

HIV in Alameda County, 2013-2015

Alameda County
Public Health Department

HIV Epidemiology
& Surveillance Unit



HIV in Alameda County, 2013-2015

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HIV Epidemiology and Surveillance Unit

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Background

Overview of this Report

This report is based on human immunodeficiency virus (HIV) case surveillance in Alameda County. It summarizes data on HIV in three 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:** The second chapter of the report 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:** The final chapter of this report 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 HIV-infected persons 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 primarily is transmitted through unprotected sex, needle-sharing, 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. [3] 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. [6]

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 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”.

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

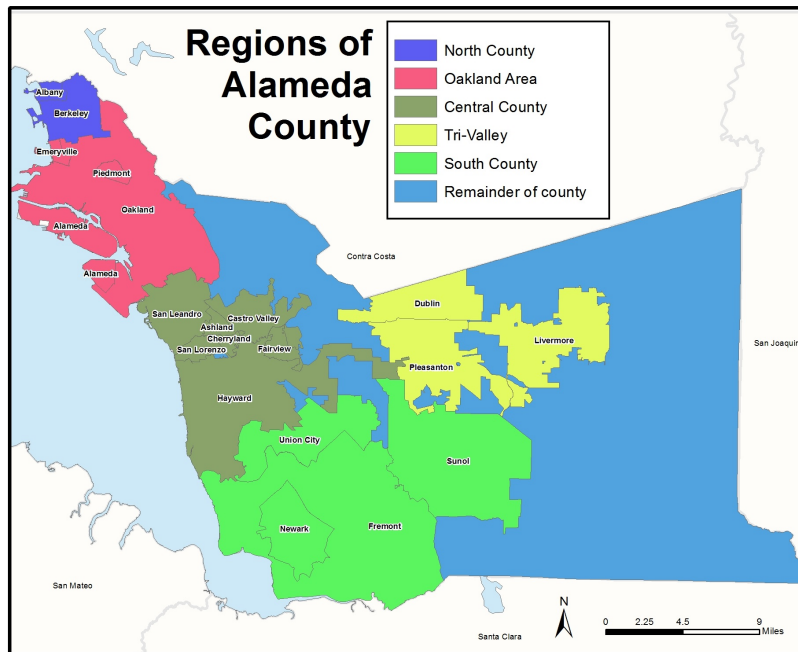
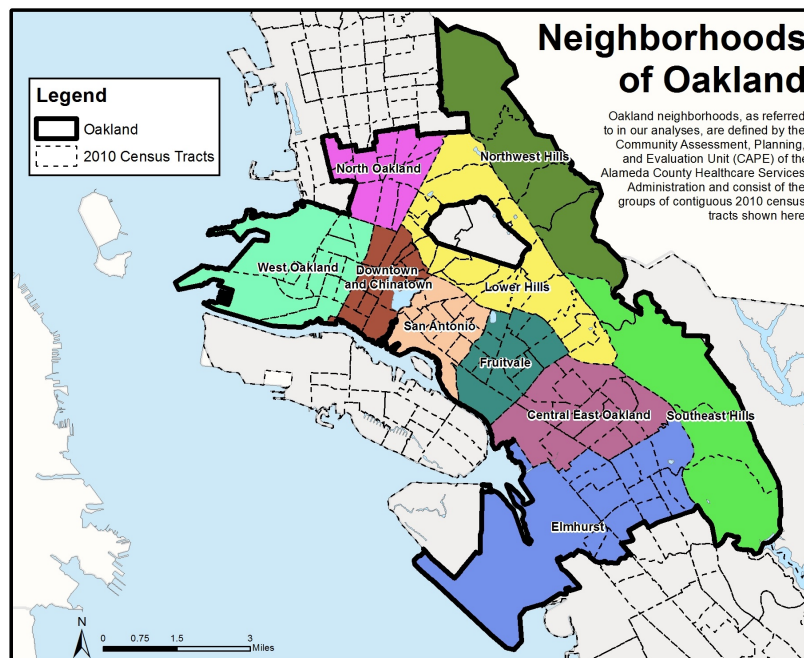


Figure 1.2: Neighborhoods in the City of Oakland



Other Conventions Used

Indicators 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, they are often 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 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 66).

Tables showing 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 can be found in the technical notes (see “Data Suppression Rules” 4 on page 66).

