but are included in the total.

Table 3A: HIV diagnoses counts and rates[1] by gender, age group, race/ethnicity, and transmission category among persons aged ≥ 13 years newly diagnosed with HIV, LAC 2011-2020

	2011			2012			2013			2014			2015			2016			2017			2018			2019			2020[2]		
	N	(%)	Rt	N	(%)	Rt	N	(%)	Rt	N	(%)	Rt	N	(%)	Rt	N	(%)	Rt	N	(%)	Rt	N	(%)	Rt	N	(%)	Rt	N	(%)	Rt
Gender																														
Men	1,757	(88)	44	1,790	(88)	44	1,531	(87)	37	1,830	(88)	44	1,762	(88)	42	1,678	(88)	40	1,554	(88)	37	1,500	(87)	35	1,322	(85)	31	1,201	(86)	28
Women	203	(10)	5	194	(10)	5	192	(11)	5	216	(10)	5	189	(9)	4	190	(10)	4	179	(10)	4	186	(11)	4	179	(11)	4	143	(10)	3
Transgender[3]	39	(2)	-	43	(2)	-	39	(2)	-	28	(1)	-	49	(2)	-	47	(2)	-	37	(2)	-	36	(2)	-	59	(4)	-	57	(4)	-
Age Group (Yr)																														
13-19	55	(3)	5	76	(4)	8	70	(4)	7	63	(3)	6	75	(4)	8	63	(3)	7	55	(3)	6	68	(4)	7	59	(4)	6	38	(3)	4
20-29	667	(33)	45	713	(35)	47	601	(34)	39	773	(37)	50	747	(37)	48	743	(39)	48	691	(39)	45	654	(38)	43	541	(35)	36	504	(36)	34
30-39	596	(30)	42	560	(28)	39	484	(27)	34	587	(28)	41	533	(27)	36	541	(28)	37	495	(28)	33	504	(29)	34	484	(31)	32	413	(29)	28
40-49	414	(21)	29	427	(21)	30	366	(21)	26	377	(18)	27	361	(18)	26	323	(17)	23	278	(16)	20	265	(15)	19	236	(15)	17	244	(17)	18
50-59	214	(11)	17	195	(10)	15	183	(10)	14	206	(10)	16	218	(11)	16	192	(10)	14	177	(10)	13	148	(9)	11	178	(11)	13	147	(10)	11
≥60	53	(3)	3	56	(3)	3	58	(3)	3	68	(3)	4	66	(3)	4	53	(3)	3	74	(4)	4	83	(5)	4	62	(4)	3	55	(4)	3
Race/Ethnicity[4]																														
White	453	(23)	18	437	(22)	17	417	(24)	16	428	(21)	17	434	(22)	17	346	(18)	14	365	(21)	14	337	(20)	13	323	(21)	13	264	(19)	10
Black	414	(21)	58	387	(19)	53	351	(20)	48	387	(19)	53	437	(22)	59	431	(23)	59	357	(20)	48	387	(22)	52	328	(21)	44	298	(21)	41
Latinx	951	(48)	26	1,023	(50)	27	837	(48)	22	1,056	(51)	28	936	(47)	24	949	(50)	24	853	(48)	21	847	(49)	21	766	(49)	19	730	(52)	18
Asian	81	(4)	7	97	(5)	8	71	(4)	6	117	(6)	9	113	(6)	9	92	(5)	7	111	(6)	8	84	(5)	6	88	(6)	7	61	(4)	5
Native Hawaiian and Other Pacific Islander	<5	(-)	-	<5	(-)	-	5	(<1)	25	<5	(-)	-	5	(<1)	24	<5	(-)	-	<5	(-)	-	6	(<1)	29	<5	(-)	-	<5	(-)	-
American Indian/Alaska Native[5]	18	(1)	106	18	(1)	106	7	(<1)	40	13	(1)	74	13	(1)	75	12	(1)	71	15	(1)	92	11	(1)	52	<5	(-)	-	7	(<1)	34
Multi-race[3]	78	(4)	-	62	(3)	-	74	(4)	-	70	(3)	-	61	(3)	-	81	(4)	-	62	(4)	-	48	(3)	-	45	(3)	-	29	(2)	-
Transmission Category[3,6]																														
Male-to-male sexual contact (MSM)	1,670	(84)	-	1,699	(84)	-	1,451	(82)	-	1,724	(83)	-	1,693	(85)	-	1,604	(84)	-	1,475	(83)	-	1,398	(81)	-	1,248	(80)	-	1,132	(81)	-
Injection drug use (IDU)	75	(4)	-	78	(4)	-	90	(5)	-	96	(5)	-	96	(5)	-	95	(5)	-	106	(6)	-	103	(6)	-	92	(6)	-	89	(6)	-
MSM/IDU	74	(4)	-	81	(4)	-	56	(3)	-	69	(3)	-	55	(3)	-	58	(3)	-	54	(3)	-	64	(4)	-	66	(4)	-	58	(4)	-
Heterosexual contact[7]	180	(9)	-	170	(8)	-	166	(9)	-	183	(9)	-	156	(8)	-	157	(8)	-	131	(7)	-	156	(9)	-	150	(10)	-	115	(8)	-
Perinatal exposure	<5	(-)	-	<5	(-)	-	<5	(-)	-	<5	(-)	-	<5	(-)	-	<5	(-)	-	<5	(-)	-	<5	(-)	-	<5	(-)	-	<5	(-)	-
Other risk[8]	<5	(-)	-	<5	(-)	-	<5	(-)	-	<5	(-)	-	<5	(-)	-	<5	(-)	-	<5	(-)	-	<5	(-)	-	<5	(-)	-	7	(<1)	-
Total[4]	1,999	[100]	24	2,027	[100]	24	1,762	[100]	21	2,074	[100]	25	2,000	[100]	23	1,915	[100]	22	1,770	[100]	20	1,722	[100]	20	1,560	[100]	18	1,401	[100]	16

