HIV Surveillance Annual Report 2019

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

COUNTY OF LOS ANGELES
Public Health

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Dear Colleague:

We are pleased to announce the publication and release of the *Los Angeles County Annual HIV Surveillance Report for 2019.*

The Annual HIV Surveillance Report provides community and academic partners, public health planners, policymakers and other stakeholders with insights into the evolving Los Angeles County (LAC) HIV epidemic. This report also describes achievements in our shared public health response to HIV, outlines opportunities for improving our local HIV response and offers critical data points to facilitate decision-making to achieve our shared *Ending the HIV Epidemic* goals.

This report includes HIV surveillance data reported to the Department of Public Health since the beginning of the HIV epidemic in the early 1980's through December 31, 2019. Data on trends among persons newly diagnosed with HIV infection in LAC are presented for a subset of persons diagnosed with HIV through December 31, 2018. The main findings from this report are summarized in an Executive Summary and additional context for the epidemiologic and surveillance findings are described in detail in the various sections of the report. In addition, the newly included *Data in Action* summary is presented at the end of each section to contextualize programmatic and policy implications for the local response to HIV.

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 sub-populations living with and most at risk for HIV infection. Increasingly these efforts are done in coordination and alignment with the goals for ending the national HIV epidemic 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; 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 foci where HIV is being transmitted so that we can respond as quickly as possible and provide services to populations that need them the most.

The Annual HIV Surveillance Report for 2019 is available at: http://publichealth.lacounty.gov/dhsp and by clicking 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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The *HIV Surveillance Annual Report* is published by the Division of HIV and STD Programs, Department of Public Health, County of Los Angeles.

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We would like to thank 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 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, Alejandro Flores, Shnorik "Nora" Gigoryan, Erica Guerra, Mi Suk Harlan, Christina "Nina" Hohe, Virginia Hu, Eddie Javelosa, Andrea Kim, Hanjoo Kim, Sonali Kulkarni, Chun-Mai Kuo, Colleen Lam, Alice Lee, Keisha Macon, Carolina Magana, Sameh Mansour, Pateel Margossian, Monica Munoz, Azita Naghdi, Ying Ou, Kathleen Poortinga, Sophia Rumanes, Mona Seino, Zhijuan Sheng, Mary C. Vitale; and (3) the participants and teams 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

Front cover: Ramelli S. (2018). Los Angeles. New York: teNeues Media. Retrieved May 14, 2020. From http://books-teneues.us/los-angeles/

Back cover: The Chicano Movement. Retrieved May 14, 2020. From http://theechicanomovement.weebly.com/

This report is inclusive of all gender, age, and racial/ethnic groups in Los Angeles County. 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, Asian and Pacific Islanders, American Indian and Alaskan 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 the completion of a CD4+ T-cell test.17 CCR 2500(h) and (k).

Acute HIV Infection Reporting: Effective June 2016, Title 17 CCR 2500(h) and (k) requires all health care providers report cases of acute HIV infection 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 infection 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 infection 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 Division of HIV and STD Programs, 600 South Commonwealth Avenue, Suite 1260, Los Angeles, CA 90005. Phone (213) 351-8516.

Contents

List of Abbreviations

AIDS	Acquired Immune Deficiency Syndrome
AI/AN	American Indian/Alaskan Native
API	Asian and Pacific Islander
ART	Antiretroviral therapy
CDC	Centers for Disease Control and Prevention
DHSP	Division of HIV and STD Programs
DPH	Department of Public Health
EHARS	Enhanced HIV/AIDS Reporting System
HIV	Human Immunodeficiency Virus
HUD	U.S. Department of Housing and Urban Development
IDU	Injection drug use
LAC	Los Angeles County
MSM	Men who have sex with men
NHAS	National HIV/AIDS Strategy
OMB	Office of Management and Budget
PLWH	Persons living with HIV
PLWDH	Persons living with diagnosed HIV
PrEP	Pre-exposure prophylaxis
PWID	Persons who inject drugs
TG	Transgender persons
US	United States
VL	Viral load

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Executive Summary

This report presents surveillance data on the HIV epidemic in Los Angeles County (LAC) based on information reported to the Department of Public Health for persons diagnosed with HIV from the beginning of the HIV epidemic through December 31, 2019. Data on trends in newly diagnosed HIV infection in LAC are presented on a subset of persons diagnosed with HIV through December 31, 2018.

Report changes

The Annual HIV Surveillance Report 2019 includes new information and data visualizations to facilitate rapid use of HIV surveillance data to address the needs of persons living with HIV in LAC. This includes new data reports on:

- HIV among children
- HIV among persons experiencing homelessness
- Estimates of undiagnosed HIV infection among persons living with HIV
- Estimates of HIV incidence in the population
- Timeliness of HIV diagnosis
- HIV treatment coverage and treatment adherence
- Deeper analysis of the continuum of HIV care among persons living with diagnosed HIV
- Death rates and cause of death among persons living with diagnosed HIV
- HIV survival probabilities among persons living with diagnosed HIV

Key findings in HIV epidemiology

- At year-end 2019, a total of 52,004 persons were living with diagnosed HIV (PLWDH) in LAC, and 99.9% of these were aged ≥ 13 years. Among children aged <13 years, newly diagnosed HIV remains low but not within target for elimination of mother-to-child transmission of HIV.
- Latest estimates approximate that there were approximately 1,700 persons aged ≥ 13 years newly infected with HIV in 2017. These infections represented new HIV infections acquired that year that may or may not have been diagnosed.
- In 2018, 1,660 persons aged ≥ 13 years were newly diagnosed with HIV infection, and approximately one-third of these were identified early in HIV disease progression based on CD4 counts within 1 month of HIV diagnosis. These findings suggest that a substantial number of newly infected persons remain undiagnosed and at high risk of transmitting to others due to high levels of HIV viral load.
- Among the estimated 57,700 persons aged ≥ 13 years living with HIV at year-end 2017, approximately 11% or 6,400 persons were unaware of their infection.

- Largest gaps in awareness of HIV-positive status existed for persons aged <35 years, where over 50% of HIV-infected persons aged 13-24 years and one-third of HIV-infected persons aged 25-34 years were unaware of their infection. Disparities also existed for persons who inject drugs (PWID), with over one-third of HIV-infected PWID unaware of their HIV-positive status and only 55% having been tested for HIV in the past 12 months.
- There are continued disparities in HIV diagnosis by population and geographic location. Rates of new HIV diagnosis are higher among men than women. Across age groups, young men aged 20-29 years and women aged 30-39 years had highest HIV diagnosis rates. Black men and women had higher rates of HIV diagnosis compared with other race/ethnicity groups. Among men the highest rates of diagnoses were seen in the Central, South, and Hollywood-Wilshire Health Districts, and the highest rates for women were seen in the Central, South, and Southeast Health Districts.
- 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 2018 approximately one in three deaths among PLWDH were due to HIV, while one in five deaths among PLWDH were due to diseases of the heart.

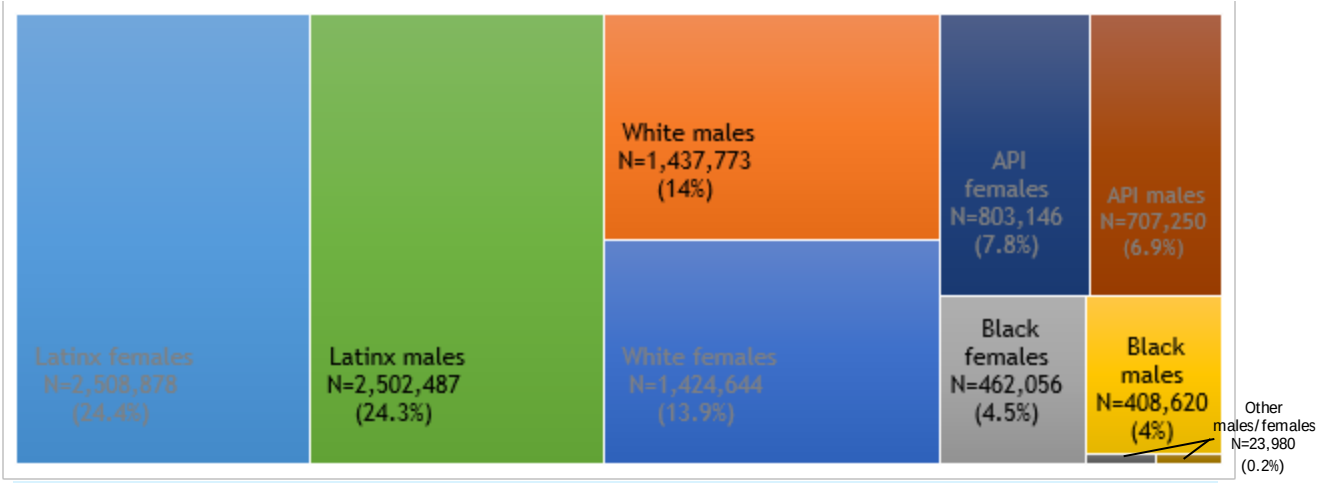
Key findings in the HIV care continuum

- Since 2010 there have been encouraging improvements in linkage to care and viral suppression rates among PLWDH. However, engagement in care has not improved and, since 2013 retention in care has become worse.
- In 2018, 75% of persons newly diagnosed with HIV were linked to care within 1 month. At year-end 2019, 7 in 10 PLWDH were engaged in care, 5 in 10 were retained in care, and 6 in 10 were virally suppressed. Children aged <13 years fared better in the care continuum than adults.
- Concerning HIV trends persist among persons experiencing homelessness. HIV diagnosis rates are increasing among unhoused persons. Additionally, unhoused persons have poorer outcomes across the HIV care continuum.
- Populations with lowest achievements in linkage to care were females, Blacks, adolescents, persons aged ≥ 60 years, and persons with injection drug use (IDU) or heterosexual transmission risk. Health Districts with greatest need for interventions to improve linkage to HIV care services were Antelope Valley, El Monte, and South Health Districts where linkage rates were ≤ 70%.
- Approximately 9 in 10 PLWDH were on HIV treatment. Of those, 8 in 10 had adhered to their drugs in the past 3 days. Treatment coverage was lowest for Black populations and persons aged < 40 years, while adherence was lowest for younger persons aged <30 years and the Latinx population.

- Timeliness from HIV diagnosis to treatment initiation has improved over time. In a sample of persons newly diagnosed with HIV in 2018 and who had information on HIV treatment, over 80% had initiated treatment within 3 months of diagnosis and over 60% within 1 month of diagnosis.
- Timeliness from HIV diagnosis to viral suppression is also improving. In 2018, 77% of persons newly diagnosed with HIV were virally suppressed within 12 months of diagnosis. Still more work is needed to help all PLWH achieve viral suppression quicker: in 2018, only 44% of persons newly diagnosed with HIV reached viral suppression within 3 months and 66% within 6 months.
- Greatest disparities in viral suppression were among Black populations, females, persons aged 30-49 years, and persons whose transmission risk included injection drug use. Geographically, unsuppressed viral load was highest in the Central Health District, followed by South, Southeast, Hollywood-Wilshire, and West Health Districts.

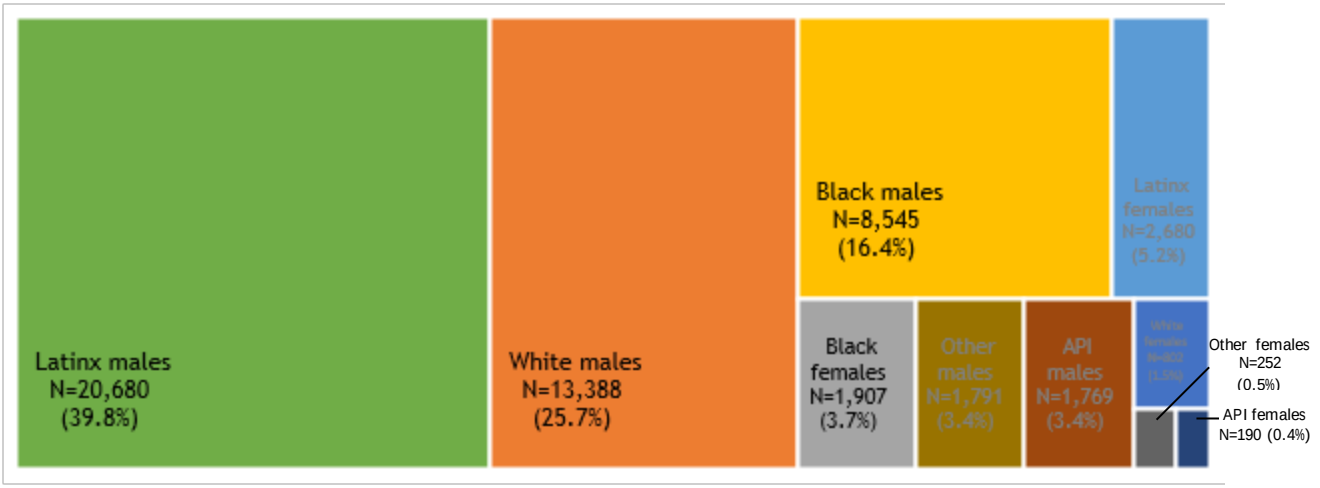
Epidemiology of HIV Infection in Los Angeles County

Figure 1: Distribution of sex[1] and race/ethnicity among LAC residents in 2018 (N=10,278,834)[2]



An estimated 10.3 million people resided in LAC in 2018. The Latinx population represents the largest population group (49%), followed by the White population (28%). Black men and women represented 8% of the total LAC population.

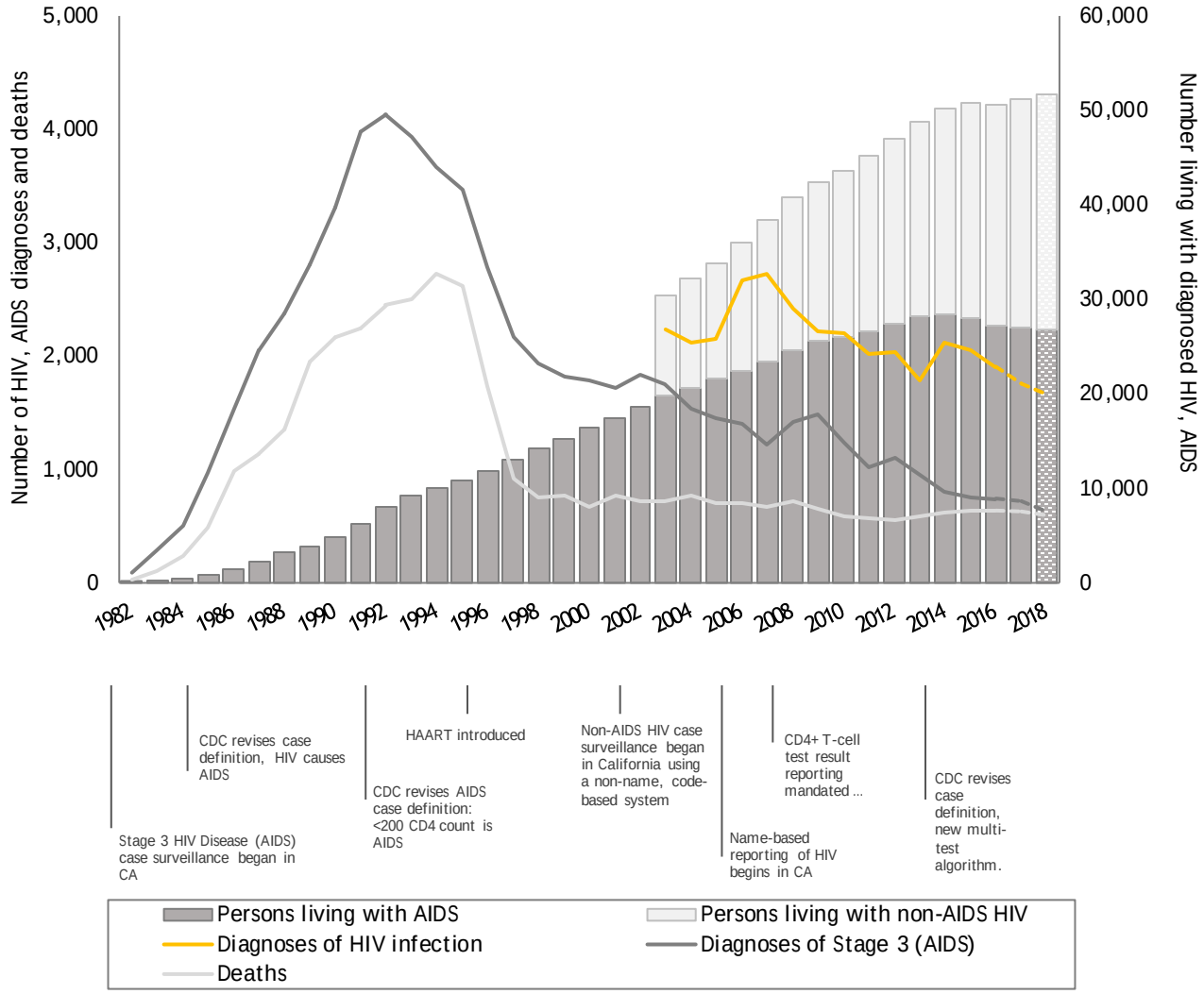
Figure 2: Distribution of sex[1] and race/ethnicity among persons living with diagnosed HIV at year-end 2019, LAC (N=52,004)



In contrast, the populations most impacted by the HIV epidemic are Latino males who represent nearly 40% of all PLWDH followed by White males (26%) and Black males (16%). Combined, these groups represent > 80% of PLWDH in LAC.

[1]Population estimates are not currently available for transgender persons, therefore male and female categories are based on biological sex at birth.
[2]Based on the 2018 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 1982-2018[1,2]

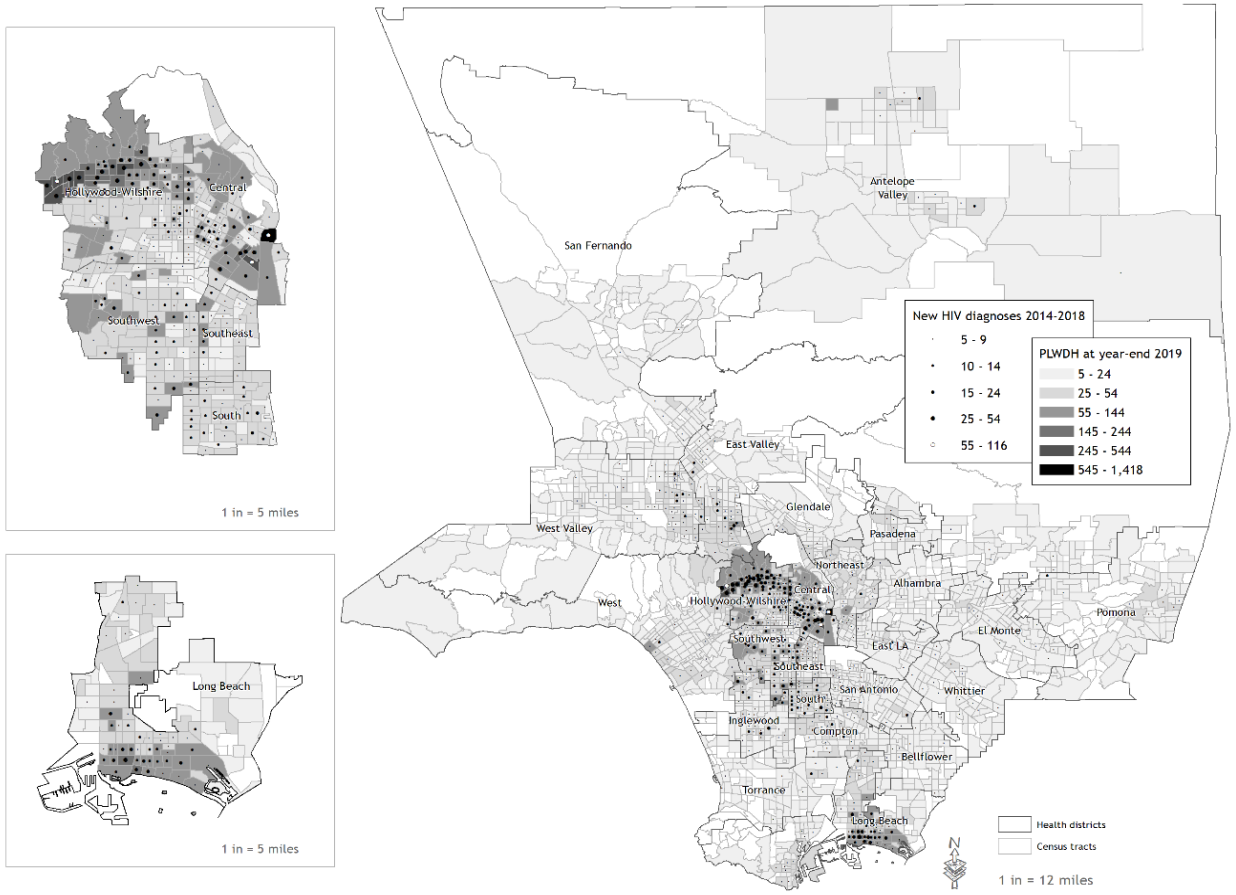


In LAC, AIDS reporting began in 1982 and peaked in 1992 with more than 4,000 cases reported that year. In 1994, deaths reached an all-time high followed by a dramatic decline that coincided with the introduction of highly active antiretroviral treatment (HAART) for HIV in 1996. In 2006, name-based HIV reporting began in California, allowing for better tracking of trends in diagnosed HIV infection irrespective of disease stage. HIV epidemic trends thereafter have declined for diagnosed HIV cases and deaths, the latter of which appear to have leveled out in more recent years.

[1]Includes new diagnoses of HIV infection regardless of the disease stage at time of diagnosis.
[2]2018 data are provisional as indicated by the dashed line and pattern bar.

Geographic distribution of HIV infection

Figure 4: Geographic distribution[1] of persons living with diagnosed HIV at year-end 2019 and persons newly diagnosed with HIV in 2014-2018, LAC



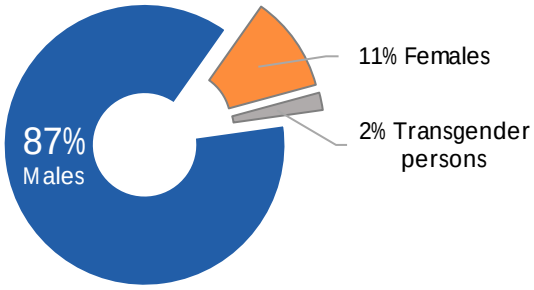
HIV infection is geographically focused in LAC, with the highest density of new HIV diagnoses residing in the central and southern regions. Among all 26 Health Districts, Hollywood-Wilshire, Central, and Long Beach Health Districts were identified as three epicenters for HIV, reporting the largest numbers of new HIV diagnoses and persons living with diagnosed HIV.

[1]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, 2019; 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 2014-2018 and 4th quarter 2019 was used for PLWDH at year-end 2019.

HIV diagnosis

This section presents information among persons newly diagnosed with HIV in LAC. Trends are presented from 2006 when named-based HIV reporting began in California through year-end 2018. Due to reporting delays, the 2018 HIV diagnosis data are provisional as indicated by dashed lines or patterned bars.

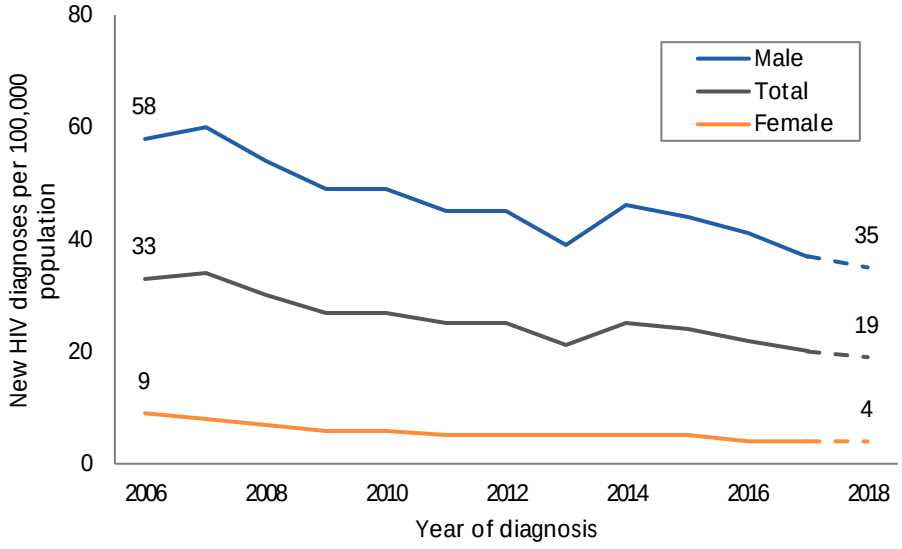
Figure 5: New HIV diagnoses by gender among persons aged ≥ 13 years, LAC 2018



Data in context: Among the 35 transgender persons newly diagnosed with HIV in 2018, 28 of these were among transgender women.

The largest burden of HIV is among males who represented 87% of new HIV diagnoses in 2018 (N=1,445). Females (N=180, 11%) and transgender persons (N=35, 2%) represented a much lower number and percentage of new HIV diagnoses in 2018.

