

# HIV in Alameda County, 2016-2018

Alameda County  
Public Health Department

HIV Epidemiology  
& Surveillance Unit





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HIV Epidemiology and Surveillance Unit

HIV STD Section

Division of Communicable Disease Control and Prevention

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## Overview of this Report

This report is based on human immunodeficiency virus (HIV) case surveillance in Alameda County. It summarizes data on HIV in four chapters as described below.

1. **New Diagnoses:** This chapter describes patterns of HIV diagnosis in Alameda County, characterizing those who were recently diagnosed according to demographic factors, risk factors, and stage of disease.
2. **People Living with HIV:** This chapter describes the characteristics of all people known to be living with HIV disease (PLHIV) in Alameda County. This chapter describes the total burden of HIV disease in the county and how it varies by demographic factors as well as by geography. It also describes changes in mortality rates (deaths) over time among those ever diagnosed with Acquired Immune Deficiency Syndrome (AIDS).
3. **The Continuum of HIV Care:** This chapter presents the continuum of HIV care in Alameda County. Modern medical treatments for HIV can halt the progression of the disease and prevent its spread, but not all persons living with HIV receive effective treatment. The continuum of HIV care (also known as the “HIV care cascade”) is a framework that presents different indicators of engagement in HIV care among PLHIV, including linkage to care, retention in care, and viral suppression.

## HIV/AIDS

HIV attacks the immune system, weakening it over time such that people living with HIV become increasingly susceptible to opportunistic infections and other medical conditions. The most advanced stage of infection, when the immune system is weakest, is called AIDS. Medical treatments can inhibit HIV’s ability to replicate and greatly temper its effect, but the human body cannot clear HIV. HIV is typically transmitted through sex, contaminated needles, or spread from mother to fetus during pregnancy.

## Definitions Used in this Report

### Stages of HIV Infection

For surveillance purposes, HIV disease progression is classified into 4 stages from acute infection (Stage 0) to AIDS (Stage 3). In this report, we use “HIV” to refer to HIV disease at any stage (including Stage



3/AIDS) and AIDS to refer specifically to Stage 3 HIV disease. We use the acronym “PLHIV” to refer to all people living with HIV disease, regardless of stage.

## Case Definition

All reported HIV cases must meet the Centers for Disease Control and Prevention (CDC) case definition based on laboratory or clinical criteria [5]. Clinical criteria include a medical provider diagnosis and evidence of HIV treatment, unexplained low CD4 count, or opportunistic infection. The full criteria may be found at <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr6303a1.htm>.

## Transmission Category

For surveillance purposes, each reported HIV case must be classified according to their risk factors for acquiring HIV. Cases with multiple risk factors are assigned a transmission category, the risk factor most likely to have resulted in HIV transmission according to a hierarchy developed by the CDC. In this context, “heterosexual contact” refers to sexual contact with a partner of the opposite sex with a known risk factor for HIV. In some cases, partners’ risk factors are unknown, leaving some heterosexual cases without known HIV risk factors. Such cases are assigned to the “unknown” transmission category. The only exception is when a case’s sex at birth is female and she reported sex with males, in which case she is presumed to have been infected through heterosexual contact in accordance with CDC-accepted guidance set by the Council of State and Territorial Epidemiologists[8].

## Demographics

Demographic data in this report are based on investigations of medical records. Although the transgender community is highly impacted by HIV, data on current gender identity are not consistently or reliably captured in medical records. For this reason, all analyses are presented by sex assigned at birth, for which we use “sex” as shorthand.

Data from racial/ethnic groups in which there were very small numbers were combined for these analyses. Asians and Pacific Islanders are combined into a single category. American Indians, Alaskan Natives, and those identifying with multiple races are combined along with those of unknown race into another group (“Other/Unk”). In tables and charts, the category “Asians and Pacific Islanders” is abbreviated “API” and “African American” is abbreviated “AfrAmer”.

In the text regarding foreign-born persons the category labelled “African American” represents Blacks for the US-born and persons from Africa for the foreign-born. In addition, the terms “foreign-born” and “immigrant” are used interchangeably.

## Geographic Area

Residential addresses are geocoded to census tract and city/census-designated place. Region and neighborhood boundaries established by the Alameda County Community Assessment, Planning, and Evaluation (CAPE) unit based on census tract aggregates are used. These geographic areas are shown in Figures 1.1 and 1.2.

Figure 1.1: Regions of Alameda County

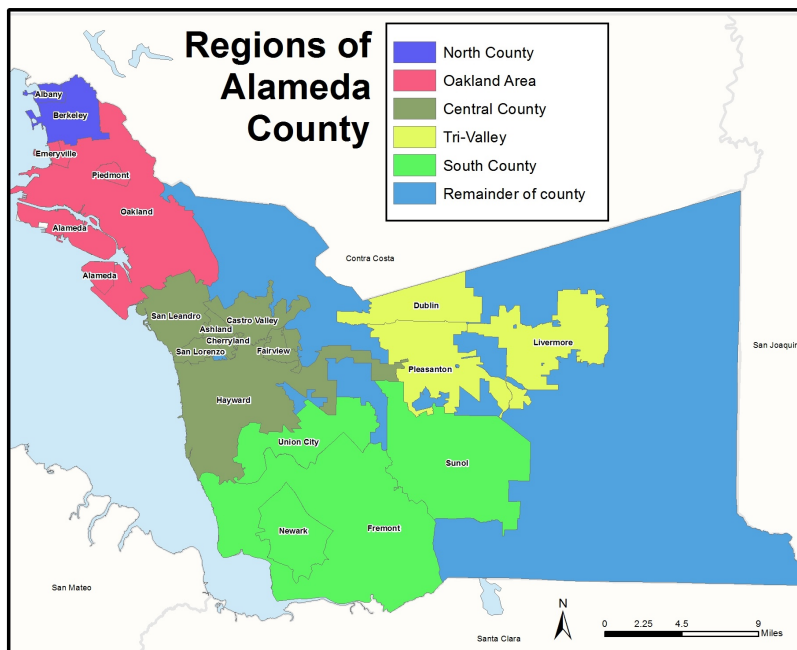
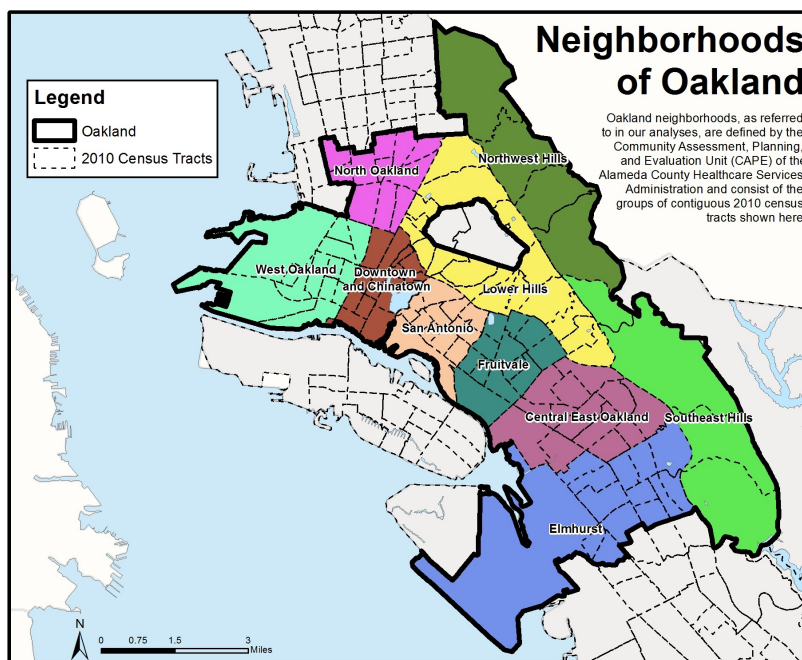


Figure 1.2: Neighborhoods in the City of Oakland



## Other Conventions Used

Analyses that are broken out by subgroup (e.g., race/ethnicity) are presented along with the overall group total (e.g., all races) for comparison.

Where rates are presented, in most cases they are accompanied by error bars to convey their degree of statistical variability. These error bars depict 95% confidence intervals (a “margin of error”) for the estimates. (In the case of trends, error bands formed by connecting the ends of these margins of error are shown.) Confidence intervals are also displayed in select subgroup analyses of indicators. Confidence intervals that do not overlap are considered “statistically significant” and generally represent true differences that are not attributed to chance alone, though it is still possible. Details regarding how these confidence intervals are calculated can be found in the technical notes (see “Calculation of Confidence Intervals” on page 68).

Tables showing detailed breakdowns of populations (e.g., new diagnoses, people living with HIV) for indicators (e.g., diagnosis rates, viral suppression) by demographic or other subgroup are included at the end of each chapter. Note that in each table the length of the green bar is proportional to the fraction of the total population in that subgroup. Additionally, estimates of each indicator and lines depicting 95% confidence intervals for the estimate are also shown for absolute comparisons between subgroups. Relative comparisons of subgroups (e.g., “Late diagnosis is three times as common in group A as it is in group B”) may be made by comparing estimates, when shown. Unreliable estimates are not shown in tables, although their confidence intervals may be. Details on data suppression conventions used in this report can be found in the technical notes (see “Data Suppression Rules” on page 69).

Lastly, in order to protect privacy, case counts less than five are not presented in this report.



## New Diagnoses

The Alameda County Public Health Department monitors the HIV epidemic through mandated reports of new diagnoses and laboratory results. Estimating the true incidence rate of new HIV transmissions is complex due to the variable time interval between when a person becomes infected and when their infection is diagnosed. However, surveillance data reliably describe all new HIV diagnoses and diagnosis rates. In 2018, there were an estimated 37,377 new diagnoses of HIV infection in the US for an overall diagnosis rate of 11.4 per 100,000 persons. Nationally, rates were highest among males as compared to females (22.5 vs. 5.1 diagnoses per 100,000, respectively), those aged 20-24 or 25-29 (27.6 and 32.5 per 100,000, respectively), African Americans and Latinos (39.9 and 16.2 per 100,000), and in the South and Northeast (15.7 and 10.0 per 100,000). Men who have sex with men (MSM), including those that inject drugs, accounted for 69.4% of all infections, heterosexual contact accounted for 23.5%, and other modes of transmission accounted for the remaining 7.1% [6]. In California, there were an estimated 4,791 new diagnoses for an overall statewide rate of 12.1 diagnoses per 100,000 in 2017. The epidemiology of HIV in Alameda County largely mirrored that of the nation, with the exception that heterosexual contact is estimated to account for only 14.2% of all new diagnoses among Alameda County residents [1]. In Alameda County the average annual diagnosis rate calculated over the 3-year period of 2016-2018 was 13.5 diagnoses per 100,000.

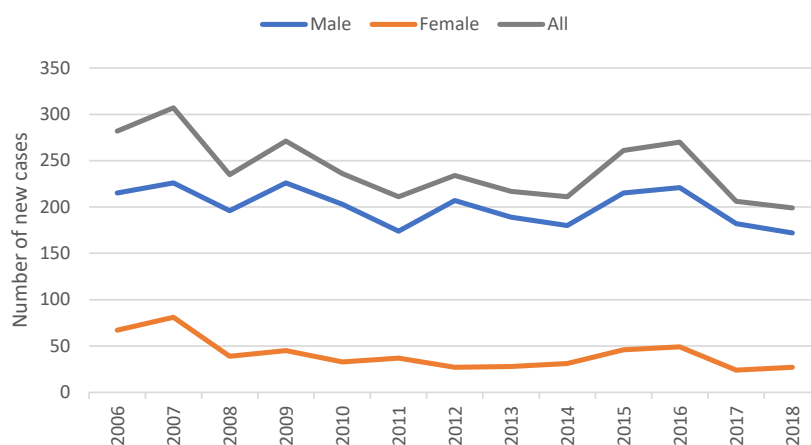
This chapter describes HIV in Alameda County by examining characteristics of new diagnoses, new diagnosis rates, and the timeliness of diagnoses by demographic characteristics. Data presented in this chapter are also summarized in Table 2.1. Detailed stratification of newly diagnosed cases from 2016 to 2018 by sex, age and race/ethnicity are provided in Tables 2.1 - 2.5 at the end of this chapter.

## Characteristics of New Diagnoses

Since HIV became reportable by name in California in 2006, between 200 and 300 new cases of HIV disease have been reported each year among Alameda County residents. In 2018, there were 199 new diagnoses of HIV in the county.

In Alameda County, those newly diagnosed with HIV disease were overwhelmingly male. The proportion of new diagnoses that were among males increased from 76.2% in 2006 to 86.4% in 2018.

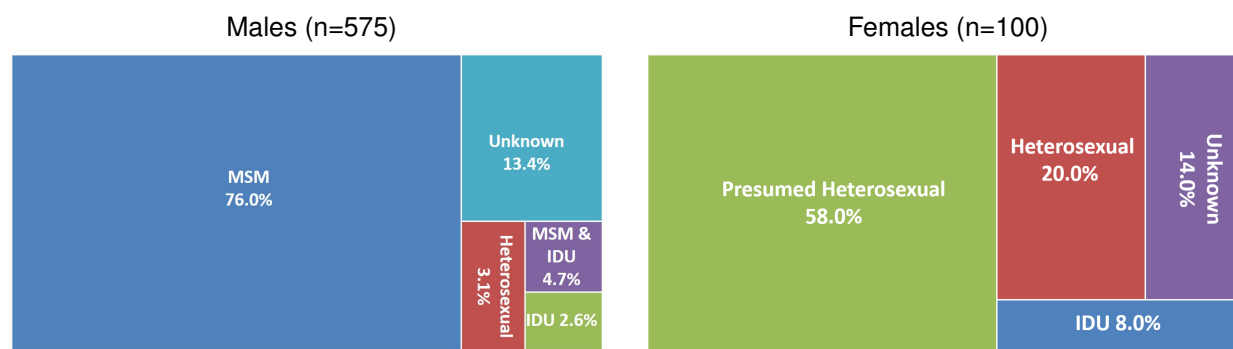
Figure 2.1: New Diagnoses by Sex, Alameda County, 2006-2018



NOTE: "Sex" here refers to sex assigned at birth.

Among the 575 men diagnosed with HIV from 2016 to 2018, the overwhelming majority (76%) were MSM. Nearly eight in ten (78%) newly diagnosed women were reported to or presumed to have acquired HIV by heterosexual contact with a partner with known or unknown HIV status; most of the remaining women with a known transmission category were infected through injection drug use (IDU).

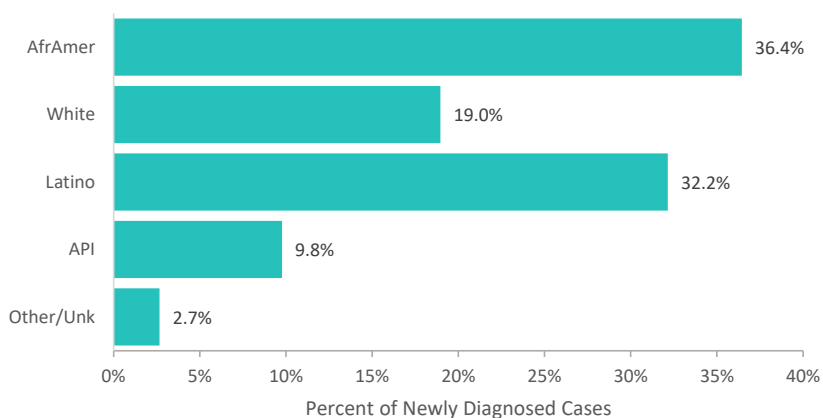
Figure 2.2: New Diagnoses by Sex and Mode of Transmission, Alameda County, 2016-2018



NOTE: "Sex" here refers to sex assigned at birth.

From 2016 to 2018, African Americans comprised the largest proportion (36.4%) of all new HIV diagnoses among all racial/ethnic groups. Latinos had the next largest proportion (32.2%) of new HIV diagnoses, followed by whites (19.0%), and API (9.8%).

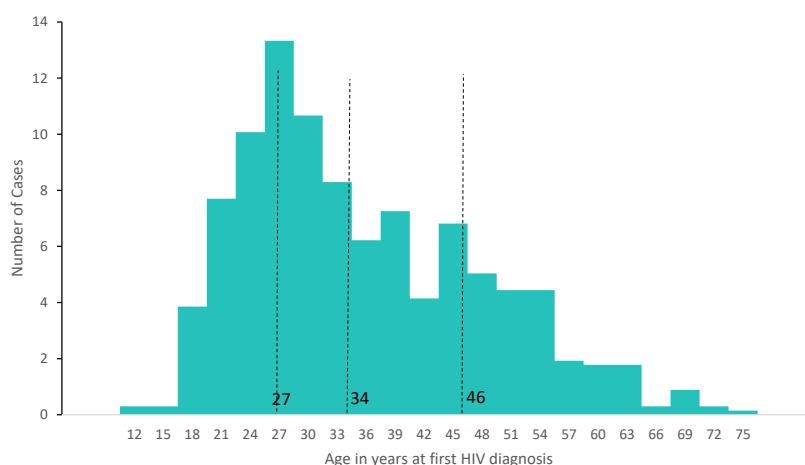
**Figure 2.3: New Diagnoses by Race/Ethnicity, Alameda County, 2016-2018**



NOTE: “Other/Unk” includes American Indians, Alaskan Natives, and those identifying with multiple racial categories as well as those for whom race/ethnicity could not be identified.

The median age among Alameda County residents diagnosed with HIV disease from 2016 to 2018 was 34 years and the mean age was 37 years. Most diagnoses were among those in their twenties to forties.

**Figure 2.4: Age of New Diagnoses, Alameda County, 2016-2018**

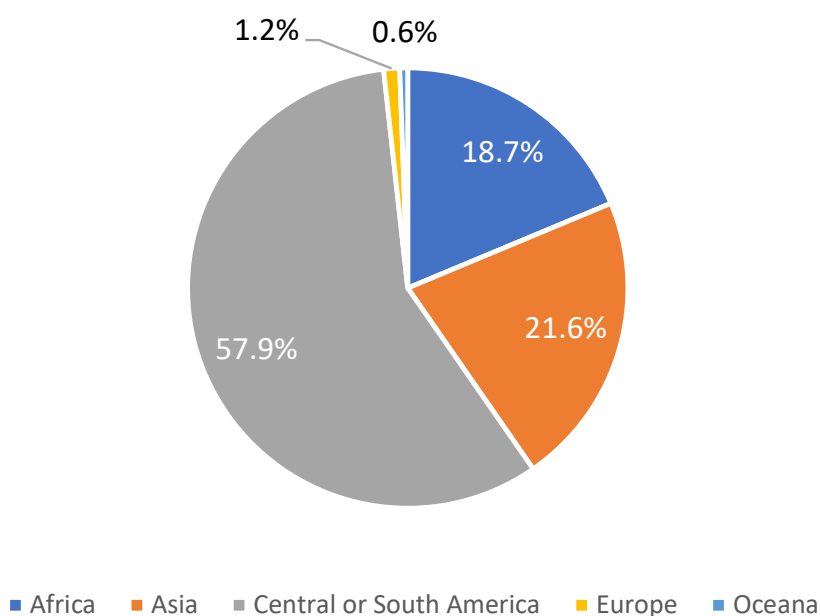


NOTE: The dashed lines indicate the 25th, 50th, and 75th percentile values for age among the new diagnoses.



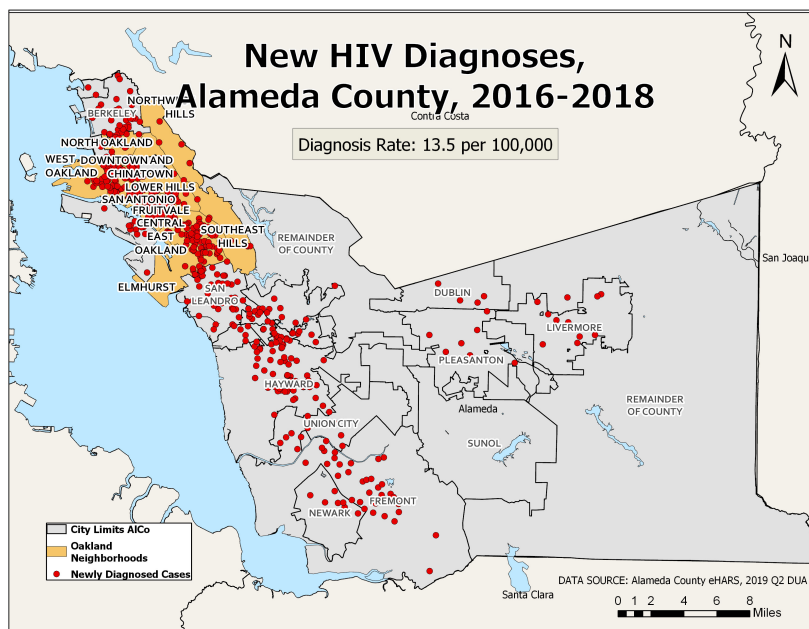
Cases among the foreign-born accounted for 29.8% of all new diagnoses from 2016-2018. Of these cases, more than half (57.9%) came from Central or South America. The next largest proportion came from Asia (21.6%), followed by Africa (18.7%) (Table 2.6 on page 24). Foreign-born cases were overwhelmingly male (82.5%), and 77.4% of foreign-born males identified as MSM.

Figure 2.5: Region of Origin Among Foreign-Born Newly Diagnosed, Alameda County, 2016-2018



New diagnoses of HIV were most concentrated in the Oakland area and central county regions (as defined in Figure 1.1 on page 3).