[1] Rate per 100,000. Rates based on fewer than 12 observations may not be reliable (see Technical Notes).

[2] Data are provisional due to reporting delay.

[3] Rates for transgender, multi-race, and transmission category are not calculated because of the lack of denominator data.

[4] Persons with unknown race/ethnicity are not shown but are included in the total.

[5] Includes all non-Latinx persons who have been reported with American Indian/Alaska Native race, regardless of whether any other race or ethnicity information is reported.

[6] Persons without an identified risk factor are assigned a risk factor using multiple imputation (MI) methods (see Technical Notes). Due to rounding, the sum may not add up to the total.

[7] Heterosexual contact with a person known to have, or to be at high risk for, HIV infection.

[8] Other risk includes risk factor not reported/identified.

Table 4A: HIV diagnoses counts and rates[1] by Service Planning Area (SPA)/Health District (HD) of residence among persons aged ≥ 13 years newly diagnosed with HIV, LAC 2011-2020

SPA/HD[2]	2011			2012			2013			2014			2015			2016			2017			2018			2019			2020[3]		
	N	(%)	Rt	N	(%)	Rt	N	(%)	Rt	N	(%)	Rt	N	(%)	Rt	N	(%)	Rt	N	(%)	Rt	N	(%)	Rt	N	(%)	Rt	N	(%)	Rt
Antelope Valley [1]	**37**	**(2)**	**12**	**37**	**(2)**	**12**	**33**	**(2)**	**10**	**46**	**(2)**	**14**	**31**	**(2)**	**10**	**42**	**(2)**	**13**	**37**	**(2)**	**12**	**45**	**(3)**	**14**	**37**	**(2)**	**11**	**48**	**(3)**	**15**
Antelope Valley	37	(2)	12	37	(2)	12	33	(2)	10	46	(2)	14	31	(2)	10	42	(2)	13	37	(2)	12	45	(3)	14	37	(2)	11	48	(3)	15
San Fernando [2]	**277**	**(14)**	**15**	**276**	**(14)**	**15**	**244**	**(14)**	**13**	**302**	**(15)**	**16**	**299**	**(15)**	**16**	**303**	**(16)**	**16**	**255**	**(14)**	**13**	**293**	**(17)**	**15**	**268**	**(17)**	**14**	**208**	**(15)**	**11**
East Valley	97	(5)	26	95	(5)	26	73	(4)	19	85	(4)	23	93	(5)	24	92	(5)	24	75	(4)	19	101	(6)	26	75	(5)	19	56	(4)	14
Glendale	25	(1)	9	38	(2)	13	24	(1)	8	31	(1)	10	35	(2)	11	28	(1)	9	22	(1)	7	29	(2)	9	35	(2)	11	38	(3)	12
San Fernando	40	(2)	10	34	(2)	8	34	(2)	8	39	(2)	9	30	(2)	7	49	(3)	11	40	(2)	9	41	(2)	9	32	(2)	7	24	(2)	5