Figure 6: HIV diagnoses rates by gender [1] among persons aged ≥ 13 years, LAC 2006-2018



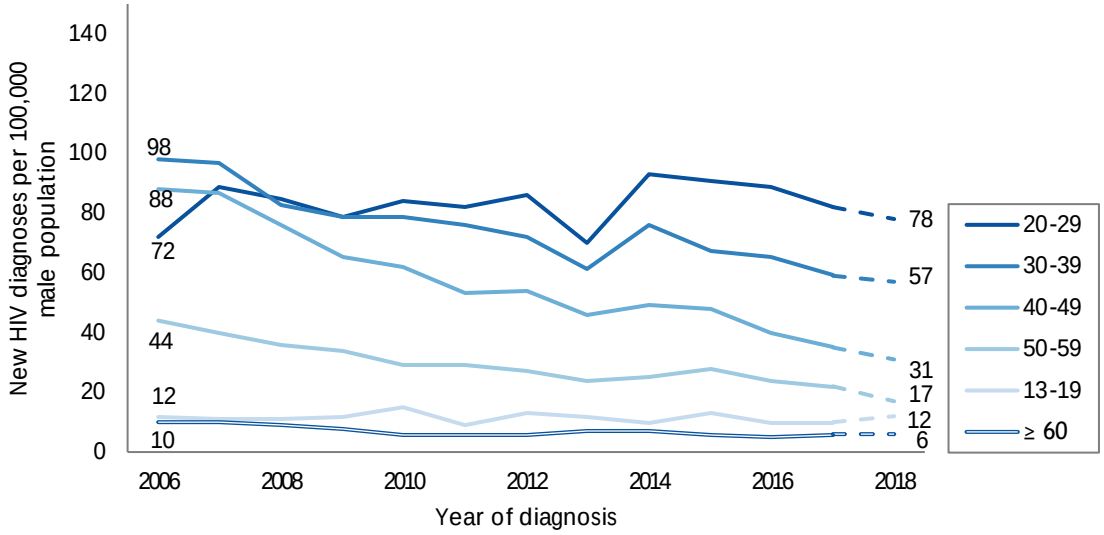
Data in context: HIV diagnoses rates among transgender persons are not presented due to unavailability of reliable population size estimates in LAC which have ranged from 3,500 (2017) to 7,200 (2012) transgender persons.

HIV diagnoses rates were substantially higher among males than females but on the decline for both despite a significant number of individuals with undiagnosed HIV infection in LAC.

[1] HIV diagnoses rates were not calculated for transgender persons due to lack of reliable population estimates for this population.

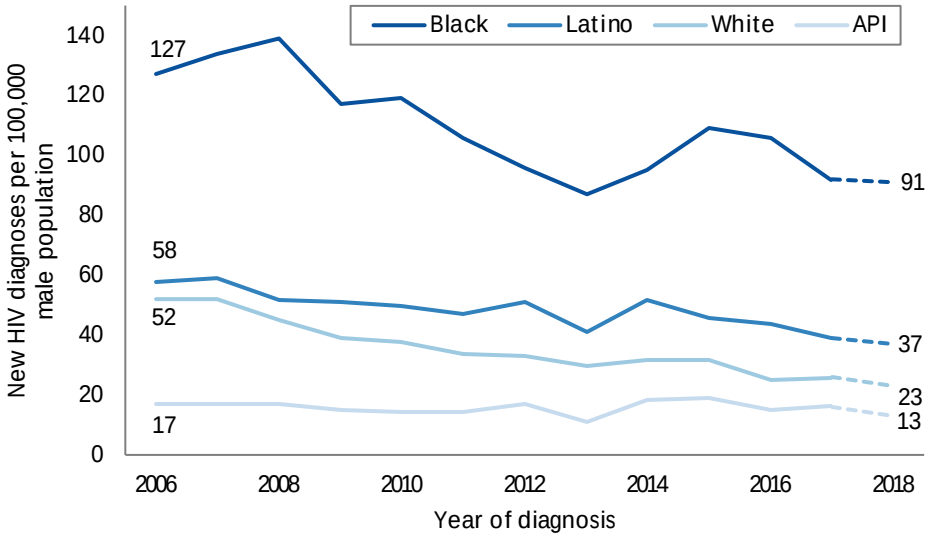
Trends in HIV diagnoses among males

Figure 7: HIV diagnoses rates among males aged ≥ 13 years by age group, LAC 2006-2018



Since 2006 HIV diagnoses rates have declined among males aged ≥30 years. Rates among males aged 20-29 years increased after 2006 and have decreased since 2014.

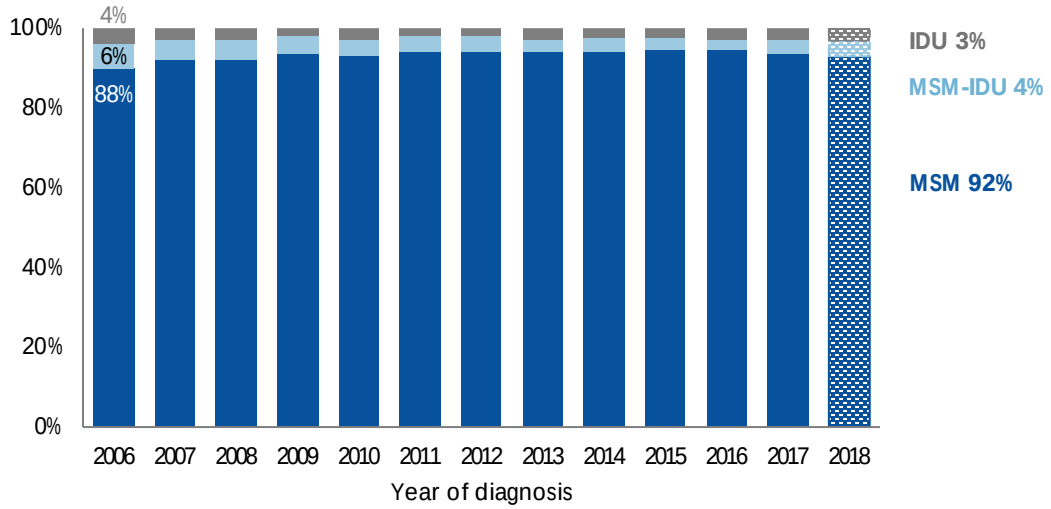
Figure 8: HIV diagnoses rates among males aged ≥ 13 years by race/ethnicity[1], LAC 2006-2018



Data in context: HIV diagnoses rates among American Indians/Alaskan Natives (AI/AN) and persons with multiple race/ethnicity were excluded due to small numbers. In 2018, AI/AN and multi-racial persons represented 0.5% and 2.5% of males newly diagnosed with HIV, respectively.

[1]American Indians, Alaskan Natives and persons of multiple race/ethnicities were not included in the analysis because of unstable results due to small numbers.

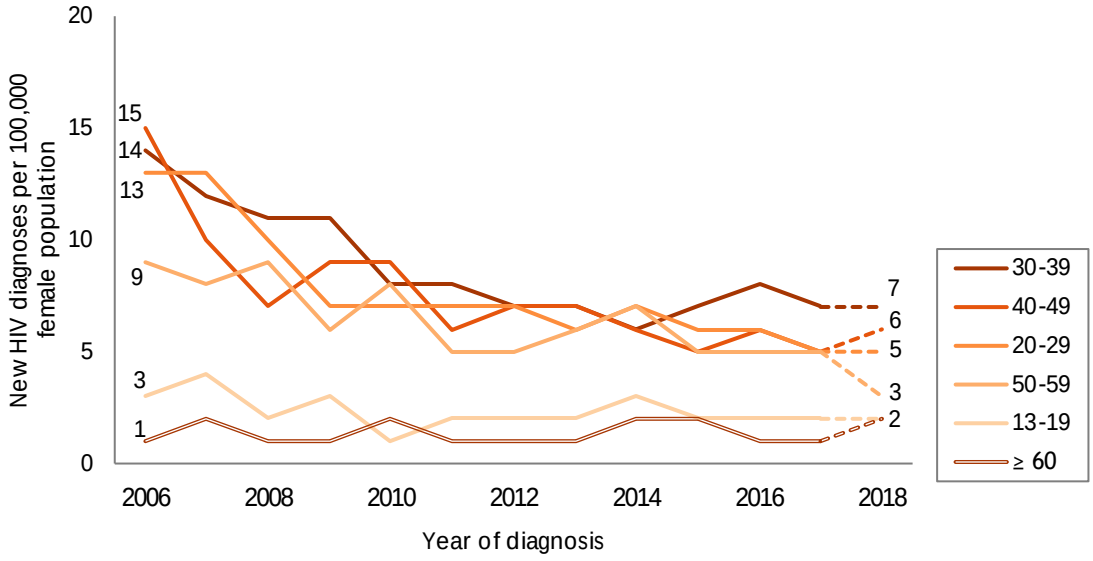
Figure 9: Transmission risk[1] among males newly diagnosed with HIV, LAC 2006-2018



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

Trends in HIV diagnoses among females

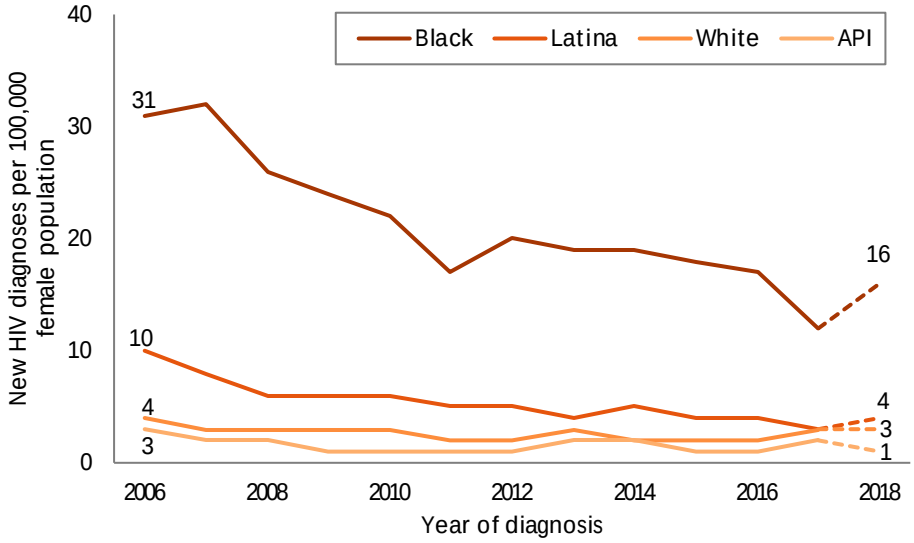
Figure 10: HIV diagnoses rates among females aged ≥ 13 years by age group, LAC 2006-2018



Across female age groups, HIV diagnoses rates have declined for persons between the ages of 20 and 59 years.

[1]Other transmission risk was identified for <1% of new diagnosis. Other 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.

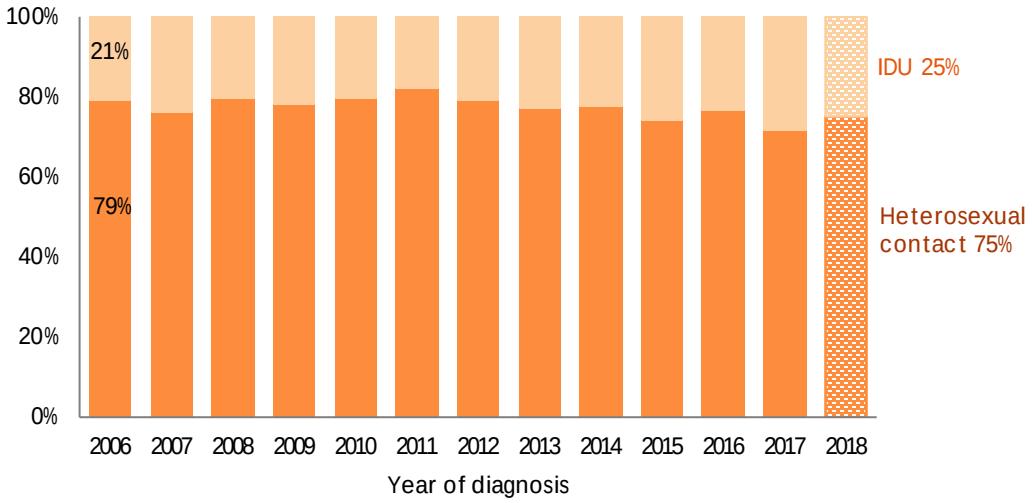
Figure 11: HIV diagnoses rates among females aged ≥ 13 years by race/ethnicity[1], LAC 2006-2018



Data in context: HIV diagnoses rates among American Indian/Alaskan Native (AI/AN) and persons with multiple race/ethnicity are not included due to small numbers. In 2018, AI/AN and multi-racial persons represented <1% of females newly diagnosed with HIV.

Between 2006 to 2018, HIV diagnoses rates declined by 48% among Black females and by 60% among Latina females. Still rates were highest among Black females.

Figure 12: Transmission risk among females newly diagnosed with HIV, LAC 2006-2018[2]

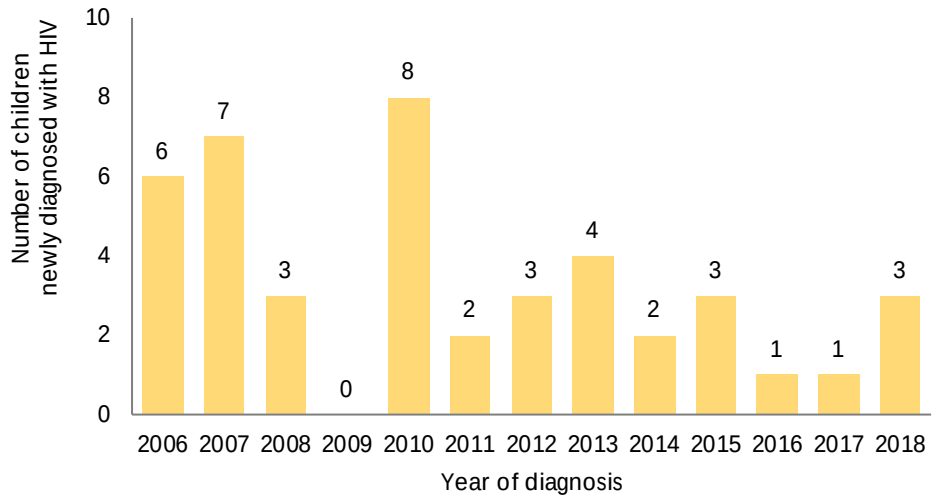


The primary HIV transmission route among females newly diagnosed with HIV was having sex with men followed by injection drug use.

[1]American Indians, Alaskan Natives and persons of multiple race/ethnicities were not included in the analysis because of unstable results due to small numbers.
[2]Not presented in the chart are other risks identified for <1% of new diagnosis of females, which include 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.

HIV among children

Figure 13: Number of children aged < 13 years newly diagnosed with HIV, LAC 2006-2018[1]



New diagnoses in children peaked in 2010 at 8 cases and declined to 3 cases in 2018.

Table 1: HIV incidence and perinatal transmission, infants aged <18 months, LAC 2006-2018

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	-	139,679	77	-	-
2010	2	133,160	85	1.5	2.4
2011	-	130,313	102	-	-
2012	-	131,697	78	-	-
2013	1	127,526	75	0.8	1.3
2014	-	130,150	60	-	-
2015	1	124,438	75	0.8	1.3
2016	-	123,092	83	-	-
2017	3	116,850	72	2.6	4.2
2018	2	110,058	68	1.8	2.9

Data in context: National targets for elimination of mother-to-child transmission of HIV

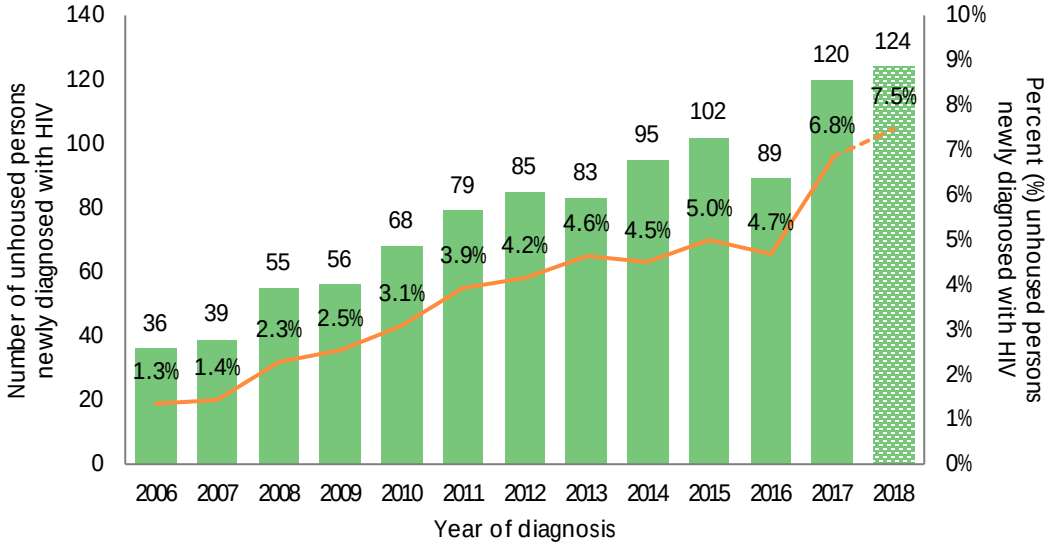
1. Perinatal HIV incidence <1 per 100,000 live births

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

As of 2018, both perinatal HIV incidence and perinatal HIV transmission rates were >1% and not within target for elimination of mother-to-child transmission of HIV in the US.

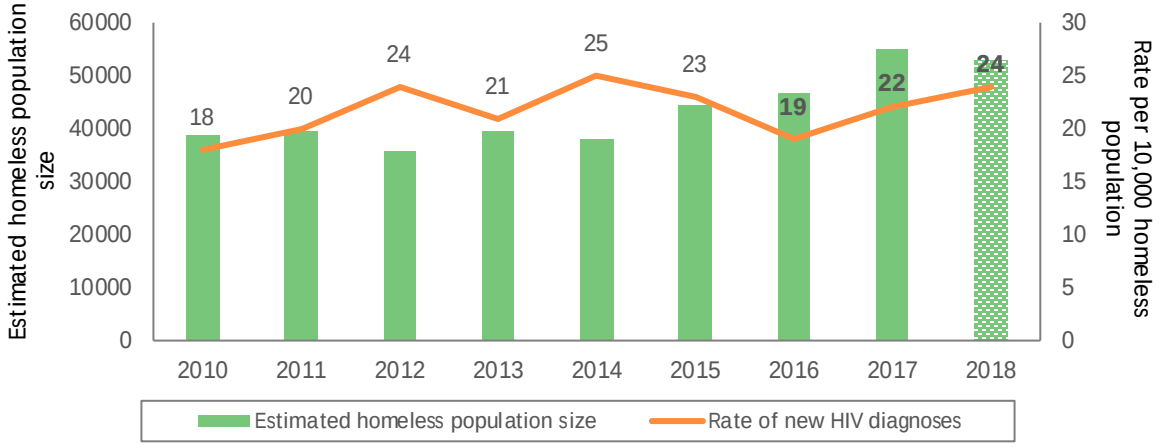
[1] Year of diagnosis may not indicate year of birth, nor indicate infants newly diagnosed with HIV at birth.

Figure 14: Number and percentage of persons aged ≥ 13 years newly diagnosed with HIV and unhoused at the time of diagnosis, LAC 2006-2018



The percentage of persons newly diagnosed with HIV who are unhoused is increasing.

Figure 15: HIV diagnoses rates among persons aged ≥ 13 years experiencing homelessness, LAC 2010-2018 [1]



HIV diagnoses rates have increased among persons experiencing homelessness in the past three years.

[1]Data from Greater Los Angeles County Homeless Count, 2018 Results (https://www.lahsa.org/documents?id=2059-2018-greater-los-angeles-homeless-count-presentation.pdf).

Timeliness of HIV diagnosis

To end the HIV epidemic, diagnosis and treatment of PLWH need to occur soon after infection to ensure that viral suppression is achieved and sustained in the early stage of infection and that forward transmission of HIV is interrupted.

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 infection has four stages of HIV infection: Stage 0, 1, 2, and 3. Stage 0 HIV disease is designed to capture early HIV infection which includes acute HIV and infections within 180 days before HIV diagnosis.

Table 2: HIV disease stage criteria

HIV disease stage	Staging criteria
Stage 0	Based on the difference in days between the first HIV-positive test result and last documented HIV-negative test result. If the difference falls within 180 days, HIV infection is classified as stage 0 disease. Note 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.
Stage 1	Based on first CD4 test result within 90 days of HIV diagnosis. If CD4 ≥ 500 cells/µL HIV infection is classified as stage 1 disease.
Stage 2	Based on first CD4 test result within 90 days of HIV diagnosis. If CD4 is between 200-499 cells/µL HIV infection is classified as stage 2 disease.
Stage 3	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 infection is classified as stage 3 disease
Unknown	Based on first CD4 test result within 90 days of HIV diagnosis. If there is no CD4 test result within this timeframe HIV infection is classified as unknown stage.

Table 3: HIV disease stage among persons aged ≥ 13 years newly diagnosed with HIV, LAC 2018

	New HIV diagnoses	Stage 0 [1]		Stage 1-2 [2]		Stage 3 [3]		Unknown [4]	
	N	N	%	N	%	N	%	N	%
Total	**1,660**	**365**	**22%**	**733**	**44%**	**261**	**16%**	**301**	**18%**
Gender									
Male	1,445	332	23%	630	44%	222	15%	261	18%
Female	180	21	12%	83	46%	38	21%	38	21%
Transgender	35	12	34%	20	57%	<5		<5	
Race/ethnicity [5]									
White	323	73	23%	146	45%	41	13%	63	20%
Black	379	64	17%	161	42%	57	15%	97	26%
Latinx	817	193	24%	368	45%	135	17%	121	15%
API	88	22	25%	35	40%	19	22%	12	14%
Age group									
13-19	64	17	27%	30	47%	3	5%	14	22%
20-29	637	191	30%	293	46%	45	7%	108	17%
30-39	485	82	17%	231	48%	83	17%	89	18%
40-49	257	44	17%	104	40%	64	25%	45	18%
50-59	140	25	18%	49	35%	38	27%	28	20%
≥60	77	6	8%	26	34%	28	36%	17	22%
Transmission category									
MSM	1,352	323	24%	602	45%	194	14%	233	17%
IDU	92	8	9%	41	45%	21	23%	22	24%
MSM-IDU	57	14	25%	20	35%	12	21%	11	19%
Heterosexual	157	20	13%	69	44%	34	22%	34	22%

In 2018, 1 in 5 new HIV diagnoses had stage 0 disease and presumed to have been infected within the past 6 months. The proportion of stage 0 diagnoses was highest among transgender persons, Whites, Latinx, API, persons aged < 30 years, MSM, and MSM-IDU.

[1]The criteria for stage 0 infection is 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. The number of newly diagnosed persons with stage 0 HIV disease are likely underestimated due to under-reporting of HIV-negative test results.

[2]Stage 1 and 2 disease is based on the earliest CD4 test result within 90 days of HIV diagnosis. The criterion for Stage 1 disease is CD4 ≥ 500 cells/µL and the criterion for Stage 2 is CD4 between 200-499 cells/µL.

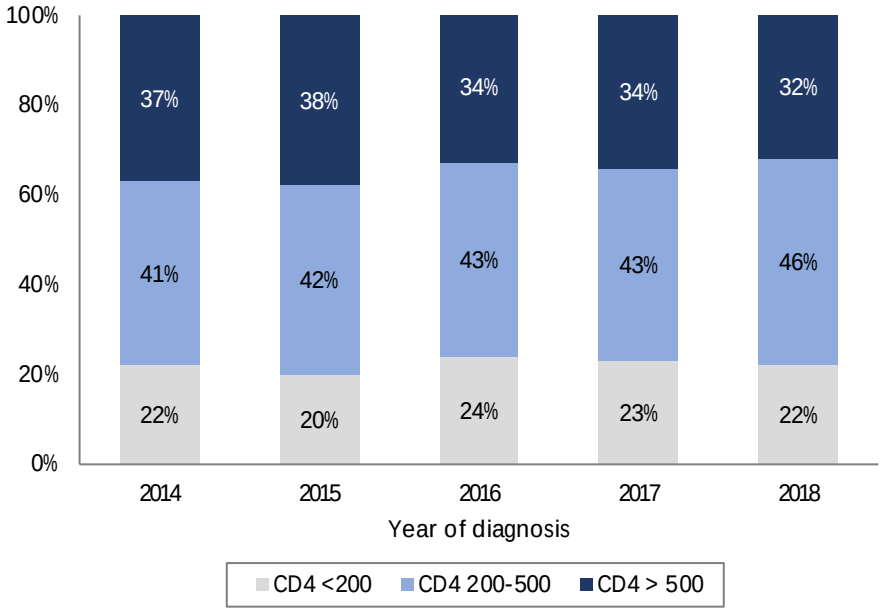
[3]Stage 3 criteria include either CD4 < 200 cells/µL within 90 days of HIV diagnosis or a diagnosis of an opportunistic illness within 90 days of HIV diagnosis.