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

New Diagnoses

Estimating the incidence of new HIV infections is complex due to the variable time interval between when a person becomes infected and when their infection is diagnosed. However, due to reporting requirements, surveillance data reliably describe new HIV diagnoses. In 2015, there were an estimated 39,513 new diagnoses of HIV infection in the US for an overall diagnosis rate of 12.3 per 100,000 persons. Rates were highest among men as compared to women (24.4 vs. 5.4 diagnoses per 100,000), those aged 20-24 or 25-29 (31.2 and 33.4 per 100,000, respectively), African Americans and Latinos (44.3 and 16.4 per 100,000), and in the South and Northeast (16.8 and 11.6 per 100,000). Men who have sex with men (MSM), including those that inject drugs, accounted for 70% of all infections, heterosexual contact accounted for 24%, and other modes of transmission accounted for the remaining 6%. [4] In California, there were an estimated 5,002 new diagnoses for an overall statewide rate of 13.0 diagnoses per 100,000 in 2014. The epidemiology of HIV in Alameda County largely mirrored that in the nation, with the exception that heterosexual contact was believed to account for only about 18% of all new diagnoses among Alameda County residents. [1]

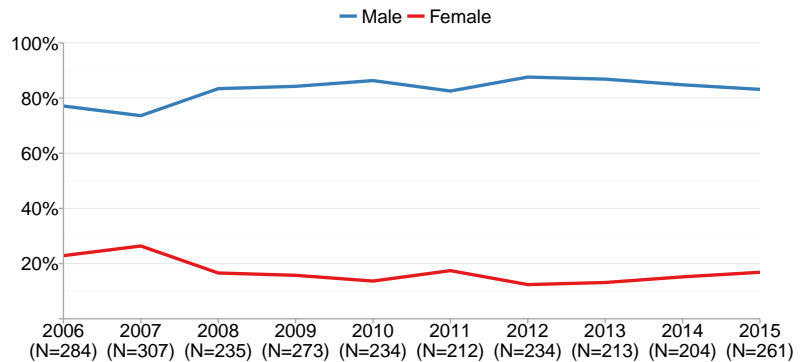
The sections below describe HIV in Alameda County by examining characteristics of new diagnoses, new diagnosis rates, and the timeliness of diagnoses by demographic characteristics. Data presented in this chapter are also summarized in Table 2.1. Detailed stratification of newly diagnosed cases in 2013-2015 by sex, age and race/ethnicity are provided in Tables 2.2 - 2.7 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 Alameda County, those newly diagnosed with HIV disease were overwhelmingly male. The proportion of new diagnoses among males increased steadily from 77.1% in 2006 to 87.6% in 2012 before decreasing over the subsequent 2 years to 83.1% in 2015.

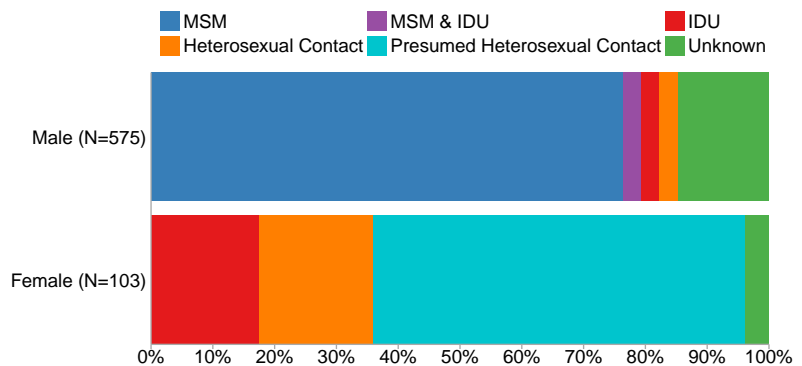
Figure 2.1: New Diagnoses by Sex, Alameda County, 2006-2015



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

Among the 575 men diagnosed with HIV from 2013 to 2015, the overwhelming majority were men who have sex with men (MSM). Nearly eight in ten newly diagnosed women were reported to or presumed to have become infected by a heterosexual sex partner who had a documented HIV risk factor; nearly all the remaining women were through injection drug use (IDU).