West Valley	115	(6)	16	109	(5)	15	113	(6)	15	147	(7)	20	141	(7)	19	134	(7)	18	118	(7)	15	122	(7)	16	126	(8)	16	90	(6)	12
San Gabriel [3]	**158**	**(8)**	**11**	**181**	**(9)**	**12**	**150**	**(9)**	**10**	**193**	**(9)**	**13**	**178**	**(9)**	**12**	**175**	**(9)**	**12**	**201**	**(11)**	**13**	**158**	**(9)**	**10**	**151**	**(10)**	**10**	**165**	**(12)**	**11**
Alhambra	32	(2)	11	32	(2)	11	22	(1)	7	33	(2)	11	30	(2)	10	31	(2)	10	36	(2)	12	22	(1)	7	20	(1)	6	13	(1)	4
El Monte	33	(2)	9	48	(2)	14	33	(2)	9	55	(3)	15	49	(2)	13	54	(3)	15	51	(3)	14	48	(3)	13	36	(2)	10	54	(4)	15
Foothill	31	(2)	12	21	(1)	8	28	(2)	11	38	(2)	15	30	(2)	11	22	(1)	8	32	(2)	12	23	(1)	9	20	(1)	7	15	(1)	6
Pasadena	14	(1)	12	25	(1)	21	24	(1)	20	26	(1)	21	27	(1)	22	16	(1)	13	20	(1)	16	18	(1)	14	14	(1)	11	18	(1)	14
Pomona	48	(2)	11	55	(3)	12	43	(2)	9	41	(2)	9	42	(2)	9	52	(3)	11	62	(4)	13	47	(3)	10	61	(4)	13	65	(5)	14
Metro [4]	**657**	**(33)**	**68**	**660**	**(33)**	**68**	**590**	**(33)**	**60**	**676**	**(33)**	**69**	**601**	**(30)**	**60**	**536**	**(28)**	**53**	**512**	**(29)**	**50**	**440**	**(26)**	**43**	**396**	**(25)**	**39**	**348**	**(25)**	**34**
Central	218	(11)	75	221	(11)	76	215	(12)	73	231	(11)	78	223	(11)	75	219	(11)	72	177	(10)	58	194	(11)	64	167	(11)	53	126	(9)	40
Hollywood-Wilshire	376	(19)	89	371	(18)	87	309	(18)	72	371	(18)	86	324	(16)	74	268	(14)	61	275	(16)	62	200	(12)	45	194	(12)	43	170	(12)	38
Northeast	63	(3)	25	68	(3)	27	66	(4)	26	74	(4)	29	54	(3)	21	49	(3)	19	60	(3)	23	46	(3)	17	35	(2)	13	52	(4)	20
West [5]	**95**	**(5)**	**17**	**97**	**(5)**	**17**	**83**	**(5)**	**15**	**106**	**(5)**	**18**	**100**	**(5)**	**17**	**63**	**(3)**	**11**	**62**	**(4)**	**11**	**69**	**(4)**	**12**	**85**	**(5)**	**15**	**51**	**(4)**	**9**
West	95	(5)	17	97	(5)	17	83	(5)	15	106	(5)	18	100	(5)	17	63	(3)	11	62	(4)	11	69	(4)	12	85	(5)	15	51	(4)	9
South [6]	**281**	**(14)**	**36**	**245**	**(12)**	**31**	**232**	**(13)**	**29**	**254**	**(12)**	**31**	**289**	**(14)**	**35**	**307**	**(16)**	**36**	**291**	**(16)**	**34**	**272**	**(16)**	**32**	**222**	**(14)**	**26**	**186**	**(13)**	**22**