[4]Unknown stage includes persons without a CD4 test within 90 days of HIV diagnosis.

[5]American Indians, Alaskan Natives and persons of multiple race/ethnicities were not included in the analysis because of unstable results due to small numbers.

Another approach for evaluating the timeliness of HIV diagnosis is based on baseline CD4+ T-cell counts within 1 month of HIV diagnosis to get as close to one's immunodeficiency status at HIV diagnosis as possible. 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 this timeframe.

Figure 16: CD4+ T-cell count [1] within 1 month of HIV diagnosis, LAC 2014-2018

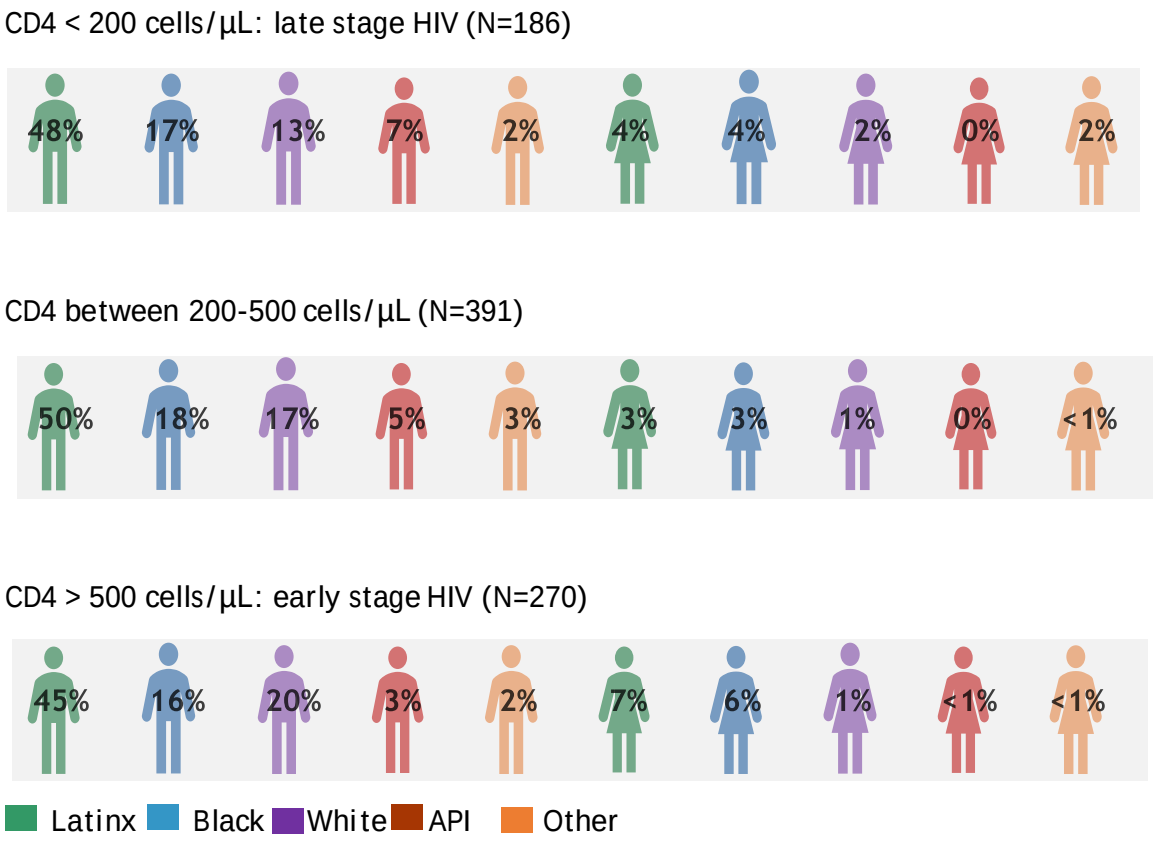


Data in context: To meet the national goal, the percentage of persons with late stage HIV disease at diagnosis (CD4<200) needs to decrease to 16%.

One in five new HIV diagnoses presented with CD4+ T-cells < 200 cells/µL at the time of diagnosis, indicative of late HIV disease. However, the percentage of persons presenting with late HIV disease has been decreasing, albeit slowly, since 2016.

[1]Based on first CD4 test within 1 month of HIV diagnosis. Among persons newly diagnosed with HIV between 2014-2018, 48% had a CD4 test within this period.

Figure 17: Distribution of gender[1] and race/ethnicity[2] among persons by immunodeficiency status[3] at the time of HIV diagnosis, LAC 2018



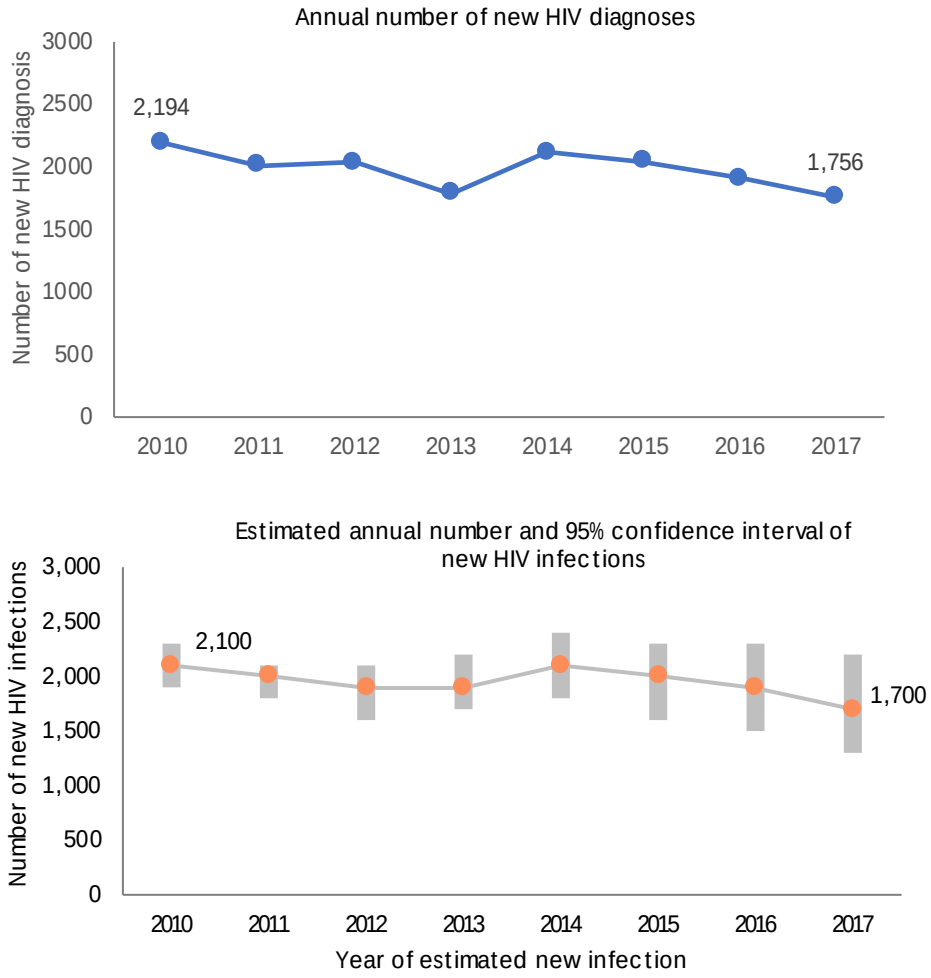
Latino and Black males were more likely to be diagnosed later in disease than earlier, while White men, Latina and Black females were more likely be diagnosed earlier in disease than later.

[1]Transgender persons were not included in the analysis because of unstable results due to small numbers.
[2]Other race/ethnicity includes American Indian, Alaskan Native and persons of multiple race/ethnicities. There were no API females that presented with late stage HIV disease at diagnosis.
[3]Based on first CD4 test within 1 month of HIV diagnosis. Overall, 51% of persons newly diagnosed with HIV in 2018 had a CD4 test within this time period.

HIV incidence and undiagnosed HIV infection

Several indicators required for monitoring the HIV response are not directly measured through HIV surveillance. These are: (1) the number of persons who are newly infected each year, regardless of whether they had received an HIV diagnosis (i.e., new HIV infection) and (2) the number of persons who are living with HIV but do not yet know of their infection (i.e., undiagnosed HIV). These indicators are important for planning, monitoring, and evaluating HIV services. These estimates are measured using a mathematical model developed by the Centers for Disease Control and Prevention. Below we present estimates of new HIV infection, HIV incidence rates, and undiagnosed HIV in LAC based on this model. Because the model has a reporting delay of 18 months, data are presented through 2017 only.

Figure 18: Number of persons newly diagnosed with HIV compared with the estimated number newly infected with HIV among persons aged ≥ 13 years, LAC 2010-2017



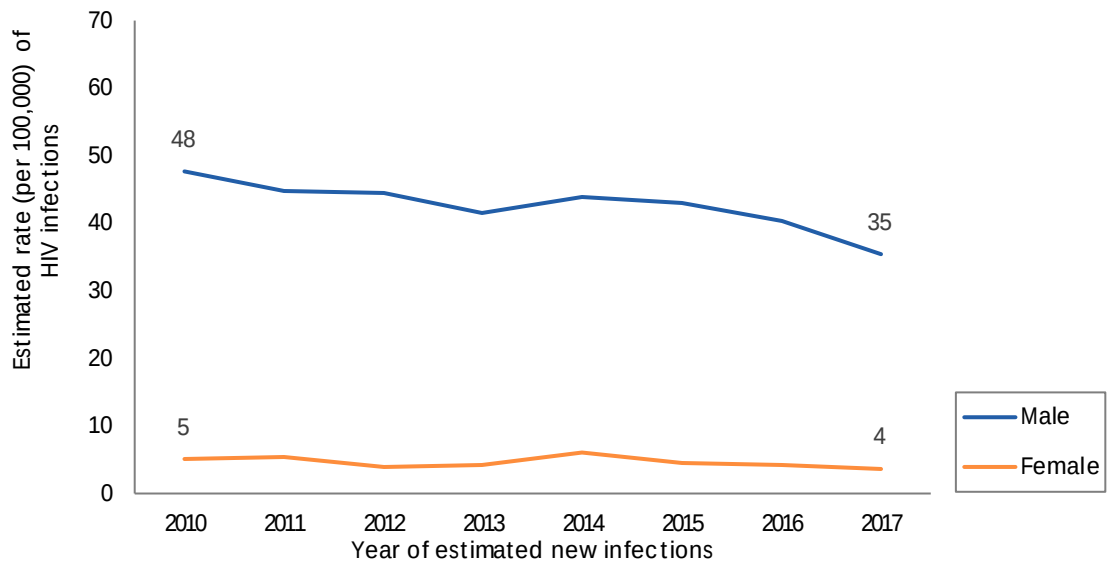
***Data in context**:* The annual number of **new HIV diagnoses** is the number of persons who received a HIV diagnosis in a calendar year. It does not provide information on when the infection occurred. This information is used to quantify the need for HIV care.

The estimated annual number of **new HIV infections** is the number of persons newly infected with HIV in a calendar year, whether or not they received an HIV diagnosis. This information is used to monitor transmission and impact of HIV prevention services.

New HIV infections are presented with 95% confidence intervals (grey bounds), meaning that we can be 95% certain that the actual number of new HIV infections in the year falls within this range.

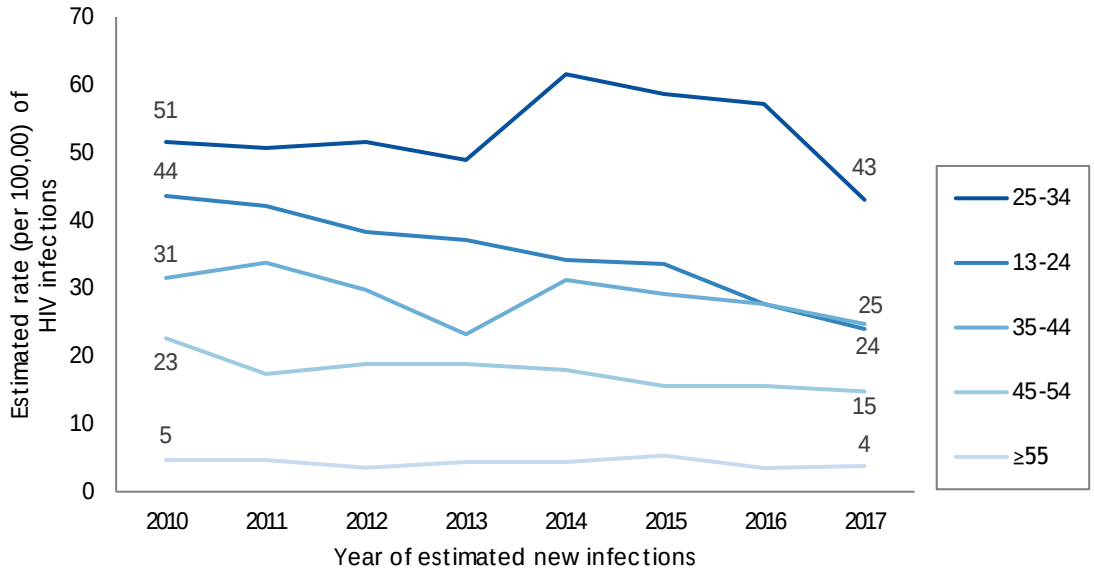
In 2017, 1,756 persons were newly diagnosed with HIV, reflecting both new and old infections and 1,700 persons were newly infected with HIV, reflecting new infections.

Figure 19: Estimated HIV incidence rates by gender [1] among persons aged ≥ 13 years, LAC 2010-2017



Since 2010, HIV incidence rates have declined by 27% among males, but only 20% among females. Still, rates are nearly 9 times higher among males compared with females.

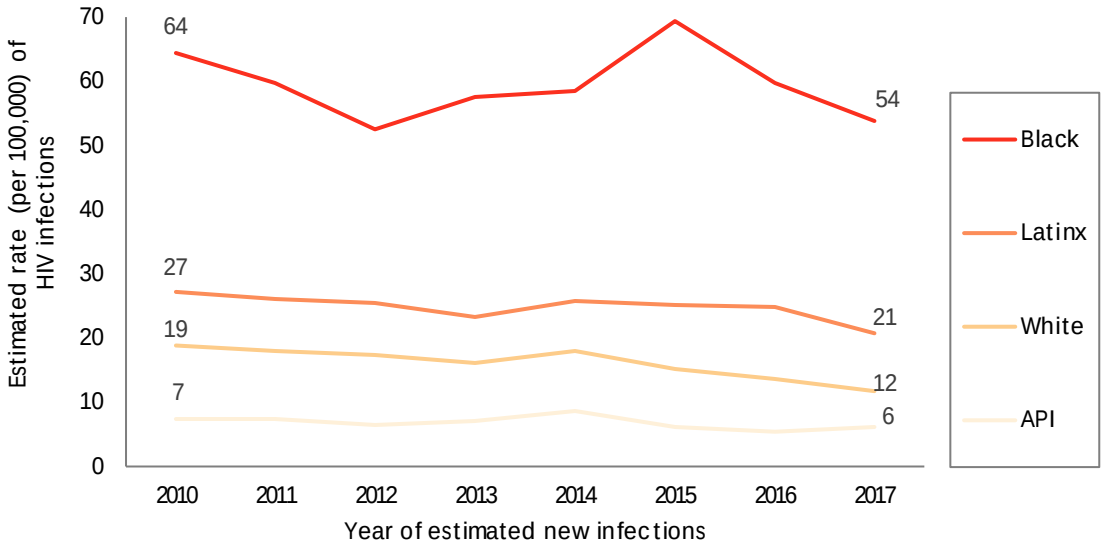
Figure 20: Estimated HIV incidence rates by age group among persons aged ≥ 13 years, LAC 2010-2017



HIV incidence is highest among persons aged 25-34 years. Since 2015, notable declines in HIV incidence have been observed among persons aged 13-44 years.

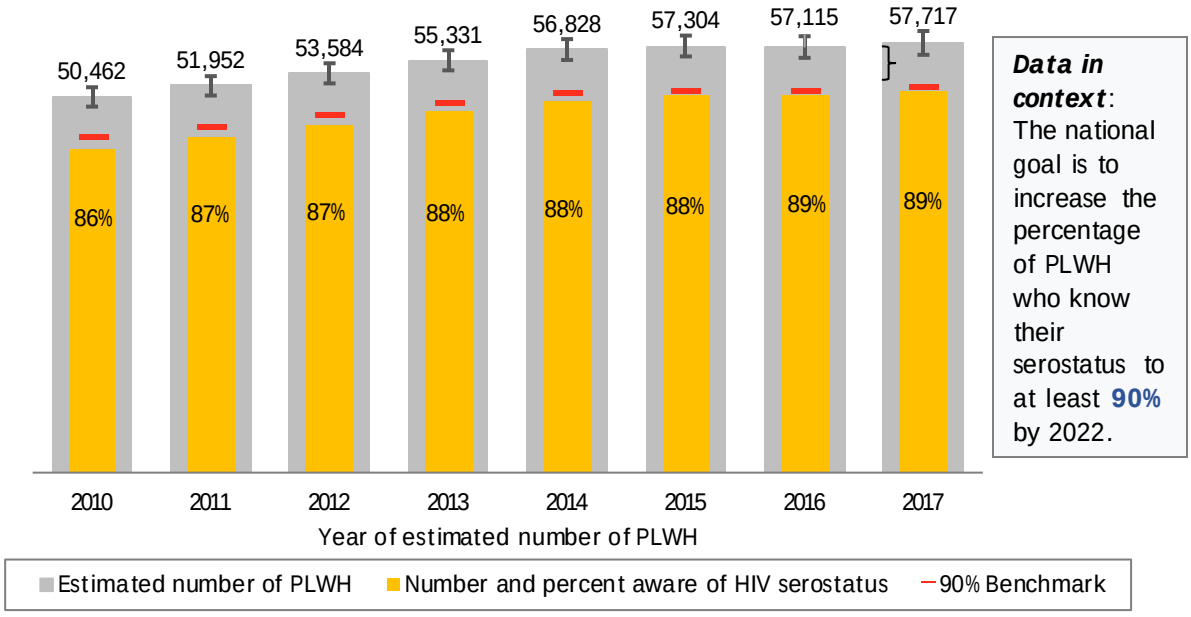
[1]Transgender persons were not included in the analysis because of unstable results due to small numbers.

Figure 21: Estimated HIV incidence rates by race/ethnicity[1] among persons aged ≥ 13 years, LAC 2010-2017



Since 2010, HIV incidence has declined among Blacks, Latinx and Whites. Blacks continue to have the highest incidence compared with other race/ethnicity groups.

Figure 22: Awareness of HIV-positive serostatus among PLWH aged ≥ 13 years, LAC 2010-2017

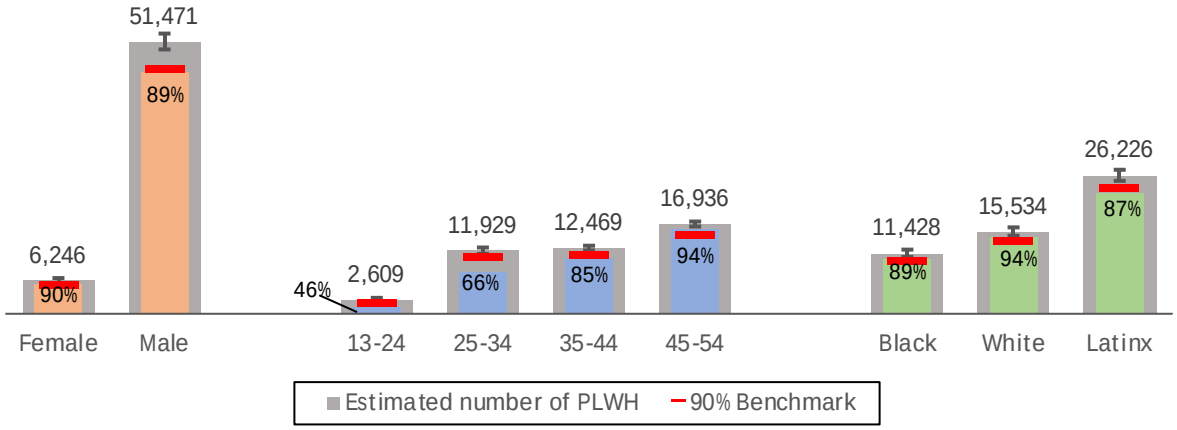


Data in context: The national goal is to increase the percentage of PLWH who know their serostatus to at least **90%** by 2022.

In 2017, 89% of PLWH were aware of their HIV serostatus, nearly reaching the national target of ≥ 90%. Still an estimated 6,400 PLWH remain unaware of their HIV infection.

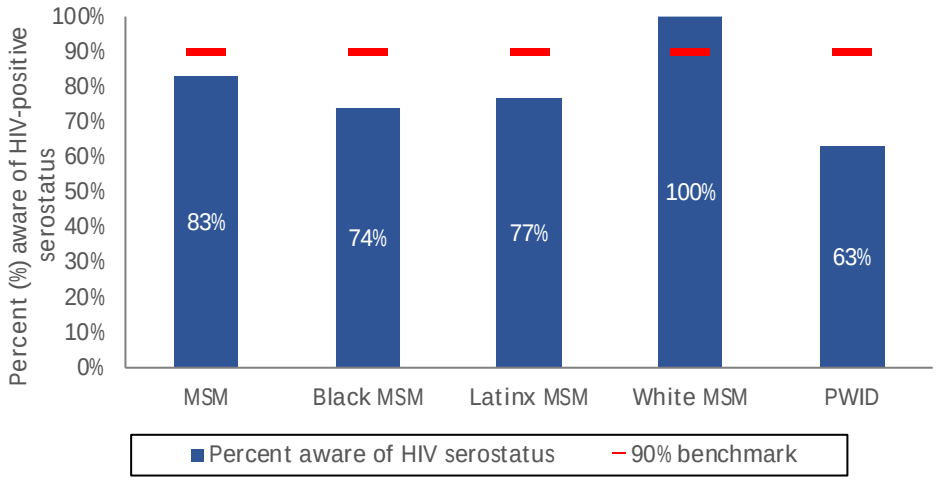
[1]American Indians, Alaskan Natives and persons of multiple race/ethnicities were not included in the analysis because of unstable results due to small numbers.

Figure 23: Awareness of HIV-positive serostatus[1] among PLWH aged ≥ 13 years by gender, age group, and race/ethnicity, LAC 2017



The greatest disparities in awareness of HIV-positive serostatus are among young PLWH. Only 46% of HIV-infected persons aged 13-24 years and 66% of HIV-infected persons aged 25-34 years were aware of their HIV infection, falling very short of the 90% goal.

Figure 24: Awareness of HIV-positive serostatus among participants aged ≥ 18 years by risk group and race/ethnicity, National HIV Behavioral Surveillance[2], LAC 2017-2018



***Data in context*:** MSM reported high levels of testing for HIV in the past year: 83% among Latino and Black MSM and 90% among White MSM. Only 55% of PWID tested for HIV in the past year, with lowest levels among White PWID (47%).

Among participants, HIV-infected MSM (83%) were more aware of their HIV infection than HIV-infected PWID (63%). Among HIV-infected MSM, largest disparities were seen in Black and Latino MSM, with only 74% and 77%, respectively, aware of their HIV infection.

[1]Transgender persons, Asian/Pacific Islanders, American Indians, Alaskan Natives and persons of multiple race/ethnicities were not included in the analysis because of unstable results due to small numbers.

[2]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. NHBS has been implemented in 20 local health jurisdictions, including LAC, since 2004. In LAC, the last cycle of NHBS was conducted in 2017 for MSM and 2018 for PWID. Data presented in this figure are not weighted and therefore should not be considered generalizable to all MSM and PWID in LAC. Due to small numbers of HIV-positive PWID, data were not stratified by race/ethnicity for this population. Data on HIV testing in past 12 months excludes participants diagnosed with HIV >12 months prior to the survey interview.

Data in Action: Progress and Opportunities in HIV Epidemic Monitoring

- In LAC, approximately 58,000 persons aged ≥ 13 years are living with HIV, and an estimated 6,400 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 grow.
- HIV control occurs when the number of new HIV infections falls below the number of deaths among PLWH. In LAC, approximately 1,700 new infections and 600 HIV deaths occur each year signaling that LAC is far from reaching "HIV epidemic control". To turn the tide, evidenced-based prevention interventions with high impact, such as PrEP and partner services, will need to be more focused and tailored to the specific needs of the populations and locations that need them most.
- More work is needed to diagnose HIV-infected persons earlier in the course of infection. Testing programs need to be scaled for young persons aged < 35 years and persons who inject drugs who reflect groups with highest levels of undiagnosed HIV. Latino men are more likely to wait until they are very sick to seek HIV testing services, highlighting the need to improve public health messages on the benefits of early HIV diagnosis in this population.
- A mathematical model is used to estimate HIV incidence in the population and characterize where and among whom new infections are occurring. This model is limited in that it relies on non-LAC data assumptions and has an 18-month reporting delay. As LAC is called to respond more aggressively to end the HIV epidemic, new approaches should be considered for rapid identification of new infection in order to quickly link newly infected persons and their exposed partners to the services they need to stop the chain of HIV transmission.