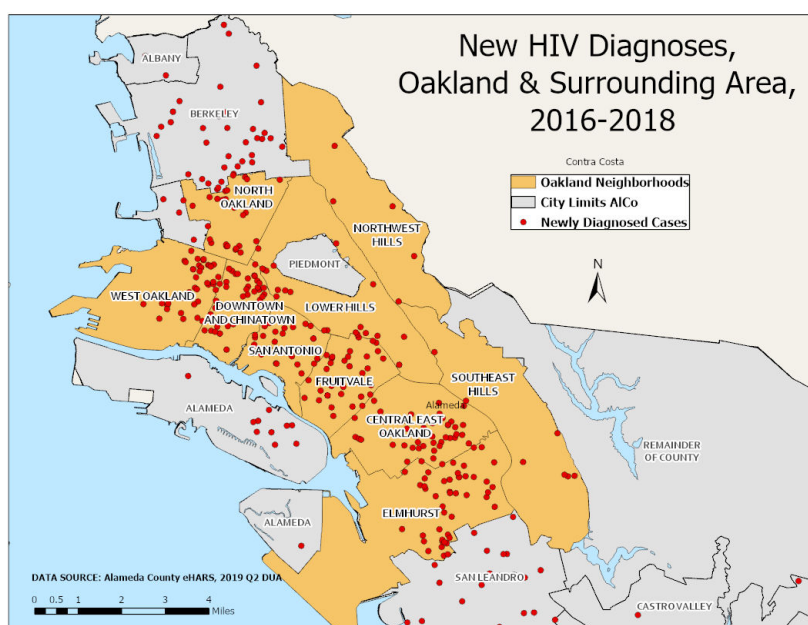
Figure 2.6: Geographic Distribution of New HIV Cases by Residence at HIV Diagnosis, Alameda County, 2016-2018



NOTE: N=591; an additional 84 diagnoses (12.4% of all) are not represented due to incomplete street address.

Within the Oakland area, new diagnoses were less concentrated in the Oakland hills (Northwest Hills, Southeast Hills, and Lower Hills neighborhoods) than in the rest of the region.

Figure 2.7: Residence at HIV Diagnosis, Oakland and Surrounding Area, 2016-2018



## Diagnosis Rates

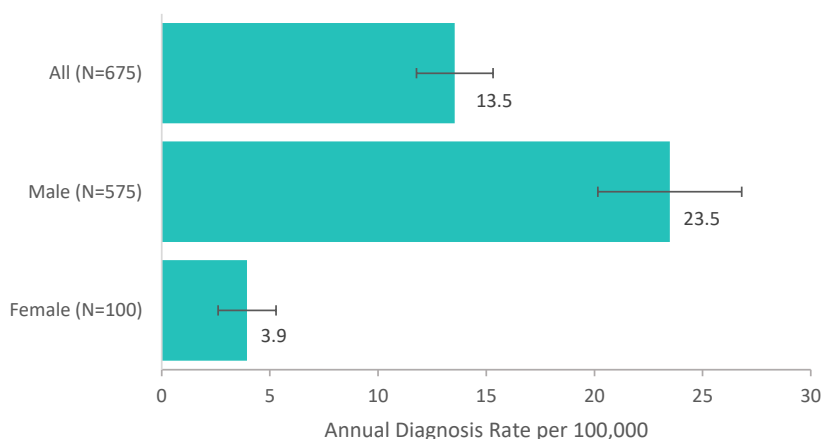
This section examines trends in HIV diagnosis rates. Diagnosis rates are not equivalent to true HIV incidence rates. Trends in diagnosis rates may reflect changes in HIV incidence over time, but may also reflect changes in HIV testing practices. For example, HIV incidence could decrease while HIV diagnosis rates increase if more HIV-unaware persons are tested and diagnosed.

Due to the relatively small numbers of diagnoses occurring in Alameda County in any given year, annual diagnosis rates are statistically unstable. We performed statistical analyses to identify trends that are least likely to reflect random year-to-year variability. Apparent trends do not indicate statistical significance unless specified in the caption.

From 2016 to 2018, there were 675 new HIV diagnoses in Alameda County for an average annual rate of 13.5 per 100,000 residents.

New diagnosis rates were six times as high among males as among females between 2016 and 2018.

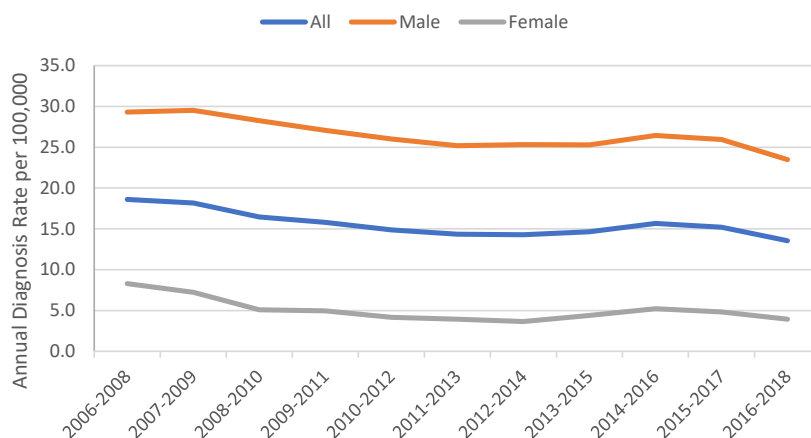
Figure 2.8: Rates of New Diagnoses by Sex, Alameda County, 2016-2018



NOTE: "Sex" here refers to sex assigned at birth.

HIV diagnosis rates declined steadily and significantly between 2006 and 2018, decreasing by an average of 3.0% annually overall and 2.2% annually among males. In contrast, the same period, rates among females dropped significantly by 7.3% annually. Rates were consistently higher in men between 2006 and 2018.

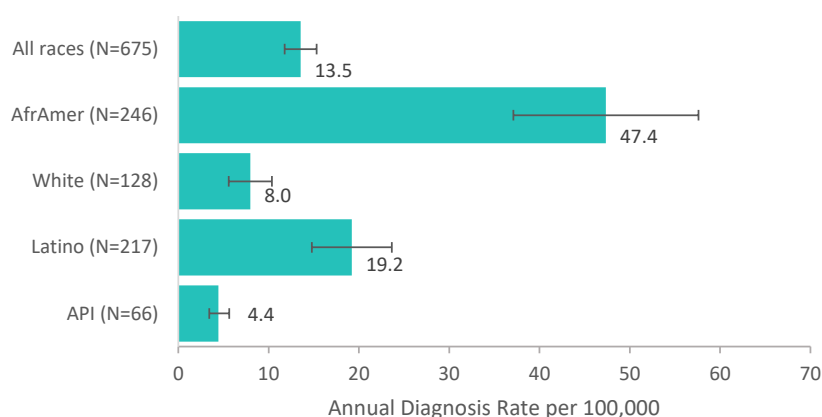
Figure 2.9: Trends in Rates of New Diagnoses by Sex, Alameda County, 2006-2018



NOTE: "Sex" here refers to sex assigned at birth.

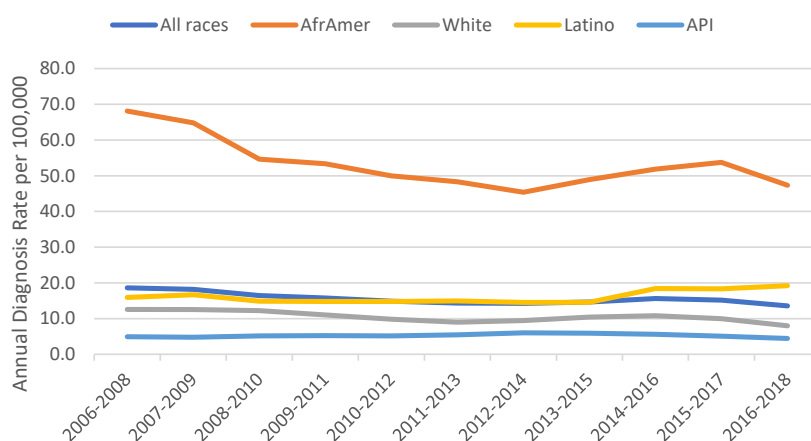
From 2016 to 2018, the highest diagnosis rate was among African Americans, which was more than twice as high as the second most impacted group—Latinos. The lowest diagnosis rate was seen among API.

Figure 2.10: Rates of New Diagnoses by Race/Ethnicity, Alameda County, 2016-2018



Diagnosis rates were relatively constant since 2006 in most racial/ethnic groups. However, the average annual decline in diagnosis rate was statistically significant among African Americans (3.7%) and whites (4.0%).

Figure 2.11: Trends in Rates of New Diagnoses by Race/Ethnicity, Alameda County, 2006-2018



The overall decline in the diagnosis rate in the county overall since 2006 was driven largely by decreases in diagnoses among African Americans, and in particular, African American women, amongst whom rates decreased by 6.9% per year on average. Whereas there were 42.8 new diagnoses per 100,000 African American women in 2006-2008, that rate was 22.8 new diagnoses per 100,000 from 2016 to 2018. Rates also declined among Latino women, by an average of 5.5% per year. Figure 2.12 shows the change in 3-year average diagnosis rate from the previous year among females. The years indicated along the X-axis represent the middle years of the 3-year periods for which diagnosis rate was calculated. For example, the average annual diagnosis rate among African American women between 2008 and 2010 (as indicated by the middle year 2009 on the X-axis) was 38% lower than the average annual diagnosis rate between 2007 and 2009. The 3-year periods centered on 2014 and 2015 show large increases in diagnosis rates for all females regardless of race/ethnicity, but the average annual rates centered on 2016 show decreases for most racial/ethnic groups. The rate of new diagnoses among all racial/ethnic groups declined in 2017.

Figure 2.12: Percent Change in 3-Year Average Annual Diagnosis Rate, Among Females, Alameda County, 2007-2017

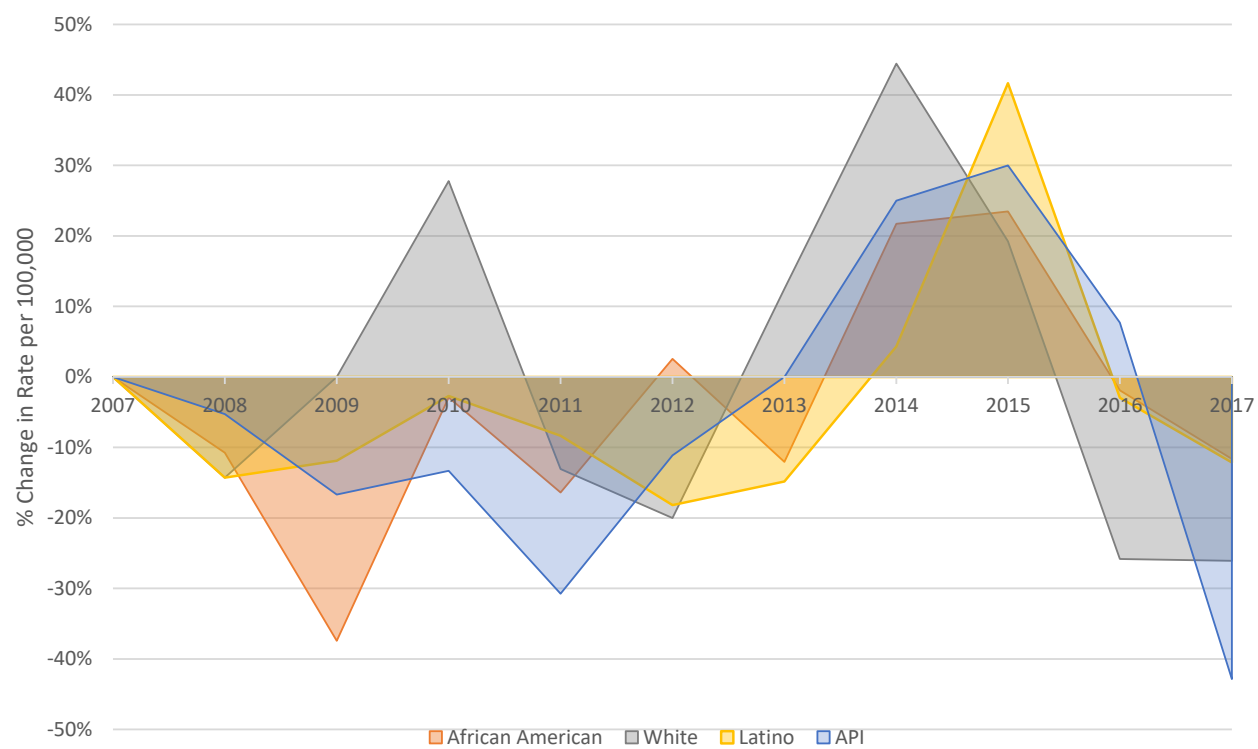
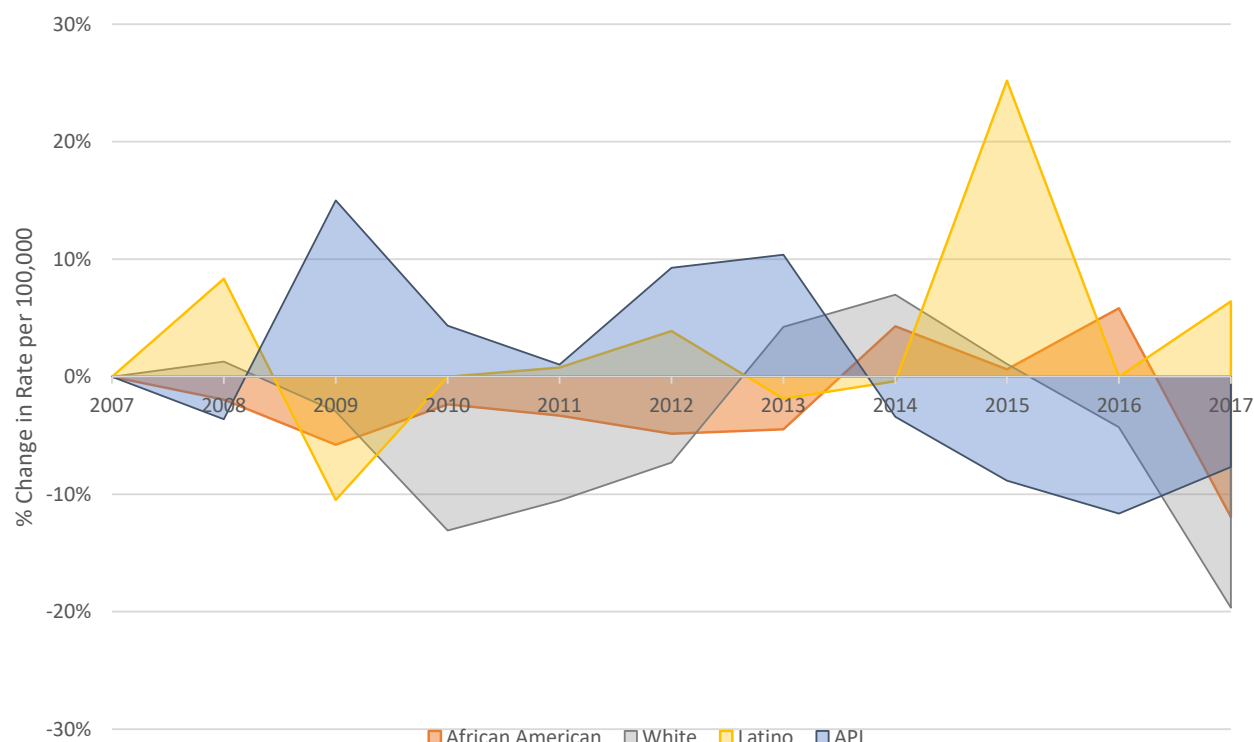


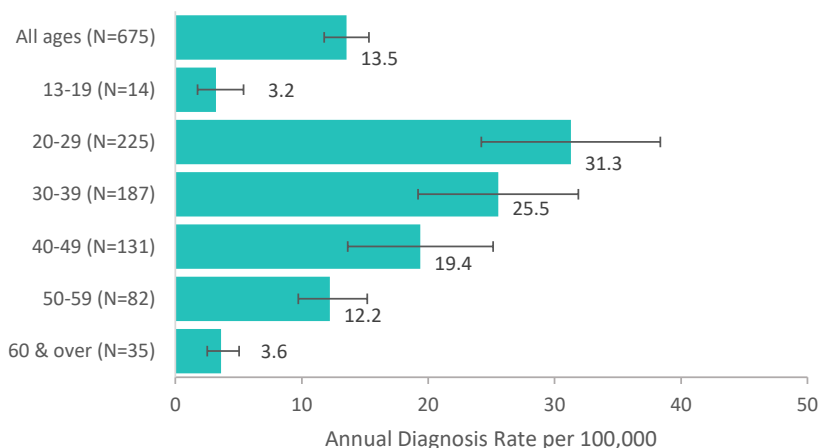
Figure 2.13: Percent Change in 3-Year Average Annual Diagnosis Rate, Among Males, Alameda County, 2007-2017

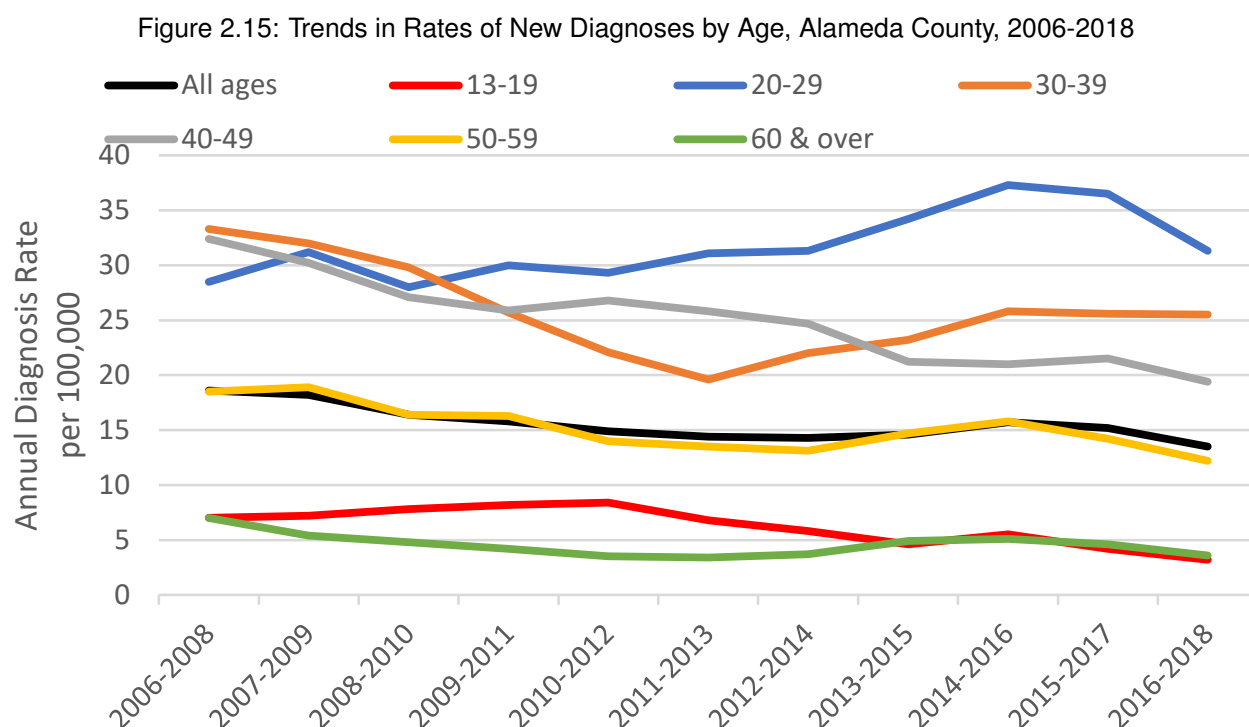


Among all males, the only significant trends were declines in diagnosis rates among African Americans and whites – 2.5% and 4.4% respectively per year on average. Of interest is the relative decline in diagnosis rates among male API from 2014 to 2016, a time period coinciding with large increases in diagnosis rates among female API; in 2017, female API showed a relatively large decrease in diagnosis rate (42.9%). The 3-year period centered on 2017 showed decreased diagnosis rates among all male racial/ethnic groups with the exception of Latino males, which increased (Figure 2.13).

From 2016 to 2018, new HIV diagnoses were most common among those in their twenties, thirties, and forties, with 31.3, 25.5, and 19.4 diagnoses per 100,000, respectively. New HIV diagnoses were somewhat less common among those in their fifties and least common among those at the extremes of the age spectrum (i.e., teens and those aged 60 & over).

Figure 2.14: Rates of New Diagnoses by Age, Alameda County, 2016-2018





By age, diagnosis rates have decreased significantly from 2006 to 2018 at an average rate of 3.0% per year among those 30-39, 5.4% per year among those 40-49 and 4.5% per year among those 50 and older. While the rate among those 20-29 has increased since 2006, this was not a statistically significant trend.

Among African Americans, there were significant declines in diagnosis rates between 2006 and 2018 in several age groups. There was an average annual decline of 5.2% among those aged 30-39 years, and 7.4% among those 40-49 years. Whites 40-49 years old saw an average annual decline of 6.9% while those 60 and older saw a decline of 6.7%. Among Latinos, there was a 7.8% decline among those 13-19 years; in contrast there was a 3.8% increase among those age 20-29 years. There were no statistically significant trends among API by age.

Stratified diagnosis rates by sex, age and race/ethnicity are provided in tables at the end of this chapter (Table 2.1 on page 18). The disparity in diagnosis rates between African Americans and whites was more pronounced among females than males. African American males had 5.2 times the diagnosis rates compared to white males diagnosed from 2016 to 2018; African American females had 13.4 times the diagnosis rates of white females (Table 2.4 on page 22).