Compton	63	(3)	29	35	(2)	16	47	(3)	21	54	(3)	24	44	(2)	20	63	(3)	28	60	(3)	26	59	(3)	26	48	(3)	21	38	(3)	17
South	58	(3)	41	51	(3)	36	46	(3)	32	53	(3)	36	58	(3)	39	69	(4)	45	52	(3)	34	64	(4)	42	48	(3)	31	34	(2)	22
Southeast	37	(2)	29	37	(2)	28	33	(2)	25	45	(2)	34	40	(2)	29	45	(2)	32	48	(3)	34	47	(3)	34	39	(3)	28	40	(3)	29
Southwest	123	(6)	40	122	(6)	39	106	(6)	34	102	(5)	32	147	(7)	46	130	(7)	40	131	(7)	40	102	(6)	31	87	(6)	27	74	(5)	23
East [7]	**185**	**(9)**	**18**	**171**	**(8)**	**16**	**145**	**(8)**	**14**	**181**	**(9)**	**17**	**170**	**(9)**	**16**	**183**	**(10)**	**17**	**169**	**(10)**	**16**	**171**	**(10)**	**16**	**136**	**(9)**	**12**	**146**	**(10)**	**13**
Bellflower	39	(2)	13	36	(2)	12	45	(3)	15	43	(2)	14	43	(2)	14	45	(2)	15	39	(2)	13	39	(2)	13	37	(2)	12	27	(2)	9
East Los Angeles	37	(2)	23	32	(2)	19	24	(1)	15	27	(1)	17	28	(1)	17	35	(2)	21	29	(2)	18	31	(2)	19	22	(1)	13	28	(2)	17
San Antonio	69	(3)	21	61	(3)	18	46	(3)	14	67	(3)	20	66	(3)	19	67	(3)	19	68	(4)	20	61	(4)	17	52	(3)	15	57	(4)	16
Whittier	40	(2)	15	42	(2)	16	30	(2)	11	44	(2)	16	33	(2)	12	36	(2)	13	33	(2)	12	40	(2)	14	25	(2)	9	34	(2)	12
South Bay [8]	**303**	**(15)**	**24**	**349**	**(17)**	**27**	**273**	**(15)**	**21**	**291**	**(14)**	**23**	**299**	**(15)**	**23**	**272**	**(14)**	**21**	**223**	**(13)**	**17**	**240**	**(14)**	**18**	**231**	**(15)**	**17**	**204**	**(15)**	**15**
Harbor	19	(1)	11	22	(1)	13	17	(1)	10	34	(2)	20	22	(1)	13	21	(1)	12	16	(1)	9	26	(2)	15	20	(1)	11	15	(1)	9
Inglewood	89	(4)	27	102	(5)	31	86	(5)	26	87	(4)	26	92	(5)	27	91	(5)	26	70	(4)	20	79	(5)	23	78	(5)	22	69	(5)	20
Long Beach	158	(8)	41	190	(9)	49	132	(7)	34	131	(6)	34	142	(7)	36	127	(7)	32	109	(6)	27	101	(6)	25	99	(6)	25	92	(7)	23
Torrance	37	(2)	10	35	(2)	9	38	(2)	10	39	(2)	10	43	(2)	11	33	(2)	8	28	(2)	7	34	(2)	8	34	(2)	8	28	(2)	7
Total[4]	**1,999**	**[100]**	**24**	**2,027**	**[100]**	**24**	**1,762**	**[100]**	**21**	**2,074**	**[100]**	**25**	**2,000**	**[100]**	**23**	**1,915**	**[100]**	**22**	**1,770**	**[100]**	**20**	**1,722**	**[100]**	**20**	**1,560**	**[100]**	**18**	**1,401**	**[100]**	**16**