HIV Care Continuum

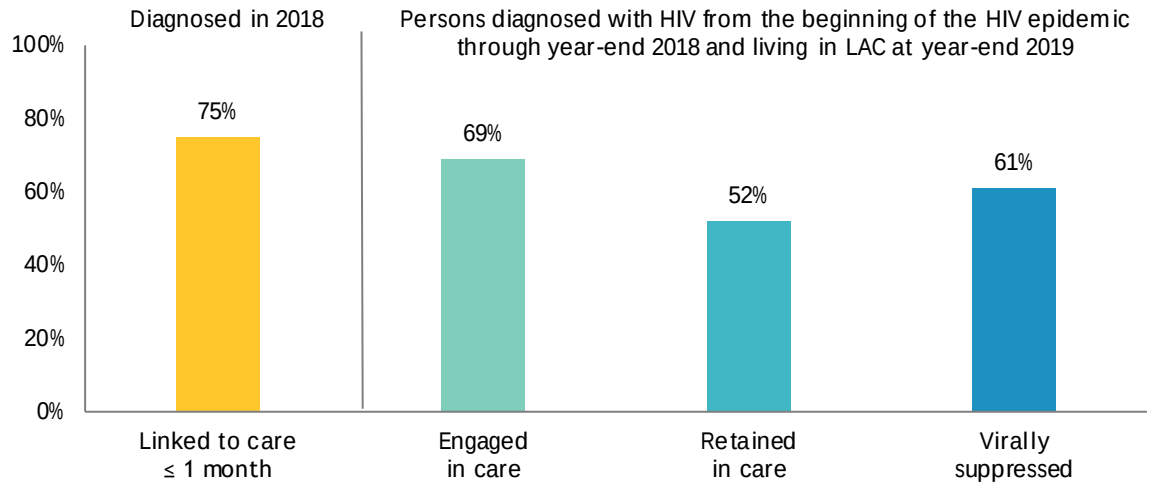
HIV-infected peresons who achieve sustained viral suppression have effectively no risk of passing HIV to others (i.e., undetectable = untransmissable). Several steps are required to achieve viral suppression among HIV-infected persons beginning with HIV diagnosis, timely linkage to care, engagement in care, retention in care, and adherence to HIV antiretroviral drugs. National goals for the continuum of HIV care are provided below.

National goals

By 2020:

- Increase the % of newly diagnosed persons linked to care within 1 month to ≥ **85%**
- Increase the % of persons with diagnosed HIV infection who are retained in care to ≥ **90%**
- Increase the % of persons with diagnosed HIV infection who are virally suppressed to ≥ **80%**

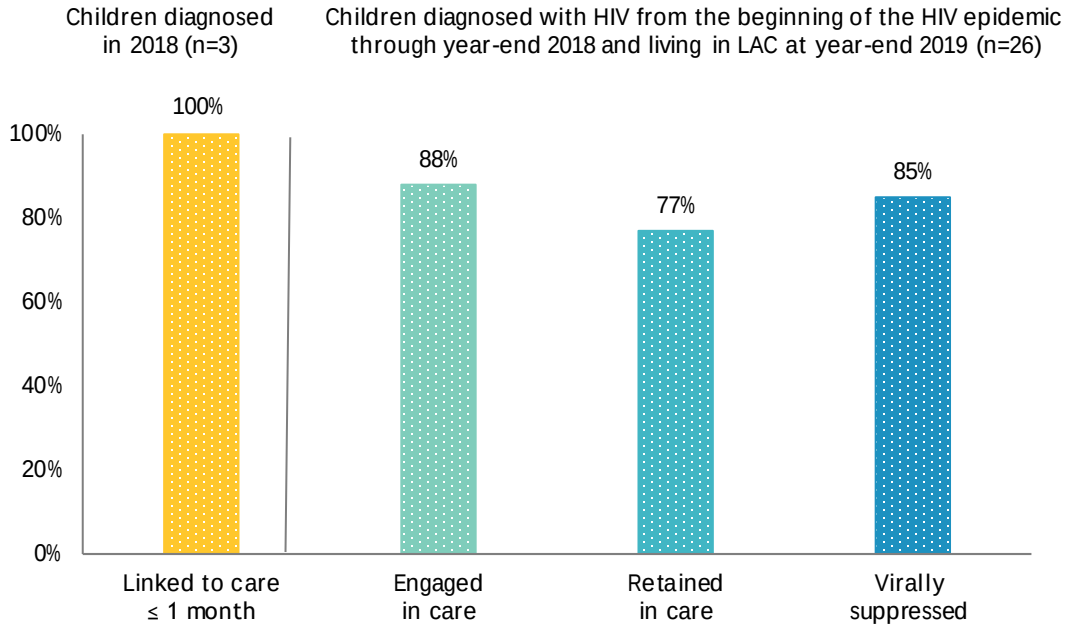
Figure 25: HIV care continuum [1] among persons aged ≥ 13 years, LAC 2018-2019



The LAC continuum of HIV care in 2018 shows that 75% of persons newly diagnosed with HIV in 2018 were linked to care within 1 month of diagnosis. Among persons diagnosed through 2018 and living at year-end 2019, 7 in 10 were engaged in care, 5 in 10 were retained in care, and 6 in 10 were virally suppressed.

[1]Linkage to care: numerator includes persons newly diagnosed with HIV in 2018 with ≥1 CD4/VL/Genotype test reported within 1 month of HIV diagnosis; denominator includes persons who were diagnosed with HIV in 2018.
Engaged in care: numerator includes PLWDH with ≥1 CD4/VL/Genotype test in 2019; denominator includes PLWDH diagnosed through 2018 and living in LAC at year-end 2019 based on most recent residence.
Retained in care: numerator includes PLWDH with ≥2 CD4/VL/Genotype tests at least 3 months apart in 2019; denominator includes PLWDH diagnosed through 2018 and living in LAC at year-end 2019 based on most recent residence.
Virally suppressed: numerator includes PLWDH whose last VL test in 2019 was suppressed (HIV-1 RNA < 200 copies/mL); denominator includes PLWDH diagnosed through 2018 and living in LAC at year-end 2019 based on most recent residence. For the purposes of this analysis, PLWDH without a VL test in 2019 were categorized as having unsuppressed viral load.

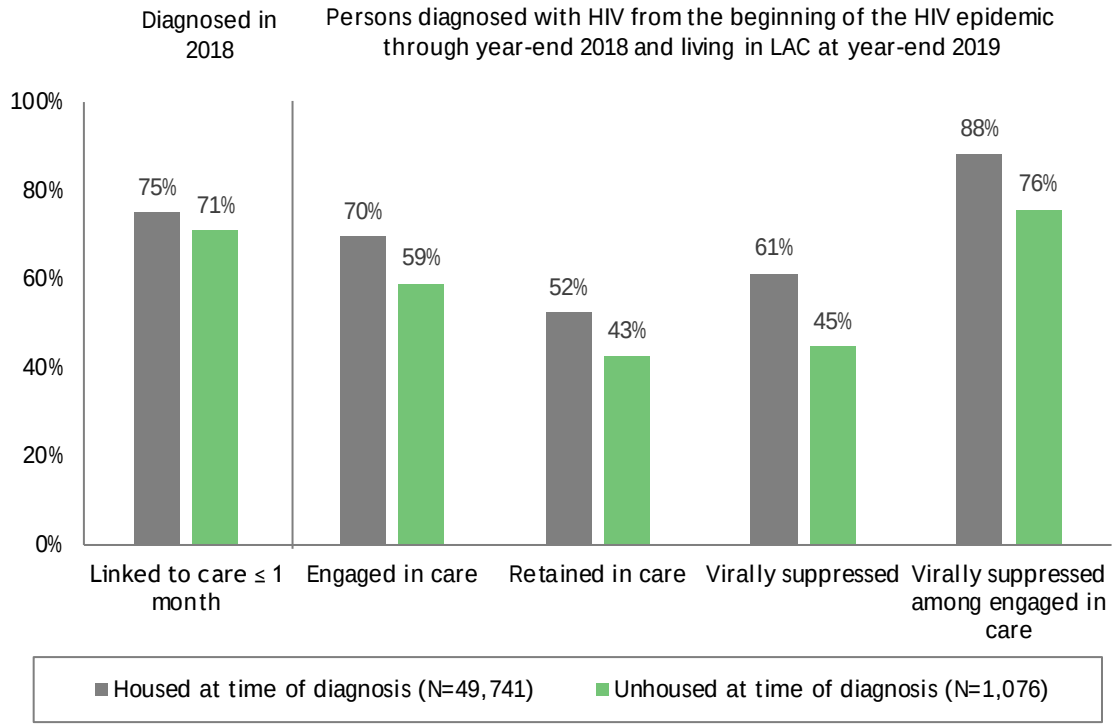
Figure 26: HIV care continuum [1] among children aged <13 years, LAC 2018-2019



Children aged < 13 years are doing better than adolescents and adults at key intervals along the continuum of HIV care: 100% of children newly diagnosed with HIV in 2018 were linked to HIV care within 1 month, and by year-end 2019, 88% were engaged in care, 77% were retained in care, and 85% were virally suppressed.

[1]Linkage to care: numerator includes persons newly diagnosed with HIV in 2018 with ≥1 CD4/VL/Genotype test reported within 1 month of HIV diagnosis; denominator includes persons who were diagnosed with HIV in 2018.
Engaged in care: numerator includes PLWDH with ≥1 CD4/VL/Genotype test in 2019; denominator includes PLWDH diagnosed through 2018 and living in LAC at year-end 2019 based on most recent residence.
Retained in care: numerator includes PLWDH with ≥2 CD4/VL/Genotype tests at least 3 months apart in 2019; denominator includes PLWDH diagnosed through 2018 and living in LAC at year-end 2019 based on most recent residence.
Virally suppressed: numerator includes PLWDH whose last VL test in 2019 was suppressed (HIV-1 RNA < 200 copies/mL); denominator includes PLWDH diagnosed through 2018 and living in LAC at year-end 2019 based on most recent residence. For the purposes of this analysis, PLWDH without a VL test in 2019 were categorized as having unsuppressed viral load.

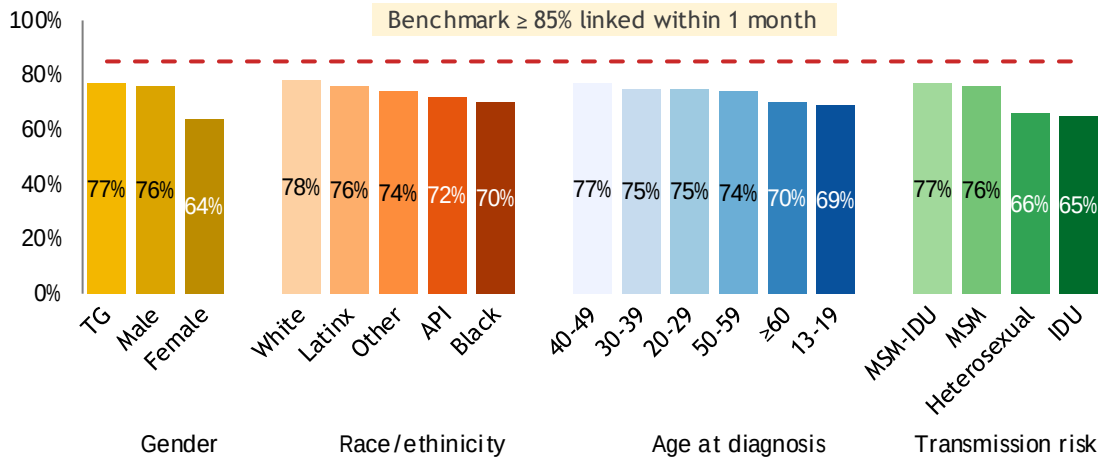
Figure 27: HIV care continuum[1] among persons aged ≥ 13 years who experienced homelessness at the time of HIV diagnosis, LAC 2018-2019



Persons who were unhoused at the time of HIV diagnosis were less likely to link to HIV care within 1 month of HIV diagnosis than housed persons. Poorer outcomes persist throughout the HIV care continuum for unhoused persons compared with housed persons, with greatest disparities observed in viral suppression.

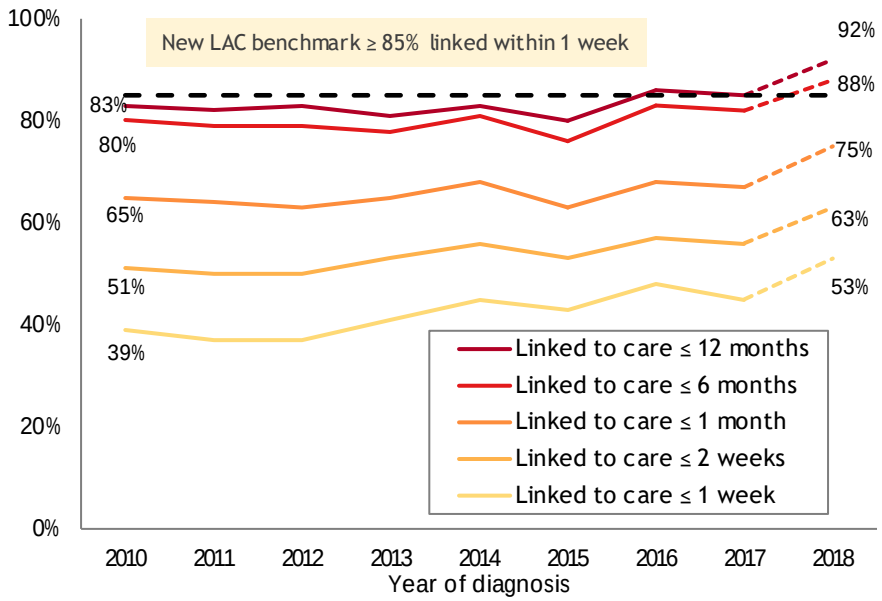
[1]Linkage to care: numerator includes persons newly diagnosed with HIV in 2018 with ≥1 CD4/VL/Genotype test reported within 1 month of HIV diagnosis; denominator includes persons who were diagnosed with HIV in 2018.
Engaged in care: numerator includes PLWDH with ≥1 CD4/VL/Genotype test in 2019; denominator includes PLWDH diagnosed through 2018 and living in LAC at year-end 2019 based on most recent residence.
Retained in care: numerator includes PLWDH with ≥2 CD4/VL/Genotype tests at least 3 months apart in 2019; denominator includes PLWDH diagnosed through 2018 and living in LAC at year-end 2019 based on most recent residence.
Virally suppressed: numerator includes PLWDH whose last VL test in 2019 was suppressed (HIV-1 RNA < 200 copies/mL); denominator includes PLWDH diagnosed through 2018 and living in LAC at year-end 2019 based on most recent residence. For the purposes of this analysis, PLWDH without a VL test in 2019 were categorized as having unsuppressed viral load.

Figure 28: Linkage to care[1] within 1 month of HIV diagnosis among persons aged ≥ 13 years newly diagnosed with HIV by selected demographics[2] and risk characteristics, LAC 2018[1,2]



Although linkage to HIV care is below target, transgender persons, males, Whites, persons aged 40-49 years, MSM and MSM-IDU had highest levels of linking to HIV care.

Figure 29: Time from HIV diagnosis to linkage to care among persons aged ≥ 13 years newly diagnosed with HIV by year of HIV diagnosis, LAC 2010-2018[3]

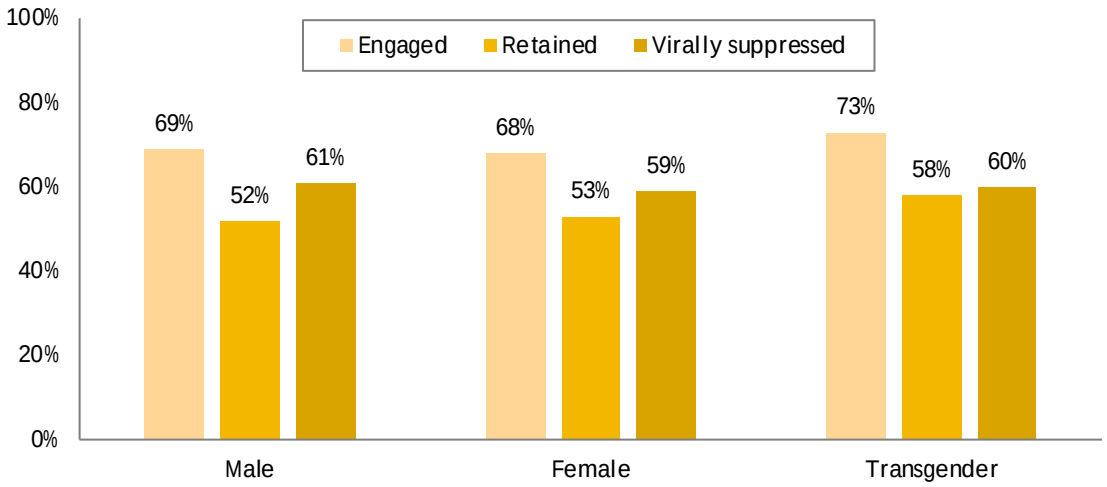


Data in context: Populations and locations with gaps in linking to care ≤ 1 week were females, adolescents, PWID, and persons residing in Antelope Valley, Alhambra, El Monte, Pomona, and Bellflower Health Districts. In comparison, adolescents and persons in El Monte and East Los Angeles Health Districts had gaps in linking to care ≤ 12 months.

The time from diagnosis to linkage to care has improved over time. However, linkage should occur faster, ideally within days of diagnosis. While > 90% of persons with new HIV diagnosis in 2018 were linked ≤ 12 months of diagnosis, 53% were linked ≤ 1 week.

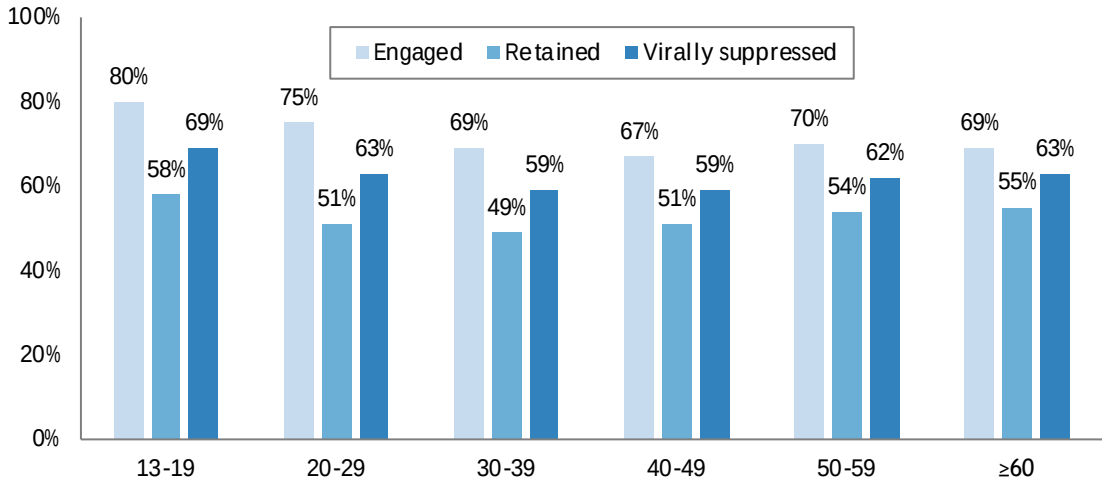
[1]Linkage to care: numerator includes persons newly diagnosed with HIV in 2018 with ≥1 CD4/VL/Genotype test reported within 1 month of HIV diagnosis; denominator includes persons who were diagnosed with HIV in 2018.
[2]Other race/ethnicity includes American Indians, Alaskan Natives and persons of multiple race/ethnicities.
[3]Includes persons diagnosed with HIV in each calendar year and living through the following 12 months with ≥1 CD4/VL/Genotype test reported within 1 and 2 weeks, as well as 1, 3, 6, and 12 months of diagnosis.

Figure 30: Engagement, retention, and viral suppression by gender among persons aged ≥ 13 years diagnosed through 2018 and living in LAC at year-end 2019 [1]



Once linked to care, transgender PLWDH have higher levels of engagement and retention in care compared with male and female PLWDH. Yet viral suppression levels remain similar across all PLWDH regardless of gender.

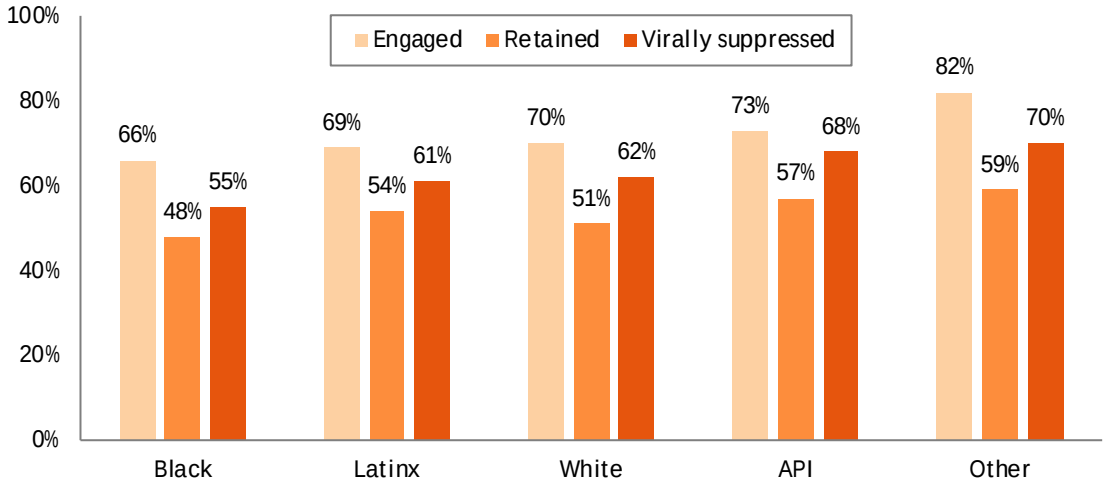
Figure 31: Engagement, retention, and viral suppression by age group among persons aged ≥ 13 years diagnosed through 2018 and living in LAC at year-end 2019[1]



Adolescents fared better in the HIV care continuum than older adults. Persons aged 30-49 years had poorer outcomes in all steps of the HIV care cascade than other age groups.

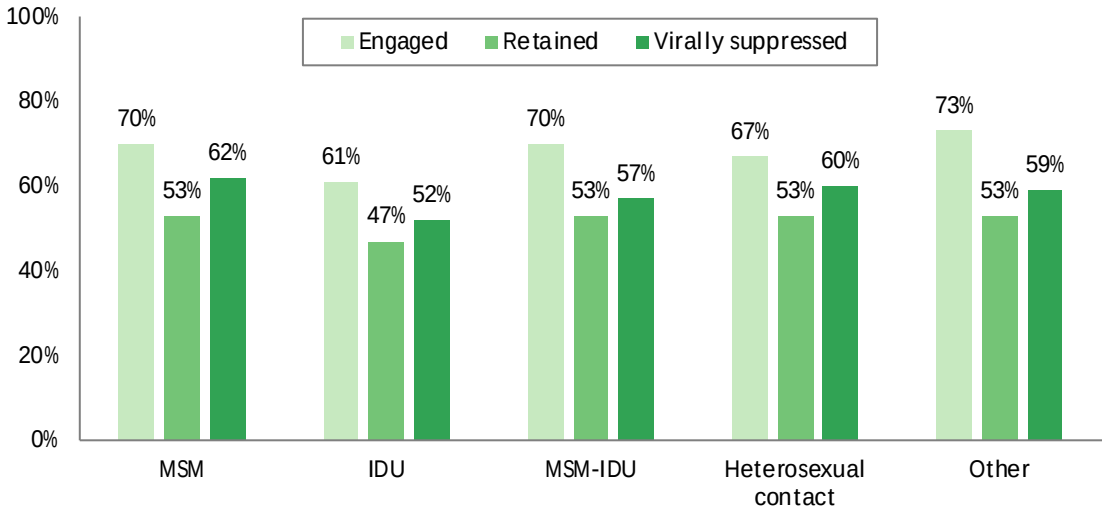
[1]Engaged in care: numerator includes PLWDH with ≥1 CD4/VL/Genotype test in 2019; denominator includes PLWDH diagnosed through 2018 and living in LAC at year-end 2019 based on most recent residence.
Retained in care: numerator includes PLWDH with ≥2 CD4/VL/Genotype tests at least 3 months apart in 2019; denominator includes PLWDH diagnosed through 2018 and living in LAC at year-end 2019 based on most recent residence.
Virally suppressed: numerator includes PLWDH whose last VL test in 2019 was suppressed (HIV-1 RNA < 200 copies/mL); denominator includes PLWDH diagnosed through 2018 and living in LAC at year-end 2019 based on most recent residence. For the purposes of this analysis, PLWDH without a VL test in 2019 were categorized as having unsuppressed viral load.