## Timeliness of Diagnosis

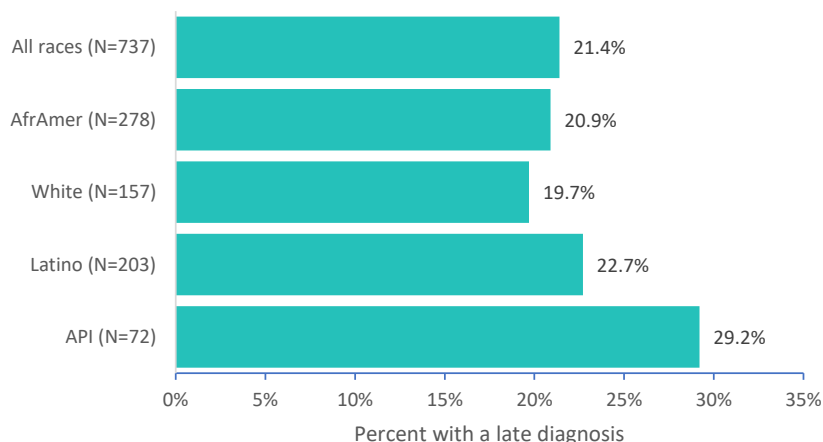
Diagnosis of HIV early in the course of infection is an important component of effective HIV prevention and treatment as early treatment generally reduces both the risk of transmission to others and the impact of HIV infection on a person's health.

### Late Diagnosis

A key indicator of late HIV diagnosis is the time to progression to AIDS (stage 3 infection). A diagnosis is deemed late if AIDS is diagnosed at the same time as a person's initial HIV diagnosis or if the person progresses to AIDS within one year of the initial HIV diagnosis. The analyses presented in this section are for the years 2015 to 2017 to allow a full year of follow-up from initial HIV diagnosis. Stratified analyses of late diagnosis by sex, age, and race/ethnicity are provided in tables at the end of this chapter. Apparent differences should be interpreted with caution due to the small numbers of diagnoses seen in some subgroups, resulting in statistical instability.

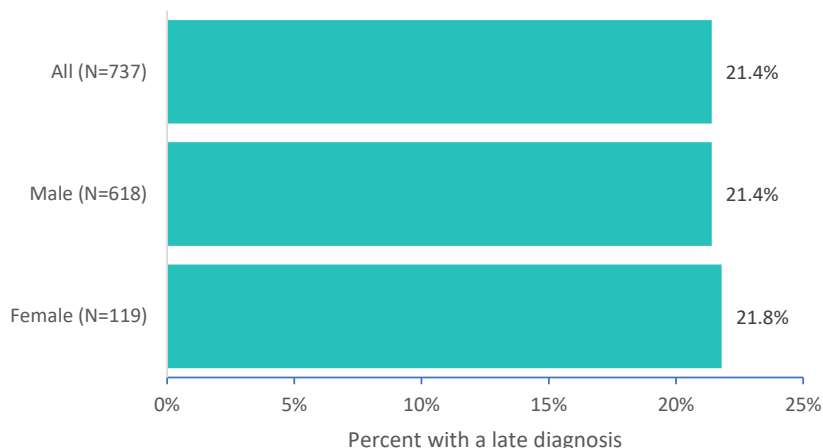
In Alameda County, 21.4% of new diagnoses between 2015 and 2017 were late. Whites and African Americans had the lowest rate and Latinos and API the highest; however, differences by race/ethnicity were not statistically significant.

Figure 2.16: Late Diagnosis by Race/Ethnicity, Alameda County, 2015-2017



There was no difference in late diagnosis by sex.

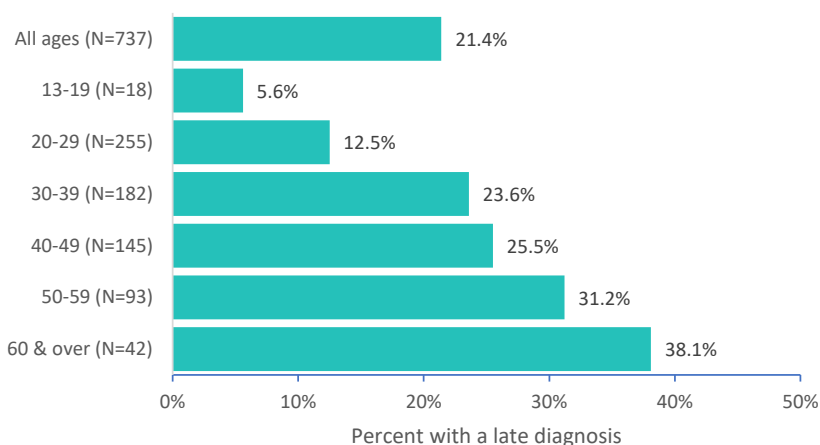
Figure 2.17: Late Diagnosis by Sex, Alameda County, 2015-2017



NOTE: "Sex" refers to sex assigned at birth.

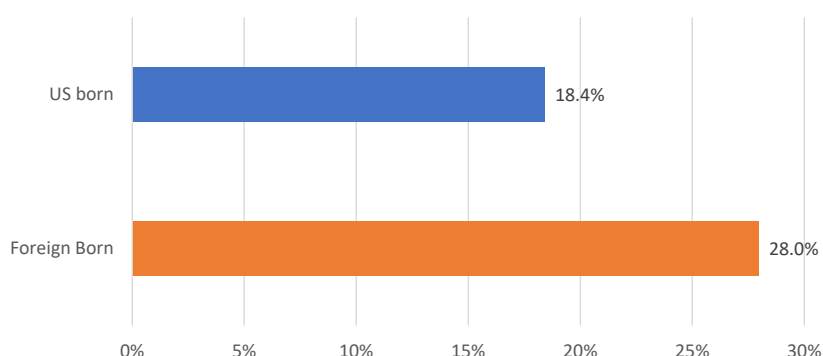
The proportion of late diagnoses generally increased with age: over a third of HIV diagnoses among those aged 60 and over were late. Late diagnosis was less common among those aged 20 to 29—1 in 8 were diagnosed late in this age group. The increase in rate of late diagnosis with increasing age was statistically significant.

Figure 2.18: Late Diagnosis by Age, Alameda County, 2015-2017



Late diagnoses were more common among foreign-born cases (28.0%) compared to U.S.-born cases (18.4%), however, this may be exaggerated. A small number of foreign-born PLHIV may have been initially diagnosed with HIV in another country before arriving in the US, but due to the absence of date of initial diagnosis, their diagnosis date in surveillance data reflects the earliest date of HIV diagnosis in the US. As a consequence, late diagnoses maybe overestimated among the foreign-born in our data.

Figure 2.19: Late Diagnosis by Foreign-Born Status among Newly Diagnosed, Alameda County, 2015-2017



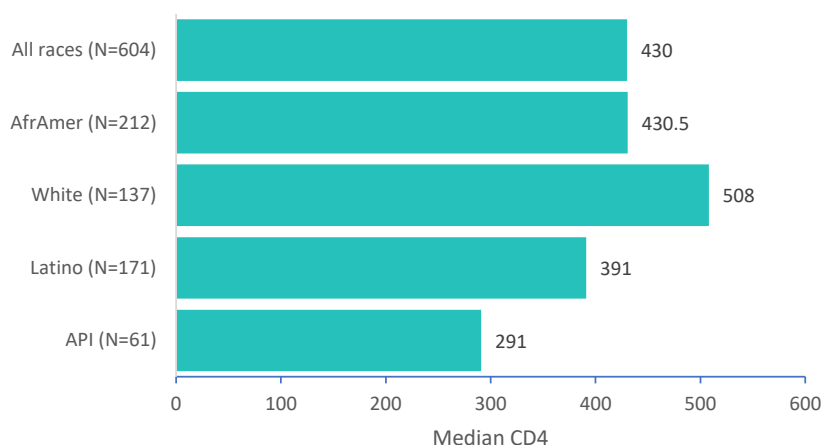
## First CD4 Count

CD4 cell count at the time of diagnosis is another indicator of the timeliness of HIV diagnosis. CD4+ T-cells, an important component of the human immune system, are infected and killed by HIV. Anti-retroviral therapy (ART) allows the body to preserve or increase the CD4 count. However, the longer a person goes without taking ART, which controls the level of HIV in their body, the lower their CD4 count will drop and the more susceptible the person will be to opportunistic infections and other health problems. Once a person's CD4 count falls below 200 cells/mm<sup>3</sup>, the person is considered to have AIDS.<sup>1</sup>

<sup>1</sup>These analyses exclude 131 cases (17.8% of all diagnoses) with a first CD4 count more than 90 days after diagnosis.

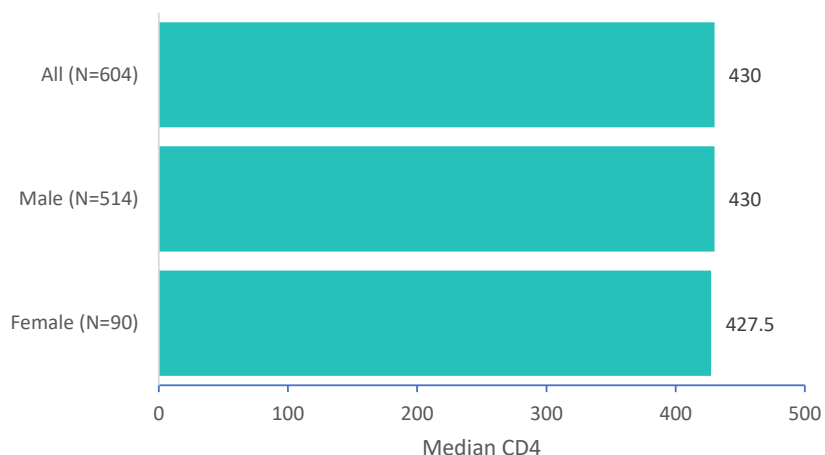
Among those diagnosed with HIV disease between 2015 and 2017 and for whom a CD4 count was conducted within 90 days, the median CD4 count at the time of diagnosis was 430 cells/mm<sup>3</sup>. Whites had the highest median CD4 count at diagnosis among all racial/ethnic groups and API had the lowest, though the differences were not significant.

Figure 2.20: First CD4 Count at Diagnosis by Race/Ethnicity, Alameda County, 2015-2017



Median CD4 within 90 days of diagnosis was slightly higher among males than females.

Figure 2.21: First CD4 Count at Diagnosis by Sex, Alameda County, 2015-2017



NOTE: "Sex" refers to sex assigned at birth.

Those aged 20-29 had a higher median CD4 count at diagnosis than any other age group. Median CD4 count was generally lower in successively older age groups. Those 60 and older had the lowest median CD4 count at diagnosis. However, data for this group and those aged 13-19 should be interpreted with caution due to small numbers.

Figure 2.22: First CD4 Count at Diagnosis by Age, Alameda County, 2015-2017

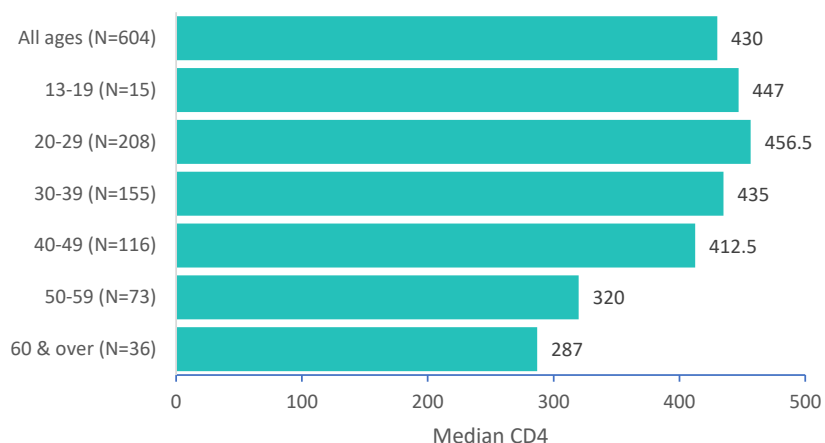


Table 2.1: New HIV Diagnoses, Alameda County, 2016-2018

NOTE: This table spans multiple pages

Characteristic	Category	Average Annual Count	Percent	Average Annual Diagnosis Rate per 100,000	95% Confidence Interval
All Diagnosis	--	225.0	100.0%	13.5	11.8 - 15.3
Sex <sup>a</sup>	Male	191.7	85.2%	23.5	20.2 - 26.8
	Female	33.3	14.8%	3.9	2.3 - 5.3
Race/Ethnicity <sup>b</sup>	AfrAmer	82.0	36.4%	47.4	37.1 - 57.6
	White	42.7	19.0%	8.0	5.6 - 10.4
	Latino	72.3	32.1%	19.2	14.8 - 23.6
	API	22.0	9.8%	4.4	3.4 - 5.6
Age (years) <sup>c</sup>	Other/Unk	6.0	2.7%	--	--
	0-12	*	*	*	*
	13-19	*	*	*	*
	20-29	75.0	33.3%	31.3	24.2 - 38.4
	30-39	62.3	27.7%	25.5	19.2 - 31.9
	40-49	43.7	19.4%	19.4	13.6 - 25.1
	50-59	27.3	12.1%	12.2	9.7 - 15.2
	60 & over	11.7	5.2%	3.6	2.5 - 5.0

Table 2.1: New HIV Diagnoses, Alameda County, 2016-2018 (continued)

NOTE: This table spans multiple pages

Characteristic	Category	Average Annual Count	Percent	Average Annual Diagnosis Rate per 100,000	95% Confidence Interval
Residence	North County	16.0	7.1%	11.4	8.4 - 15.1
	Oakland Area	123.7	55.0%	23.3	19.2 - 27.4
	Central County	51.7	23.0%	13.1	9.5 - 16.6
	South County	22.7	10.1%	6.4	5.0 - 8.1
	Tri-Valley	10.0	4.4%	4.4	3.0 - 6.2
	Remainder of county	*	*	*	*
	Unknown	*	*	--	--

Source: Alameda County eHARS, 2019 Q2

[a] Refers to sex assigned at birth

[b] 'Other/Unk' = American Indians and Alaskan Natives, multiple race, unknown race

[c] Age at diagnosis

[\*] Some cells suppressed to protect confidentiality

[\*\*] Unstable estimates not shown

[--] Rate not calculable for lack of a denominator

Table 2.2: New HIV Diagnosis Rates Among Foreign-Born Persons by Selected Characteristics, Alameda County, 2016-2018

Characteristic	Category	Foreign-Born Newly Diagnosed 2016-2018	
		Count	Column Percent
Newly Diagnosed 2016-2018		172	100.0%
Race/Ethnicity <sup>a</sup>	AfrAmer	33	19.2%
	White	*	*
	Latino	101	58.7%
	API	34	19.8%
	Other/Unk	*	*
Sex <sup>b</sup>	Male	142	82.6%
	Female	30	17.4%
Age	0-12	*	*
	13-19	*	*
	20-29	33	19.2%
	30-39	60	34.9%
	40-49	48	27.9%
	50-59	21	12.2%
	60 & over	7	4.1%
	MSM	108	62.8%
Mode of Transmission	IDU	*	*
	MSM & IDU	*	*
	Heterosexual Contact	9	5.2%
	Perinatal	*	*
	Presumed Heterosexual	18	10.5%
	Unknown	33	19.2%

Source: Alameda County eHARS, 2019 Q2

Note: Excludes 115 newly diagnosed with unknown foreign-born status

[a] 'Other/Unk' = American Indians and Alaskan Natives, multiple race, unknown race

[b] Refers to sex assigned at birth

[\*] Some cells suppressed to protect confidentiality

Table 2.3: HIV Diagnosis Rates by Sex and Age, Alameda County, 2016-2018

Sex <sup>a</sup>	Age	Average Annual Count	Percent	Average Annual Diagnosis Rate per 100,000	95% Confidence Interval
All	All ages	225.0	100.0%	13.5	11.8 - 15.3
	0-4	*	*	*	*
	5-12	*	*	*	*
	13-19	4.7	2.1%	3.2	1.8 - 5.4
	20-24	29.0	12.9%	24.8	19.9 - 30.6
	25-29	46.0	20.4%	37.5	26.6 - 48.3
	30-39	62.3	27.7%	25.5	19.2 - 31.9
	40-49	43.7	19.4%	19.4	13.6 - 25.1
	50 & over	39.0	17.3%	7.2	4.9 - 9.4
Male	All ages	191.7	85.2%	23.5	20.2 - 26.8
	0-4	0.0	0.0%	**	**
	5-12	0.0	0.0%	**	**
	13-19	4.0	1.8%	5.4	2.8 - 9.5
	20-24	24.7	11.0%	41.5	32.6 - 52.1
	25-29	41.3	18.4%	66.9	46.5 - 87.3
	30-39	56.0	24.9%	46.2	34.1 - 58.3
	40-49	34.7	15.4%	31.2	20.8 - 41.6
	50 & over	31.0	13.8%	12.2	9.8 - 14.9
Female	All ages	33.3	14.8%	3.9	2.6 - 5.3
	0-4	0.0	0.0%	**	**
	5-12	*	*	*	*
	13-19	*	*	*	*
	20-24	4.3	1.9%	7.5	4.0 - 12.9
	25-29	4.7	2.1%	7.7	4.2 - 12.8
	30-39	6.3	2.8%	5.2	3.1 - 8.0
	40-49	9.0	4.0%	7.9	5.2 - 11.5
	50 & over	8.0	3.6%	2.8	1.8 - 4.1

Source: Alameda County eHARS, 2019 Q2

[a] Refers to sex assigned at birth

[\*] Some cells suppressed to protect confidentiality

[\*\*] Unstable estimates not shown



Table 2.4: HIV Diagnosis Rates by Sex and Race/Ethnicity, Alameda County, 2016-2018

Sex <sup>a</sup>	Race/Ethnicity <sup>b</sup>	Average Annual Count	Percent	Average Annual Diagnosis Rate per 100,000	95% Confidence Interval
All	All races	225.0	100.0%	13.5	11.8 - 15.3
	AfrAmer	82.0	36.4%	47.4	37.1 - 57.6
	White	42.7	19.0%	8.0	5.6 - 10.4
	Latino	72.3	32.1%	19.2	14.8 - 23.6
	API	22.0	9.8%	4.4	3.4 - 5.6
	Other/Unk	6.0	2.7%	--	--
Male	All races	191.7	85.2%	23.5	20.2 - 26.8
	AfrAmer	61.0	27.1%	75.2	56.3 - 94.1
	White	38.0	16.9%	14.3	9.7 - 18.8
	Latino	67.0	29.8%	34.9	26.6 - 43.3
	API	20.0	8.9%	8.4	6.4 - 10.8
	Other/Unk	5.7	2.5%	--	--
Female	All races	33.0	14.8%	3.9	2.6 - 5.3
	AfrAmer	21.0	9.3%	22.8	17.5 - 29.2
	White	4.7	2.1%	1.7	0.9 - 2.9
	Latino	*	*	*	*
	API	*	*	*	*
	Other/Unk	*	*	--	--

Source: Alameda County eHARS, 2019 Q2

[a] Refers to sex assigned at birth

[b] 'Other/Unk' = American Indians and Alaskan Natives, multiple race, unknown race

[\*] Some cells suppressed to protect confidentiality

[\*\*] Unstable estimates not shown

[--] Rate not calculable for lack of a denominator

Table 2.5: HIV Diagnosis Rates by Race/Ethnicity and Age, Alameda County, 2016-2018

NOTE: This table spans multiple pages

Characteristic	Category	Average Annual Count	Percent	Average Annual Diagnosis Rate per 100,000	95% Confidence Interval
All races	All ages	225.0	100.0%	13.5	11.8 - 15.3
	0-4	*	*	*	*
	5-12	*	*	*	*
	13-19	4.7	2.1%	3.2	1.8 - 5.4
	20-24	29.0	12.9%	24.8	19.9 - 30.6
	25-29	46.0	20.4%	37.5	26.6 - 48.3
	30-39	62.3	27.7%	25.5	19.2 - 31.9
	40-49	43.7	19.4%	19.4	13.6 - 25.1
	50 & over	39.0	17.3%	7.2	4.9 - 9.4
AfrAmer	All ages	82.0	36.4%	47.4	37.1 - 57.6
	0-4	*	*	*	*
	5-12	*	*	*	*
	13-19	2.7	1.2%	**	**
	20-24	13.0	5.8%	111.5	79.3 - 152.4
	25-29	15.3	6.8%	135.7	99.4 - 181.1
	30-39	17.7	7.9%	78.0	58.4 - 102.0
	40-49	13.7	6.1%	56.6	40.6 - 76.8
	50 & over	19.3	8.6%	31.5	24.0 - 40.8
White	All ages	42.7	19.0%	8.0	5.6 - 10.4
	0-4	*	*	*	*
	5-12	0.0	0.0%	**	**
	13-19	0.0	0.0%	**	**
	20-24	*	*	*	*
	25-29	7.3	3.3%	21.4	13.4 - 32.4
	30-39	14.7	6.5%	22.3	16.2 - 29.9
	40-49	8.7	3.9%	11.6	7.6 - 17.0
	50 & over	9.0	4.0%	3.7	2.4 - 5.4

Table 2.5: HIV Diagnosis Rates by Race/Ethnicity and Age, Alameda County, 2016-2018 (continued)