[1] Rate per 100,000. Rates based on fewer than 12 observations may not be reliable (see Technical Notes).

[2] Service Planning Area and Health District are based on 2012 boundaries.

[3] Data are provisional due to reporting delay.

[4] The sum may not add up to the total due to persons with no information on Service Planning Area/Health District who are not shown but are included in the total.

Table 5A: HIV care continuum indicators among persons aged ≥ 13 years living with diagnosed HIV by gender, age group, race/ethnicity, and transmission category, LAC 2020-2021[1]

										Viral Suppression[2] (VL < 200)		
	HIV diagnoses 2020	Linked to care 1 month[2,3]		PLWDH as of 2021[4]	Engaged in care 2021[2,5]		Retained in care 2021[2,5]		No. of persons with ≥ 1 VL test in 2021	Virally suppressed	Among PLWDH[5]	Among persons with ≥ 1 VL test[6]
Characteristics	N	N	%	N	N	%	N	%	N	N	%	%
Gender												
Men	1,201	924	77	45,232	30,846	68	21,666	48	30,042	27,771	61	92
Women	143	96	67	5,794	3,854	67	2,727	47	3,793	3,421	59	90
Transgender	57	46	81	1,008	696	69	492	49	681	564	56	83
Age Group (Yr)[7]												
13-19	38	24	63	110	94	85	65	59	93	86	78	92
20-29	504	384	76	4,074	3,001	74	1,822	45	2,946	2,597	64	88
30-39	413	324	78	10,289	6,996	68	4,449	43	6,846	6,063	59	89
40-49	244	178	73	11,042	7,316	66	5,154	47	7,154	6,545	59	91
50-59	147	114	78	15,618	10,650	68	7,781	50	10,383	9,684	62	93
≥ 60	55	42	76	10,901	7,339	67	5,614	51	7,094	6,781	62	96
Race/Ethnicity[8]												
Black	298	211	71	10,469	6,645	63	4,395	42	6,505	5,670	54	87
Latinx	730	574	79	23,693	16,099	68	11,701	49	15,834	14,560	61	92
White	264	192	73	13,597	9,423	69	6,568	48	9,023	8,593	63	95
Asian	61	55	90	1,957	1,406	72	1,003	51	1,382	1,340	68	97
Native Hawaiian and Other Pacific Islander	<5	<5	-	79	58	73	37	47	56	50	63	89
American Indian/Alaska Native[9]	7	6	86	306	202	66	130	42	198	173	57	87
Multi-race	29	20	69	1,881	1,533	81	1,039	55	1,490	1,344	71	90
Transmission Category[10]												
Male-to-male sexual contact (MSM)	1,132	879	78	40,841	28,159	69	19,806	48	27,419	25,484	62	93
Injection drug use (IDU)	89	67	75	2,639	1,515	57	1,055	40	1,476	1,278	48	87
MSM/IDU	58	39	67	2,889	1,941	67	1,347	47	1,891	1,604	56	85
Hemophilia/transfusion	<5	<5	-	102	64	63	44	43	64	62	61	97
Heterosexual contact[11]	115	76	66	5,254	3,491	66	2,502	48	3,446	3,149	60	91
Perinatal exposure	<5	<5	-	243	185	76	107	44	182	142	58	78
Other risk[12]	7	5	71	66	41	62	24	36	39	37	56	95
Total[8]	1,401	1,066	76	52,034	35,396	68	24,885	48	34,516	31,756	61	92

[1] Data are provisional due to reporting delay.