Figure 32: Engagement, retention, and viral suppression by race/ethnicity[1] among persons aged ≥ 13 years diagnosed through 2018 and living in LAC at year-end 2019[2]



Blacks had the poorest outcomes in the HIV care continuum, with the lowest levels of engagement and retention in care and viral suppression than other race/ethnicity groups.

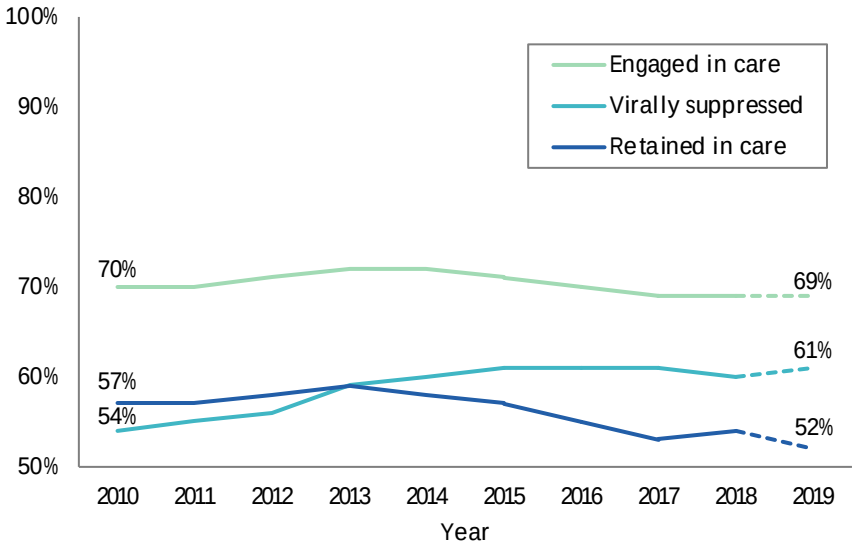
Figure 33: Engagement, retention, and viral suppression by transmission risk category[3] persons aged ≥ 13 years diagnosed through 2018 and living in LAC at year-end 2019[2]



Persons whose transmission risk was injection drug use had the lowest levels of engagement in care, retention in care, and viral suppression compared with other transmission risk groups. Across all risk groups, gaps were observed in retention in care.

[1]Other race/ethnicity includes American Indians, Alaskan Natives and persons of multiple race/ethnicities.
[2]Engaged in care: numerator includes PLWDH with ≥1 CD4/VL/Genotype test in 2019; denominator includes PLWDH diagnosed through 2018 and living in LAC at year-end 2019 based on most recent residence.
Retained in care: numerator includes PLWDH with ≥2 CD4/VL/Genotype tests at least 3 months apart in 2019; denominator includes PLWDH diagnosed through 2018 and living in LAC at year-end 2019 based on most recent residence.
Virally suppressed: numerator includes PLWDH whose last VL test in 2019 was suppressed (HIV-1 RNA < 200 copies/mL); denominator includes PLWDH diagnosed through 2018 and living in LAC at year-end 2019 based on most recent residence. For the purposes of this analysis, PLWDH without a VL test in 2019 were categorized as having unsuppressed viral load.

Figure 34: Trends in engagement, retention and viral suppression for persons aged ≥ 13 years diagnosed through 2018 and living in LAC at year-end 2019[1]



Over time there has been minimal improvement in the HIV care continuum among persons living with diagnosed HIV. Engagement in care remained stable at ~70% and retention in care became worse. Over the same time frame there was an improvement observed in viral suppression which saw a 7-percentage point increase between 2010 and 2019.

[1]Engaged in care: numerator includes PLWDH with ≥1 CD4/VL/Genotype test in 2019; denominator includes PLWDH diagnosed through 2018 and living in LAC at year-end 2019 based on most recent residence.
Retained in care: numerator includes PLWDH with ≥2 CD4/VL/Genotype tests at least 3 months apart in 2019; denominator includes PLWDH diagnosed through 2018 and living in LAC at year-end 2019 based on most recent residence.
Virally suppressed: numerator includes PLWDH whose last VL test in 2019 was suppressed (HIV-1 RNA<200 copies/mL); denominator includes PLWDH diagnosed through 2018 and living in LAC at year-end 2019 based on most recent residence. For the purposes of this analysis, PLWDH without a VL test in 2019 were categorized as having unsuppressed viral load.

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

- Linkage to care should occur within days of HIV diagnosis to achieve viral suppression as quickly after seroconversion as possible. LAC Public Health recommends that patients be linked to care within 1 week of HIV diagnosis and will be tracking linkage achievements within this timeframe moving forward.
- Over the last decade engagement in care rates have either remained flat or only slightly increased among some groups. Conversely retention in care rates have slightly decreased. These trends have hindered viral suppression among persons living with diagnosed HIV, which has remained far below national targets. More work is needed to understand the contributions of several barriers for staying in care and the impact this has had on treatment adherence.
- Groups with greatest disparities in the HIV care continuum are persons who are unhoused at the time of HIV diagnosis, those with injection drug use transmission risk, and the Black community. Person-centered interventions continue to be needed that respond directly to the challenges and needs of these populations.
- Though laboratory measures are used to approximate progress in the HIV care continuum they may not reflect actual achievements in linkage, engagement, and retention in care. Information collected for surveillance from provider visits provide direct information on care services for HIV patients; however, these data are commonly reported as incomplete in surveillance. More attention is requested from providers to document complete information on patient visits and treatment information when reporting HIV case data to Public Health. This will improve our understanding and response to the current trajectory of the HIV care continuum among persons living with HIV.

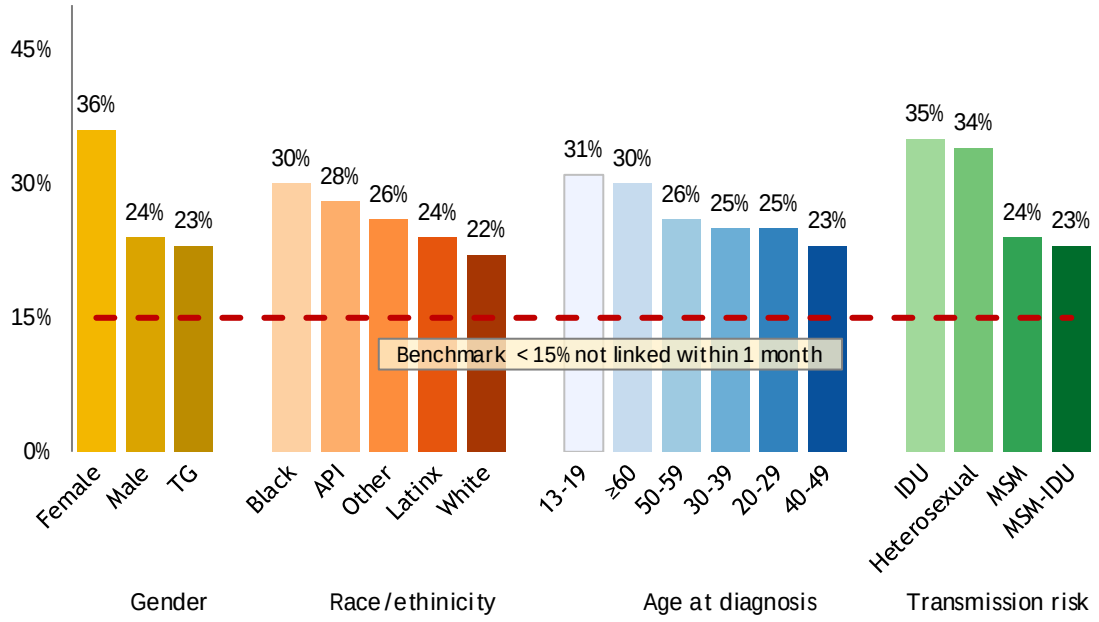
Gaps in Linkage to HIV Care, HIV Treatment, and Viral Suppression

A deeper analysis of the HIV care continuum beyond required metrics is needed to identify places and populations that have the greatest unmet need for HIV services. In this section we provide an analysis of gaps in the HIV care continuum by person, place, and time to identify opportunities for improving services for the community of persons living with HIV.

Linkage to Care

Data in context: The national goal for linkage to HIV care is to increase the percentage of newly diagnosed persons that are linked to care within 1 month to at least **85%**. This means that the percentage of newly diagnosed persons that are not linked to care within 1 month should not exceed **15%.**

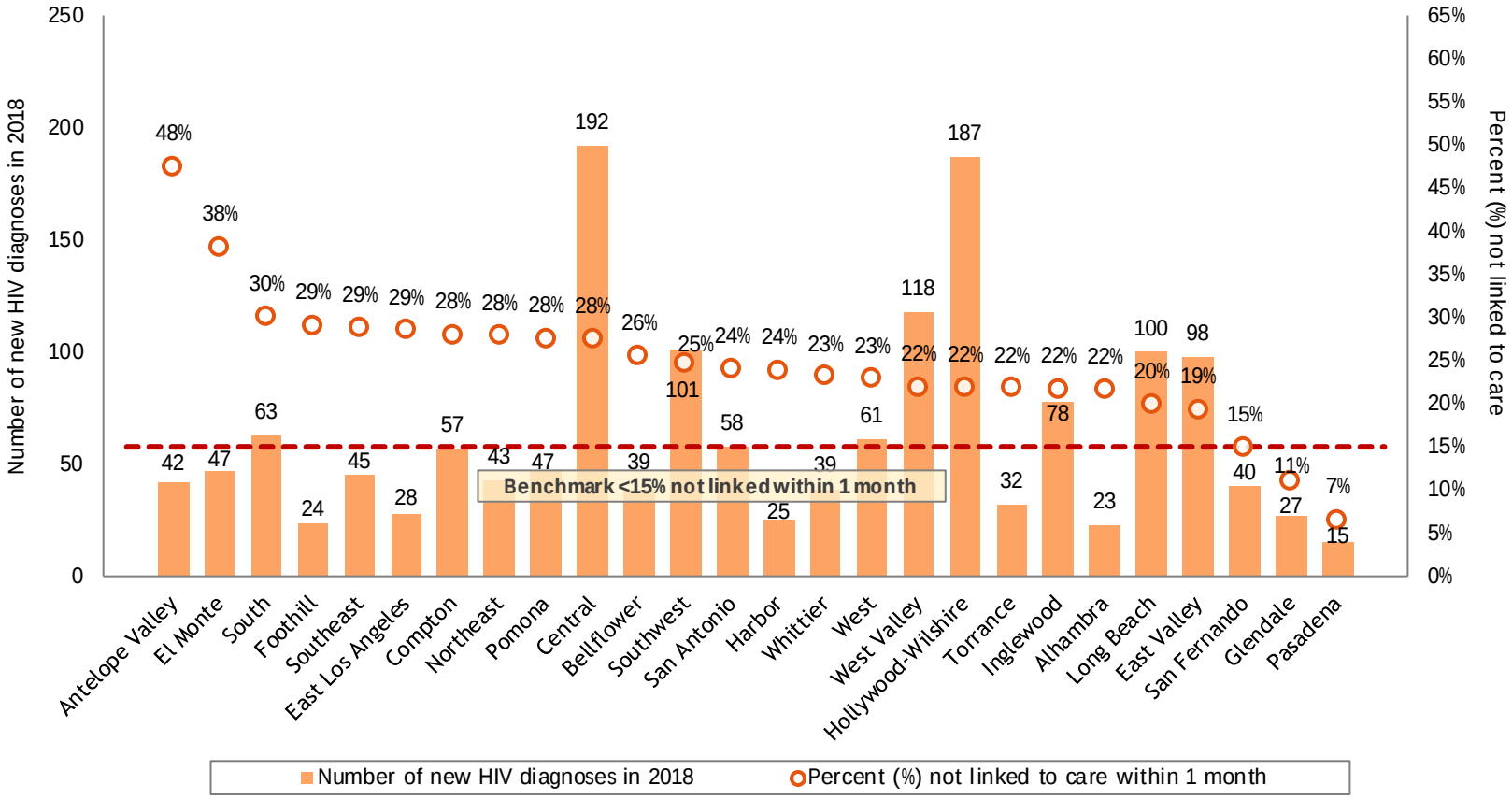
Figure 35: Persons aged ≥ 13 years newly diagnosed with HIV that were **not linked to care**[1] within 1 month of diagnosis by selected demographics[2] and risk characteristics, LAC 2018



Among persons newly diagnosed with HIV in 2018, groups that were more likely to **not link to HIV care** within 1 month of diagnosis were females (36%), Blacks (30%), adolescents (31%), persons aged ≥ 60 years (30%), and persons with IDU (35%) and heterosexual (34%) transmission risk.

[1]Not linked to care: numerator includes persons newly diagnosed with HIV in 2018 with no CD4/VL/Genotype test reported within 1 month of HIV diagnosis; denominator includes persons who were diagnosed with HIV in 2018.
[2]Other race/ethnicity includes American Indians, Alaskan Natives and persons of multiple race/ethnicities.

Figure 36: Persons aged ≥ 13 years newly diagnosed with HIV and **not linked to care**[1] within 1 month of diagnosis by Health District[2], LAC 2018



Only two of twenty-six Health Districts met the target for timely linkage to HIV care highlighting that the need to identify solutions for improving linkage to care spans across LAC. Lowest achievements were observed in Antelope Valley, El Monte and South Health Districts where ≥ 30% of cases were not linked within 1 month of HIV diagnosis.

[1]Not linked to care: numerator includes persons newly diagnosed with HIV in 2018 with no CD4/VL/Genotype test reported within 1 month of HIV diagnosis; denominator includes persons who were diagnosed with HIV in 2018.
[2]Health Districts are based on 2012 boundaries.

HIV treatment

***Data in context**:* As part of rapid antiretroviral (ART) programs, PLWDH are treated within 7 days of HIV diagnosis. ART coverage is not routinely monitored as a step in the HIV care continnum as treatment is presumed to occur once a patient is linked to care. LAC DPH collects supplemental information on a subset of persons newly diagnosed with HIV through the National Medical Monitoring Project (MMP) to better undersatnd achievements and gaps in HIV treatment and other HIV care services for PLWDH.

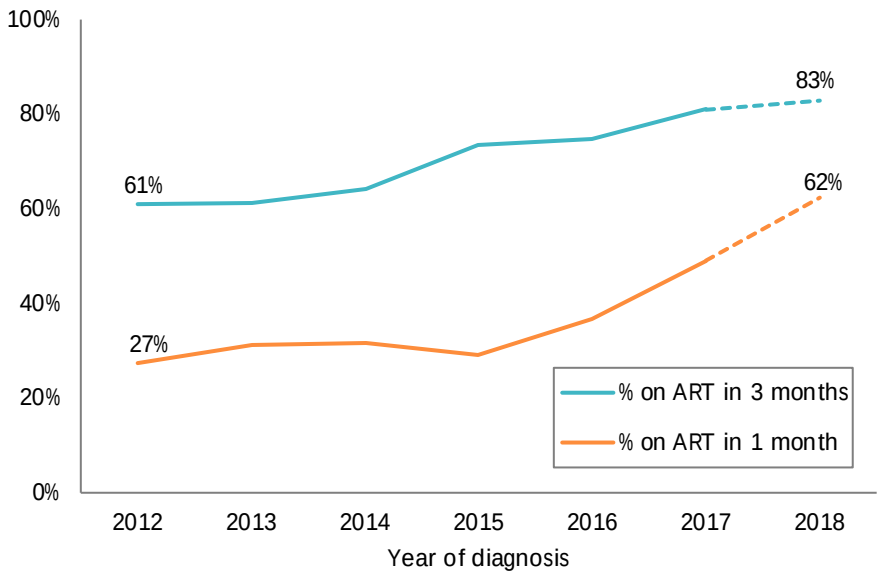
Table 4: Antiretroviral therapy use among a sample of persons living with diagnosed HIV by demographic and risk characteristics, Medical Monitoring Project, LAC 2015-2017[1]

	Prescribed ART	ART dose adherence in the last 3 days
	(%)	(%)
Total (N=545)	88	82
Sex at birth		
Male	87	82
Female	93	78
Age group		
18-29	71	66
30-39	78	81
40-49	91	83
≥50	93	84
Race/ethnicity		
White	88	89
Black	82	80
Latinx	92	79
Transmission risk		
MSM	86	84
Heterosexual	94	80

Between 2015-2017, treatment coverage and treatment adherence were > 80% in a representative sample of PLWDH. Treatment coverage was lowest for persons aged < 40 years and Blacks, while treatment adherence was lowest among persons aged < 30 years and Latinx persons.

[1]The Medical Monitoring Project (MMP) is a national HIV surveillance system funded by the Centers for Disease Control and Prevention and implemented by local health departments. It collects behavioral and medical data about persons living with HIV in the United States. From 2015 to 2017 MMP interviewed 504 adult persons living with HIV in Los Angeles County. Their responses reflect their experiences during the 12 months before their interview, unless otherwise noted. All data presented are weighted.

Figure 37: Time from HIV diagnosis to treatment initiation among persons aged ≥ 13 years newly diagnosed with HIV by year of diagnosis, LAC 2012-2018[1]



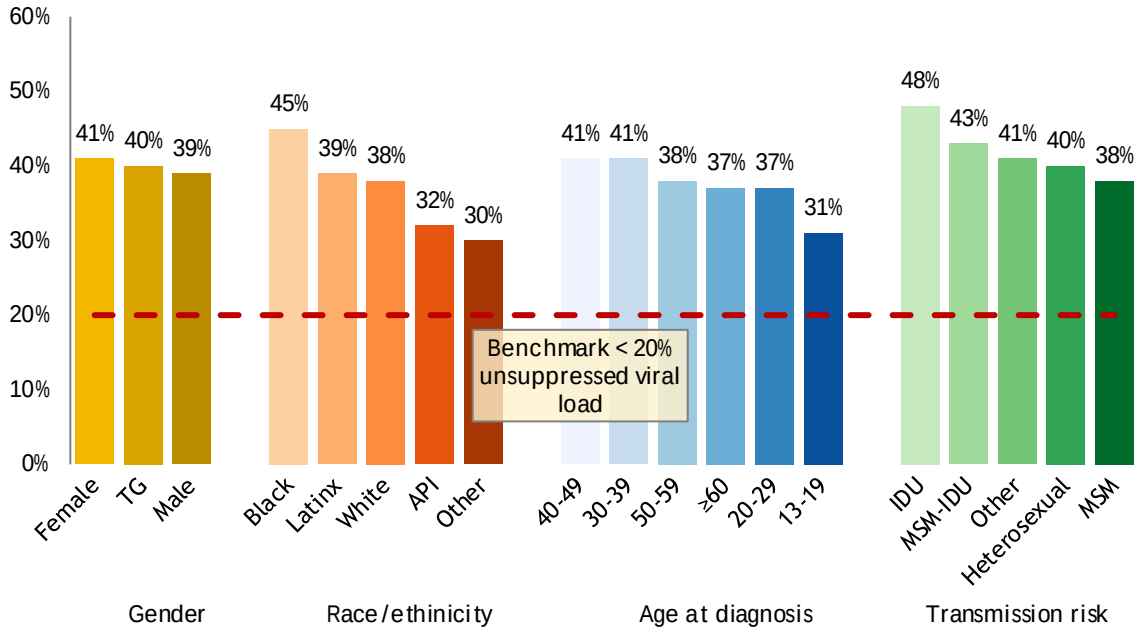
The time from diagnosis to starting HIV treatment is getting shorter. The probability of starting ART within 1 month of diagnosis increased from 27% in 2012 to 62% in 2018. The probability of starting within 3 months increased from 61% in 2012 to 83% in 2018.

[1]Data represent a subset of persons newly diagnosed with HIV and reported in LAC. It includes 3,737 persons newly diagnosed with HIV between 2012 and 2018 for whom ART initiation date are complete. The analysis excludes 9,567 persons newly diagnosed with HIV between 2012 and 2018 for whom ART initiation date in incomplete.

Viral suppression

***Data in context**:* The last viral load test for PLWDH engaged in care is used to monitor annual achievements in viral suppression at the population-level. This metric, however, does not consider how soon after an HIV diagnosis PLWDH are reaching viral suppression and whether viral suppression is maintained over time. Nor does it identify population disparities in viral suppression, all of which are needed to ensure that PLWDH can access and use the HIV services needed to achieve sustained viral suppression.

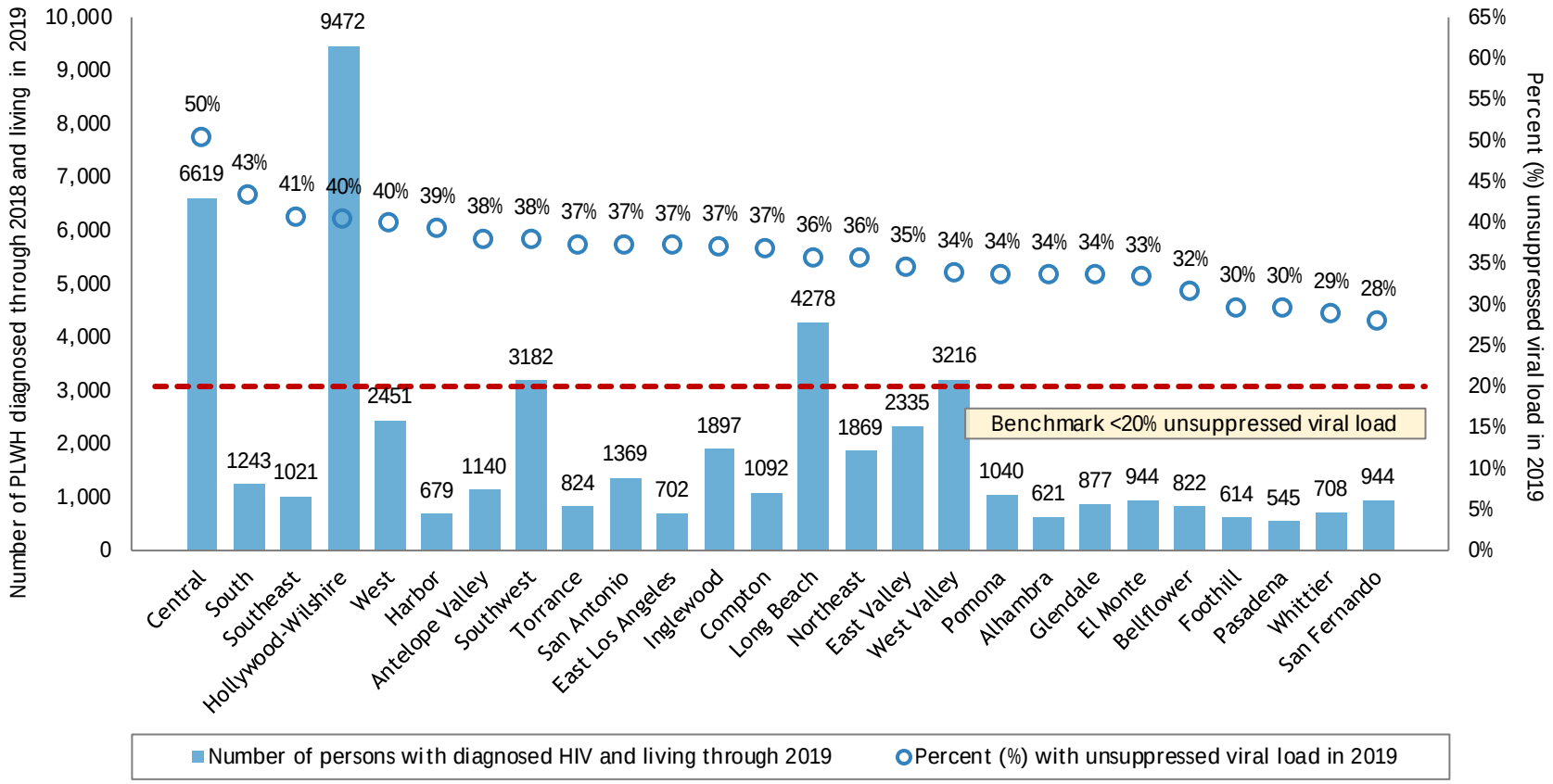
Figure 38: Unsuppressed viral load[1] by selected demographic and risk characteristics among persons aged ≥ 13 years diagnosed through 2018 and living in LAC at year-end 2019



LAC is not within the target for viral suppression for PLWDH. In 2019, the largest disparities were observed among females, Blacks, persons aged 30-49 years, and persons with IDU transmission risk, where > 40% were virally unsuppressed.

[1]Unsuppressed viral load: numerator includes PLWDH whose last VL test in 2019 was unsuppressed (HIV-1 RNA ≥ 200 copies/mL); denominator includes PLWDH diagnosed through 2018 and living in LAC at year-end 2019 based on most recent residence. For the purposes of this analysis, PLWDH without a VL test in 2019 were categorized as having unsuppressed viral load.