NOTE: This table spans multiple pages













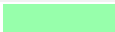
Characteristic	Category	Average Annual Count	Percent	Average Annual Diagnosis Rate per 100,000	95% Confidence Interval
Latino	All ages	72.3	 32.1%	19.2	14.8 - 23.6
	0-4	*	*	*	*
	5-12	0.0	0.0%	**	**
	13-19	*	*	*	*
	20-24	9.3	 4.1%	28.6	19.0 - 41.4
	25-29	17.3	 7.7%	49.5	36.9 - 64.9
	30-39	22.7	 10.1%	34.7	27.0 - 44.0
	40-49	16.0	 7.1%	34.3	25.3 - 45.5
	50 & over	5.7	 2.5%	8.4	4.9 - 13.5
	All ages	22.0	 9.8%	4.4	3.4 - 5.6
API	0-4	0.0	0.0%	**	**
	5-12	0.0	0.0%	**	**
	13-19	*	*	*	*
	20-24	3.0	 1.3%	**	**
	25-29	4.3	 1.9%	12.1	6.4 - 20.6
	30-39	5.7	 2.5%	7.1	4.1 - 11.3
	40-49	*	*	*	*
	50 & over	*	*	*	*

Table 2.6: Foreign-Born Newly Diagnosed by Country of Origin, Alameda County, 2015-2017

Region of Origin	3-year Count*	Percent of Foreign Born
Africa	32	 18.7%
Asia	192	 21.6%
Central of South America	99	 57.9%
Europe	*	*
Oceania	*	*

Source: Alameda County eHARS, 2019 Q2

[\*] Exclude 115 newly diagnosed with unknown foreign-born status

Table 2.7: Late Diagnosis by Sex and Age, Alameda County, 2015-2017

Sex <sup>a</sup>	Age at Diagnosis	All Diagnoses		Late Diagnoses	
		Average Annual Count	Column Percent	Average Annual Count	Row Percent
All	All ages	245.7	100.0%	52.7	21.4%
	5-12	*	*	0.0	*
	13-19	*	*	0.3	*
	20-24	33.0	13.4%	3.0	**
	25-29	52.0	21.2%	7.7	14.7%
	30-39	60.7	24.7%	14.3	23.6%
	40-49	48.3	19.7%	12.3	25.5%
	50 & over	45.0	18.3%	15.0	33.3%
Male	All ages	206.0	83.9%	44.0	21.4%
	*	*	*	0.0	*
	*	*	*	0.3	*
	20-24	28.0	11.4%	2.7	**
	25-29	47.0	19.1%	7.0	14.9%
	30-39	52.3	21.3%	11.7	22.3%
	40-49	38.7	15.7%	10.0	25.9%
	50 & over	34.0	13.8%	12.3	36.3%
Female	All ages	39.7	16.1%	8.7	21.8%
	5-12	*	*	0.0	*
	13-19	*	*	0.0	*
	20-24	5.0	2.0%	0.3	**
	25-29	5.0	2.0%	0.7	**
	30-39	8.3	3.4%	2.7	**
	40-49	9.7	3.9%	2.3	**
	50 & over	11.0	4.5%	2.7	**

Source: Alameda County eHARS, 2019 Q2

[a] Refers to sex assigned at birth

[\*] Some cells suppressed to protect confidentiality

[\*\*] Unstable estimates not shown

Table 2.8: Late Diagnosis by Sex and Race/Ethnicity, Alameda County, 2015-2017

Sex <sup>a</sup>	Race/Ethnicity <sup>b</sup>	All Diagnoses		Late Diagnoses	
		Average Annual Count	Column Percent	Average Annual Count	Row Percent
All	All races	245.7	100.0%	52.7	21.4%
	AfrAmer	92.7	37.7%	19.3	20.9%
	White	52.3	21.3%	10.3	19.7%
	Latino	67.7	27.5%	15.3	22.7%
	API	24.0	9.8%	7.0	**
	Other/Unk	9.0	3.7%	0.7	**
Male	All races	206.0	83.9%	44.0	21.4%
	AfrAmer	69.0	28.1%	14.7	21.3%
	White	46.3	18.9%	9.0	19.4%
	Latino	61.7	25.1%	14.0	22.7%
	API	*	*	5.7	*
	Other/Unk	*	*	0.7	*
Female	All races	39.7	16.1%	8.7	21.8%
	AfrAmer	23.7	9.6%	4.7	19.7%
	White	6.0	2.4%	1.3	**
	Latino	6.0	2.4%	1.3	**
	API	*	*	1.3	*
	Other/Unk	*	*	0.0	*

Source: Alameda County eHARS, 2019 Q2

[a] Refers to sex assigned at birth

[b] 'Other/Unk' = American Indians and Alaskan Natives, multiple race, unknown race

[\*] Some cells suppressed to protect confidentiality

[\*\*] Unstable estimates not shown

Table 2.9: Late Diagnosis by Race/Ethnicity and Age, Alameda County, 2015-2017

NOTE: This table spans multiple pages

Race/Ethnicity <sup>a</sup>	Age at Diagnosis	All Diagnoses		Late Diagnoses	
		Average Annual Count	Column Percent	Average Annual Count	Row Percent
All races	All ages	245.7	100.0%	52.7	21.4%
	5-12	*	*	0.0	*
	13-19	*	*	0.3	*
	20-24	33.0	13.4%	3.0	**
	25-29	52.0	21.2%	7.7	14.7%
	30-39	60.7	24.7%	14.3	23.6%
	40-49	48.3	19.7%	12.3	25.5%
	50 & over	45.0	18.3%	15.0	33.3%
AfrAmer	All ages	92.7	37.7%	19.3	20.9%
	5-12	*	*	0.0	*
	13-19	*	*	0.3	*
	20-24	17.0	6.9%	1.7	**
	25-29	18.3	7.5%	3.0	**
	30-39	17.3	7.1%	4.3	**
	40-49	13.3	5.4%	3.0	**
	50 & over	22.3	9.1%	7.0	**
White	All ages	52.3	21.3%	10.3	19.7%
	5-12	0.0	0.0%	0.0	**
	13-19	0.0	0.0%	0.0	**
	20-24	4.3	1.8%	0.0	0.0%
	25-29	10.0	4.1%	1.7	**
	30-39	16.3	6.6%	2.3	**
	40-49	10.7	4.3%	3.0	**
	50 & over	11.0	4.5%	3.3	**

Table 2.9: Late Diagnosis by Race/Ethnicity and Age, Alameda County, 2015-2017 (continued)

NOTE: This table spans multiple pages

Race/Ethnicity <sup>a</sup>	Age at Diagnosis	All Diagnoses		Late Diagnoses	
		Average Annual Count	Column Percent	Average Annual Count	Row Percent
Latino	All ages	67.7	27.5%	15.3	22.7%
	5-12	0.0	0.0%	0.0	**
	13-19	1.7	0.7%	0.0	0.0%
	20-24	8.0	3.3%	1.0	**
	25-29	16.7	6.8%	1.7	**
	30-39	18.3	7.5%	4.3	**
	40-49	16.7	6.8%	5.3	**
	50 & over	6.3	2.6%	3.0	**
API	All ages	24.0	9.8%	7.0	**
	5-12	0.0	0.0%	0.0	**
	13-19	*	*	0.0	*
	20-24	*	*	0.3	*
	25-29	4.0	1.6%	1.3	**
	30-39	7.0	2.8%	3.3	**
	40-49	5.3	2.2%	0.3	**
	50 & over	*	*	1.7	*
Other/Unk	All ages	9.0	3.7%	0.7	**
	5-12	0.0	0.0%	0.0	**
	13-19	*	*	0.0	*
	20-24	*	*	0.0	*
	25-29	3.0	1.2%	0.0	0.0%
	30-39	1.7	0.7%	0.0	0.0%
	40-49	2.3	0.9%	0.7	**
	50 & over	*	*	0.0	*

Source: Alameda County eHARS, 2019 Q2

[a] 'Other/Unk' = American Indians and Alaskan Natives, multiple race, unknown race

[\*] Some cells suppressed to protect confidentiality

[\*\*] Unstable estimates not shown

Table 2.10: Late Diagnosis by Foreign-Born Status, Alameda County, 2015-2017

Foreign-Born Status	All Diagnoses		Late Diagnoses	
	3-year Count*	Row Percent	3-year Count*	Row Percent
Foreign-Born	116	72.0%	45	28.0%
US-Born	275	81.6%	62	18.4%

Source: Alameda County eHARS, 2019 Q2

[\*] Exclude 115 newly diagnosed with unknown foreign-born status

## People Living with HIV

In the United States, there were an estimated 1,003,782 PLHIV diagnosed at the end of 2017. Prevalence was highest among men (574.4 men vs. 169.9 women per 100,000 population), those aged 50-54 and 55-59 (767.8 and 660.6 per 100,000 respectively), African Americans and Latinos (1,022 and 379.3 per 100,000 respectively), and in the Northeast and South (417.2 and 365.5 per 100,000 respectively) [6]. At year-end 2017, California had an estimated 135,082 PLHIV for a statewide prevalence of 340.3 per 100,000 population. HIV prevalence among women in California (79.3 per 100,000) was less than half that of women nationally [1]. At year-end 2018 in Alameda County, the prevalence of HIV was 383.8 per 100,000 residents.

This chapter examines prevalence, or the proportion of people with HIV infection living in Alameda County, reflecting the overall burden of HIV in the population. Data presented do not include PLHIV with undiagnosed infection but include all those with diagnosed HIV (including newly diagnosed), regardless of the stage of HIV infection. First, characteristics of PLHIV in the county are presented. Then, the prevalence of HIV disease in different subpopulations is described. Finally, mortality (deaths) among PLHIV ever diagnosed with AIDs is described. Table 3.1 summarizes data presented in this chapter. Stratified prevalence rates by sex, age and race/ethnicity are provided in Tables 3.2-3.4 at the end of this chapter.

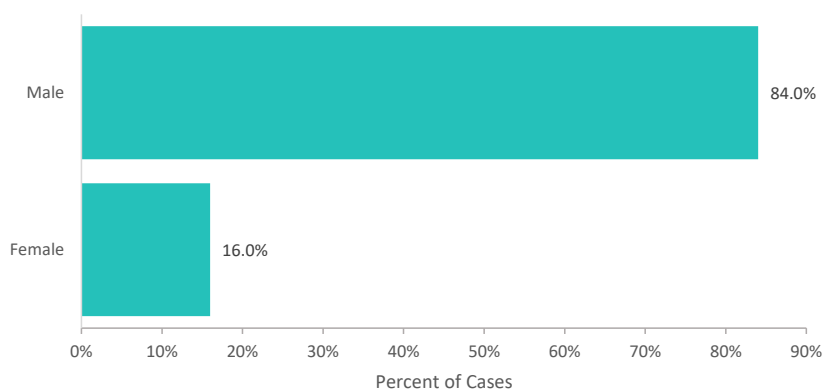


## Characteristics of PLHIV

At the end of 2018, there were an estimated 6,352 PLHIV in Alameda County<sup>1</sup>.

Similar to the distribution by sex among new diagnoses of HIV, PLHIV in Alameda County at year-end 2018 were predominantly male (84.0%).

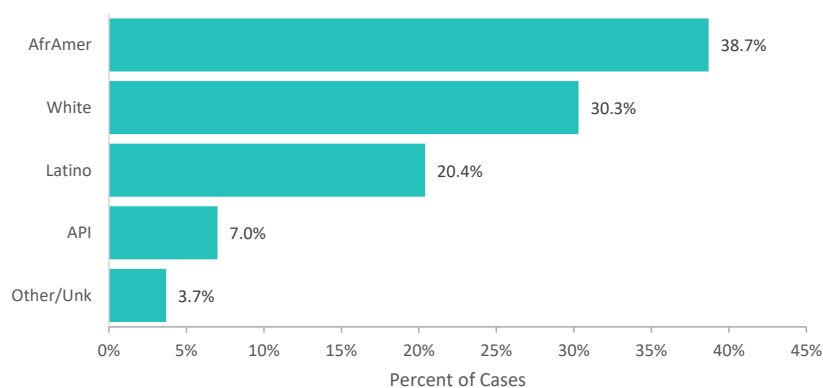
Figure 3.1: PLHIV by Sex, Alameda County, year-end 2018



NOTE: “Sex” refers to sex assigned at birth.

Approximately 38.7% of PLHIV in Alameda County were African American and 30.3% were white. Latinos and API each comprised a smaller proportion of PLHIV.

Figure 3.2: PLHIV by Race/Ethnicity, Alameda County, year-end 2018

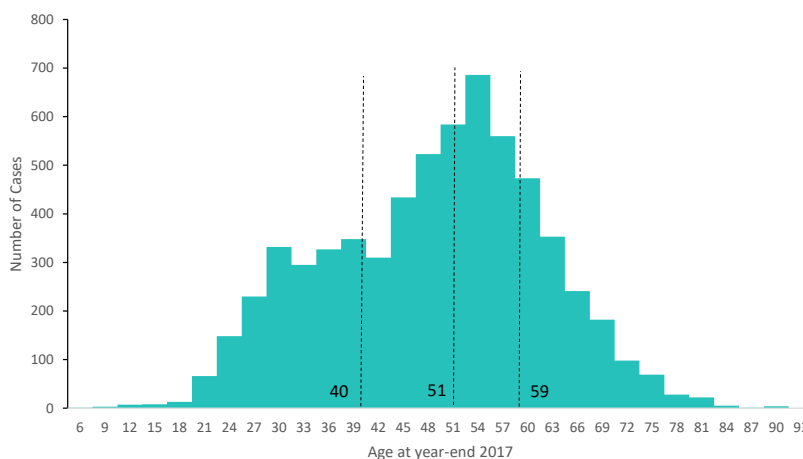


NOTE: “Other/Unk” includes American Indians, Alaskan Natives, multiracial, and unknown categories.

Racial/ethnic disparities in numbers of PLHIV were more apparent among women compared to men. While there were approximately equal cases of African Americans and whites among men, there were nearly four times as many cases among African American women compared to white women (Table 3.3).

Half of PLHIV were in their fifties or older. Only about a quarter were in their thirties or younger at year-end 2018.

Figure 3.3: Age of PLHIV, Alameda County, year-end 2018



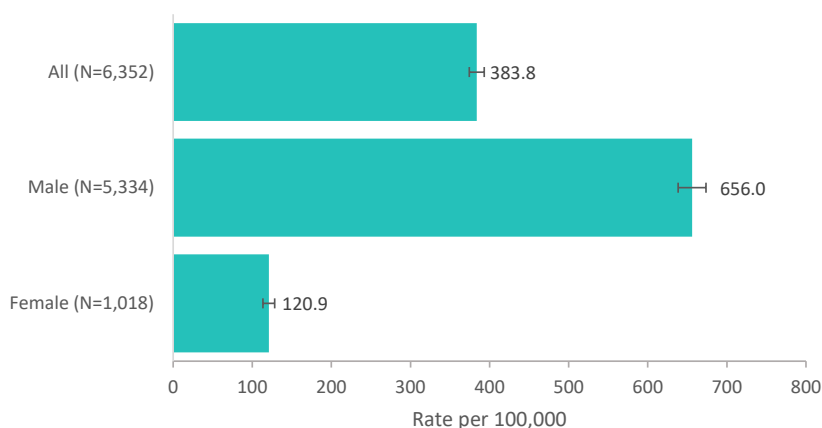
NOTE: The dashed lines indicate the 25th, 50th, and 75th percentile values for age among PLHIV.

## Prevalence Rates

At the end of 2018 there were 6,352 people living with HIV in Alameda County for a prevalence rate of 383.8 per 100,000 or 0.4% of residents.

HIV prevalence was about five times higher among males than females at year-end 2018.

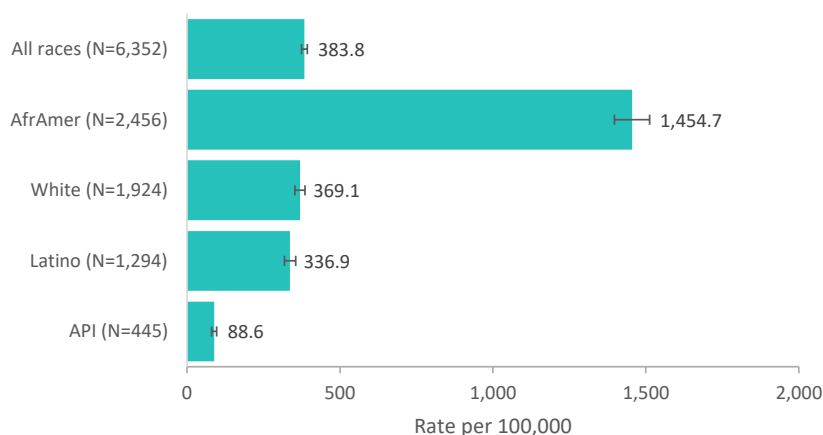
Figure 3.4: Prevalence of HIV by Sex, Alameda County, year-end 2018



NOTE: "Sex" refers to sex assigned at birth.

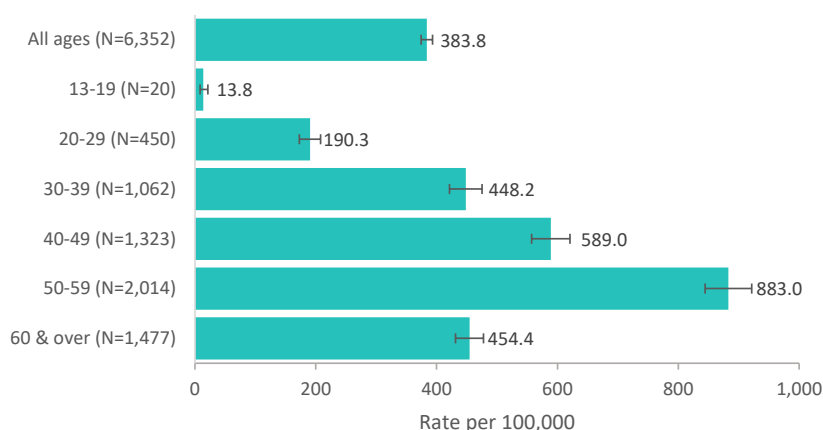
African Americans had a four times higher burden of HIV prevalence compared to the next most impacted racial group—whites. Prevalence was lowest among API.

Figure 3.5: Prevalence of HIV by Race/Ethnicity, Alameda County, year-end 2018



HIV prevalence was higher in each successive age group, ranging from 13.8 per 100,000 youth aged 13-19 to a high of 883 per 100,000 people aged 50-59 years. The number of children aged 0-12 living with HIV was too low to estimate a statistically reliable prevalence rate. Prevalence among those aged 60 and over differed only slightly from those in their thirties. Increasing prevalence of HIV with age is consistent with the greatly improved survival of PLHIV in the ART era.

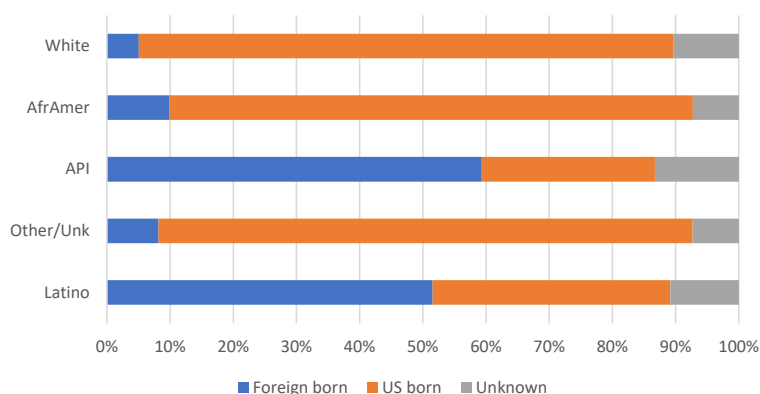
Figure 3.6: Prevalence of HIV by Age, Alameda County, year-end 2018



The disparity in prevalence rates by race differed among females and males. While prevalence was more than three times higher among African American males compared to white males, it was 10 times higher among African American females compared to white females (Table 3.3). Additionally, although HIV prevalence was significantly higher among white males than Latino males, prevalence was lower among white females than Latino females.

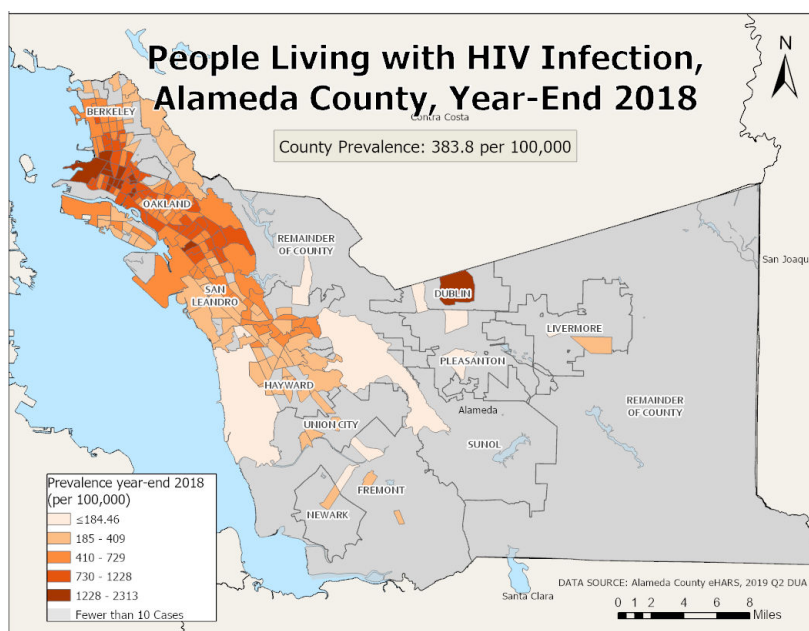
Foreign-born persons are disproportionately affected by HIV [Prosser 2012, Kong 2014] and are a population of interest in HIV prevention. Twenty percent of PLHIV in Alameda County are known to be foreign-born and an additional 9% are of unknown foreign-born status. Among foreign-born PLHIV, most are Latino. Of all racial/ethnic groups, API PLHIV have the largest proportion of foreign-born persons.