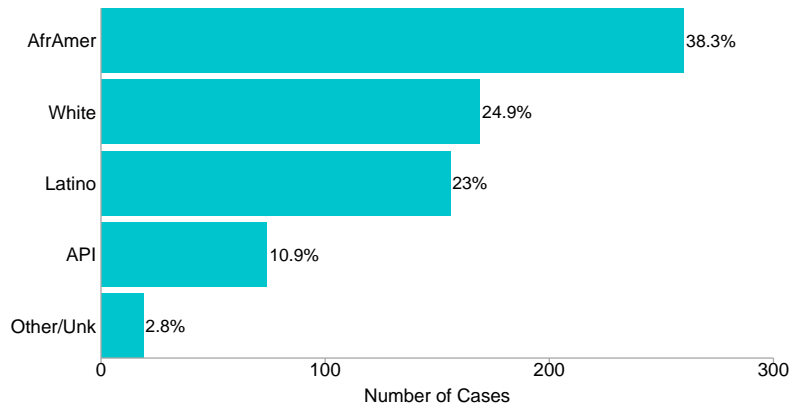
Figure 2.2: New Diagnoses by Sex and Mode of Transmission, Alameda County, 2013-2015



NOTES: “Sex” here refers to sex assigned at birth.

From 2013 to 2015, the largest proportion of new HIV diagnoses was among African Americans, who comprised about 40% of new diagnoses. Whites and Latinos each comprised nearly a quarter and Asians and Pacific Islanders 11% of new diagnoses.

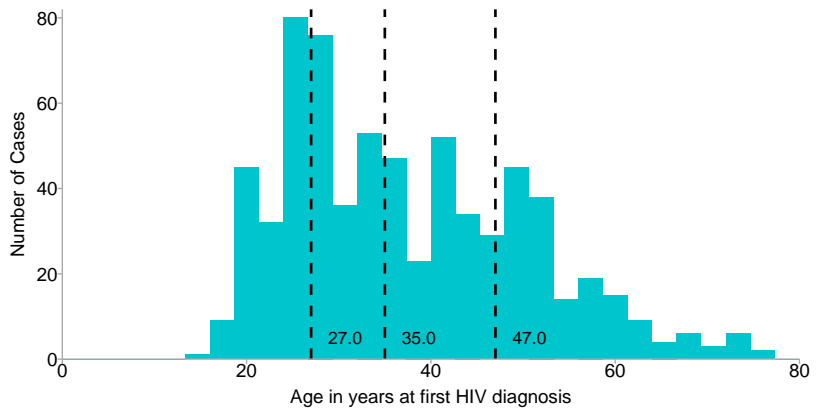
Figure 2.3: New Diagnoses by Race/Ethnicity, Alameda County, 2013-2015



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 2013 to 2015 was 35 years. Most diagnoses were among those in their twenties to forties.

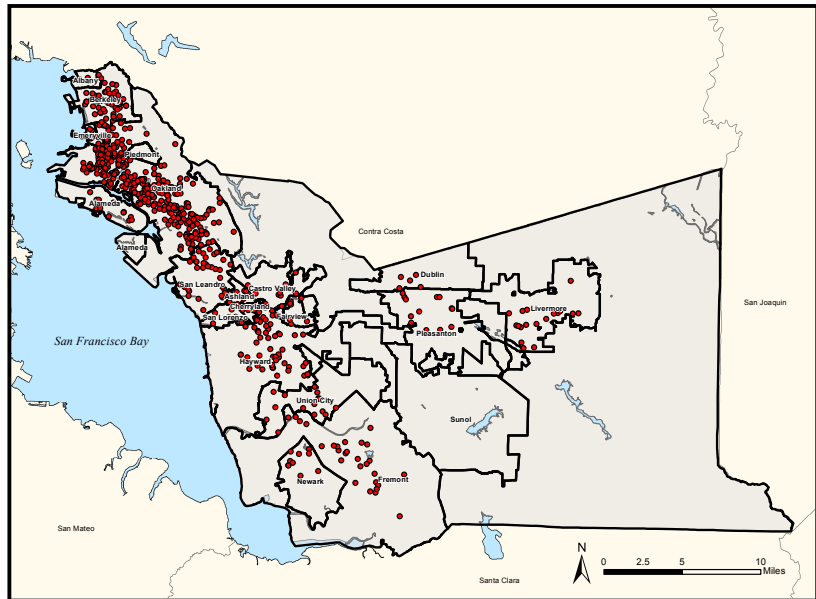
Figure 2.4: Age of New Diagnoses, Alameda County, 2013-2015