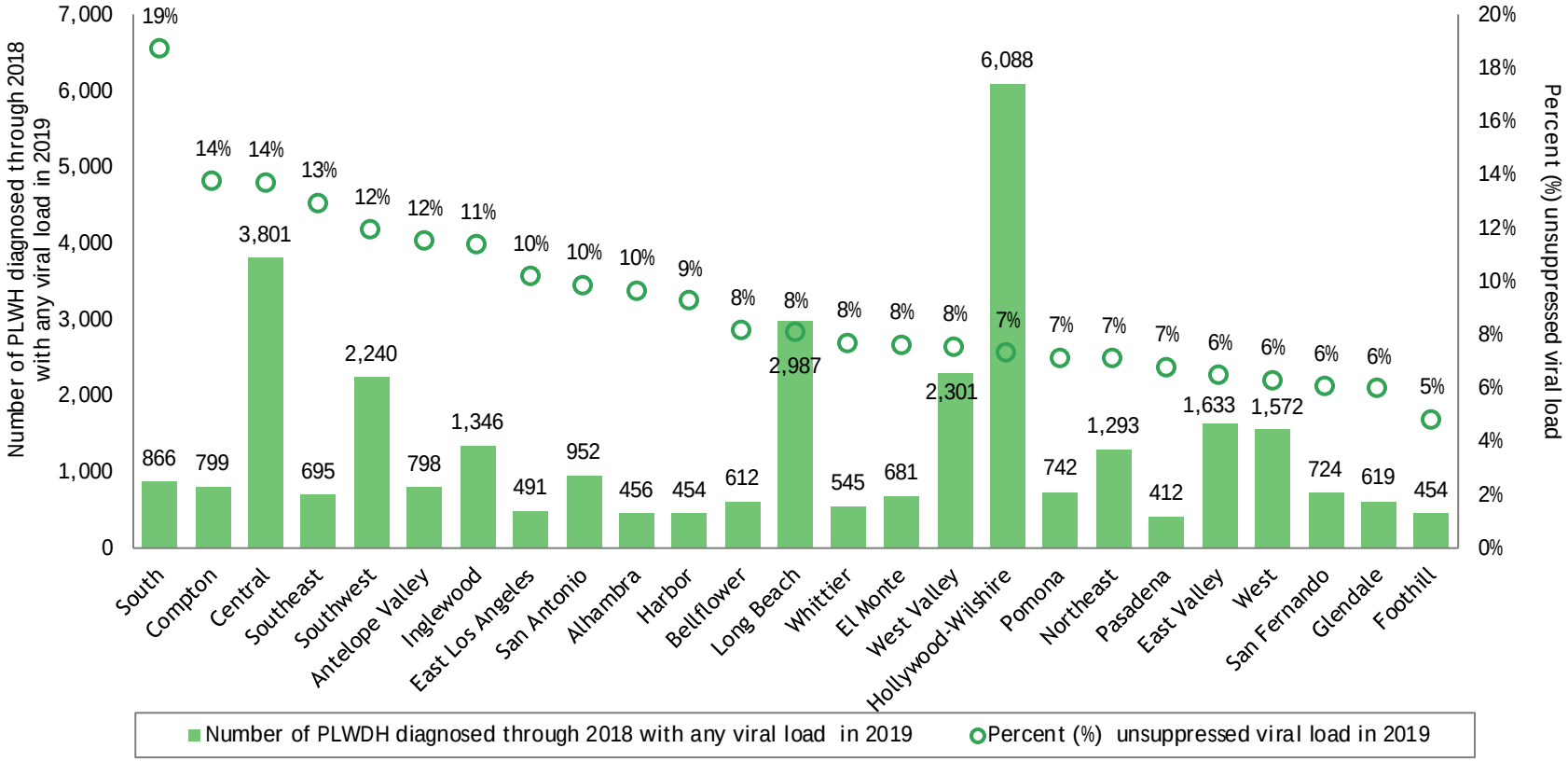
Figure 39: Unsuppressed viral load[1] by Health District[2] among persons aged ≥ 13 years diagnosed through 2018 and living in LAC at year-end 2019



Unsuppressed viral load varies widely across LAC Health Districts. In 2019, no Health District achieved the national target for viral suppression, and lowest achievements were seen in Central, South, Southeast, Hollywood-Wilshire, and West Health Districts where unsuppressed viral load levels were ≥ 40%.

[1]Unsuppressed viral load: numerator includes PLWDH whose last VL test in 2019 was unsuppressed (HIV-1 RNA ≥ 200 copies/mL); denominator includes PLWDH diagnosed through 2018 and living in LAC at year-end 2019 based on most recent residence. For the purposes of this analysis, PLWDH without a VL test in 2019 were categorized as having unsuppressed viral load.
[2]Health Districts are based on 2012 boundaries.

Figure 40: Unsuppressed viral load[1] among persons aged ≥ 13 years who had any viral load test in 2019 by Health District[2], LAC

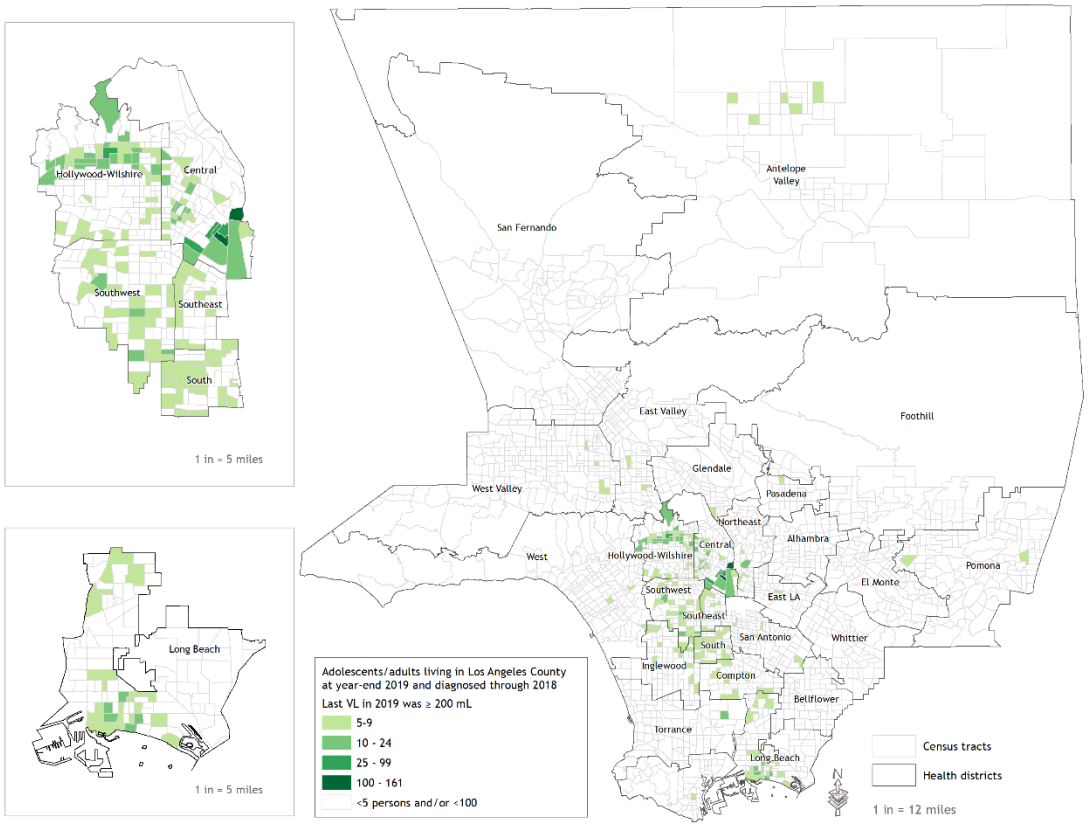


Once in care, the goal is for all PLWDH to achieve viral suppression as soon as possible. PLWDH do relatively well once they are receiving HIV care services: on average nine in ten PLWDH with at least one viral load test in 2019 were suppressed. However, geographic analysis reveals disparities in South, Compton, Southeast, Southwest, Antelope Valley, and Inglewood Health Districts where viral suppression is lower than average for PLWDH in care.

[1] Unsuppressed viral load: numerator includes PLWDH whose last VL test in 2019 was unsuppressed (HIV-1 RNA ≥ 200 copies/mL); denominator includes PLWDH diagnosed through 2018 and living in LAC at year-end 2019 based on most recent residence. For the purposes of this analysis, PLWDH without a VL test in 2019 were categorized as having unsuppressed viral load.

[2] Health Districts are based on 2012 boundaries.

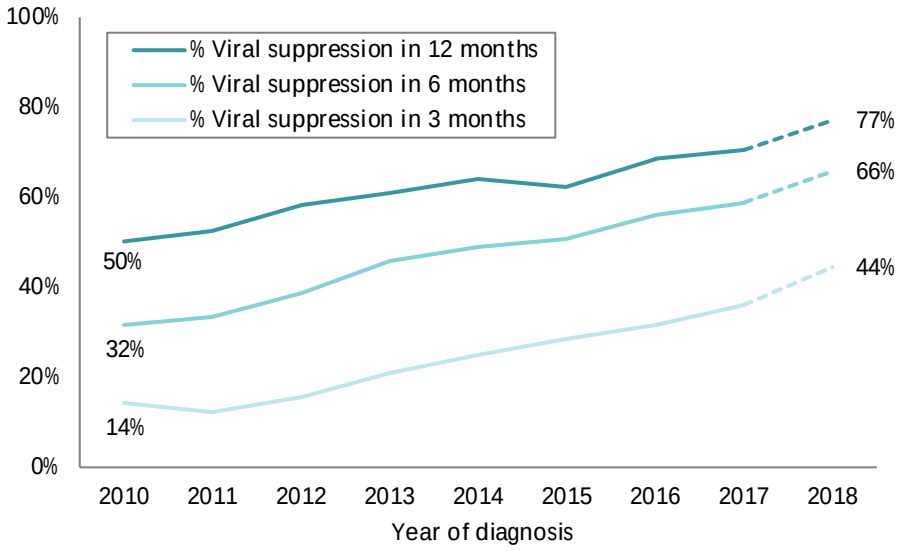
Figure 41: Unsuppressed viral load[1] by census tract among persons aged ≥ 13 years diagnosed through 2018 and living in LAC at year-end 2019 (N=2,010)



Finer geographic analysis point to census tracts located in Central and Hollywood-Wilshire Health Districts with highest levels of unsuppressed viral load, locations where a robust public health response is needed to identify networks of ongoing transmission and target rapid interventions to stop the chain of transmission. Other emerging hotspots of transmission that require close monitoring are in Southwest, Torrance, and Long Beach Health Districts.

[1]Unsuppressed viral load: numerator includes PLWDH whose last VL test in 2019 was unsuppressed (HIV-1 RNA ≥ 200 copies/mL); denominator includes PLWDH diagnosed through 2018 and living in LAC at year-end 2019 based on most recent residence. PLWDH without a VL test in 2019 were considered virally unsuppressed. Analysis excludes PLWDH diagnosed through 2018 and living at year-end 2019 who (1) had missing census tract information, (2) were engaged in care but never had a viral load test, (3) were not engaged in care for >12 months at year-end 2019, or (4) were in census tracts with small sample sizes (<5 persons with unsuppressed viral load or population size<100 persons). Exclusions represented 67% of PLWDH diagnosed through 2018 and living in 2019 whose last viral load was unsuppressed.

Figure 42: Time from diagnosis to viral suppression among persons aged ≥ 13 years living with diagnosed HIV by year of HIV diagnosis, LAC 2010-2018[1]



Though time from HIV diagnosis to viral suppression has improved over time, LAC is still underperforming in this area, with only 44% of persons newly diagnosed with HIV in 2018 achieving viral suppression within 3 months.

[1]Analysis includes persons newly diagnosed with HIV in each calendar year and living in LAC at year-end 2019 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.

Table 5: Viral load dynamics among persons aged ≥ 13 years living with diagnosed HIV and engaged in HIV care, LAC 2017-2019[1]

	Number of PLWDH with ≥1 viral load test 2017-2019	Last viral load test suppressed	All viral load tests suppressed
	N	%	%
Total	33,247	90%	70%
Gender			
Male	28,987	90%	71%
Female	3,719	88%	67%
Transgender	541	84%	54%
Race/ethnicity			
White	9,389	94%	80%
Black	6,317	84%	57%
Latinx	14,798	90%	69%
API	1,239	95%	82%
AI/AN	189	84%	57%
Multi-Racial	1,315	88%	65%
Age group			
<13	16	100%	81%
13-19	36	94%	83%
20-29	1,819	80%	52%
30-39	5,873	85%	61%
40-49	7,366	89%	67%
50-59	11,036	92%	73%
≥60	7,101	95%	81%

Data in context: The goal of successful HIV treatment is sustained viral suppression. At the population level, achievements in viral suppression is measured using the results of the last viral load each year.

Sustained viral suppression, where all viral loads in a specified timeframe are suppressed, is not commonly reported but presents a realistic assessment of treatment success. It also lowers the chance of transmitting HIV through sex to 0%, highlighting the HIV prevention benefits of maintaining sustained viral suppression.

Using the last viral load test, 90% of PLWDH in HIV care were virally suppressed. However, using the results of all viral load tests in a 3-year period, only 70% had sustained viral suppression (i.e., all viral loads suppressed). Populations with lowest levels of sustained viral suppression were transgender persons, Blacks, American Indians/Alaska Natives (AI/AN) and persons aged 20-39 years.

[1] Analysis includes persons diagnosed with HIV through 2016, had ≥ 1viral load test in 2017-2019 and living in LAC at year-end 2019.

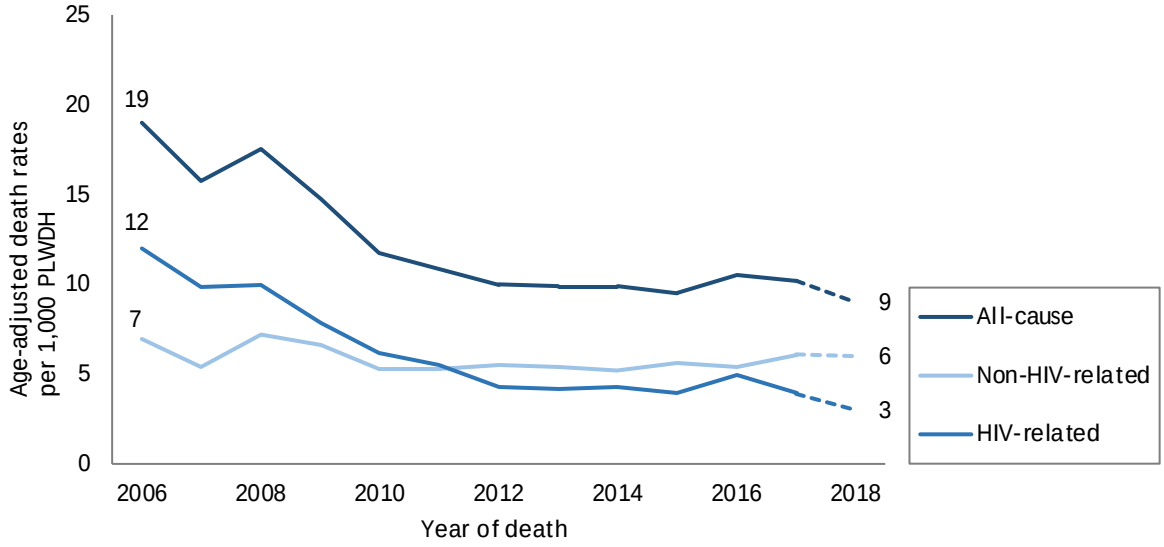
Data in Action: Gaps and opportunities in linkage, treatment, and viral suppression

- Gaps in linkage to care are particularly high among Blacks, adolescents, females, and persons with IDU transmission risk. Targeted interventions are needed to link these populations immediately to care after HIV diagnosis. Special attention is needed in Antelope Valley and El Monte Health Districts, where linkage rates are very low despite low burden of HIV disease.
- There are opportunities to learn and apply best practices for linkage to care in Health Districts that are performing well, such as Glendale and Pasadena Health Districts where linkage rates have surpassed the 85% benchmark.
- Though treatment coverage is high with approximately 90% of PLWDH on treatment, there is more work needed to ensure that treatment is started immediately after HIV diagnosis. Rapid ART programs should be scaled, especially for populations with lower treatment coverage (e.g., Black populations) and Health Districts that have low linkage to care and viral suppression levels.
- Even while receiving HIV care there are geographic disparities in viral suppression, particularly in South, Compton, Central, Southeast, Southwest, Inglewood, and Antelope Valley Health Districts. These disparities highlight the need for a better understanding of challenges in retention and adherence for patients in these areas.
- Hollywood-Wilshire Health District has the highest counts of unsuppressed viral load, followed by Central, Long Beach, and Southwest Health Districts. The response needs to be intense in these areas to ensure that all PLWDH are linked and all out-of-care PLWDH are re-linked, so that all PLWDH can achieve viral suppression and prevent onward transmission of HIV.
- Population-levels of sustained viral suppression based on multiple viral load tests is 20 percentage points lower than viral suppression based on the most recent viral load test. Sustained viral suppression should be routinely monitored as an indicator of treatment success. It should also be included in U=U prevention messages, highlighting the importance of achieving and maintaining viral suppression to prevent sexual transmission of HIV.

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. The US has set a goal to reduce the death rate among persons diagnosed with HIV infection by **33%**. 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, death rates, and survival among PLWDH.

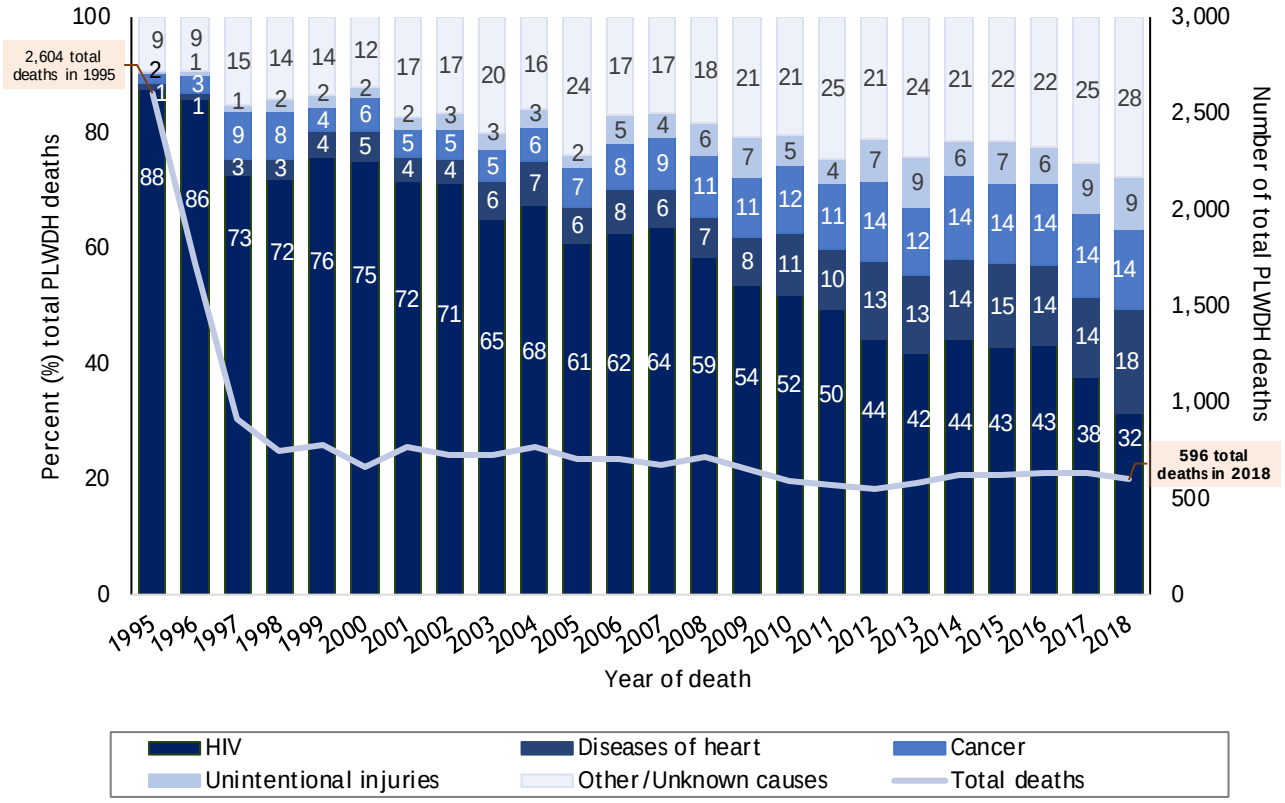
Figure 43: Age-adjusted death rates[1] among persons aged ≥ 13 years living with diagnosed HIV, by HIV-related and non-HIV related cause of death, LAC 2006-2018



The age-adjusted death rate among persons diagnosed with HIV dropped 53% from 2006 to 2018. The rate attributed to HIV-related and non-HIV-related death declined by 75% and 14%, respectively.

[1]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 (2.9% of all deaths).

Figure 44: Trends in main causes of death among persons aged ≥ 13 years living with diagnosed HIV, LAC 1995-2018 [1]



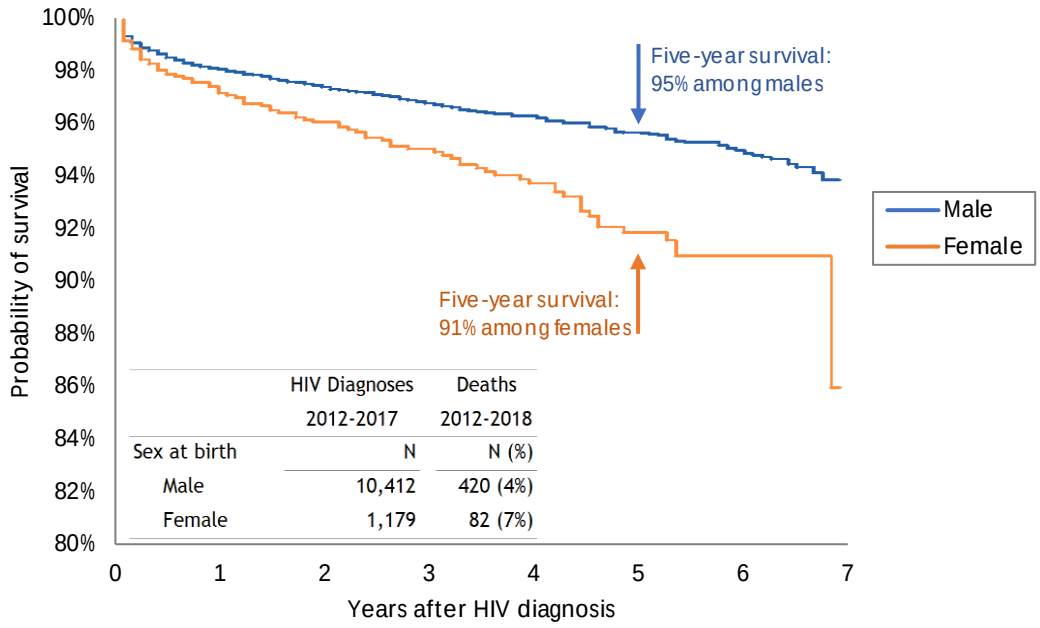
The number of deaths among PLWDH decreased sharply following the introduction of highly active antiretroviral treatment and has remained stable at approximately 500-600 deaths per year for the past decade. HIV as the leading cause of death among PLWDH declined from 88% of deaths in 1995 to 32% of deaths in 2018. In contrast, diseases of the heart increased from 1% in 1995 to 18% in 2018, followed by cancer from 2% to 14%, and unintentional injuries from <1% to 9%.

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

HIV Survival

The figures below provide information on the probability of surviving five years after HIV diagnosis for select populations of PLWDH. In these figures, steeper curves reflect shorter times from diagnosis to death (worse survival), while flatter curves reflect longer times from diagnosis to death (better survival).

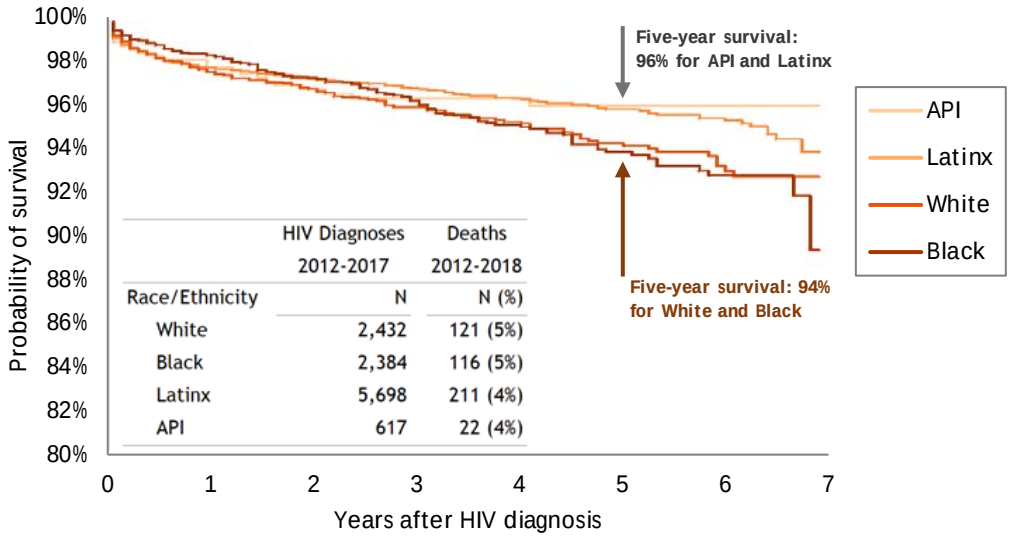
Figure 45: Survival among persons aged ≥ 13 years newly diagnosed with HIV by sex at birth and time after HIV diagnosis, LAC 2012-2017 [1]



Overall, the probability of surviving five years after HIV diagnosis is high at > 90%. However, females were more likely to die sooner than their male counterparts: the 5-year survival probability was 91% among females compared with 95% among males.