Figure 3.7: PLHIV by Foreign-Born Status and Race/Ethnicity, Alameda County, year-end 2018



The city of Emeryville had the highest HIV prevalence within Alameda County, followed by Oakland, Ashland, and Fairview.

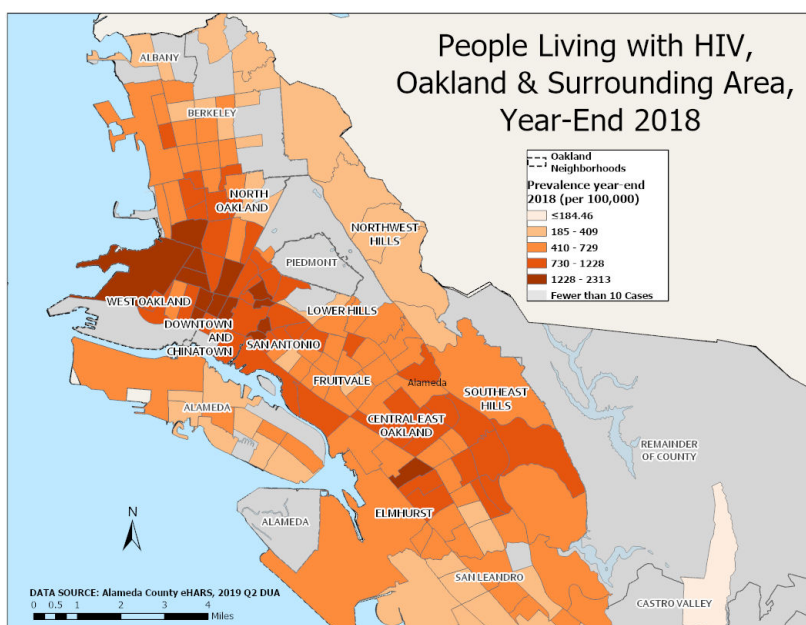
Figure 3.8: Prevalence of HIV by Census Tract of Residence, Alameda County, year-end 2018



NOTE: N=5,854; an additional 498 PLHIV (7.8% of all) are not represented due to incomplete street address.

Among the Oakland neighborhoods, West Oakland, Downtown, and Chinatown had the highest HIV prevalence, ranging between 1-2% of residents.

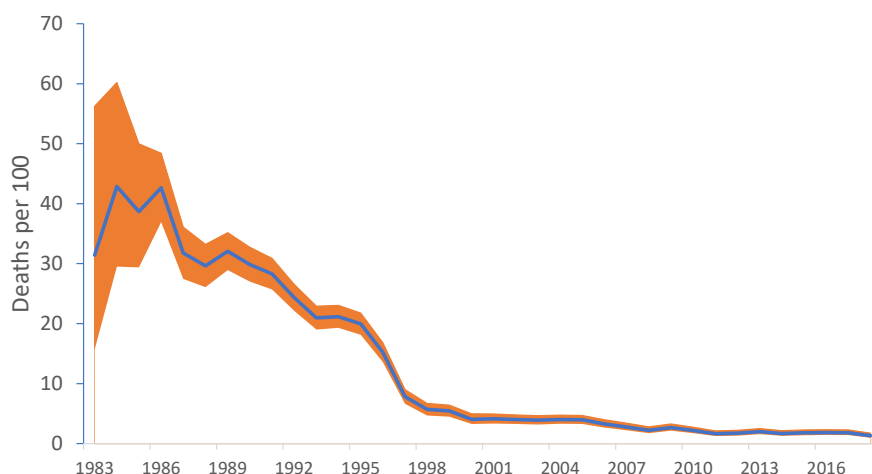
Figure 3.9: Prevalence of HIV by Census Tract of Residence, Oakland and Surrounding Area, year-end 2018



## Deaths Among Alameda County Residents Ever Diagnosed with AIDS

Although HIV infection without AIDs has been reportable by name in California only since 2006, AIDS has been a reportable disease since the early 1980s, allowing examination of long-term trends in death rates among the subset of PLHIV ever diagnosed with AIDS. In 1985, there were 38.7 deaths (from any cause, whether HIV-related or not) per 100 Alameda County residents ever diagnosed with AIDS. This rate dropped to 7.5 deaths per 100 by 1997 and has declined slowly, but steadily since then. In 2018, there were 50 deaths among the 3,738 residents living with AIDs for a rate of 1.3 deaths per 100 residents living with AIDs.

Figure 3.10: Death Rate among Alameda County Residents Ever Diagnosed with AIDS, 1985-2017



NOTE: Death rates calculated among persons ever diagnosed with AIDS while a resident of Alameda County, regardless of county of residence at death. Deaths in PLHIV without AIDS are not reported here.

### Transgender PLHIV in Alameda County

Epidemiological data shows that the transgender community carries a disproportionately higher HIV burden compared to other groups [4], however, attempts to characterize the specifics of such burden is often hindered by the lack of accurate transgender data in healthcare. Current systems for collecting and sharing health records do not always include distinct fields to describe birth sex, current sex/gender, or transgender status. In addition, risk of stigmatization, discrimination, social rejection, or exclusion may prevent transgender people from seeking out healthcare or disclosing gender to providers [2]. For these reasons, transgender persons are likely to be underestimated in routine surveillance data. At the end of 2018 there were 124 transgender PLHIV in Alameda County.

Table 3.1: People Living with HIV Disease and Prevalence Rates, Alameda County, Year-End 2018

NOTE: This table spans multiple pages

Characteristic	Category	Count	Percent	Prevalence per 100,000	95% Confidence Interval
All PLHIV	--	6,352	100.0%	383.8	374.4 - 393.2
Sex <sup>a</sup>	Male	5,334	84.0%	656.0	638.4 - 673.6
	Female	1,018	16.0%	120.9	113.5 - 128.3
Race/Ethnicity <sup>b</sup>	AfrAmer	2,456	38.7%	1454.7	1397.2 - 1512.2
	White	1,924	30.3%	369.1	352.6 - 385.6
	Latino	1,294	20.4%	336.9	318.6 - 355.3
	API	445	7.0%	88.6	80.4 - 96.9
Age (years) <sup>c</sup>	Other/Unk	233	3.7%	--	--
	0-12	6	0.1%	**	**
	13-19	20	0.3%	13.9	8.4 - 21.4
	20-29	450	7.1%	190.3	172.8 - 207.9
	30-39	1,062	16.7%	448.2	421.3 - 475.2
	40-49	1,323	20.8%	589.0	557.2 - 620.7
	50-59	2,014	31.7%	883.0	844.5 - 921.6
	60 & over	1,477	23.3%	454.4	431.3 - 477.6

Table 3.1: People Living with HIV Disease and Prevalence Rates, Alameda County, Year-End 2018 (continued)

NOTE: This table spans multiple pages

Characteristic	Category	Count	Percent	Prevalence per 100,000	95% Confidence Interval
Residence	North County	515	8.1%	364.9	333.4 - 396.4
	Oakland Area	3,817	60.1%	726.2	703.2 - 749.3
	Central County	1,238	19.5%	314.9	297.3 - 332.4
	South County	404	6.4%	113.9	102.8 - 125.0
	Tri-Valley	347	5.5%	150.6	134.7 - 166.4
	Remainder of county	23	0.4%	255.9	162.2 - 384.0
	Unknown	8	0.1%	**	**

Source: Alameda County eHARS, 2019 Q2

[a] Refers to sex assigned at birth

[b] 'Other/Unk' = American Indians and Alaskan Natives, multiple race, unknown race

[c] Age at diagnosis

[\*\*] Unstable estimates not shown

[--] Rate not calculable for lack of a denominator



Table 3.2: HIV Prevalence by Sex and Age, Alameda County, Year-End 2018

Sex <sup>a</sup>	Age	Count	Percent	Prevalence per 100,000	95% Confidence Interval
All	All ages	6352	100.0%	383.8	374.4 - 393.2
	0-12	6	0.1%	**	**
	13-19	20	0.3%	13.8	8.4 - 21.4
	20-29	450	7.1%	190.3	172.8 - 207.9
	30-39	1062	16.7%	448.2	421.3 - 475.2
	40-49	1323	20.8%	589.0	557.2 - 620.7
	50-59	2014	31.7%	883.0	844.5 - 921.6
	60 & over	1477	23.3%	454.4	431.3 - 477.6
Male	All ages	5334	84.0%	656.0	638.4 - 673.6
	0-12	6	0.1%	**	**
	13-19	10	0.2%	**	**
	20-29	399	6.3%	334.2	301.4 - 367.0
	30-39	932	14.7%	796.3	745.1 - 847.4
	40-49	1074	16.9%	967.9	910.0 - 1025.8
	50-59	1695	26.7%	1517.0	1444.8 - 1589.2
	60 & over	1218	19.2%	827.2	780.7 - 873.6
Female	All ages	1018	16.0%	120.9	113.5 - 128.3
	0-12	0	0.0%	**	**
	13-19	10	0.2%	**	**
	20-29	51	0.8%	43.6	32.4 - 57.3
	30-39	130	2.0%	108.4	89.8 - 127.1
	40-49	249	3.9%	219.1	191.9 - 246.3
	50-59	319	5.0%	274.2	244.1 - 304.3
	60 & over	259	4.1%	145.7	128.0 - 163.4

Source: Alameda County eHARS, 2019 Q2

[a] Refers to sex assigned at birth

[\*\*] Unstable estimates not shown

Table 3.3: HIV Prevalence by Sex and Race/Ethnicity, Alameda County, Year-End 2018

Sex <sup>a</sup>	Race/Ethnicity <sup>b</sup>	Count	Percent	Prevalence per 100,000	95% Confidence Interval
All	All races	6352	100.0%	383.8	374.4 - 393.2
	AfrAmer	2456	38.7%	1454.7	1397.2 - 1512.2
	White	1924	30.3%	369.1	352.6 - 385.6
	Latino	1294	20.4%	336.9	318.6 - 355.3
	API	445	7.0%	88.6	80.4 - 96.9
	Other/Unk	233	3.7%	--	--
Male	All races	5334	84.0%	656.0	638.4 - 673.6
	AfrAmer	1848	29.1%	2330.8	2224.5 - 2437.1
	White	1758	27.7%	676.7	645.0 - 708.3
	Latino	1139	17.9%	583.0	549.1 - 616.8
	API	385	6.1%	160.1	144.1 - 176.1
	Other/Unk	204	3.2%	--	--
Female	All races	1018	16.0%	120.9	113.5 - 128.3
	AfrAmer	608	9.6%	679.0	625.0 - 732.9
	White	166	2.6%	63.5	53.8 - 73.1
	Latino	155	2.4%	82.2	69.2 - 95.1
	API	60	0.9%	22.9	17.5 - 29.5
	Other/Unk	29	0.5%	--	--

Source: Alameda County eHARS, 2019 Q2

[a] Refers to sex assigned at birth

[b] 'Other/Unk' = American Indians and Alaskan Natives, multiple race, unknown race

[\*\*] Unstable estimates not shown

[--] Rate not calculable for lack of a denominator

Table 3.4: HIV Prevalence by Race/Ethnicity and Age, Alameda County, Year-End 2018

NOTE: This table spans multiple pages

Race/Ethnicity <sup>a</sup>	Age	Count	Percent	Prevalence per 100,000	95% Confidence Interval
All races	All ages	6352	100.0%	383.8	374.4 - 393.2
	0-12	6	0.1%	**	**
	13-19	20	0.3%	13.8	8.4 - 21.4
	20-29	450	7.1%	190.3	172.8 - 207.9
	30-39	1062	16.7%	448.2	421.3 - 475.2
	40-49	1323	20.8%	589.0	557.2 - 620.7
	50-59	2014	31.7%	883.0	844.5 - 921.6
	60 & over	1477	23.3%	454.4	431.3 - 477.6
AfrAmer	All ages	2456	38.7%	1454.7	1397.2 - 1512.2
	0-12	5	0.1%	**	**
	13-19	12	0.2%	74.7	38.6 - 130.4
	20-29	205	3.2%	919.8	793.9 - 1045.7
	30-39	412	6.5%	1945.6	1757.7 - 2133.4
	40-49	456	7.2%	1940.4	1762.3 - 2118.5
	50-59	768	12.1%	2964.8	2755.1 - 3174.4
	60 & over	598	9.4%	1655.5	1522.8 - 1788.2
White	All ages	1924	30.3%	369.1	352.6 - 385.3
	0-12	*	*	*	*
	13-19	*	*	*	*
	20-29	59	0.9%	92.7	70.6 - 119.6
	30-39	213	3.4%	351.1	304.0 - 398.3
	40-49	334	5.3%	468.9	418.6 - 519.2
	50-59	730	11.5%	785.1	728.1 - 842.0
	60 & over	586	9.2%	390.2	358.6 - 421.8

Table 3.4: HIV Prevalence by Race/Ethnicity and Age, Alameda County, Year-End 2018 (continued)

NOTE: This table spans multiple pages

Race/Ethnicity <sup>a</sup>	Age	Count	Percent	Prevalence per 100,000	95% Confidence Interval
Latino	All ages	1294	20.4%	336.9	318.6 - 355.3
	0-12	0	0.0%	**	**
	13-19	5	0.1%	**	**
	20-29	119	1.9%	175.6	144.1 - 207.2
	30-39	302	4.8%	458.7	406.9 - 510.4
	40-49	346	5.4%	711.8	636.8 - 786.8
	50-59	343	5.4%	1026.8	918.1 - 1135.5
	60 & over	179	2.8%	493.1	420.9 - 565.4
API	All ages	445	7.0%	88.6	80.4 - 96.9
	0-12	*	*	*	*
	13-19	*	*	*	*
	20-29	46	0.7%	65.6	48.0 - 87.5
	30-39	89	1.4%	111.8	89.8 - 137.5
	40-49	129	2.0%	176.0	145.6 - 206.3
	50-59	108	1.7%	156.8	127.2 - 186.4
	60 & over	71	1.1%	74.9	58.5 - 94.5
Other/Unk	All ages	233	3.7%	--	--
	0-12	0	0.0%	--	--
	13-19	0	0.0%	--	--
	20-29	21	0.3%	--	--
	30-39	46	0.7%	--	--
	40-49	58	0.9%	--	--
	50-59	65	1.0%	--	--
	60 & over	43	0.7%	--	--

Source: Alameda County eHARS, 2019 Q2

[a] 'Other/Unk' = American Indians and Alaskan Natives, multiple race, unknown race

[\*] Some cells suppressed to protect confidentiality

[\*\*] Unstable estimates not shown

[--] Rate not calculable for lack of a denominator

Table 3.5: Foreign-Born Status by Race/Ethnicity, Alameda County, Year-End 2018

Race/Ethnicity <sup>a</sup>	Foreign-Born PLHIV			US-Born PLHIV		Unknown Status PLHIV		
	Count	Row	Percent	Count	Row	Count	Row	
					Percent		Percent	
All races	1289	<div><div></div></div>	20.3%	4471	<div><div></div></div>	592	<div><div></div></div>	9.3%
AfrAmer	242	<div><div></div></div>	9.9%	2036	<div><div></div></div>	178	<div><div></div></div>	7.2%
White	97	<div><div></div></div>	5.0%	1629	<div><div></div></div>	198	<div><div></div></div>	10.3%
Latino	667	<div><div></div></div>	51.5%	487	<div><div></div></div>	140	<div><div></div></div>	10.8%
API	264	<div><div></div></div>	59.3%	122	<div><div></div></div>	59	<div><div></div></div>	13.3%
Other/Unk	19	<div><div></div></div>	8.2%	197	<div><div></div></div>	17	<div><div></div></div>	7.3%

Source: Alameda County eHARS, 2019 Q2

## The Continuum of HIV Care

Anti-retroviral therapy (ART), when taken regularly, can suppress HIV, preventing disease progression as well as preventing the transmission of HIV entirely. Thus, ART benefits PLHIV as well as the larger community. In order to maximize these benefits, it is crucial that PLHIV be diagnosed, linked to and retained in regular HIV care, and be prescribed and take ART. These steps—diagnosis, linkage, retention, and prescription of and adherence to ART—are all pre-requisites for achieving virologic suppression. Together, these steps comprise the continuum of HIV care, also called the HIV care cascade or the stages of HIV care. The continuum is a framework for conceptualizing HIV care and prevention efforts.

In the United States, the CDC estimated that 86.8% of persons diagnosed in 2017 linked to care within 3 months<sup>1</sup>. Additionally, the CDC estimated that, at the end of 2016, 85.8% of all PLHIV had been diagnosed and that, among those still alive and who had been diagnosed by the end of the previous year, 74.2% received any HIV care, 57.6% were retained in continuous care, and 61.5% were virally suppressed[7].

In California, 84% of those diagnosed in 2017 were estimated to have linked to care within 3 months. By the end of 2017, among those living with diagnosed HIV in California, 74% were estimated to have received any HIV care in 2017, 55% were estimated to have been retained in continuous care, and 63% were estimated to have been virally suppressed at last test<sup>2</sup> [3].

This chapter examines the continuum of HIV care in Alameda County and describes discrepancies in care outcomes based on demographic differences such as race/ethnicity, age, and sex at birth. The continuum measures look at data one year earlier than what is available in the New Diagnoses and People Living with HIV in order to allow for more laboratory records to be included in the analyses.

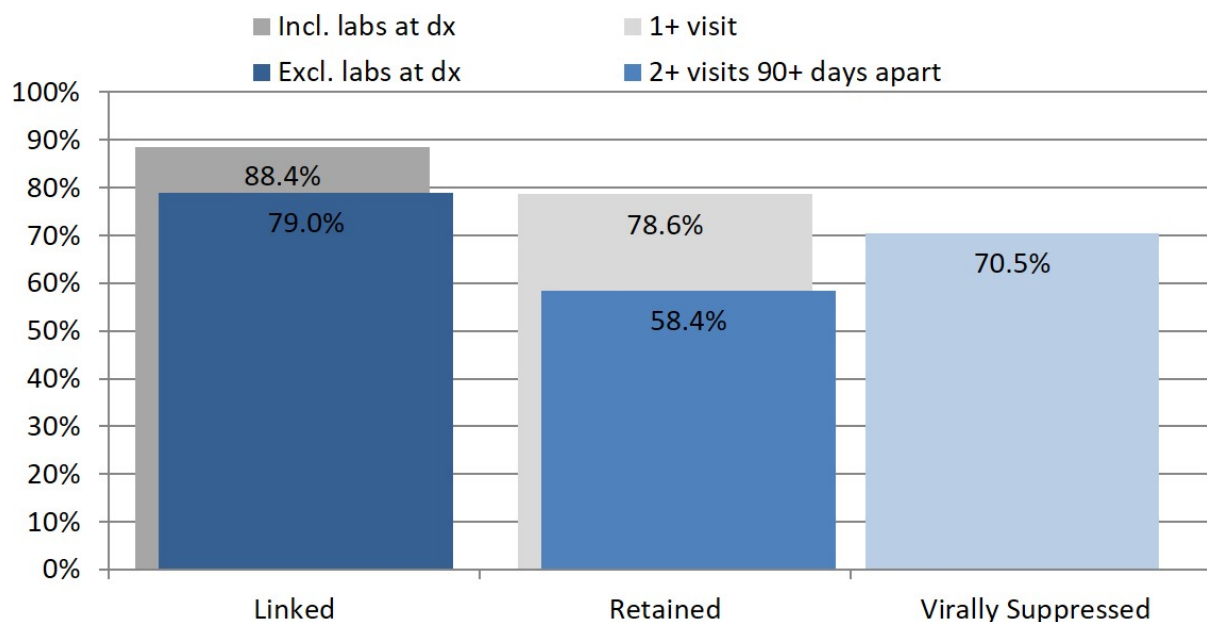
<sup>1</sup>Among those aged 13 or older at diagnosis in the 37 jurisdictions with complete laboratory reporting.

<sup>2</sup>Data on receipt of HIV medical care and viral suppression are based on data for PLHIV aged 13 or older, diagnosed by year-end 2016, alive at year-end 2017, and residing in the 37 jurisdictions with complete laboratory reporting. CD4 or viral load tests ordered in 2017 were used as markers of HIV care. Retention in continuous care is defined 2 or more CD4 or viral load tests at least 3 months apart and viral suppression is defined as last viral load in 2017 <200 copies/mL.

## The Overall Continuum of Care

In Alameda County, 79% of new diagnoses between 2015 and 2017 were linked to care within 3 months if HIV-related labs ordered on the date of diagnosis were excluded; 88.4% were linked to care if labs done on the date of diagnosis were included. Approximately 58.4% of PLHIV in Alameda County for the entirety of 2017 had 2 or more visits 90 or more days apart that year and so were considered retained in care. Viral suppression was estimated to be 70.5% that same year.