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

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

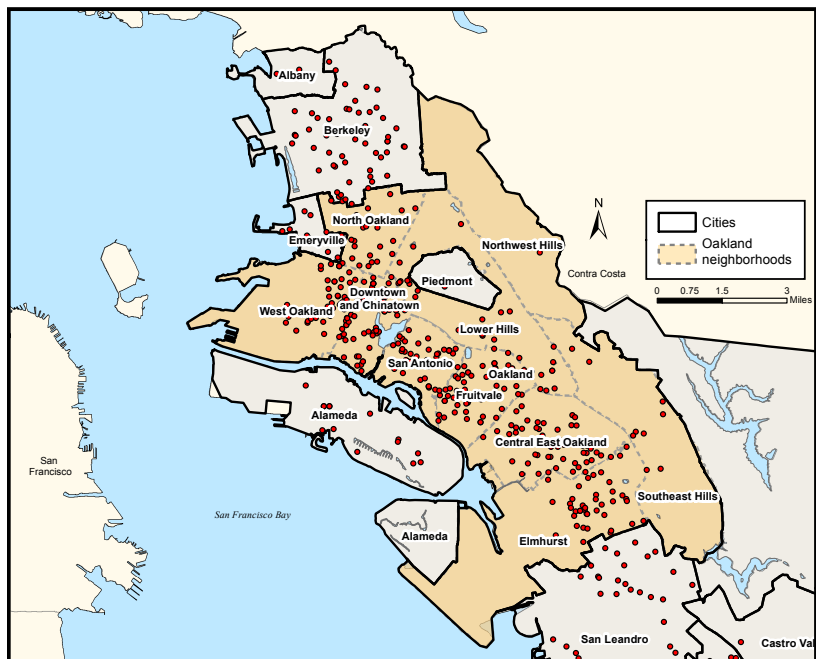
Figure 2.5: Geographic Distribution of New HIV Cases by Residence at HIV Diagnosis, Alameda County, 2013-2015



NOTE: N=628; an additional 22 diagnoses (3.38% 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 the rest of the city.

Figure 2.6: Residence at HIV Diagnosis, Oakland and Surrounding Area, 2013-2015



Diagnosis Rates

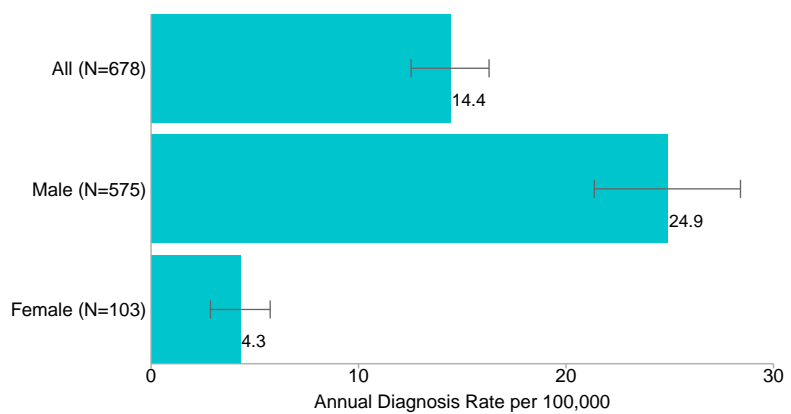
This section examines trends in HIV diagnosis rates. Diagnosis rates do not necessarily mean HIV incidence. Trends in diagnosis rates *may* reflect changes over time in HIV incidence, but may also reflect changes in HIV testing practices. For example, HIV incidence could decrease while HIV diagnosis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

Due to small numbers of diagnoses occurring in Alameda County in any given year, annual diagnosis rates may be statistically unstable. We performed statistical analyses to identify trends that are least likely to reflect *random* year-to-year variability and indicated significance in captions; *apparent* trends do not indicate statistical significance unless specified.

From 2013 to 2015, there were 678 new HIV diagnoses with an annual rate of 14.4 per 100,000 residents in Alameda County.

New diagnosis rates were nearly six times higher among males than among females during 2013-2015.