[2] Persons are considered linked to care if there was at least one viral load, CD4+ T-cell, or genotype test within 1 month of an HIV diagnosis; persons are considered engaged in care if there was at least one viral load, CD4+ T-cell, or genotype test in 2021; persons are considered retained in care if there were ≥ 2 viral load, CD4+ T-cell, or genotype tests in 2021, at least 3 months apart; persons are considered virally suppressed when their last VL test in 2021 was < 200 copies/mL.

[3] Denominator for linkage to care includes persons who were reported with a new HIV diagnosis in 2020; does not include estimated persons unaware of HIV infection.

[4] Persons living with diagnosed HIV include those diagnosed with an HIV infection through 2020 and living in LAC at year-end 2021, based on most recent residence.

[5] Denominator for engagement and retention in care and overall viral load suppression in 2021 includes persons diagnosed through 2020 and living in LAC at year-end 2021 based on most recent residence.

[6] Denominator includes persons diagnosed with an HIV infection through 2020 and living in LAC at year-end 2021, based on most recent residence, who had at least one documented VL test in 2021.

[7] Age group for new diagnoses was based on age at the time of initial HIV diagnosis, whereas age group for persons living with diagnosed HIV was based on age at year-end 2020.

[8] Persons with unknown race/ethnicity are not shown but are included in the total.

[9] Includes all non-Latinx persons who have been reported with American Indian/Alaska Native race, regardless of whether any other race or ethnicity information is reported.

[10] Persons without an identified risk factor are assigned a risk factor using multiple imputation (MI) methods (see Technical Notes). Due to rounding, the sum may not add up to the total.

[11] Heterosexual contact with a person known to have, or to be at high risk for, HIV infection.

[12] Other risk includes risk factor not reported/identified.

Table 6A: HIV care continuum indicators among persons aged ≥ 13 years living with diagnosed HIV by Service Planning Area (SPA)/Health District (HD) of residence, LAC, 2020-2021[1]