[1]Persons newly diagnosed with HIV at death were excluded from the analysis. Survival curves include persons diagnosed with HIV from 2012-2017 and followed through December 31, 2018. Persons not known to have died were censored on December 31, 2018.

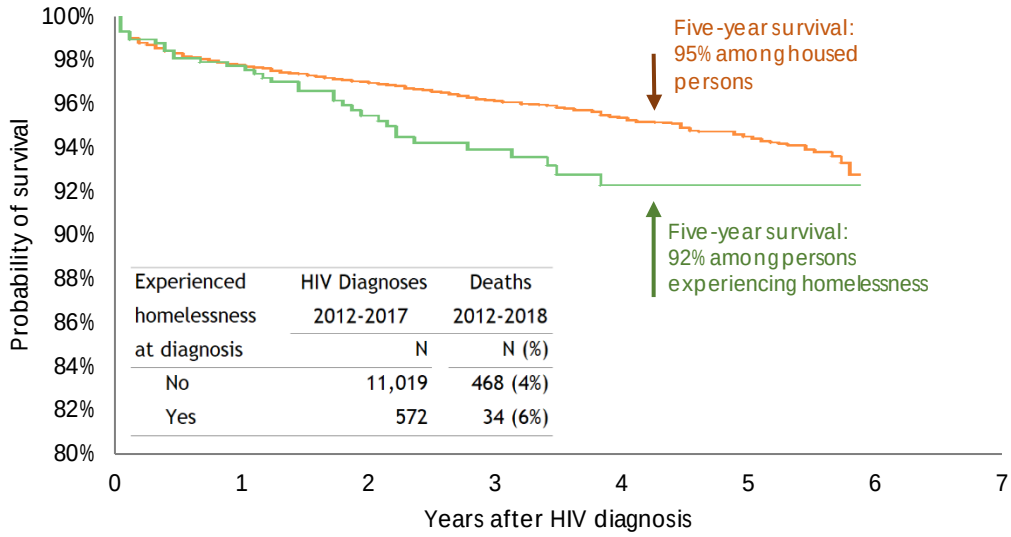
Figure 46: Survival among persons aged ≥ 13 years newly diagnosed with HIV by race/ethnicity and time after diagnosis[1], LAC 2012-2017



Race/Ethnicity	HIV Diagnoses 2012-2017 N	Deaths 2012-2018 N (%)
White	2,432	121 (5%)
Black	2,384	116 (5%)
Latinx	5,698	211 (4%)
API	617	22 (4%)

The 5-year survival probability was 96% among Latinx and API populations compared with 94% among Black and White populations.

Figure 47: Survival among persons aged ≥ 13 years newly diagnosed with HIV by housing status at diagnosis and time after diagnosis, LAC 2012-2017[2]



Experienced homelessness at diagnosis	HIV Diagnoses 2012-2017 N	Deaths 2012-2018 N (%)
No	11,019	468 (4%)
Yes	572	34 (6%)

The five-year survival probability was 92% among persons that were unhoused at the time of HIV diagnosis versus 95% among persons who were housed at the time of diagnosis.

[1]Survival curves among API should be interpreted with caution due to small numbers. Alaskan Natives, Native Americans, and persons with multiple race/ethnicities were not included in the analysis because of unstable results due to small numbers.
[2]Persons newly diagnosed with HIV at death were excluded from the analysis. Survival curves include persons diagnosed with HIV from 2012-2017 and followed through December 31, 2018. Persons not known to have died were censored on December 31, 2018.

Data in Action: Progress and Opportunities for Improving HIV Survival

- As HIV-infected persons live longer and die 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.
- HIV survival is fairly high in LAC, with a five-year survival probability over 90% for persons newly diagnosed with HIV. Still disparities exist across gender, race/ethnicity and persons experiencing homelessness. Access to high-quality person-centered HIV care is essential for all HIV-infected community members to have continued improvements in HIV survival.
- Health information systems need to be leveraged to routinely monitor and evaluate the quality of HIV services provided to PLWDH engaged in 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 infection, including AIDS in Los Angeles County (LAC) is conducted through active and passive surveillance to identify and collect information on newly diagnosed HIV cases 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 (DPH) Division of HIV and STD Programs (DHSP). In LAC, about 75% to 80% of case reports for newly diagnosed HIV infection are collected through active surveillance activities.

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". [1]

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. The reporting completeness among newly diagnosed HIV infection in 2019 is estimated to be 65%. Therefore, HIV diagnosis data presented in this report are for HIV diagnosis through 2018. Data completeness for 2018 HIV diagnosis data is 90%. 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 are aware of their infection or have been reported to the 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 California. As such, LAC HIV surveillance data are an underestimate of the true numbers of all PLWH in LAC.

Population rates

Population rates presented in this report are per 100,000 population, with the exception of rates presented for the persons experiencing homelessness which are

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

presented per 10,000 homeless population. The population denominators used to compute the rates in the general population were based on 2010-2018 estimates provided by LAC Internal Services Department and contracted through Hedderson Demographic Services. Population denominators for persons experiencing homeless were derived from the Greater Los Angeles County Homeless Count, 2018 Results (https://www.lahsa.org/documents?id=2059-2018-greater-los-angeles-homeless-count-presentation.pdf)

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 in California at any time on or before that year-end. If a person's exact address, or city, or ZIP Code, or county name was located in LAC, that person was considered to 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 (2014-2018), the census tract was assigned based on projected geo-coordinates (X, Y) of the person's address at diagnosis. When 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 for June 2016.

For PLWDH at year-end 2019, the census tract was assigned based on projected geo-coordinates (X, Y) of the most current residential information, and 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 for December 2019.

For persons whose last viral load in 2019 was ≥ 200 copies/mL, the census tract was assigned based on projected geo-coordinates (X, Y) of the most current residential information, and 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 for December 2019.

The following criteria were applied to the data presented in maps to protect the confidentiality, privacy, and security of PLWDH in LAC. If 2019 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.

Race and ethnicity

Mandated collection of race and ethnicity information for persons newly diagnosed with HIV was implemented in January 1, 2003 as per OMB Statistical Policy Directive 15. A minimum of 5 race categories are collected for HIV surveillance including: American Indian or Alaskan Native, Asian, Black, 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/Alaskan Native (AI/AN)' if the race field contained AI/AN information, regardless of any other race information found for this person. 'Asian' and 'Pacific Islander' categories were collapsed as a 'Asian/Pacific Islander' category for the figures presented in this report but are presented separately and as a collapsed category in the data tables at the end of the report. A person was categorized as 'Multi-racial' when two or more races are indicated in the above race fields. All other persons with a single race indicated were placed in the corresponding race/ethnicity category.

HIV transmission risk categories

For surveillance purposes, a diagnosis of HIV infection is counted only once in the hierarchy of transmission categories. Persons with more than one reported risk factor for HIV infection 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 infection (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 county 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 for whom 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 infection

HIV incidence and undiagnosed HIV infection are approximated using CDC's CD4 depletion model.[1] 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 infections. 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 infection at year-end each year, is estimated by subtracting reported cumulative deaths from cumulative infections.

[1] 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.

The number of persons with undiagnosed HIV infection is estimated by subtracting the number of persons living with diagnosed infection from total prevalence. The percentage of diagnosed (or undiagnosed) infections is determined by dividing the number of persons living with diagnosed (or undiagnosed) infections 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 an 18-month reporting delay. Therefore, in this report estimates from the CD4 model are presented through 2017 only.

HIV Care Continuum

On July 3, 2015 the White House released the updated National HIV/AIDS Strategy (NHAS).[1] This plan describes the nation's comprehensive coordinated HIV/AIDS roadmap with clear and measurable targets to be achieved by the end of 2020. Key targets from the NHAS include: 1) increasing the proportion of newly diagnosed patients linked to clinical care within one month (30 days) of their HIV diagnosis to 85%; 2) increasing the proportion of persons with diagnosed HIV infection who are retained in HIV medical care to 90%; and, 3) increasing the proportion of persons with diagnosed HIV infection who are virally suppressed to 80%.

Biomarkers such as HIV viral load (VL), CD4+ T-cell counts, and HIV genotype testing are used as markers to approximate early HIV infection 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 infection and initial linkage to care for persons newly diagnosed with HIV and to monitor engagement in 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 infection which includes acute HIV infection 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.

[1] National HIV/AIDS Strategy for the United States: Updated to 2020. Washington, DC: White House Office of National AIDS Policy; 2015

Stage 0 cases is 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.

Engagement in care: Engagement in 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 engagement in care, retention in care, and viral suppression was restricted to persons diagnosed with HIV through 2018 and living in LAC as of December 31, 2019.

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). Death data for 2018 are subject to change due to reporting delay. 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.

Data Tables

Table 1A: Counts, percentages, and rates[1] 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 2018-2019

	Male[2]												Female[2]												Total											
	2018 HIV Diagnoses			2018 AIDS Diagnoses			PLWDH as of 2019[3]			2018 Deaths[4]			2018 HIV Diagnoses			2018 AIDS Diagnoses			PLWDH as of 2019[3]			2018 Deaths[4]			2018 HIV Diagnoses			2018 AIDS Diagnoses			PLWDH as of 2019[3]			2018 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	56	(4)	12	<5	(-)	-	70	(<1)	15	<5	(-)	-	8	(4)	2	<5	(-)	-	35	(1)	8	<5	(-)	-	64	(4)	7	5	(1)	1	105	(<1)	11	<5	(-)	-
20-29	601	(41)	78	101	(19)	13	3,674	(8)	476	14	(3)	2	36	(19)	5	11	(12)	1	382	(7)	51	<5	(-)	-	637	(38)	42	112	(18)	7	4,056	(8)	268	14	(2)	1
30-39	431	(29)	57	172	(32)	23	9,125	(20)	1,203	55	(11)	7	54	(29)	7	17	(19)	2	957	(16)	130	7	(8)	1	485	(29)	32	189	(30)	13	10,082	(19)	674	62	(10)	4
40-49	217	(15)	31	130	(24)	18	10,084	(22)	1,433	70	(14)	10	40	(21)	6	28	(31)	4	1,422	(24)	200	14	(16)	2	257	(15)	18	158	(25)	11	11,506	(22)	813	84	(14)	6
50-59	116	(8)	17	87	(16)	13	14,252	(31)	2,115	164	(32)	24	24	(13)	3	18	(20)	3	1,737	(30)	248	26	(31)	4	140	(8)	10	105	(17)	8	15,989	(31)	1,164	190	(32)	14
≥60	52	(4)	6	44	(8)	5	8,956	(19)	1,032	207	(41)	24	25	(13)	2	15	(17)	1	1,286	(22)	119	38	(45)	4	77	(5)	4	59	(9)	3	10,242	(20)	526	245	(41)	13
Race/Ethnicity																																				
White	290	(20)	23	101	(19)	8	13,386	(29)	1,050	160	(31)	13	33	(18)	3	13	(14)	1	800	(14)	63	12	(14)	1	323	(19)	13	114	(18)	4	14,186	(27)	557	172	(29)	7
Black	314	(21)	91	115	(21)	33	8,541	(19)	2,475	123	(24)	36	65	(35)	16	30	(33)	7	1,905	(33)	476	36	(42)	9	379	(23)	51	145	(23)	19	10,446	(20)	1,402	159	(27)	21
Latinx	743	(50)	37	275	(51)	14	20,675	(45)	1,031	173	(34)	9	74	(40)	4	36	(40)	2	2,676	(46)	132	26	(31)	1	817	(49)	20	311	(50)	8	23,351	(45)	579	199	(33)	5
API	81	(5)	13	24	(4)	4	1,769	(4)	287	10	(2)	2	7	(4)	1	<5	(-)	-	189	(3)	26	<5	(-)	-	88	(5)	7	27	(4)	2	1,958	(4)	147	13	(2)	1
Asian	73	(5)	12	22	(4)	4	1,630	(4)	269	6	(1)	1	7	(4)	1	<5	(-)	-	177	(3)	25	<5	(-)	-	80	(5)	6	25	(4)	2	1,807	(3)	137	9	(2)	1
Pacific Islander	5	(<1)	49	<5	(-)	-	52	(<1)	510	<5	(-)	-	<5	(-)	-	<5	(-)	-	<5	(-)	-	<5	(-)	-	5	(<1)	24	<5	(-)	-	56	(<1)	268	<5	(-)	-
Unspecified	<5	(-)	-	<5	(-)	-	87	(<1)	-	<5	(-)	-	<5	(-)	-	<5	(-)	-	8	(<1)	-	<5	(-)	-	<5	(-)	-	<5	(-)	-	95	(<1)	-	<5	(-)	-
American Indian/Alaskan Native	8	(1)	78	<5	(-)	-	262	(1)	2,564	8	(2)	78	<5	(-)	-	<5	(-)	-	41	(1)	372	<5	(-)	-	10	(1)	47	5	(1)	24	303	(1)	1,427	11	(2)	52
Multi-race	37	(3)	-	20	(4)	-	1,528	(3)	-	37	(7)	-	6	(3)	-	6	(7)	-	208	(4)	-	5	(6)	-	43	(3)	-	26	(4)	-	1,736	(3)	-	42	(7)	-
Transmission Category[5]																																				
MSM	1,352	(92)	-	464	(86)	-	40,802	(88)	-	396	(77)	-	-	-	-	-	-	-	-	-	-	-	-	-	1,352	(81)	-	464	(74)	-	40,802	(78)	-	396	(66)	-
IDU	46	(3)	-	24	(4)	-	1,422	(3)	-	28	(5)	-	46	(25)	-	20	(22)	-	1,247	(21)	-	31	(36)	-	92	(6)	-	44	(7)	-	2,669	(5)	-	59	(10)	-
MSM/IDU	57	(4)	-	41	(8)	-	2,856	(6)	-	71	(14)	-	-	-	-	-	-	-	-	-	-	-	-	-	57	(3)	-	41	(7)	-	2,856	(5)	-	71	(12)	-
Hemophilia/transfusion	<5	(-)	-	<5	(-)	-	63	(<1)	-	<5	(-)	-	<5	(-)	-	<5	(-)	-	44	(1)	-	<5	(-)	-	<5	(-)	-	<5	(-)	-	107	(<1)	-	<5	(-)	-
Heterosexual contact	16	(1)	-	10	(2)	-	874	(2)	-	14	(3)	-	141	(75)	-	69	(77)	-	4,382	(75)	-	54	(64)	-	157	(9)	-	79	(13)	-	5,256	(10)	-	69	(12)	-
Perinatal exposure	<5	(-)	-	<5	(-)	-	104	(<1)	-	<5	(-)	-	<5	(-)	-	<5	(-)	-	136	(2)	-	<5	(-)	-	<5	(-)	-	<5	(-)	-	240	(<1)	-	<5	(-)	-
Other risk	<5	(-)	-	<5	(-)	-	41	(<1)	-	<5	(-)	-	<5	(-)	-	<5	(-)	-	10	(<1)	-	<5	(-)	-	<5	(-)	-	<5	(-)	-	51	(<1)	-	<5	(-)	-
Total[6]	1,473	[89]	35	538	[86]	13	46,161	[89]	1,086	511	[86]	12	187	[11]	4	90	[14]	2	5,819	[11]	131	85	[14]	2	1,660	[100]	19	628	[100]	7	51,980	[100]	599	596	[100]	7

[1] Data are provisional due to reporting delay. 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] Based on most recent known residence at year-end 2019.

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

[5] Persons without an identified risk factor are assigned a risk factor using multiple imputation (MI) methods (see technical notes). Rates for transmission category are not calculated, because of the lack of denominator data.

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

Table 2A: Counts, percentages, and rates[1] of HIV and stage 3 (AIDS) diagnoses, and deaths among persons aged ≥ 13 years living with diagnosed HIV by Service Planning Area (SPA) and Health District (HD), LAC 2018-2019

	Male												Female												Total											
	2018 HIV Diagnoses			2018 AIDS Diagnoses			PLWDH as of 2019[2]			2018 Deaths[3]			2018 HIV Diagnoses			2018 AIDS Diagnoses			PLWDH as of 2019[2]			2018 Deaths[3]			2018 HIV Diagnoses			2018 AIDS Diagnoses			PLWDH as of 2019[2]			2018 Deaths[3]		
SPA/HD[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
Antelope Valley [1]	**32**	**(2)**	**20**	**12**	**(2)**	**7**	**903**	**(2)**	**560**	**12**	**(2)**	**7**	**10**	**(5)**	**6**	**5**	**(6)**	**3**	**266**	**(5)**	**160**	**<5**	**(-)**	**-**	**42**	**(3)**	**13**	**17**	**(3)**	**5**	**1,169**	**(2)**	**357**	**15**	**(3)**	**5**
Antelope Valley	32	(2)	20	12	(2)	7	903	(2)	560	12	(2)	7	10	(5)	6	5	(6)	3	266	(5)	160	<5	(-)	-	42	(3)	13	17	(3)	5	1,169	(2)	357	15	(3)	5
San Fernando [2]	**256**	**(17)**	**27**	**85**	**(16)**	**9**	**6,707**	**(15)**	**707**	**68**	**(13)**	**7**	**27**	**(14)**	**3**	**11**	**(12)**	**1**	**853**	**(15)**	**87**	**7**	**(8)**	**1**	**283**	**(17)**	**15**	**96**	**(15)**	**5**	**7,560**	**(15)**	**392**	**75**	**(13)**	**4**
East Valley	89	(6)	46	18	(3)	9	2,194	(5)	1130	19	(4)	10	9	(5)	5	<5	(-)	-	195	(3)	100	<5	(-)	-	98	(6)	25	20	(3)	5	2,389	(5)	613	22	(4)	6
Glendale	27	(2)	18	11	(2)	7	814	(2)	546	8	(2)	5	<5	(-)	-	<5	(-)	-	84	(1)	51	<5	(-)	-	27	(2)	9	11	(2)	4	898	(2)	287	8	(1)	3
San Fernando	35	(2)	16	17	(3)	8	835	(2)	373	8	(2)	4	5	(3)	2	<5	(-)	-	131	(2)	58	<5	(-)	-	40	(2)	9	20	(3)	4	966	(2)	215	10	(2)	2
West Valley	105	(7)	28	39	(7)	10	2,864	(6)	750	33	(6)	9	13	(7)	3	6	(7)	2	443	(8)	112	<5	(-)	-	118	(7)	15	45	(7)	6	3,307	(6)	425	35	(6)	4
San Gabriel [3]	**146**	**(10)**	**19**	**43**	**(8)**	**6**	**3,377**	**(7)**	**451**	**43**	**(8)**	**6**	**10**	**(5)**	**1**	**<5**	**(-)**	**-**	**500**	**(9)**	**63**	**5**	**(6)**	**1**	**156**	**(9)**	**10**	**47**	**(7)**	**3**	**3,877**	**(7)**	**251**	**48**	**(8)**	**3**
Alhambra	22	(1)	15	6	(1)	4	554	(1)	379	6	(1)	4	<5	(-)	-	<5	(-)	-	82	(1)	51	<5	(-)	-	23	(1)	7	6	(1)	2	636	(1)	207	6	(1)	2
El Monte	45	(3)	25	10	(2)	5	842	(2)	462	12	(2)	7	<5	(-)	-	<5	(-)	-	128	(2)	68	<5	(-)	-	47	(3)	13	12	(2)	3	970	(2)	262	14	(2)	4
Foothill	23	(2)	18	5	(1)	4	551	(1)	425	<5	(-)	-	<5	(-)	-	<5	(-)	-	75	(1)	53	<5	(-)	-	24	(1)	9	5	(1)	2	626	(1)	231	5	(1)	2
Pasadena	14	(1)	23	6	(1)	10	498	(1)	825	7	(1)	12	<5	(-)	-	<5	(-)	-	60	(1)	94	<5	(-)	-	15	(1)	12	7	(1)	6	558	(1)	448	8	(1)	6
Pomona	42	(3)	18	16	(3)	7	932	(2)	404	14	(3)	6	5	(3)	2	<5	(-)	-	155	(3)	63	<5	(-)	-	47	(3)	10	17	(3)	4	1,087	(2)	229	15	(3)	3
Metro [4]	**385**	**(26)**	**74**	**141**	**(26)**	**27**	**17,149**	**(37)**	**3,285**	**159**	**(31)**	**30**	**37**	**(20)**	**7**	**25**	**(28)**	**5**	**1,134**	**(19)**	**229**	**12**	**(14)**	**2**	**422**	**(25)**	**42**	**166**	**(26)**	**16**	**18,283**	**(35)**	**1,798**	**171**	**(29)**	**17**
Central	167	(11)	102	64	(12)	39	6,156	(13)	3,772	76	(15)	47	25	(13)	18	18	(20)	13	611	(11)	430	6	(7)	4	192	(12)	63	82	(13)	27	6,767	(13)	2,216	82	(14)	27
Hollywood-Wilshire	176	(12)	77	58	(11)	25	9,259	(20)	4,059	69	(14)	30	11	(6)	5	7	(8)	3	359	(6)	164	<5	(-)	-	187	(11)	42	65	(10)	15	9,618	(19)	2,150	72	(12)	16
Northeast	42	(3)	32	19	(4)	15	1,734	(4)	1,326	14	(3)	11	<5	(-)	-	<5	(-)	-	164	(3)	123	<5	(-)	-	43	(3)	16	19	(3)	7	1,898	(4)	719	17	(3)	6
West [5]	**55**	**(4)**	**20**	**14**	**(3)**	**5**	**2,279**	**(5)**	**809**	**23**	**(5)**	**8**	**6**	**(3)**	**2**	**<5**	**(-)**	**-**	**229**	**(4)**	**75**	**5**	**(6)**	**2**	**61**	**(4)**	**10**	**16**	**(3)**	**3**	**2,508**	**(5)**	**428**	**28**	**(5)**	**5**
West	55	(4)	20	14	(3)	5	2,279	(5)	809	23	(5)	8	6	(3)	2	<5	(-)	-	229	(4)	75	5	(6)	2	61	(4)	10	16	(3)	3	2,508	(5)	428	28	(5)	5
South [6]	**224**	**(15)**	**55**	**80**	**(15)**	**20**	**5,470**	**(12)**	**1,335**	**74**	**(14)**	**18**	**42**	**(22)**	**10**	**20**	**(22)**	**5**	**1,240**	**(21)**	**282**	**23**	**(27)**	**5**	**266**	**(16)**	**31**	**100**	**(16)**	**12**	**6,710**	**(13)**	**791**	**97**	**(16)**	**11**
Compton	51	(3)	46	13	(2)	12	947	(2)	857	12	(2)	11	6	(3)	5	<5	(-)	-	181	(3)	152	5	(6)	4	57	(3)	25	17	(3)	7	1,128	(2)	491	17	(3)	7
South	49	(3)	66	12	(2)	16	1,006	(2)	1,355	15	(3)	20	14	(7)	18	7	(8)	9	274	(5)	344	8	(9)	10	63	(4)	41	19	(3)	12	1,280	(2)	832	23	(4)	15
Southeast	37	(3)	53	15	(3)	22	865	(2)	1,247	8	(2)	12	8	(4)	12	<5	(-)	-	188	(3)	275	<5	(-)	-	45	(3)	33	17	(3)	12	1,053	(2)	764	9	(2)	7
Southwest	87	(6)	56	40	(7)	26	2,652	(6)	1,705	39	(8)	25	14	(7)	8	7	(8)	4	597	(10)	347	9	(11)	5	101	(6)	31	47	(7)	14	3,249	(6)	992	48	(8)	15
East [7]	**147**	**(10)**	**27**	**61**	**(11)**	**11**	**3,193**	**(7)**	**597**	**35**	**(7)**	**7**	**17**	**(9)**	**3**	**<5**	**(-)**	**-**	**519**	**(9)**	**92**	**7**	**(8)**	**1**	**164**	**(10)**	**15**	**65**	**(10)**	**6**	**3,712**	**(7)**	**339**	**42**	**(7)**	**4**
Bellflower	34	(2)	23	16	(3)	11	726	(2)	491	7	(1)	5	5	(3)	3	<5	(-)	-	123	(2)	79	<5	(-)	-	39	(2)	13	17	(3)	6	849	(2)	279	8	(1)	3
East Los Angeles	23	(2)	28	10	(2)	12	650	(1)	796	7	(1)	9	5	(3)	6	<5	(-)	-	68	(1)	80	<5	(-)	-	28	(2)	17	11	(2)	7	718	(1)	432	7	(1)	4
San Antonio	54	(4)	32	20	(4)	12	1,177	(3)	688	12	(2)	7	<5	(-)	-	<5	(-)	-	233	(4)	131	<5	(-)	-	58	(3)	17	22	(4)	6	1,410	(3)	404	15	(3)	4
Whittier	36	(2)	27	15	(3)	11	640	(1)	476	9	(2)	7	<5	(-)	-	<5	(-)	-	95	(2)	67	<5	(-)	-	39	(2)	14	15	(2)	5	735	(1)	265	12	(2)	4
South Bay [8]	**205**	**(14)**	**32**	**71**	**(13)**	**11**	**6,812**	**(15)**	**1,057**	**83**	**(16)**	**13**	**30**	**(16)**	**4**	**10**	**(11)**	**1**	**1,051**	**(18)**	**154**	**19**	**(22)**	**3**	**235**	**(14)**	**18**	**81**	**(13)**	**6**	**7,863**	**(15)**	**592**	**102**	**(17)**	**8**
Harbor	23	(2)	26	8	(1)	9	598	(1)	687	6	(1)	7	<5	(-)	-	<5	(-)	-	98	(2)	108	<5	(-)	-	25	(2)	14	10	(2)	6	696	(1)	391	9	(2)	5
Inglewood	67	(5)	40	18	(3)	11	1,603	(3)	956	16	(3)	10	11	(6)	6	<5	(-)	-	355	(6)	196	7	(8)	4	78	(5)	22	22	(4)	6	1,958	(4)	561	23	(4)	7
Long Beach	86	(6)	44	30	(6)	15	3,890	(8)	1,991	56	(11)	29	14	(7)	7	<5	(-)	-	469	(8)	227	9	(11)	4	100	(6)	25	34	(5)	8	4,359	(8)	1085	65	(11)	16
Torrance	29	(2)	15	15	(3)	8	721	(2)	371	5	(1)	3	<5	(-)	-	<5	(-)	-	129	(2)	63	<5	(-)	-	32	(2)	8	15	(2)	4	850	(2)	212	5	(1)	1
Total[5]	**1,473**	**[100]**	**35**	**538**	**[100]**	**13**	**46,161**	**[100]**	**1,086**	**511**	**[100]**	**12**	**187**	**[100]**	**4**	**90**	**[100]**	**2**	**5,819**	**[100]**	**131**	**85**	**[100]**	**2**	**1,660**	**[100]**	**19**	**628**	**[100]**	**7**	**51,980**	**[100]**	**599**	**596**	**[100]**	**7**

[1] Data are provisional due to reporting delay. Rate per 100,000. Rates are based on population estimates for 2018. Rates based on fewer than 12 observations may not be reliable (see Technical Notes).