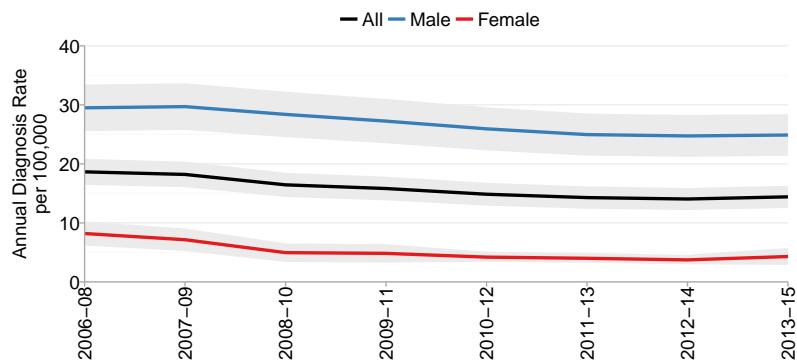
Figure 2.7: Rates of New Diagnoses by Sex, Alameda County, 2013-2015



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

HIV diagnosis rates declined steadily between 2006 and 2015, decreasing by an average 3.6% annually overall, 2.4% annually among males, and 9.2% annually among females. Rates have consistently been higher in men.

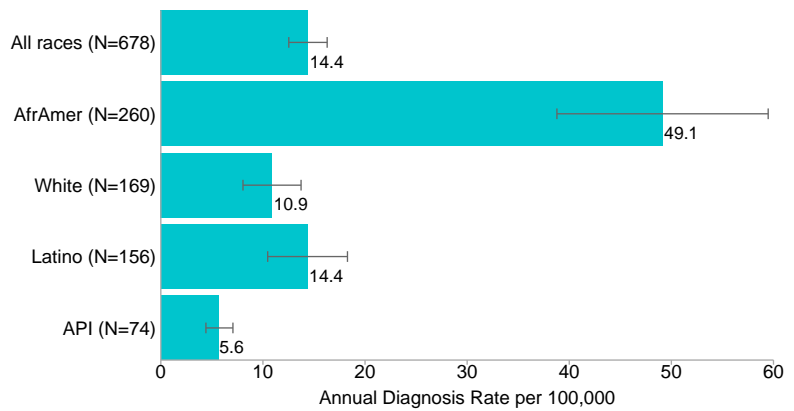
Figure 2.8: Trends in Rates of New Diagnoses by Sex, Alameda County, 2006-2015



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

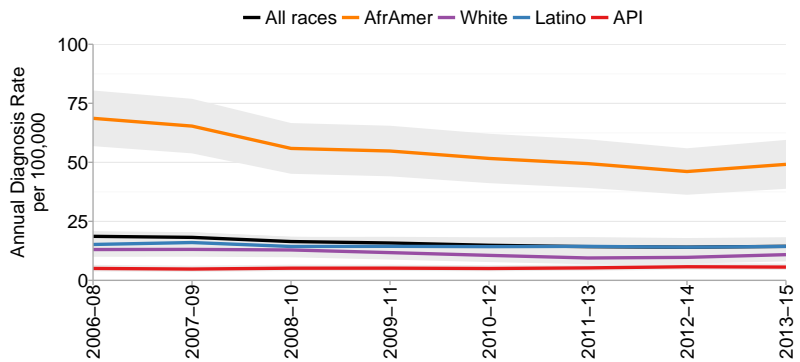
From 2013 to 2015, the highest diagnosis rate was among African Americans, which was more than three times higher than the second most impacted group, Latinos. The lowest diagnosis rate was seen among Asians and Pacific Islanders.