Figure 4.1: The Continuum of HIV Care in Alameda County, 2015-2017



NOTE:1) Of 730 total diagnoses, 78 died within 90 days and were excluded from analysis. 2) Of 6,247 PLHIV at year-end 2016, 78 were known to have died and an additional 428 to have moved out of Alameda County in 2017

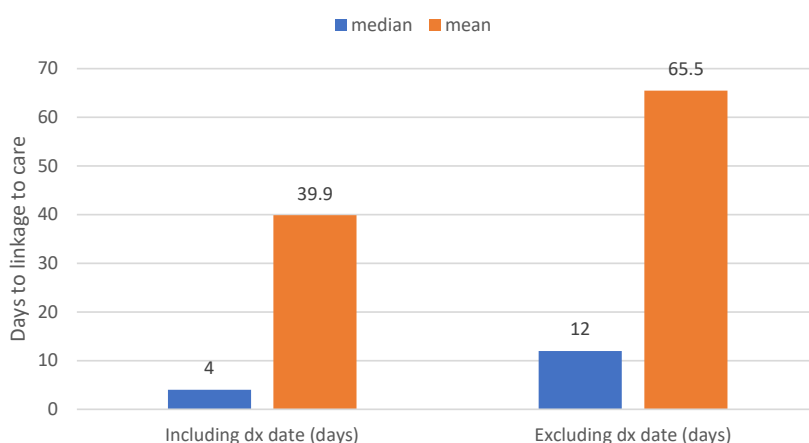
This chapter presents data on select measures along the continuum of HIV care including estimates stratified by demographics. Data on ART use were not available for analysis. Stratified analysis of measures along the continuum (linkage, retention, and virologic status) are presented in Tables 4.1-4.15 at the end of this chapter. Note that apparent differences should be interpreted with caution due to the small numbers in some subgroups and resulting statistical instability.

## Linkage to Care

Here we present linkage to care estimates for Alameda County. It should be noted that receipt of a CD4 count or viral load test is not a definitive indicator of linkage to care. For example, a health care provider may order these tests concurrently with a confirmatory HIV test or before a patient even knows the diagnosis. Labs ordered after the date of diagnosis provide an alternative method for estimating linkage to care. We present both estimates of linkage—one that includes labs done on the date of diagnosis and another that excludes them—providing a range of what might be considered linked to care. Patients who died within 90 days of diagnosis were not included (N=7).

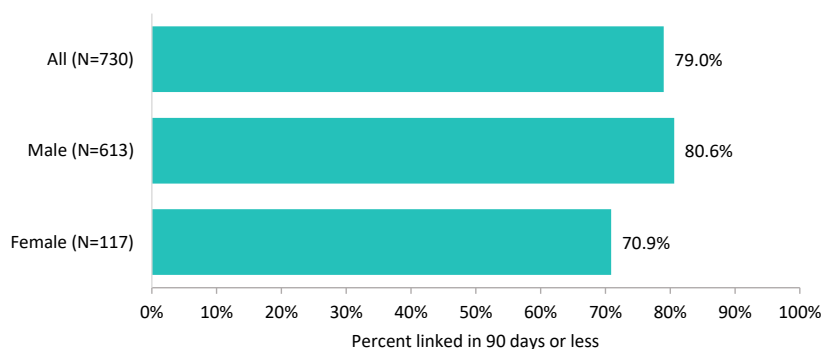
The median time from diagnosis to first CD4 or viral load among Alameda County residents diagnosed from 2015 to 2017 was four days. Excluding labs ordered on the date of diagnosis, the median time from diagnosis was 12 days.

Figure 4.2: Days Between Diagnosis and First CD4 or Viral Load, Alameda County, 2015-2017



Overall, 88.4% of those diagnosed with HIV in Alameda County from 2015 to 2017 were linked to HIV care within 90 days of their diagnosis. Excluding labs ordered on date of diagnosis, 79% of newly diagnosed cases were linked. Differences by sex were statistically significant.

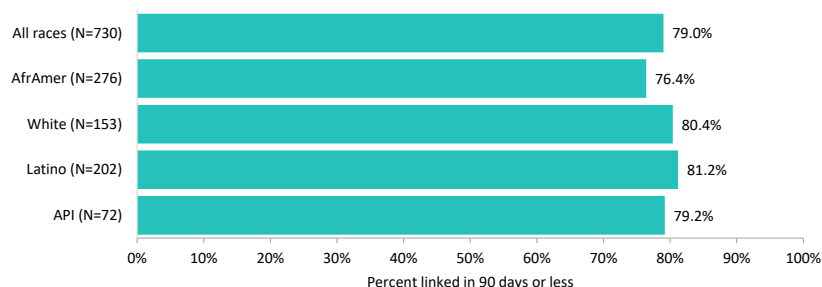
Figure 4.3: Linkage to HIV Care within 90 Days of Diagnosis by Sex, Alameda County, 2015-2017



NOTE: "Sex" refers to sex assigned at birth.

Differences in linkage to care by race/ethnicity were not statistically significant.

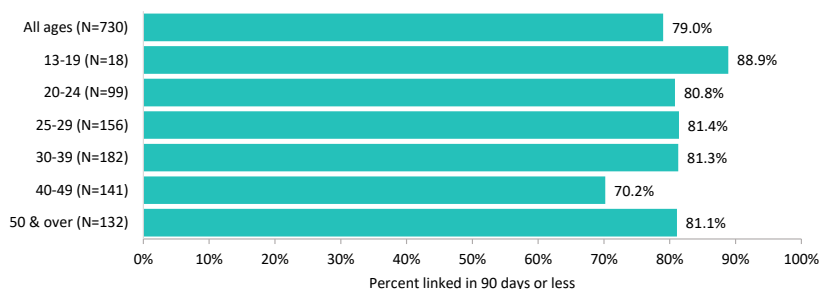
Figure 4.4: Linkage to HIV Care within 90 Days of Diagnosis by Race/Ethnicity, Alameda County, 2015-2017





Linkage was generally higher at the extremes of the age spectrum and lower among those in their forties. The trend was not statistically significant; however the difference between age groups was significant when excluding labs done at date of diagnosis.

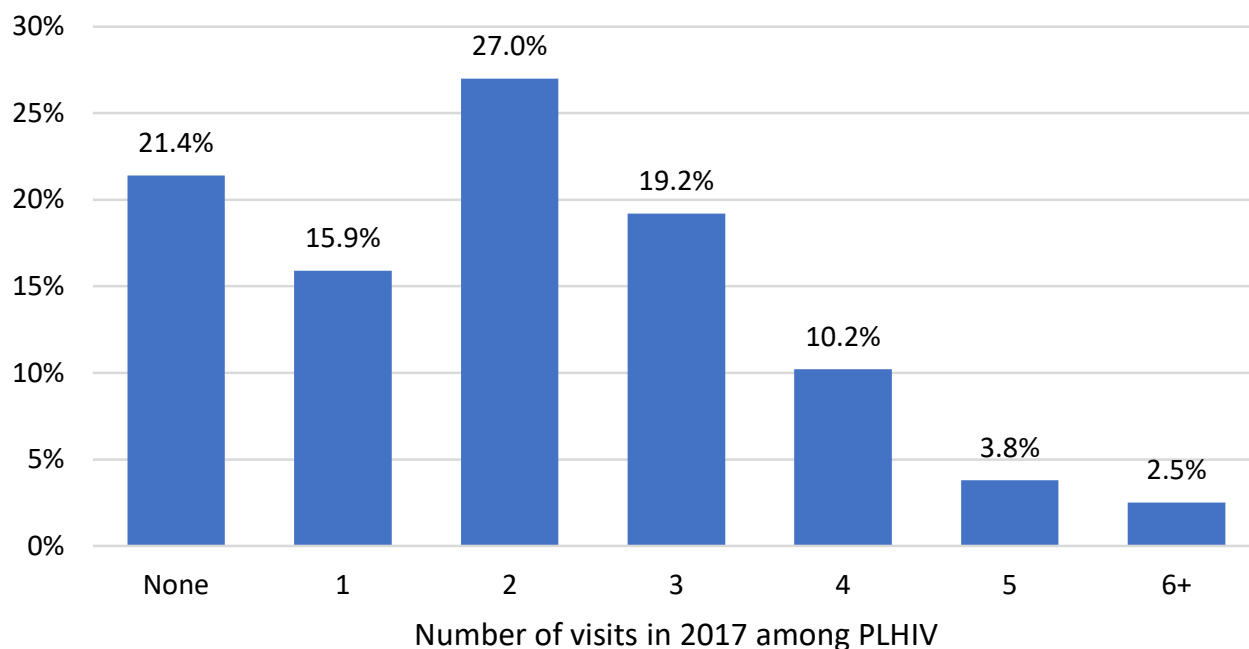
Figure 4.5: Linkage to HIV Care within 90 Days of Diagnosis by Age, Alameda County, 2015-2017



## Retention in Care

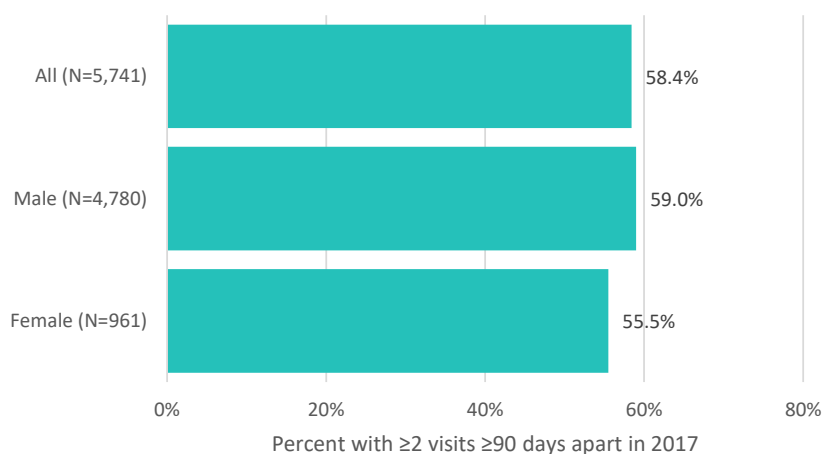
In 2017, 78.6% of PLHIV<sup>1</sup> had one or more visits to an HIV care provider as indicated by a new lab. About 15.9% of all PLHIV had only a single visit resulting in a lab. However, it is possible that some had additional visits in which no lab tests were ordered.

Figure 4.6: Number of HIV Care Visits per PLHIV in 2017, Alameda County



In 2017, 58.4% of PLHIV had two or more visits 90 or more days apart. Differences by sex were statistically significant.

Figure 4.7: Retention in HIV Care by Sex, Alameda County, 2017

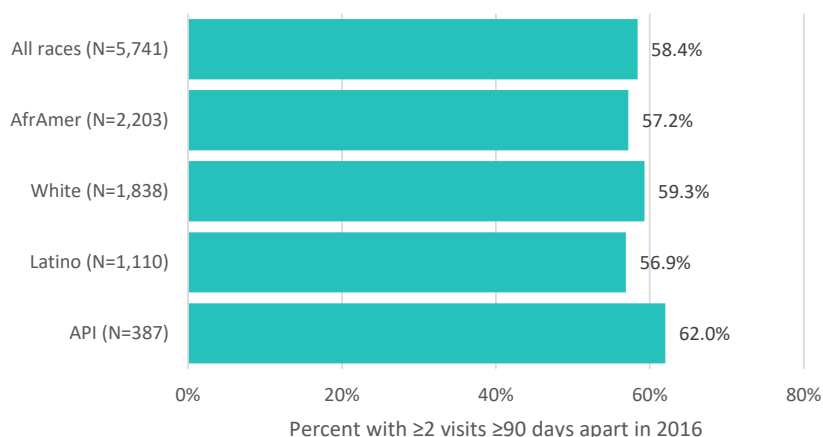


NOTE: "Sex" refers to sex assigned at birth.

<sup>1</sup>PLHIV that died or moved in 2017 were excluded from all analyses of retention in care.

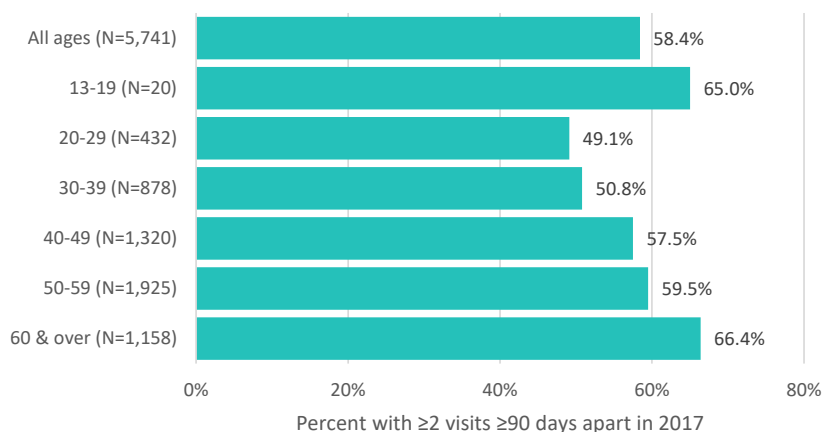
Rates of retention in HIV care were highest among API (62.0%) and white (59.3%) PLHIV in 2017. Only 56.9% of Latino PLHIV were retained in care. Differences by race/ethnicity were not statistically significant.

Figure 4.8: Retention in HIV Care by Race/Ethnicity, Alameda County, 2017



PLHIV aged 20-29 at the end of 2017 had the lowest rates of retention in care; younger and successively older age groups had higher rates. Retention was highest among those aged 13-19 and 60 and over; however, the number of PLHIV aged 13-19 was small. The general trend of higher retention in older age groups was statistically significant.

Figure 4.9: Retention in HIV Care by Age, Alameda County, 2017

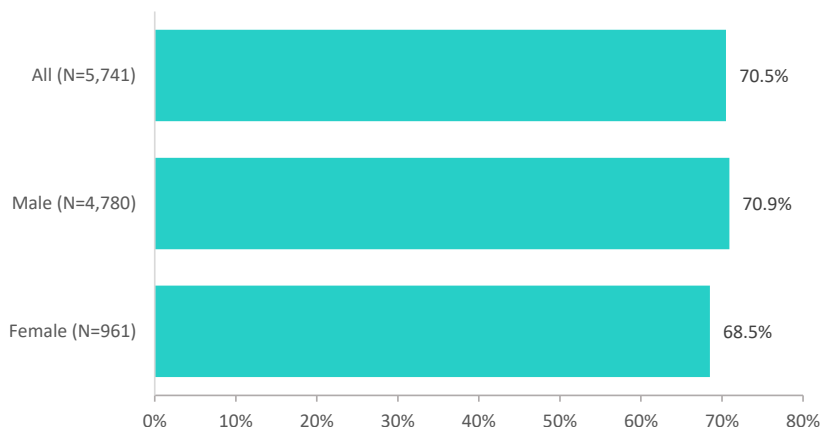


## Virologic Status

The final measure along the care continuum is virologic suppression, defined as a viral load under 200 copies per ml. For the purposes of these analyses, an undetectable viral load is defined as 75 copies per ml or less. PLHIV that died or moved in 2017 were excluded. Disparities in virologic suppression among PLHIV in care can suggest possible differences in ART use or access to care.

Approximately 70.5% of PLHIV were virally suppressed at their most recent test in 2017, with the majority being undetectable. Virologic suppression was not significantly different between male and female PLHIV.

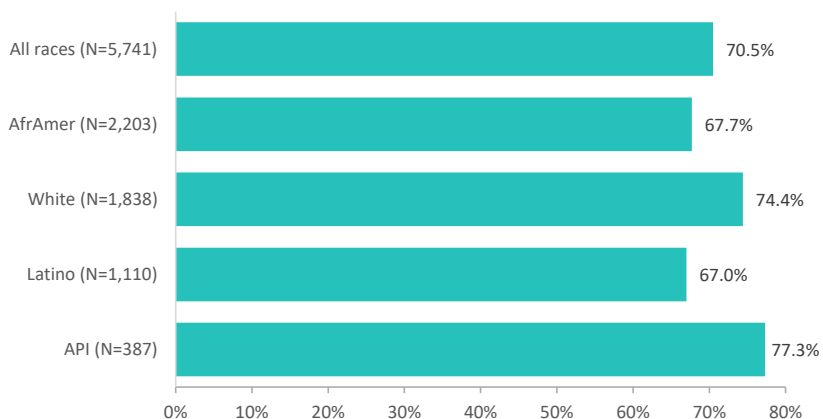
Figure 4.10: Virologic Status by Sex, Alameda County, 2017



NOTE: "Sex" refers to sex assigned at birth.

In 2017, 77.3% and 74.4% of API and white PLHIV, respectively, were virally suppressed. Viral suppression was about 4 to 10% lower in all other racial/ethnic groups. The differences between racial/ethnic groups were significant. Similar disparities were seen among those retained in care (Table 4.14).

Figure 4.11: Virologic Status by Race/Ethnicity, Alameda County, 2017



Viral suppression rates generally increased as age increased, ranging from 61.8% among those ages 20-29 to 76.0% among those ages 60 and over. A similar pattern was seen among those in care (Table 4.9).

Figure 4.12: Virologic Status by Age, Alameda County, 2016

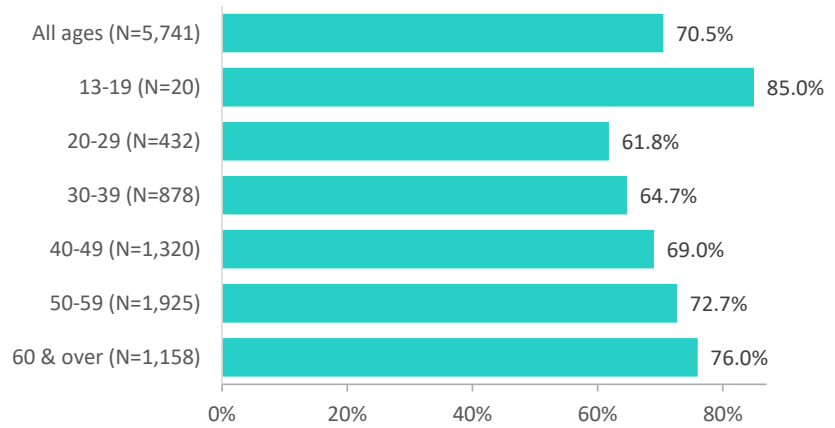


Table 4.1: Timely Linkage to HIV Care Among New Diagnoses by Sex and Age, Alameda County, 2015-2017

Sex <sup>a</sup>	Age at Diagnosis	All Diagnoses		Linked to Care	
		Average Annual Count	Column Percent	Average Annual Count	Row Percent
Latino	All ages	243.3	100.0%	215.0	88.4%
	5-12	*	*	0.7	*
	13-19	*	*	5.3	*
	20-24	33.0	13.6%	28.3	85.9%
	25-29	52.0	21.4%	47.0	90.4%
	30-39	60.7	24.9%	53.3	87.9%
	40-49	47.0	19.3%	40.3	85.8%
	50 & over	44.0	18.1%	40.0	90.9%
Male	All ages	204.3	84.0%	182.7	89.4%
	5-12	*	*	0.3	*
	13-19	*	*	5.0	*
	20-24	28.0	11.5%	24.7	88.1%
	25-29	47.0	19.3%	42.7	90.8%
	30-39	52.3	21.5%	46.7	89.2%
	40-49	37.7	15.5%	32.7	86.7%
	50 & over	33.3	13.7%	30.7	**
Female	All ages	39.0	16.0%	32.3	82.9%
	5-12	*	*	0.3	*
	13-19	*	*	0.3	*
	20-24	5.0	2.1%	3.7	**
	25-29	5.0	2.1%	4.3	**
	30-39	8.3	3.4%	6.7	**
	40-49	9.3	3.8%	7.7	**
	50 & over	10.7	4.4%	9.3	**

Source: Alameda County eHARS, 2019 Q2

NOTE: Excludes N=7 persons who died within 90 days of diagnosis

[a]Refers to sex assigned at birth

[\*] Some cells suppressed to protect confidentiality

[\*\*] Unstable estimates not shown

Table 4.2: Timely Linkage to HIV Care Among New Diagnoses by Sex and Race/Ethnicity, Alameda County, 2015-2017

Sex <sup>a</sup>	Race/Ethnicity <sup>b</sup>	All PLHIV		Linked to Care	
		Average Annual Count	Column Percent	Average Annual Count	Row Percent
All	All races	243.3	100.0%	215.0	88.4%
	AfrAmer	92.0	37.8%	79.3	86.2%
	White	51.0	21.0%	46.0	90.2%
	Latino	67.3	27.7%	60.7	90.1%
	API	24.0	9.9%	21.0	**
	Other/Unk	9.0	3.7%	8.0	**
Male	All races	204.3	84.0%	182.7	89.4%
	AfrAmer	68.7	28.2%	60.7	88.3%
	White	45.3	18.6%	41.0	90.4%
	Latino	61.3	25.2%	55.3	90.2%
	API	*	*	18.3	*
	Other/Unk	*	*	7.3	*
Female	All races	39.0	16.0%	32.3	82.9%
	AfrAmer	23.3	9.6%	18.7	80.0%
	White	5.7	2.3%	5.0	**
	Latino	6.0	2.5%	5.3	**
	API	*	*	2.7	*
	Other/Unk	*	*	0.7	*

Source: Alameda County eHARS, 2019 Q2

NOTE: Excludes N=7 persons who died within 90 days of diagnosis

[a] Refers to sex assigned at birth

[b] 'Other/Unk' = American Indians and Alaskan Natives, multiple race, unknown race

[\*] Some cells suppressed to protect confidentiality

[\*\*] Unstable estimates not shown

Table 4.3: Timely Linkage to HIV Care Among New Diagnoses by Race/Ethnicity and Age, Alameda County, 2015-2017