[2] Persons living with diagnosed HIV are based on most recent known address at the end of 2019 in Los Angeles County.

[3] 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.

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

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

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 2010-2018

	Year of Diagnosis																					
	2010			2011			2012			2013			2014			2015			2016			2017			2018[2]		
	N	(%)	Rt	N	(%)	Rt	N	(%)	Rt	N	(%)	Rt	N	(%)	Rt	N	(%)	Rt	N	(%)	Rt	N	(%)	Rt	N	(%)	Rt
Gender																											
Male	1,922	(88)	48	1,773	(88)	44	1,799	(88)	44	1,549	(87)	38	1,869	(88)	45	1,801	(88)	43	1,675	(88)	40	1,548	(88)	37	1,445	(87)	34
Female	245	(11)	6	204	(10)	5	196	(10)	5	197	(11)	5	216	(10)	5	193	(9)	4	186	(10)	4	174	(10)	4	180	(11)	4
Transgender[3]	27	(1)	-	35	(2)	-	44	(2)	-	39	(2)	-	30	(1)	-	49	(2)	-	45	(2)	-	34	(2)	-	35	(2)	-
Age Group (Yr)																											
13-19	86	(4)	8	56	(3)	5	76	(4)	8	70	(4)	7	64	(3)	7	73	(4)	8	59	(3)	6	54	(3)	6	64	(4)	7
20-29	696	(32)	46	675	(34)	45	713	(35)	47	604	(34)	39	787	(37)	51	760	(37)	49	738	(39)	48	675	(38)	44	637	(38)	42
30-39	628	(29)	44	598	(30)	42	565	(28)	40	491	(28)	34	600	(28)	42	548	(27)	37	541	(28)	37	496	(28)	33	485	(29)	32
40-49	502	(23)	35	416	(21)	29	431	(21)	30	375	(21)	26	387	(18)	27	380	(19)	27	323	(17)	23	286	(16)	20	257	(15)	18
50-59	224	(10)	18	214	(11)	17	198	(10)	16	185	(10)	14	207	(10)	16	218	(11)	16	193	(10)	14	178	(10)	13	140	(8)	10
≥60	58	(3)	4	53	(3)	3	56	(3)	3	60	(3)	4	70	(3)	4	64	(3)	4	52	(3)	3	67	(4)	4	77	(5)	4
Race/Ethnicity																											
White	519	(24)	20	454	(23)	18	440	(22)	17	419	(23)	16	430	(20)	17	432	(21)	17	349	(18)	14	367	(21)	14	323	(19)	13
Black	475	(22)	66	418	(21)	58	396	(19)	55	364	(20)	50	398	(19)	54	442	(22)	60	430	(23)	58	365	(21)	49	379	(23)	51
Latinx	1,008	(46)	28	959	(48)	26	1,030	(51)	27	846	(47)	22	1,091	(52)	29	978	(48)	25	948	(50)	24	841	(48)	21	817	(49)	20
API[4]	82	(4)	7	87	(4)	7	101	(5)	8	78	(4)	6	120	(6)	9	117	(6)	9	91	(5)	7	110	(6)	8	88	(5)	7
Asian	76	(3)	6	78	(4)	6	95	(5)	8	70	(4)	6	111	(5)	9	106	(5)	8	87	(5)	7	106	(6)	8	80	(5)	6
Pacific Islander	<5	(-)	-	<5	(-)	-	<5	(-)	-	<5	(-)	-	<5	(-)	-	5	(<1)	24	<5	(-)	-	<5	(-)	-	5	(<1)	24
Unspecified	<5	(-)	-	7	(<1)	-	<5	(-)	-	6	(<1)	-	8	(<1)	-	6	(<1)	-	<5	(-)	-	<5	(-)	-	<5	(-)	-
American Indian/Alaskan Native	16	(1)	96	19	(1)	112	14	(1)	82	7	(<1)	40	11	(1)	63	16	(1)	92	11	(1)	65	15	(1)	92	10	(1)	47
Multi-race[3]	94	(4)	-	75	(4)	-	58	(3)	-	71	(4)	-	65	(3)	-	58	(3)	-	77	(4)	-	58	(3)	-	43	(3)	-
Transmission Category[3,5]																											
MSM	1,791	(82)	-	1,687	(84)	-	1,716	(84)	-	1,474	(83)	-	1,769	(84)	-	1,731	(85)	-	1,606	(84)	-	1,473	(84)	-	1,352	(81)	-
IDU	105	(5)	-	74	(4)	-	79	(4)	-	92	(5)	-	96	(5)	-	96	(5)	-	91	(5)	-	100	(6)	-	92	(6)	-
MSM/IDU	80	(4)	-	69	(3)	-	74	(4)	-	50	(3)	-	65	(3)	-	55	(3)	-	49	(3)	-	49	(3)	-	57	(3)	-
Heterosexual contact	217	(10)	-	182	(9)	-	171	(8)	-	168	(9)	-	183	(9)	-	158	(8)	-	159	(8)	-	133	(8)	-	157	(9)	-
Perinatal exposure	<5	(-)	-	<5	(-)	-	<5	(-)	-	<5	(-)	-	<5	(-)	-	<5	(-)	-	<5	(-)	-	<5	(-)	-	<5	(-)	-
Other risk	<5	(-)	-	<5	(-)	-	<5	(-)	-	<5	(-)	-	<5	(-)	-	<5	(-)	-	<5	(-)	-	<5	(-)	-	<5	(-)	-
Total	2,194	[100]	27	2,012	100	25	2,039	[100]	25	1,785	[100]	21	2,115	[100]	25	2,043	[100]	24	1,906	[100]	22	1,756	[100]	20	1,660	[100]	19

[1] Rates for 2010-2018 are based on Census 2010 population estimates for 2010-2018. 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 persons who identify as transgender and multi-racial, as well as rate for transmission category are not calculated because of the lack of denominator data.

[4] Percentages for Asian, Pacific Islander (PI), and unspecified among API are calculated based on the total cases.

[5] Persons without an identified risk factor are assigned a risk factor using multiple imputation (MI) methods (see Technical Notes).

Table 4A: HIV diagnoses counts and rates by Service Planning Area (SPA)/Health District (HD) of residence among persons aged ≥ 13 years newly diagnosed with HIV, LAC 2010-2018

SPA/HD[1]	Year of Diagnosis																							
	2010			2011			2012			2013			2014			2015			2016			2017			2018[2]		
	N	(%)	Rt[3]	N	(%)	Rt[3]	N	(%)	Rt[3]	N	(%)	Rt[3]	N	(%)	Rt[3]	N	(%)	Rt[3]	N	(%)	Rt[3]	N	(%)	Rt[3]	N	(%)	Rt[3]
Antelope Valley[1]	**51**	**(2)**	**17**	**38**	**(2)**	**12**	**37**	**(2)**	**12**	**33**	**(2)**	**10**	**47**	**(2)**	**15**	**31**	**(2)**	**10**	**43**	**(2)**	**13**	**36**	**(2)**	**11**	**42**	**(3)**	**13**
Antelope Valley	51	(2)	17	38	(2)	12	37	(2)	12	33	(2)	10	47	(2)	15	31	(2)	10	43	(2)	13	36	(2)	11	42	(3)	13
San Fernando[2]	**270**	**(12)**	**15**	**275**	**(14)**	**15**	**274**	**(13)**	**15**	**247**	**(14)**	**13**	**296**	**(14)**	**16**	**300**	**(15)**	**16**	**290**	**(15)**	**15**	**251**	**(14)**	**13**	**283**	**(17)**	**15**
East Valley	79	(4)	22	97	(5)	26	95	(5)	26	74	(4)	20	83	(4)	22	93	(5)	24	86	(5)	22	73	(4)	19	98	(6)	25
Glendale	30	(1)	10	23	(1)	8	39	(2)	13	24	(1)	8	30	(1)	10	38	(2)	12	26	(1)	9	23	(1)	8	27	(2)	9
San Fernando	37	(2)	9	40	(2)	10	32	(2)	8	34	(2)	8	38	(2)	9	30	(1)	7	49	(3)	11	40	(2)	9	40	(2)	9
West Valley	124	(6)	17	115	(6)	16	108	(5)	15	115	(6)	16	145	(7)	20	139	(7)	18	129	(7)	17	115	(7)	15	118	(7)	15
San Gabriel[3]	**152**	**(7)**	**10**	**158**	**(8)**	**11**	**183**	**(9)**	**12**	**153**	**(9)**	**10**	**190**	**(9)**	**13**	**182**	**(9)**	**12**	**168**	**(9)**	**11**	**197**	**(11)**	**13**	**156**	**(9)**	**10**
Alhambra	27	(1)	9	32	(2)	11	33	(2)	11	23	(1)	8	33	(2)	11	30	(1)	10	27	(1)	9	34	(2)	11	23	(1)	7
El Monte	41	(2)	12	33	(2)	9	48	(2)	14	36	(2)	10	55	(3)	15	50	(2)	14	53	(3)	15	52	(3)	14	47	(3)	13
Foothill	24	(1)	9	31	(2)	12	21	(1)	8	28	(2)	11	38	(2)	15	29	(1)	11	22	(1)	8	32	(2)	12	24	(1)	9
Pasadena	17	(1)	14	14	(1)	12	26	(1)	22	25	(1)	21	25	(1)	21	28	(1)	23	14	(1)	12	18	(1)	15	15	(1)	12
Pomona	43	(2)	10	48	(2)	11	55	(3)	12	41	(2)	9	39	(2)	8	45	(2)	10	52	(3)	11	61	(3)	13	47	(3)	10
Metro[4]	**815**	**(37)**	**85**	**666**	**(33)**	**69**	**675**	**(33)**	**70**	**602**	**(34)**	**62**	**708**	**(33)**	**72**	**626**	**(31)**	**63**	**537**	**(28)**	**53**	**513**	**(29)**	**50**	**422**	**(25)**	**42**
Central	291	(13)	100	223	(11)	77	235	(12)	81	225	(13)	76	252	(12)	85	240	(12)	80	218	(11)	72	178	(10)	58	192	(12)	63
Hollywood-Wilshire	443	(20)	105	380	(19)	90	372	(18)	87	310	(17)	72	382	(18)	88	331	(16)	76	272	(14)	61	274	(16)	61	187	(11)	42
Northeast	81	(4)	33	63	(3)	25	68	(3)	27	67	(4)	27	74	(3)	29	55	(3)	21	47	(2)	18	61	(3)	23	43	(3)	16
West[5]	**118**	**(5)**	**21**	**95**	**(5)**	**17**	**97**	**(5)**	**17**	**82**	**(5)**	**14**	**106**	**(5)**	**18**	**100**	**(5)**	**17**	**61**	**(3)**	**10**	**61**	**(3)**	**10**	**61**	**(4)**	**10**
West	118	(5)	21	95	(5)	17	97	(5)	17	82	(5)	14	106	(5)	18	100	(5)	17	61	(3)	10	61	(3)	10	61	(4)	10
South[6]	**270**	**(12)**	**35**	**284**	**(14)**	**36**	**245**	**(12)**	**31**	**233**	**(13)**	**29**	**271**	**(13)**	**33**	**302**	**(15)**	**36**	**314**	**(16)**	**37**	**282**	**(16)**	**33**	**266**	**(16)**	**31**
Compton	53	(2)	25	63	(3)	29	35	(2)	16	47	(3)	21	59	(3)	27	44	(2)	20	63	(3)	28	60	(3)	26	57	(3)	25
South	50	(2)	36	58	(3)	41	51	(3)	36	45	(3)	31	55	(3)	37	61	(3)	41	71	(4)	46	50	(3)	32	63	(4)	41
Southeast	43	(2)	35	37	(2)	29	37	(2)	28	33	(2)	25	49	(2)	37	44	(2)	32	47	(2)	33	47	(3)	33	45	(3)	33
Southwest	124	(6)	41	126	(6)	41	122	(6)	39	108	(6)	35	108	(5)	34	153	(7)	48	133	(7)	41	125	(7)	38	101	(6)	31
East[7]	**169**	**(8)**	**16**	**186**	**(9)**	**18**	**169**	**(8)**	**16**	**147**	**(8)**	**14**	**182**	**(9)**	**17**	**170**	**(8)**	**16**	**181**	**(9)**	**17**	**167**	**(10)**	**15**	**164**	**(10)**	**15**
Bellflower	43	(2)	15	39	(2)	13	34	(2)	11	45	(3)	15	44	(2)	15	41	(2)	14	44	(2)	15	40	(2)	13	39	(2)	13
East Los Angeles	29	(1)	18	38	(2)	23	33	(2)	20	24	(1)	15	26	(1)	16	28	(1)	17	35	(2)	21	30	(2)	18	28	(2)	17
San Antonio	69	(3)	21	69	(3)	21	60	(3)	18	47	(3)	14	68	(3)	20	68	(3)	20	67	(4)	19	65	(4)	19	58	(3)	17
Whittier	28	(1)	11	40	(2)	15	42	(2)	16	31	(2)	12	44	(2)	16	33	(2)	12	35	(2)	13	32	(2)	12	39	(2)	14
South Bay[8]	**338**	**(15)**	**27**	**304**	**(15)**	**24**	**348**	**(17)**	**27**	**275**	**(15)**	**21**	**290**	**(14)**	**22**	**299**	**(15)**	**23**	**278**	**(15)**	**21**	**225**	**(13)**	**17**	**235**	**(14)**	**18**
Harbor	37	(2)	23	19	(1)	11	23	(1)	14	17	(1)	10	34	(2)	20	24	(1)	14	22	(1)	12	16	(1)	9	25	(2)	14
Inglewood	105	(5)	32	90	(4)	27	99	(5)	30	86	(5)	26	87	(4)	26	91	(4)	27	92	(5)	26	69	(4)	20	78	(5)	22
Long Beach	152	(7)	40	158	(8)	41	192	(9)	50	134	(8)	34	131	(6)	34	141	(7)	36	131	(7)	33	112	(6)	28	100	(6)	25
Torrance	44	(2)	12	37	(2)	10	34	(2)	9	38	(2)	10	38	(2)	10	43	(2)	11	33	(2)	8	28	(2)	7	32	(2)	8
Total [4]	**2,194**	**[100]**	**27**	**2,012**	**[100]**	**25**	**2,039**	**[100]**	**25**	**1,785**	**[100]**	**21**	**2,115**	**[100]**	**25**	**2,043**	**[100]**	**24**	**1,906**	**[100]**	**22**	**1,756**	**[100]**	**20**	**1,660**	**[100]**	**19**

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

[2] Data are provisional due to reporting delay.

[3] Rate per 100,000. Rates for 2010-2018 are based on Census 2010 population estimate for 2010-2018 respectively. Rates based on fewer than 12 observations may not be reliable (see Technical Notes).

[4] Total includes persons with no information on Service Planning Area/Health District.

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 2018-2019

Characteristics	HIV diagnoses 2018[2] N	Linked to care 1 month[1,2] N	Linked to care 1 month[1,2] %	PLWDH as of 2019[3] N	Engaged in care 2019[1] N	Engaged in care 2019[1] %	Retained in care 2019[1] N	Retained in care 2019[1] %	No. of persons with ≥ 1 VL test in 2019 N	Viral Suppression[1] (VL < 200) Virally suppressed N	Viral Suppression[1] (VL < 200) Among PLWDH[3] %	Viral Suppression[1] (VL < 200) Among persons with ≥ 1 VL test %
Gender												
Male	1,445	1,097	76	44,292	30,767	69	23,063	52	29,785	27,120	61	91
Female	180	116	64	5,631	3,825	68	2,971	53	3,757	3,350	59	89
Transgender	35	27	77	854	622	73	497	58	612	511	60	83
Age Group (Yr)												
13-19	64	44	69	122	97	80	71	58	95	84	69	88
20-29	637	477	75	4,415	3,333	75	2,266	51	3,283	2,777	63	85
30-39	485	362	75	9,943	6,865	69	4,887	49	6,715	5,863	59	87
40-49	257	199	77	11,723	7,883	67	5,951	51	7,681	6,921	59	90
50-59	140	104	74	15,601	10,858	70	8,384	54	10,466	9,694	62	93
≥ 60	77	54	70	8,973	6,178	69	4,972	55	5,914	5,642	63	95
Race/Ethnicity												
Black	379	265	70	10,155	6,718	66	4,886	48	6,555	5,609	55	86
Latinx	817	621	76	22,766	15,669	69	12,303	54	15,415	13,968	61	91
White	323	252	78	13,965	9,811	70	7,095	51	9,261	8,718	62	94
API	88	63	72	1,886	1,380	73	1,069	57	1,346	1,285	68	95
American Indian/Alaskan Native[4]	10	9	90	300	212	71	148	49	207	183	61	88
Multi-race	43	30	70	1,705	1,424	84	1,030	60	1,370	1,218	71	89
Adjusted Transmission Category[5]												
Male-to-male sexual contact (MSM)	1,352	1,032	76	39,837	27,911	70	20,930	53	26,991	24,713	62	92
Injection drug use (IDU)	92	60	65	2,600	1,583	61	1,213	47	1,553	1,347	52	87
MSM and IDU	57	44	77	2,820	1,974	70	1,485	53	1,928	1,620	57	84
Heterosexual contact [6]	157	104	66	5,133	3,464	67	2,700	53	3,406	3,074	60	90
Other risk	<5	<5	-	387	282	73	204	53	277	227	59	82
Total	1,660	1,240	75	50,777	35,214	69	26,531	52	34,154	30,981	61	91

[1] 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, or genotype test in 2019; persons are considered retained in care if there were ≥ 2 viral load, CD4+ T-cell, or genotype tests in 2019, at least 3 months apart; persons are considered virally suppressed when their last VL test in 2019 was < 200 copies/mL.

[2] Denominator for linkage to care includes persons who were reported with a new HIV diagnosis in 2018; does not include estimated persons unaware of HIV infection.

[3] Includes persons diagnosed with an HIV infection through 2018 and living in LAC at year-end 2019, based on most recent residence.

[4] Includes all non-Latino persons who have been reported with American Indian/Alaskan Native race, regardless of whether any other racial/ethnic information is reported.

[5] Persons with no reported risk information are re-distributed to a valid risk category using multiple imputation (MI) methods. Due to rounding, the sum may not add up to the total.

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

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 2018-2019

SPA/HD[2]	HIV diagnoses 2018[2]	Linked to care 1 month[1,2]		PLWDH as of 2019[3]	Engaged in care 2019[1]		Retained in care 2019[1]		No. of persons with ≥ 1 VL test in 2019	Viral Suppression[1] (VL < 200)		
										Virally suppressed	Among PLWDH[3]	Among persons with ≥ 1 VL test
	N	N	%	N	N	%	N	%	N	N	%	%
Antelope Valley [1]	**42**	**22**	**52**	**1,140**	**832**	**73**	**613**	**54**	**798**	**706**	**62**	**88**
Antelope Valley	42	22	52	1,140	832	73	613	54	798	706	62	88
San Fernando [2]	**283**	**229**	**81**	**7,372**	**5,411**	**73**	**4,088**	**55**	**5,277**	**4,916**	**67**	**93**
East Valley	98	79	81	2,335	1,684	72	1,269	54	1,633	1,527	65	94
Glendale	27	24	89	877	638	73	482	55	619	582	66	94
San Fernando	40	34	85	944	736	78	533	56	724	680	72	94
West Valley	118	92	78	3,216	2,353	73	1,804	56	2,301	2,127	66	92
San Gabriel [3]	**156**	**112**	**72**	**3,764**	**2,802**	**74**	**2,137**	**57**	**2,745**	**2,546**	**68**	**93**
Alhambra	23	18	78	621	461	74	370	60	456	412	66	90
El Monte	47	29	62	944	692	73	553	59	681	629	67	92
Foothill	24	17	71	614	472	77	340	55	454	432	70	95
Pasadena	15	14	93	545	420	77	320	59	412	384	70	93
Pomona	47	34	72	1,040	757	73	554	53	742	689	66	93
Metro [4]	**422**	**316**	**75**	**17,960**	**11,752**	**65**	**8,623**	**48**	**11,182**	**10,124**	**56**	**91**
Central	192	139	72	6,619	3,940	60	2,929	44	3,801	3,280	50	86
Hollywood-Wilshire	187	146	78	9,472	6,486	68	4,650	49	6,088	5,643	60	93
Northeast	43	31	72	1,869	1,326	71	1,044	56	1,293	1,201	64	93
West [5]	**61**	**47**	**77**	**2,451**	**1,654**	**67**	**1,165**	**48**	**1,572**	**1,473**	**60**	**94**
West	61	47	77	2,451	1,654	67	1,165	48	1,572	1,473	60	94
South [6]	**266**	**193**	**73**	**6,538**	**4,680**	**72**	**3,604**	**55**	**4,600**	**3,971**	**61**	**86**
Compton	57	41	72	1,092	806	74	626	57	799	689	63	86
South	63	44	70	1,243	883	71	686	55	866	704	57	81
Southeast	45	32	71	1,021	705	69	550	54	695	605	59	87
Southwest	101	76	75	3,182	2,286	72	1,742	55	2,240	1,973	62	88
East [7]	**164**	**123**	**75**	**3,601**	**2,629**	**73**	**2,050**	**57**	**2,600**	**2,364**	**66**	**91**
Bellflower	39	29	74	822	621	76	465	57	612	562	68	92
East Los Angeles	28	20	71	702	495	71	397	57	491	441	63	90
San Antonio	58	44	76	1,369	960	70	782	57	952	858	63	90
Whittier	39	30	77	708	553	78	406	57	545	503	71	92
South Bay [8]	**235**	**185**	**79**	**7,678**	**5,420**	**71**	**4,241**	**55**	**5,350**	**4,867**	**63**	**91**
Harbor	25	19	76	679	462	68	352	52	454	412	61	91
Inglewood	78	61	78	1,897	1,364	72	1,047	55	1,346	1,193	63	89
Long Beach	100	80	80	4,278	3,020	71	2,404	56	2,987	2,746	64	92
Torrance	32	25	78	824	574	70	438	53	563	516	63	92
Total	**1,660**	**1,240**	**75**	**50,777**	**35,214**	**69**	**26,531**	**52**	**34,154**	**30,981**	**61**	**91**

[1] 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 2019; persons are considered retained in care if there were ≥ 2 viral load, CD4+ T-cell, or genotype tests in 2019, at least 3 months apart; persons are considered virally suppressed when the last VL test in 2019 was < 200 copies/mL.

[2] Service Planning Area and Health District are based on 2012 boundaries. Data are provisional due to reporting delay.

[3] Denominator for linkage to care includes persons who were reported with a new HIV diagnosis in 2018; does not include estimated persons unaware of HIV infection.

[4] Denominator for engagement and retention in care and overall viral load suppression in 2019 includes persons diagnosed through 2018 and living in LAC at year-end 2019 based on most recent residence.

[5] Denominator includes persons diagnosed with an HIV infection through 2018 and living in LAC at year-end 2019, based on most recent residence, who had at least one documented VL test in 2019.

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