Figure 2.9: Rates of New Diagnoses by Race/Ethnicity, Alameda County, 2013-2015



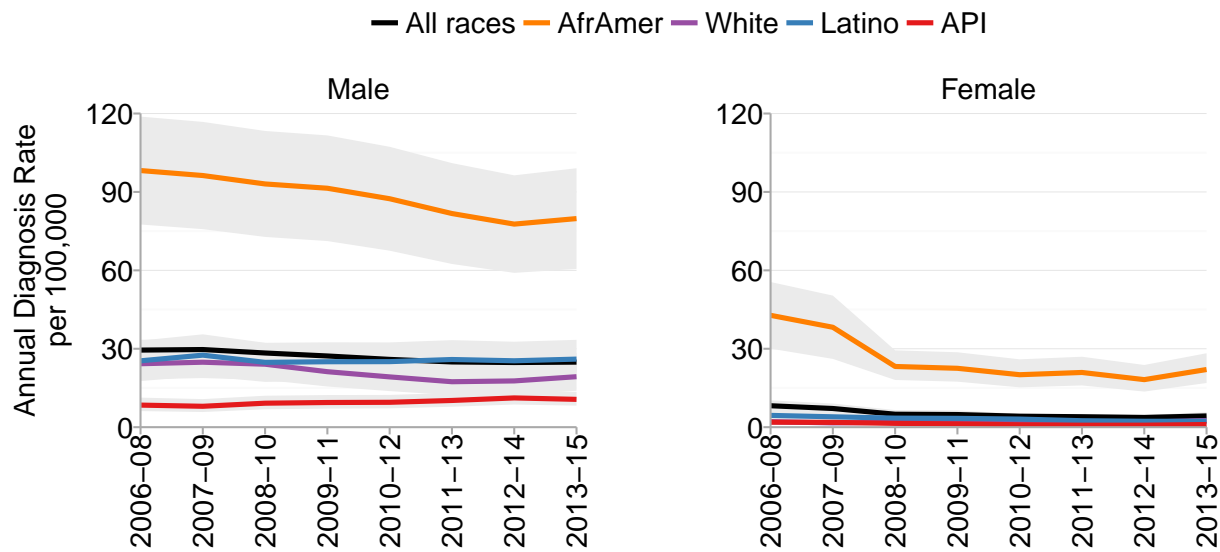
Diagnosis rates were relatively constant since 2006 in most racial/ethnic groups. The apparent increase in recent years was not a statistically significant trend. However, the average annual decline in diagnosis rate of 4.9% among African Americans was statistically significant.

Figure 2.10: Trends in Rates of New Diagnoses by Race/Ethnicity, Alameda County, 2006-2015



The overall decline in the county-wide diagnosis rate was driven largely by decreases in diagnoses among African Americans, and in particular, African American women, where rates decreased by 9.6% per year on average. Whereas there were 42.8 new diagnoses per 100,000 African American women in 2006-2008, that rate was more than halved by 2012-2014 to 18.2 new diagnoses per 100,000. Rates also declined among Latino women, by an average 7.8% per year. Among all males, the only significant trend was a decline among African Americans of 3.2% per year on average.

Figure 2.11: Trends in Rates of New Diagnoses by Race/Ethnicity and Sex, Alameda County, 2006-2015



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

From 2013 to 2015, new HIV diagnoses were most common among those in their twenties, thirties, and forties, with an average 33.3, 23.2, and 21.2 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 2.12: Rates of New Diagnoses by Age, Alameda County, 2013-2015

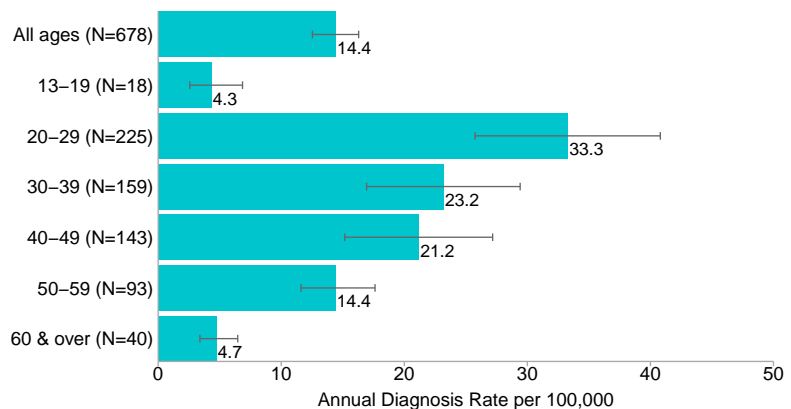
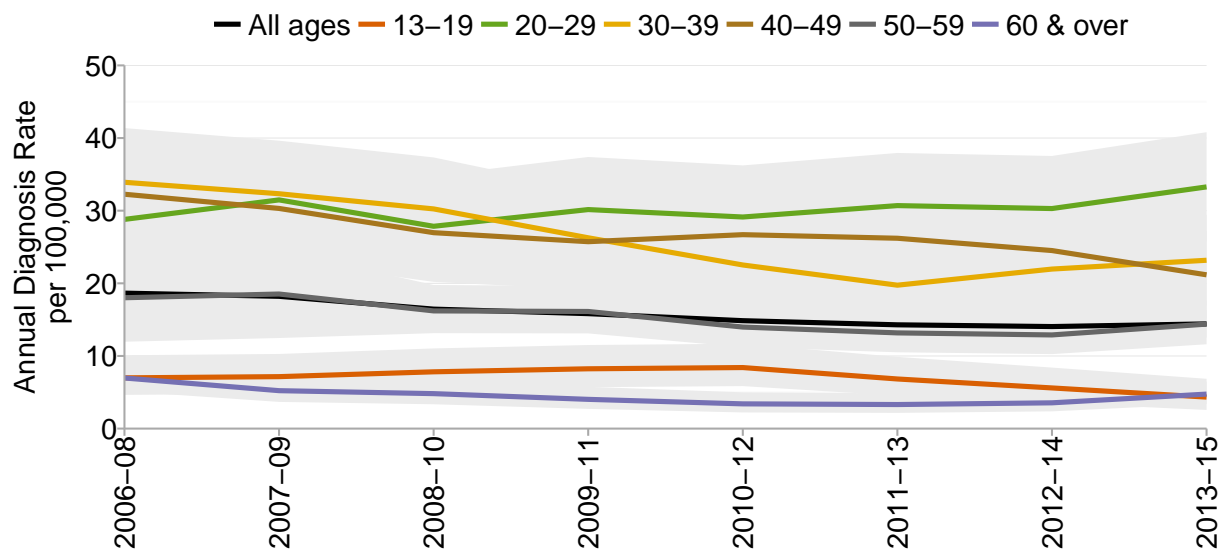