NOTE: This table spans multiple pages

Race/Ethnicity <sup>a</sup>	Age at Diagnosis	All Diagnoses		Linked to Care	
		Average Annual Count	Column Percent	Average Annual Count	Row Percent
All races	All ages	243.3	100.0%	215.0	88.4%
	5-12	*	*	0.7	*
	13-19	*	*	5.3	*
	20-24	33.0	13.6%	28.3	85.9%
	25-29	52.0	21.4%	47.0	90.4%
	30-39	60.7	24.9%	53.3	87.9%
	40-49	47.0	19.3%	40.3	85.8%
	50 & over	44.0	18.1%	40.0	90.9%
	All ages	92.0	37.8%	79.3	86.2%
AfrAmer	5-12	*	*	0.7	*
	13-19	*	*	3.0	*
	20-24	17.0	7.0%	14.3	**
	25-29	18.3	7.5%	16.7	**
	30-39	17.3	7.1%	14.7	**
	40-49	13.3	5.5%	11.3	**
	50 & over	21.7	8.9%	18.7	**
	All ages	51.0	21.0%	46.0	90.2%
White	5-12	0.0	0.0%	0.0	**
	13-19	0.0	0.0%	0.0	**
	20-24	4.3	1.8%	3.7	**
	25-29	10.0	4.1%	8.7	**
	30-39	16.3	6.7%	14.7	**
	40-49	9.7	4.0%	8.3	**
	50 & over	10.7	4.4%	10.7	100.0%



Table 4.3: Timely Linkage to HIV Care Among New Diagnoses by Race/Ethnicity and Age, Alameda County, 2015-2017 (continued)

NOTE: This table spans multiple pages

Race/Ethnicity <sup>a</sup>	Age at Diagnosis	All Diagnoses		Linked to Care	
		Average Annual Count	Column Percent	Average Annual Count	Row Percent
Latino	All ages	67.3	27.5%	60.7	90.1%
	5-12	0.0	0.0%	0.0	**
	13-19	1.7	0.7%	1.7	100.0%
	20-24	8.0	3.3%	7.0	**
	25-29	16.7	6.8%	15.3	**
	30-39	18.3	7.5%	16.3	**
	40-49	16.3	6.8%	14.7	**
	50 & over	6.3	2.6%	5.7	**
API	All ages	24.0	9.8%	21.0	**
	5-12	0.0	0.0%	0.0	**
	13-19	*	*	0.7	*
	20-24	*	*	2.3	*
	25-29	4.0	1.6%	3.7	**
	30-39	7.0	2.8%	6.0	**
	40-49	5.3	2.2%	4.3	**
	50 & over	*	*	4.0	*
Other/Unk	All ages	9.0	3.7%	8.0	**
	5-12	0.0	0.0%	0.0	**
	13-19	*	*	0.0	*
	20-24	*	*	1.0	*
	25-29	3.0	1.2%	2.7	**
	30-39	1.7	0.7%	1.7	100.0%
	40-49	2.3	1.0%	1.7	**
	50 & over	*	*	1.0	*

Source: Alameda County eHARS, 2019 Q2

NOTE: Excludes N=7 persons who died within 90 days of diagnosis

[a] 'Other/Unk' = American Indians and Alaskan Natives, multiple race, unknown race

[\*] Some cells suppressed to protect confidentiality

[\*\*] Unstable estimates not shown

Table 4.4: Engagement in HIV Care in 2017 Among PLHIV at Year-End 2016 by Sex and Age, Alameda County

Sex <sup>a</sup>	Age	All PLHIV		Any Visit in 2017	
		Count	Column Percent	Count	Row Percent
All	All ages	5741	100.0%	4513	78.6%
	0-12	8	0.1%	7	87.5%
	13-19	20	0.3%	19	95.0%
	20-29	432	7.5%	324	75.0%
	30-39	878	15.3%	663	75.5%
	40-49	1320	23.0%	1020	77.3%
	50-59	1925	33.5%	1538	79.9%
	60 & over	1158	20.2%	942	81.3%
	All ages	4780	83.3%	3759	78.6%
Male	0-12	*	*	*	*
	13-19	*	*	*	*
	20-29	383	6.7%	288	75.2%
	30-39	743	12.9%	561	75.5%
	40-49	1064	18.5%	821	77.2%
	50-59	1621	28.2%	1292	79.7%
	60 & over	951	16.6%	781	82.1%
	All ages	961	16.7%		
	0-12	*	*	*	*
Female	13-19	*	*	*	*
	20-29	49	0.9%	36	73.5%
	30-39	135	2.4%	102	75.6%
	40-49	256	4.5%	199	77.7%
	50-59	304	5.3%	246	80.9%
	60 & over	207	3.6%	161	77.8%
	All ages				
	0-12				
	13-19				

Source: Alameda County eHARS, 2018 Q2

[a] Refers to sex assigned at birth

[\*] Some cells suppressed to protect confidentiality

Table 4.5: Engagement in HIV Care in 2017 Among PLHIV at Year-End 2016 by Sex and Race/Ethnicity, Alameda County

Sex <sup>a</sup>	Race/Ethnicity <sup>b</sup>	All PLHIV		Any Visit in 2017	
		Count	Column Percent	Count	Row Percent
All	All races	5741	100.0%	4513	78.6%
	AfrAmer	2203	38.4%	1731	78.6%
	White	1838	32.0%	1469	79.9%
	Latino	1110	19.3%	825	74.3%
	API	387	6.7%	315	81.4%
	Other/Unk	203	3.5%	173	85.2%
Male	All races	4780	83.3%	3759	78.6%
	AfrAmer	1629	28.4%	1276	78.3%
	White	1681	29.3%	1348	80.2%
	Latino	964	16.8%	717	74.4%
	API	333	5.8%	270	81.1%
	Other/Unk	173	3.0%	148	85.5%
Female	All races	961	16.7%	754	78.5%
	AfrAmer	574	10.0%	455	79.3%
	White	157	2.7%	121	77.1%
	Latino	146	2.5%	108	74.0%
	API	54	0.9%	45	**
	Other/Unk	30	0.5%	25	**

Source: Alameda County eHARS, 2019 Q2

[a] Refers to sex assigned at birth

[b] 'Other/Unk' = American Indians and Alaskan Natives, multiple race, unknown race

[\*\*] Unstable estimates not shown

Table 4.6: Engagement in HIV Care in 2017 Among PLHIV at Year-End 2016 by Race/Ethnicity and Age, Alameda County

Race/Ethnicity <sup>a</sup>	Age	All PLHIV		Any Visit in 2017	
		Count	Column Percent	Count	Row Percent
All	All ages	5741	100.0%	4513	78.6%
	0-12	8	0.1%	7	87.5%
	13-19	20	0.3%	19	95.0%
	20-29	432	7.5%	324	75.0%
	30-39	878	15.3%	663	75.5%
	40-49	1320	23.0%	1020	77.3%
	50-59	1925	33.5%	1538	79.9%
	60 & over	1158	20.2%	942	81.3%
AfrAmer	All ages	2203	38.4%	1731	78.6%
	0-12	5	0.1%	4	80.0%
	13-19	11	0.2%	11	100.0%
	20-29	203	3.5%	154	75.9%
	30-39	335	5.8%	258	77.0%
	40-49	462	8.0%	354	76.6%
	50-59	721	12.6%	576	79.9%
	60 & over	466	8.1%	374	80.3%
White	All ages	1838	32.0%	1469	79.9%
	0-12	*	*	*	*
	13-19	*	*	*	*
	20-29	66	1.1%	46	69.7%
	30-39	185	3.2%	142	76.8%
	40-49	370	6.4%	301	81.4%
	50-59	744	13.0%	597	80.2%
	60 & over	471	8.2%	382	81.1%

Table 4.6: Engagement in HIV Care in 2017 Among PLHIV at Year-End 2016 by Race/Ethnicity and Age, Alameda County (continued)

NOTE: This table spans multiple pages

Race/Ethnicity <sup>a</sup>	Age	All PLHIV		Retained in Care	
		Count	Column Percent	Count	Row Percent
Latino	All ages	1110	<div><div></div></div> 19.3%	632	<div><div></div></div> 56.9%
	0-12	*	*	*	*
	13-19	*	*	*	*
	20-29	105	<div><div></div></div> 1.8%	62	<div><div></div></div> 59.0%
	30-39	238	<div><div></div></div> 4.1%	120	<div><div></div></div> 50.4%
	40-49	324	<div><div></div></div> 5.6%	170	<div><div></div></div> 52.5%
	50-59	298	<div><div></div></div> 5.2%	178	<div><div></div></div> 59.7%
	60 & over	139	<div><div></div></div> 2.4%	96	<div><div></div></div> 69.1%
API	All ages	387	<div><div></div></div> 6.7%	240	<div><div></div></div> 62.0%
	0-12	*	*	*	*
	13-19	*	*	*	*
	20-29	35	<div><div></div></div> 0.6%	23	<div><div></div></div> 54.3%
	30-39	87	<div><div></div></div> 1.5%	33	<div><div></div></div> 54.0%
	40-49	109	<div><div></div></div> 1.9%	55	<div><div></div></div> 57.8%
	50-59	100	<div><div></div></div> 1.7%	62	<div><div></div></div> 70.0%
	60 & over	53	<div><div></div></div> 0.9%	29	<div><div></div></div> 71.7%
Other/Unk	All ages	203	<div><div></div></div> 3.5%	130	<div><div></div></div> 64.0%
	0-12	*	*	*	*
	13-19	*	*	*	*
	20-29	23	<div><div></div></div> 0.4%	10	<div><div></div></div> 43.5%
	30-39	33	<div><div></div></div> 0.6%	21	<div><div></div></div> 63.6%
	40-49	55	<div><div></div></div> 1.0%	32	<div><div></div></div> 58.2%
	50-59	62	<div><div></div></div> 1.1%	43	<div><div></div></div> 69.4%
	60 & over	29	<div><div></div></div> 0.5%	24	<div><div></div></div> 82.8%

Source: Alameda County eHARS, 2019 Q2

NOTE: Excludes PLHIV at year-end 2016 who died (N=78) or moved out of the country (N=428) in 2017

[a] 'Other/Unk' = American Indians and Alaskan Natives, multiple race, unknown race

[\*] Some cells suppressed to protect confidentiality

Table 4.7: Retention in Continuous HIV Care in 2017 Among PLHIV at Year-End 2016 by Sex and Age, Alameda County

Sex <sup>a</sup>	Age	All PLHIV		Retained in Care	
		Count	Column Percent	Count	Row Percent
All	All ages	5741	100.0%	3352	58.4%
	0-12	8	0.1%	7	87.5%
	13-19	20	0.3%	13	65.0%
	20-29	432	7.5%	212	49.1%
	30-39	878	15.3%	446	50.8%
	40-49	1320	23.0%	759	57.5%
	50-59	1925	33.5%	1146	59.5%
	60 & over	1158	20.2%	769	66.4%
Male	All ages	4780	83.3%	2819	59.0%
	0-12	*	*	*	*
	13-19	*	*	*	*
	20-29	383	6.7%	187	48.8%
	30-39	743	12.9%	381	51.3%
	40-49	1064	18.5%	614	57.7%
	50-59	1621	28.2%	977	60.3%
	60 & over	951	16.6%	648	68.1%
Female	All ages	961	16.7%	533	55.5%
	0-12	*	*	*	*
	13-19	*	*	*	*
	20-29	49	0.9%	25	51.0%
	30-39	135	2.4%	65	48.1%
	40-49	256	4.5%	145	56.6%
	50-59	304	5.3%	169	55.6%
	60 & over	207	3.6%	121	58.5%

Source: Alameda County eHARS, 2019 Q2

NOTE: Excludes PLHIV at year-end 2016 who died (N=78) or moved out of the country (N=428) in 2017

[a] Refers to sex assigned at birth

[\*] Some cells suppressed to protect confidentiality

Table 4.8: Retention in Continuous HIV Care in 2017 Among PLHIV at Year-End 2016 by Sex and Race/Ethnicity, Alameda County

Sex <sup>a</sup>	Race/Ethnicity <sup>b</sup>	All PLHIV		Retained in Care	
		Count	Column Percent	Count	Row Percent
All	All races	5741	100.0%	3352	58.4%
	AfrAmer	2203	38.4%	1260	57.2%
	White	1838	32.0%	1090	59.3%
	Latino	1110	19.3%	632	56.9%
	API	387	6.7%	240	62.0%
	Other/Unk	203	3.5%	130	64.0%
Male	All races	4780	83.3%	2819	59.0%
	AfrAmer	1629	28.4%	936	57.5%
	White	1681	29.3%	1012	60.2%
	Latino	964	16.8%	553	57.4%
	API	333	5.8%	207	62.2%
	Other/Unk	173	3.0%	111	64.2%
Female	All races	961	16.7%	533	55.5%
	AfrAmer	574	10.0%	324	56.4%
	White	157	2.7%	78	49.7%
	Latino	146	2.5%	79	54.1%
	API	54	0.9%	33	**
	Other/Unk	30	0.5%	19	**

Source: Alameda County eHARS, 2019 Q2

NOTE: Excludes PLHIV at year-end 2016 who died (N=78) or moved out of the country (N=428) in 2017

[a] Refers to sex assigned at birth

[b] 'Other/Unk' = American Indians and Alaskan Natives, multiple race, unknown race

[\*\*] Unstable estimates not shown

Table 4.9: Retention in Continuous HIV Care in 2017 Among PLHIV at Year-End 2016 by Race/Ethnicity and Age, Alameda County

NOTE: This table spans multiple pages

Race/Ethnicity <sup>a</sup>	Age	All PLHIV		Retained in Care	
		Count	Column Percent	Count	Row Percent
All	All ages	5741	100.0%	3352	58.4%
	0-12	8	0.1%	7	87.5%
	13-19	20	0.3%	13	65.0%
	20-29	432	7.5%	212	49.1%
	30-39	878	15.3%	446	50.8%
	40-49	1320	23.0%	759	57.5%
	50-59	1925	33.5%	1146	59.5%
	60 & over	1158	20.2%	769	66.4%
AfrAmer	All ages	2203	38.4%	1260	57.2%
	0-12	5	0.1%	*	*
	13-19	11	0.2%	*	*
	20-29	203	3.5%	90	44.3%
	30-39	335	5.8%	169	50.4%
	40-49	462	8.0%	276	59.7%
	50-59	721	12.6%	423	58.7%
	60 & over	466	8.1%	292	62.7%
White	All ages	1838	32.0%	1090	59.3%
	0-12	*	*	*	*
	13-19	*	*	*	*
	20-29	66	1.1%	31	47.0%
	30-39	185	3.2%	89	48.1%
	40-49	370	6.4%	218	58.9%
	50-59	744	13.0%	432	58.1%
	60 & over	471	8.2%	319	67.7%



Table 4.9: Retention in Continuous HIV Care in 2017 Among PLHIV at Year-End 2016 by Race/Ethnicity and Age, Alameda County (continued)

NOTE: This table spans multiple pages

Race/Ethnicity <sup>a</sup>	Age	All PLHIV		Retained in Care	
		Count	Column Percent	Count	Row Percent
Latino	All ages	1110	<div><div></div></div> 19.3%	632	<div><div></div></div> 56.9%
	0-12	*	*	*	*
	13-19	*	*	*	*
	20-29	105	<div><div></div></div> 1.8%	62	<div><div></div></div> 59.0%
	30-39	238	<div><div></div></div> 4.1%	120	<div><div></div></div> 50.4%
	40-49	324	<div><div></div></div> 5.6%	170	<div><div></div></div> 52.5%
	50-59	298	<div><div></div></div> 5.2%	178	<div><div></div></div> 59.7%
	60 & over	139	<div><div></div></div> 2.4%	96	<div><div></div></div> 69.1%
API	All ages	387	<div><div></div></div> 6.7%	240	<div><div></div></div> 62.0%
	0-12	*	*	*	*
	13-19	*	*	*	*
	20-29	35	<div><div></div></div> 0.6%	23	<div><div></div></div> 54.3%
	30-39	87	<div><div></div></div> 1.5%	33	<div><div></div></div> 54.0%
	40-49	109	<div><div></div></div> 1.9%	55	<div><div></div></div> 57.8%
	50-59	100	<div><div></div></div> 1.7%	62	<div><div></div></div> 70.0%
	60 & over	53	<div><div></div></div> 0.9%	29	<div><div></div></div> 71.7%
Other/Unk	All ages	203	<div><div></div></div> 3.5%	130	<div><div></div></div> 64.0%
	0-12	*	*	*	*
	13-19	*	*	*	*
	20-29	23	<div><div></div></div> 0.4%	10	<div><div></div></div> 43.5%
	30-39	33	<div><div></div></div> 0.6%	21	<div><div></div></div> 63.6%
	40-49	55	<div><div></div></div> 1.0%	32	<div><div></div></div> 58.2%
	50-59	62	<div><div></div></div> 1.1%	43	<div><div></div></div> 69.4%
	60 & over	29	<div><div></div></div> 0.5%	24	<div><div></div></div> 82.8%

Source: Alameda County eHARS, 2019 Q2

NOTE: Excludes PLHIV at year-end 2016 who died (N=78) or moved out of the country (N=428) in 2017

[a] 'Other/Unk' = American Indians and Alaskan Natives, multiple race, unknown race

[\*] Some cells suppressed to protect confidentiality

Table 4.10: Viral Suppression in 2017 Among PLHIV at Year-End 2016 by Sex and Age, Alameda County

Sex <sup>a</sup>	Age	All PLHIV		Suppressed at Last Viral Load in 2017	
		Count	Column Percent	Count	Row Percent
All	All ages	5741	100.0%	4048	70.5%
	0-12	8	0.1%	7	87.5%
	13-19	20	0.3%	17	85.0%
	20-29	432	7.5%	267	61.8%
	30-39	878	15.3%	568	64.7%
	40-49	1320	23.0%	910	68.9%
	50-59	1925	33.5%	1399	72.7%
	60 & over	1158	20.2%	880	76.0%
Male	All ages	4780	83.3%	3390	70.9%
	0-12	*	*	*	*
	13-19	*	*	*	*
	20-29	383	6.7%	237	61.9%
	30-39	743	12.9%	484	65.1%
	40-49	1064	18.5%	741	69.6%
	50-59	1621	28.2%	1183	73.0%
	60 & over	951	16.6%	730	76.8%
Female	All ages	961	16.7%	658	68.5%
	0-12	*	*	*	*
	13-19	*	*	*	*
	20-29	49	0.9%	30	61.2%
	30-39	135	2.4%	84	62.2%
	40-49	256	4.5%	169	66.0%
	50-59	304	5.3%	216	71.1%
	60 & over	207	3.6%	150	72.5%

Source: Alameda County eHARS, 2019 Q2

NOTE: Excludes PLHIV at year-end 2016 who died (N=78) or moved out of the country (N=428) in 2017

[a] Refers to sex assigned at birth

[\*] Some cells suppressed to protect confidentiality

Table 4.11: Viral Suppression in 2017 Among PLHIV at Year-End 2016 by Sex and Race/Ethnicity, Alameda County

Sex <sup>a</sup>	Race/Ethnicity <sup>b</sup>	All PLHIV		Suppressed at Last Viral Load in 2017	
		Count	Column Percent	Count	Row Percent
All	All races	5741	100.0%	4048	70.5%
	AfrAmer	2203	38.4%	1491	67.7%
	White	1838	32.0%	1368	74.4%
	Latino	1110	19.3%	744	67.0%
	API	387	6.7%	299	77.3%
	Other/Unk	203	3.5%	146	71.9%
Male	All races	4780	83.3%	3390	70.9%
	AfrAmer	1629	28.4%	1096	67.3%
	White	1681	29.3%	1264	75.2%
	Latino	964	16.8%	649	67.3%
	API	33	5.8%	258	77.5%
	Other/Unk	173	3.0%	123	71.1%
Female	All races	961	16.7%	658	68.5%
	AfrAmer	574	10.0%	395	68.8%
	White	157	2.7%	104	66.2%
	Latino	146	2.5%	95	65.1%
	API	54	0.9%	41	**
	Other/Unk	30	0.5%	23	**

Source: Alameda County eHARS, 2019 Q2

NOTE: Excludes PLHIV at year-end 2016 who died (N=78) or moved out of the county (N=428) in 2017

[a] Refers to sex assigned at birth

[b] 'Other/Unk' = American Indians and Alaskan Natives, multiple race, unknown race

[\*\*] Unstable estimates not shown

Table 4.12: Viral Suppression in 2017 Among PLHIV at Year-End 2016 by Race/Ethnicity and Age, Alameda County

NOTE: This table spans multiple pages

Race/Ethnicity <sup>a</sup>	Age	All PLHIV		Suppressed at Last Viral Load in 2017	
		Count	Column Percent	Count	Row Percent
All	All ages	5741	100.0%	4048	70.5%
	0-12	8	0.1%	7	87.5%
	13-19	20	0.3%	17	85.0%
	20-29	432	7.5%	267	61.8%
	30-39	878	15.3%	568	64.7%
	40-49	1320	23.0%	910	68.9%
	50-59	1925	33.5%	1399	72.7%
	60 & over	1158	20.2%	880	76.0%
AfrAmer	All ages	2203	38.4%	1491	67.7%
	0-12	5	0.1%	*	*
	13-19	11	0.2%	*	*
	20-29	203	3.5%	118	58.1%
	30-39	335	5.8%	212	63.3%
	40-49	462	8.0%	297	64.3%
	50-59	721	12.6%	513	71.2%
	60 & over	466	8.1%	338	72.5%
White	All ages	1838	32.0%	1368	74.4%
	0-12	*	*	*	*
	13-19	*	*	*	*
	20-29	66	1.1%	41	62.1%
	30-39	185	3.2%	124	67.0%
	40-49	370	6.4%	281	75.9%
	50-59	744	13.0%	556	74.7%
	60 & over	471	8.2%	365	77.5%