SPA/HD[2]	HIV diagnoses 2020	Linked to care 1 month[3,4]		PLWDH as of 2021[5]	Engaged in care 2021[3,6]		Retained in care 2021[3,6]		No. of persons with ≥ 1 VL test in 2021	Viral Suppression[3] (VL < 200)		
										Virally suppressed	Among PLWDH[6]	Among persons with ≥ 1 VL test[7]
	N	N	%	N	N	%	N	%	N	N	%	%
Antelope Valley [1]	**48**	**32**	**67**	**1,183**	**848**	**72**	**578**	**49**	**836**	**756**	**64**	**90**
Antelope Valley	48	32	67	1,183	848	72	578	49	836	756	64	90
San Fernando [2]	**208**	**162**	**78**	**7,796**	**5,664**	**73**	**3,996**	**51**	**5,551**	**5,194**	**67**	**94**
East Valley	56	44	79	2,403	1,725	72	1,204	50	1,687	1,585	66	94
Glendale	38	32	84	946	682	72	486	51	668	626	66	94
San Fernando	24	20	83	985	767	78	539	55	753	715	73	95
West Valley	90	66	73	3,462	2,490	72	1,767	51	2,443	2,268	66	93
San Gabriel [3]	**165**	**110**	**67**	**4,040**	**2,950**	**73**	**2,020**	**50**	**2,875**	**2,691**	**67**	**94**
Alhambra	13	8	62	663	489	74	330	50	479	444	67	93
El Monte	54	36	67	1,008	721	72	522	52	707	659	65	93
Foothill	15	10	67	635	466	73	313	49	454	432	68	95
Pasadena	18	12	67	579	436	75	295	51	421	397	69	94
Pomona	65	44	68	1,155	838	73	560	48	814	759	66	93
Metro [4]	**348**	**271**	**78**	**17,908**	**11,408**	**64**	**7,959**	**44**	**11,003**	**10,088**	**56**	**92**
Central	126	85	67	6,708	3,855	57	2,678	40	3,738	3,263	49	87
Hollywood-Wilshire	170	144	85	9,352	6,316	68	4,371	47	6,053	5,690	61	94
Northeast	52	42	81	1,848	1,237	67	910	49	1,212	1,135	61	94
West [5]	**51**	**42**	**82**	**2,484**	**1,648**	**66**	**1,110**	**45**	**1,590**	**1,513**	**61**	**95**
West	51	42	82	2,484	1,648	66	1,110	45	1,590	1,513	61	95
South [6]	**186**	**144**	**77**	**6,622**	**4,629**	**70**	**3,255**	**49**	**4,551**	**4,032**	**61**	**89**
Compton	38	31	82	1,100	796	72	568	52	786	702	64	89
South	34	23	68	1,269	858	68	618	49	842	733	58	87
Southeast	40	33	83	1,068	722	68	516	48	715	624	58	87
Southwest	74	57	77	3,185	2,253	71	1,553	49	2,208	1,973	62	89
East [7]	**146**	**115**	**79**	**3,768**	**2,670**	**71**	**1,894**	**50**	**2,626**	**2,462**	**65**	**94**
Bellflower	27	20	74	878	637	73	450	51	621	583	66	94
East Los Angeles	28	23	82	718	497	69	353	49	492	463	64	94
San Antonio	57	46	81	1,441	993	69	715	50	978	915	63	94
Whittier	34	26	76	731	543	74	376	51	535	501	69	94
South Bay [8]	**204**	**160**	**78**	**7,797**	**5,440**	**70**	**4,017**	**52**	**5,359**	**4,972**	**64**	**93**
Harbor	15	10	67	681	456	67	332	49	447	410	60	92
Inglewood	69	52	75	2,002	1,416	71	984	49	1,390	1,270	63	91
Long Beach	92	74	80	4,237	2,954	70	2,245	53	2,922	2,728	64	93
Torrance	28	24	86	877	614	70	456	52	600	564	64	94
Total[8]	**1,401**	**1,066**	**76**	**52,034**	**35,396**	**68**	**24,885**	**48**	**34,516**	**31,756**	**61**	**92**

[1] Data are provisional due to reporting delay.

[2] Service Planning Area and Health District are based on 2012 boundaries.

[3] Persons are considered linked to care if there was at least one viral load, CD4+ T-cell, or genotype test within 1 month of an HIV diagnosis; persons are considered engaged in care if there were ≥ 1 viral load, CD4+ T-cell, or genotype tests in 2021; persons are considered retained in care if there were ≥ 2 viral load, CD4+ T-cell, or genotype tests in 2021, at least 3 months apart; persons are considered virally suppressed when the last VL test in 2021 was < 200 copies/mL.

[4] Denominator for linkage to care includes persons who were reported with a new HIV diagnosis in 2020; does not include estimated persons unaware of HIV infection.

[5] Persons living with diagnosed HIV include those diagnosed with an HIV infection through 2020 and living in LAC at year-end 2021, based on most recent residence.

[6] Denominator for engagement and retention in care and overall viral load suppression in 2021 includes persons diagnosed through 2020 and living in LAC at year-end 2021 based on most recent residence.

[7] Denominator includes persons diagnosed with an HIV infection through 2020 and living in LAC at year-end 2021, based on most recent residence, who had at least one documented VL test in 2021.

[8] The sum may not add up to the total due to persons with no information on Service Planning Area/Health District who are not shown but are included in the total.

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Public Health