Figure 2.13: Trends in Rates of New Diagnoses by Age, Alameda County, 2006-2015



By age, diagnosis rates have decreased by an average of 5.9% per year among those 30-39 and 5.4% per year among those 40-49. While rates among those 60 & over decreased by an average of 17.1% per year through 2012, they have held steady since then. Rates in younger age groups appear to have largely held steady for the past decade.

By age and race, the only significant trends in diagnosis rates that were identified were among African Americans: 6.7% annual decline among those aged 30-39 and 50 & over and a 9.2% decline among those aged 40-49.

Stratified diagnosis rates by sex, age and race/ethnicity are provided in tables at the end of this chapter. The disparity in diagnosis rates between African Americans and whites was more pronounced among females compared to males. While African American males had 4.1 times the diagnosis rates compared to whites diagnosed in 2013-2015, African American females had 8.5 times the diagnosis rates of whites (Table 2.3).

Timeliness of Diagnosis

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

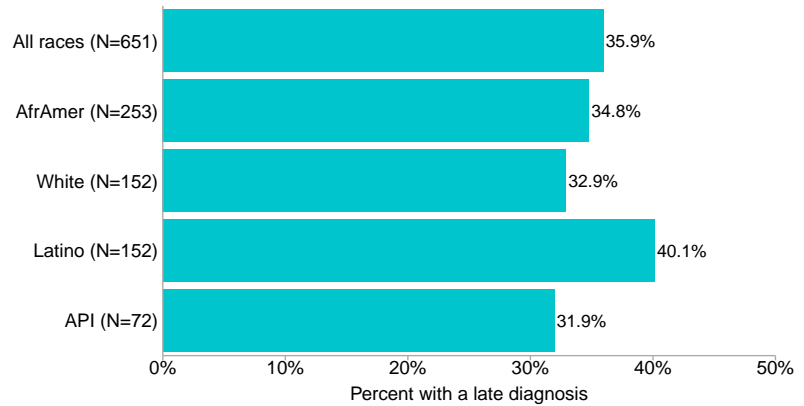
Late Diagnosis

A commonly-used indicator of late HIV diagnosis is the time to progression to AIDS (stage 3 infection). A diagnosis is considered to be 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 2012-2014 to allow a full year of follow-up from initial HIV diagnosis. Stratified analyses of late diagnosis by sex,

age, and race/ethnicity is 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.