Table 4.12: Viral Suppression in 2017 Among PLHIV at Year-End 2016 by Race/Ethnicity and Age, Alameda County (continued)

NOTE: This table spans multiple pages

Race/Ethnicity <sup>a</sup>	Age	All PLHIV		Suppressed at Last Viral Load in 2017	
		Count	Column Percent	Count	Row Percent
Latino	All ages	1110	19.3%	744	67.0%
	0-12	*	*	*	*
	13-19	*	*	*	*
	20-29	105	1.8%	69	65.7%
	30-39	238	4.1%	145	60.9%
	40-49	324	5.6%	212	65.4%
	50-59	298	5.2%	206	69.1%
	60 & over	139	2.4%	106	76.3%
API	All ages	387	6.7%	299	77.3%
	0-12	*	*	*	*
	13-19	*	*	*	*
	20-29	35	0.6%	29	82.9%
	30-39	87	1.5%	65	74.7%
	40-49	109	1.9%	81	74.3%
	50-59	100	1.7%	79	79.0%
	60 & over	53	0.9%	42	79.2%
Other/Unk	All ages	203	3.5%	146	71.9%
	0-12	*	*	*	*
	13-19	*	*	*	*
	20-29	23	0.4%	10	43.5%
	30-39	33	0.6%	22	66.7%
	40-49	55	1.0%	39	70.9%
	50-59	62	1.1%	45	72.6%
	60 & over	29	0.5%	29	100.0%

Source: Alameda County eHARS, 2019 Q2

NOTE: Excludes PLHIV at year-end 2016 who died (N=78) or moved out of the country (N=428) in 2017

[a] 'Other/Unk' = American Indians and Alaskan Natives, multiple race, unknown race

[\*] Some cells suppressed to protect confidentiality

Table 4.13: Viral Suppression in 2017 Among PLHIV at Year-End 2016 and in Care in 2017 by Sex, Alameda County

Sex <sup>a</sup>	All PLHIV		Suppressed at Last Viral Load in 2017	
	Count	Column Percent	Count	Row Percent
All	4513	100.0%	4048	89.7%
Male	3759	83.3%	3390	90.2%
Female	754	16.7%	658	87.3%

Source: Alameda County eHARS, 2019 Q2

NOTE: Excludes PLHIV at year-end 2016 who died (N=78) or moved out of the country (N=428), or did not have any HIV labs reported (N=1228) in 2017

[a] Refers to sex assigned at birth

[\*\*] Unstable estimates not shown

Table 4.14: Viral Suppression in 2017 Among PLHIV at Year-End 2016 and in Care in 2017 by Race/Ethnicity, Alameda County

Race/Ethnicity <sup>a</sup>	All PLHIV		Suppressed at Last Viral Load in 2017	
	Count	Column Percent	Count	Row Percent
All races	4513	100.0%	4048	89.7%
AfrAmer	1731	38.4%	1491	86.1%
White	1469	32.6%	1368	93.1%
Latino	825	18.3%	744	90.2%
API	315	7.0%	299	94.9%
Other/Unk	173	3.8%	146	84.4%

Source: Alameda County eHARS, 2019 Q2

NOTE: Excludes PLHIV at year-end 2016 who died (N=78) or moved out of the country (N=428), or did not have any HIV labs reported (N=1228) in 2017

[a] 'Other/Unk' = American Indians and Alaskan Natives, multiple race, unknown race

[\*\*] Unstable estimates not shown

## Appendix A: Technical Notes

### Data Sources

All counts and proportions in this report were calculated using data from the Enhanced HIV/AIDS Reporting System (eHARS). Numerators of rates were also obtained from eHARS; denominators were derived using data from the United States Census (2000 and 2010) and Environmental Systems Research Institute (2012 and later). Mid-year population estimates for intercensal years prior to 2012 as well as all year-end estimates were obtained through linear interpolation.

To calculate prevalence of HIV among foreign-born and US-born individuals, estimates of the proportions of foreign-born and US-born in Alameda County were obtained from American Community Survey (ACS) and applied to the Community Assessment, Planning, and Evaluation (CAPE) mid-year population estimates of all people living in Alameda County.

PLHIV at the end of 2018 were identified from eHARS.

### Statistical Analysis

#### Calculation of Confidence Intervals

All confidence intervals (CI) depicted in the report are at the 95% confidence level. CIs for proportions are calculated on the log odds (“logit”) scale and then antilogit-transformed in order to preclude lower limits less than 0% and upper limits greater than 100%. Confidence limits for rates are calculated using a Poisson distribution for counts less than 100 and a binomial distribution for counts of 100 or greater.

#### Significance Testing and Statistical Modeling

The statistical significance of associations between categorical variables was tested by Pearson’s chi square test or Fisher’s exact test, as appropriate. Differences in CD4 count at diagnosis were assessed using ANOVA unless Levene’s Test for Homogeneity of Variances yielded a significant result (at  $\alpha = 0.05$ ), in which case Welch’s ANOVA was used. Trend analyses were performed using Join Point [JoinPoint] to model crude rates as a log-linear function of year separately for each stratum of the categorical variable(s); errors were assumed to have Poisson variance and to be independent. Grid search and the modified Bayesian Information Criterion were used to select the best fitting model from among those with zero to four join points at least 2 years apart between 2007 and 2018 (the second and second-to-last years examined).

## Data Suppression Rules

### Proportions

In accordance with draft guidelines released by the National Center for Health Statistics [9], proportions are considered to be statistically unreliable and are not presented if they meet either of the following criteria:

1. The absolute CI width exceeds 20%.
2. The absolute CI width does not exceed 20%, but the relative CI width (the absolute CI width divided by the lesser of the proportion and its complement) exceeds 120%.

### Rates

Rates for subpopulations with fewer than 12 cases are considered to be statistically unreliable and were not presented. In these instances, the relative standard error of the rate exceeds 30%.

## Death Ascertainment

Alameda County HIV surveillance officials are notified by the local Office of Vital Registration whenever HIV is documented on a death certificate filed in Alameda County. Additionally, the California Office of AIDS periodically matches state HIV registry data to national death databases such as the National Death Index and the Social Security Administration's Death Master File. PLHIV who died outside of Alameda County and were ever associated with Alameda County or whose HIV was not documented on their death certificate are thus generally captured through this process with some delay.



## Appendix B: Reporting Requirements

The representativeness and accuracy of HIV surveillance data depend on the reliable, complete, and timely reporting of data by health care providers and laboratories in accordance with California law. The Adult HIV/AIDS Case Report Form, which is used to report data on cases of HIV infection, is available at <https://www.cdph.ca.gov/Programs/CID/DOA/CDPH%20Document%20Library/cdph8641a.pdf>. Help completing it in Alameda County can be obtained by calling (510) 268-2372.

### Health Care Providers

Title 17, Section 2643.5, “HIV Reporting by Health Care Providers,” requires health care providers to report cases of HIV disease (at any stage) to the local health department in the jurisdiction of their practice:

- (a) Each health care provider that orders a laboratory test used to identify HIV, a component of HIV, or antibodies to or antigens of HIV shall submit to the laboratory performing the test a pre-printed laboratory requisition form which includes all documentation as specified in 42 CFR 493.1105 (57 FR 7162, Feb. 28, 1992, as amended at 58 FR 5229, Jan. 19, 1993) and adopted in Business and Professions Code, Section 1220.
- (b) The person authorized to order the laboratory test shall include the following when submitting information to the laboratory:
  - (1) Complete name of patient; and
  - (2) Patient date of birth (2-digit month, 2-digit day, 4-digit year); and
  - (3) Patient gender (male, female, transgender male-to-female, or transgender female-to-male); and
  - (4) Date biological specimen was collected; and
  - (5) Name, address, telephone number of the health care provider and the facility where services were rendered, if different.
- (1) All reports containing personal information, including HIV/AIDS Case Reports, shall be sent to the local Health Officer or his or her designee by:
- (c) Each health care provider shall, within seven calendar days of receipt from a laboratory of a patient’s confirmed HIV test or determination by the health care provider of a patient’s confirmed HIV test, report the confirmed HIV test to the local Health Officer for the jurisdiction where the health care provider facility is located. The report shall consist of a completed copy of the HIV/AIDS Case Report form.

- (A) courier service, U.S. Postal Service Express or Registered mail, or other traceable mail; or
- (B) person-to-person transfer with the local Health Officer or his or her designee.
- (2) The health care provider shall not submit reports containing personal information to the local Health Officer or his or her designee by electronic facsimile transmission or by electronic mail or by non-traceable mail.
- (d) HIV reporting by name to the local Health Officer, via submission of the HIV/AIDS Case Report, shall not supplant the reporting requirements in Article 1 of this Subchapter when a patient's medical condition progresses from HIV infection to an Acquired Immunodeficiency Syndrome (AIDS) diagnosis.
- (e) A health care provider who receives notification from an out-of-state laboratory of a confirmed HIV test for a California patient shall report the findings to the local Health Officer for the jurisdiction where the health care provider facility is located.
- (f) When a health care provider orders multiple HIV-related viral load tests for a patient, or receives multiple laboratory reports of a confirmed HIV test, the health care provider shall be required to submit only one HIV/AIDS Case Report, per patient, to the local Health Officer.
- (g) Nothing in this Subchapter shall prohibit the local health department from assisting health care providers to report HIV cases.
- (h) Information reported pursuant to this Article is acquired in confidence and shall not be disclosed by the health care provider except as authorized by this Article, other state or federal law, or with the written consent of the individual to whom the information pertains or the legal representative of that individual.

Note: Authority cited: Sections 120125, 120130, 120140, 121022, 131080 and 131200, Health and Safety Code. Reference: Sections 1202.5, 1206, 1206.5, 1220, 1241, 1265 and 1281, Business and Professions Code; and Sections 1603.1, 101160, 120175, 120250, 120775, 120885-120895, 120917, 120975, 120980, 121015, 121022, 121025, 121035, 121085, 131051, 131052, 131056 and 131080, Health and Safety Code.

## Laboratories

Title 17, Section 2643.10, "HIV Reporting by Laboratories," requires laboratories to report all HIV-related laboratory tests to the local health department in the jurisdiction of the ordering provider:

- (a) The laboratory director or authorized designee shall, within seven calendar days of determining a confirmed HIV test, report the confirmed HIV test to the Health Officer for the local health jurisdiction where the health care provider facility is located. The report shall include the
  - (1) Complete name of patient; and
  - (2) Patient date of birth (2-digit month, 2-digit day, 4-digit year); and
  - (3) Patient gender (male, female, transgender male-to-female, or transgender female-to-male); and

- (4) Name, address, and telephone number of the health care provider and the facility that submitted the biological specimen to the laboratory, if different; and
- (5) Name, address, and telephone number of the laboratory; and
- (6) Laboratory report number as assigned by the laboratory; and
- (7) Laboratory results of the test performed; and
- (8) Date the biological specimen was tested in the laboratory; and
- (9) Laboratory Clinical Laboratory Improvement Amendments (CLIA) number.

(b)

- (1) All reports containing personal information, including laboratory reports, shall be sent to the local Health Officer or his or her designee by:
  - (A) courier service, U.S. Postal Service Express or Registered mail, or other traceable mail; or
  - (B) person-to-person transfer with the local Health Officer or his or her designee.
- (2) The laboratory shall not submit reports containing personal information to the local Health Officer or his or her designee by electronic facsimile transmission or by electronic mail or by non-traceable mail.

A laboratory that receives incomplete patient data from a health care provider for a biological specimen with a confirmed HIV test, shall contact the submitting health care provider to obtain the information required pursuant to Section 2643.5(b)(1)-(5), prior to reporting the confirmed HIV test to the local Health Officer.

If a laboratory transfers a biological specimen to another laboratory for testing, the laboratory that first receives the biological specimen from the health care provider shall report confirmed HIV tests to the local Health Officer.

Laboratories shall not submit reports to the local health department for confirmed HIV tests for patients of an Alternative Testing Site or other anonymous HIV testing program, a blood bank, a plasma center, or for participants of a blinded and/or unlinked seroprevalence study.

When a California laboratory receives a biological specimen for testing from an out-of-state laboratory or health care provider, the California director of the laboratory shall ensure that a confirmed HIV test is reported to the state health department in the state where the biological specimen originated.

When a California laboratory receives a report from an out of state laboratory that indicates evidence of a confirmed HIV test for a California patient, the California laboratory shall notify the local Health Officer and health care provider in the same manner as if the findings had been made by the California laboratory.

Information reported pursuant to this Article is acquired in confidence and shall not be disclosed by the laboratory except as authorized by this Article, other state or federal law, or with the written consent of the individual to whom the information pertains or the legal representative of the individual.

Note: Authority cited: Section 1224, Business and Professions Code; and Sections 120125, 120130, 120140, 121022, 131080 and 131200, Health and Safety Code. Reference: Sections 1206, 1206.5, 1209, 1220, 1241, 1265, 1281 and 1288, Business and Professions Code; and Sections 101150, 120175, 120775, 120885-120895, 120975, 120980, 121022, 121025, 121035, 131051, 131052, 131056 and 131080, Health and Safety Code.

## **Appendix C: HIV Surveillance in Alameda County**

California Code of Regulations (CCR) Title 17, Section 2643.5 requires all health care providers (HCP) to report all cases of HIV disease they encounter in their clinical practice to the county/local health jurisdiction in which the encounter occurs. Additionally, CCR Title 17, Section 2643.10 requires all commercial laboratories to report all HIV-related laboratory tests they conduct to the local health jurisdiction of the HCP who ordered the test, providing an additional means by which local health departments may learn of a case of HIV disease.

In November 2015, California adopted the Electronic Laboratory Reporting (ELR) system for laboratories performing HIV testing. HIV test results delivered through ELR meet the statutory and regulatory reporting requirements for HIV test results. HIV-related laboratory results are submitted to the California Department of Public Health (CDPH) and routed to Alameda County for investigation. Establishment of ELR resulted in major changes in the local processing and management of laboratory results for HIV surveillance. Figure A.2 illustrates the steps involved in processing lab results, including ELR, for HIV surveillance in Alameda County. As shown in the figure, reported labs are checked against a local database to identify cases not previously reported. Potential new cases are investigated by trained field staff, who visit the office of the HCP that ordered the laboratory tests(s) or submitted the lab report and complete a case report using information abstracted from the patient's medical record and obtained from the HCP. For adult cases, standardized case report forms are completed and submitted in the California Reportable Disease Information Exchange (CalREDIE) – the secure CDPH system for electronic disease reporting and surveillance. Hard copies of death certificates and pediatric HIV cases documented on a paper case report form are mailed to the CDPH Office of AIDS. All case reports submitted to CDPH are routinely de-identified and transmitted to CDC. When cases reported by different states appear to be the same person, CDC notifies the appropriate states to contact each other directly and determine whether the cases are duplicates.

### **Security and Confidentiality of Data**

In accordance with the county's data use and disclosure agreement with CDPH, all data collected in the course of conducting HIV surveillance are used solely for public health purposes. Additionally, administrative, technical, and physical safeguards are in place to ensure the security and confidentiality of these data. All paper records are stored in locked file cabinets in an office with restricted access. Electronic data transmissions are encrypted and occur over a secure file transfer network. All electronic data are stored in a restricted access directory on a protected server.

## Limitations of Surveillance Data and of County Analysis

A major strength of HIV surveillance data is that it captures and reflects the entire population of HIV diagnosed individuals. HIV surveillance data are not without their limitations however, which limit the analyses that can be done. These limitations include, but are not limited to:

- **Data quality:** Public health investigators extract required information from medical records for HIV reporting. Some information, such as risk factors or identification as transgender may not have been available in the medical record, elicited from the patient by the HCP, or adequately described. STDs are recognized to be widely under-reported, which may affect the figures reported here.
- **Data quantity:** In small subpopulations, the number of new diagnoses or PLHIV was not large enough to allow certain analyses. Statistical analyses based on small numbers may result in unstable estimates which can be misleading.
- **Timeliness of reporting:** Surveillance data are the product of a long process triggered by a visit to a HCP by an HIV-infected individual and culminating in the entry of case data into the statewide HIV surveillance database at the California Department of Public Health. Intermediate steps include, but are not limited to, laboratory testing, submission of case reports and lab results to the local health department, and investigation of each report. Data preparation, analysis and interpretation take additional time. For these reasons, there can be a 6-12 month delay in estimating numbers of diagnoses or PLHIV and in estimating any measures dependent on laboratory test results.
- **History of reporting laws:** The laws mandating the reporting of HIV-related laboratory test results and of cases of HIV disease at its different stages have changed over time, and this impacts our ability to characterize the epidemic at different points in the past. Although AIDS has been reportable since 1983, HIV disease at its earlier stages was not reportable until mid-2002 and even then only by a non-name code. More reliable, name-based data on HIV non-AIDS cases became mandated in 2006, and HIV-related labs became reportable in California in 2009. Consequently, most of analyses are limited to 2006 and later, and analyses relying on laboratory reporting are limited to 2010 and later.
- **Diagnosis date assigned to foreign-born cases:** A small number of foreign-born PLHIV may have been initially diagnosed with HIV in another country before arriving in the US, but due to the absence of verified information on date of initial diagnosis, their diagnosis date in the surveillance data reflects the earliest date of HIV diagnosis in the US. As a consequence new diagnoses and late diagnoses may be overestimated in our data.

Figure A.1: Timeline of Mandated HIV Reporting in California

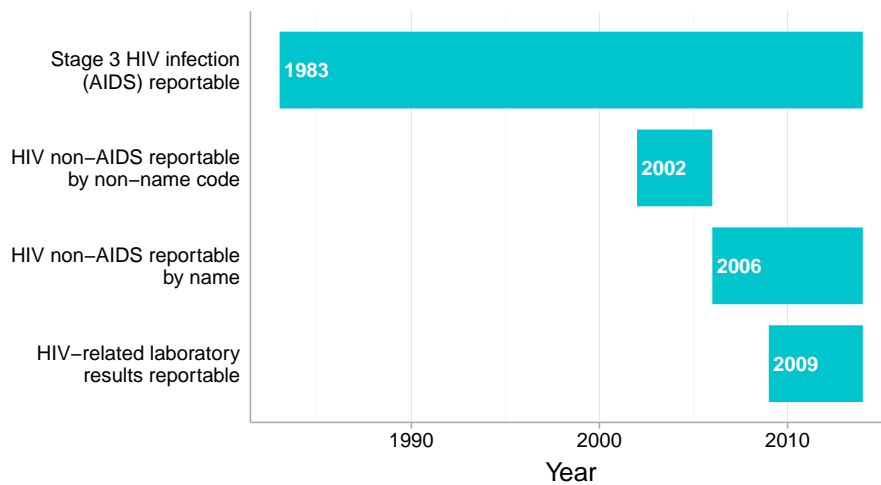
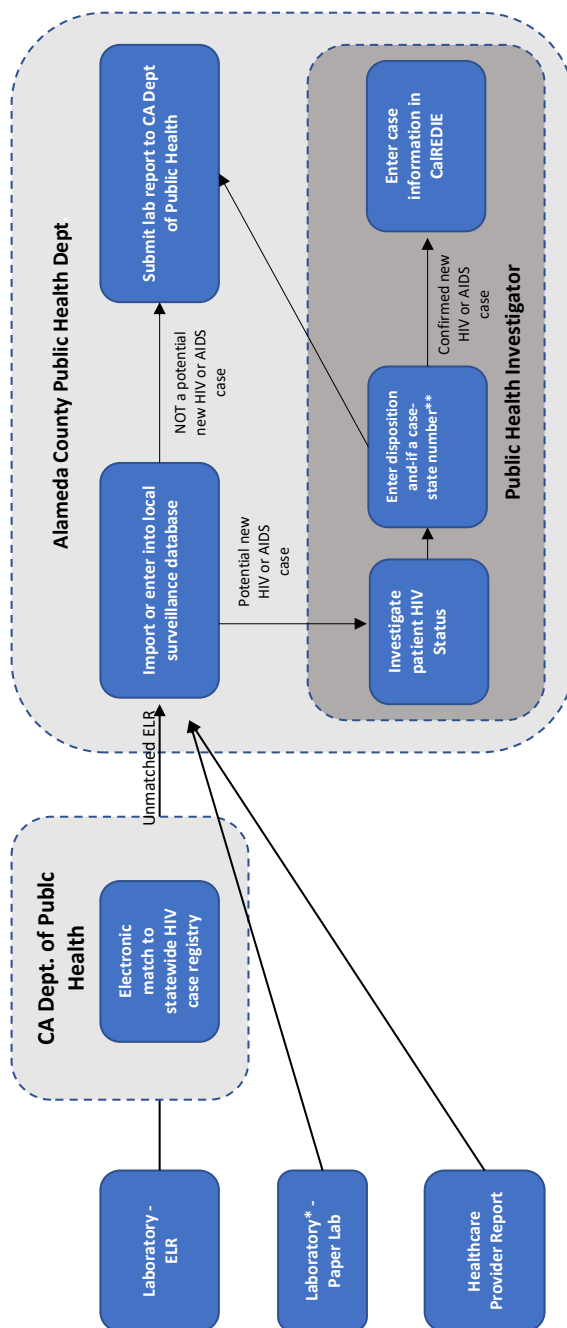


Figure A.2: The HIV Surveillance System in Alameda County



\*Not all laboratories submit ELR; some still submit paper test results to the local public health department.

\*\*The state number is used to uniquely identify HIV cases within the state.

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In memory of Jesus Altamirano, a dedicated and valued member of the HIV Surveillance team who passed away June 10th, 2019.





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