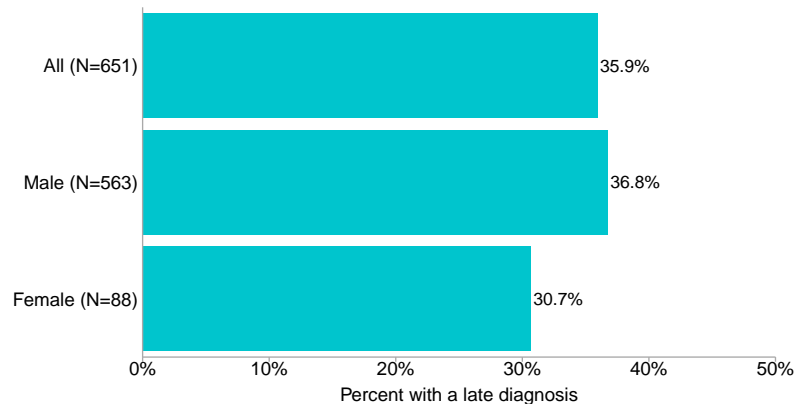
In Alameda County, 35.9% of new diagnoses between 2012 and 2014 were late. Although whites and Asians and Pacific Islanders appear to have the lowest rate and Latinos the highest, differences by race were not statistically significant.

Figure 2.14: Late Diagnosis by Race/Ethnicity, Alameda County, 2012-2014



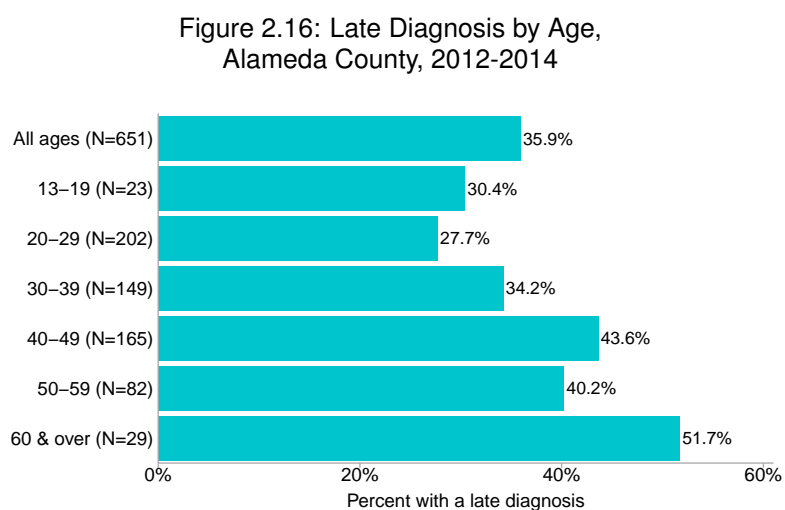
There was no statistical difference in late diagnosis by sex.

Figure 2.15: Late Diagnosis by Sex, Alameda County, 2012-2014



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

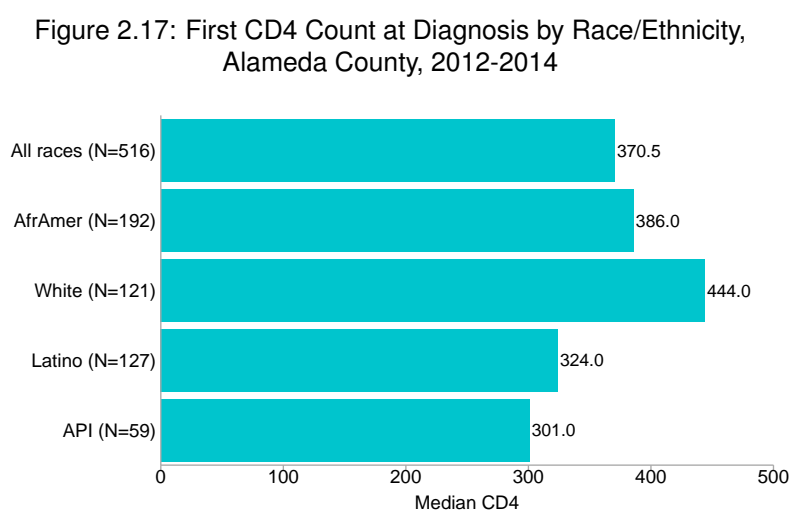
The proportion of late diagnoses generally increased with age: over half of HIV diagnoses among those aged 60 and over were late. Late diagnosis was less common among those aged 20 to 29—fewer than 3 in 10 were diagnosed late in this age group. Differences by age group and the trend of increasing rate of late diagnosis as age increased, were statistically significant.



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 the HIV virus. Anti-retroviral therapy (ART) allows the body to increase the CD4 count, but the longer a person goes without taking ART, which controls the level of HIV in their body, the lower their CD4 count will be and the more susceptible the person will be to opportunistic infections. Once a person's CD4 count falls below 200cells/mm³, the person is considered to have AIDS.¹

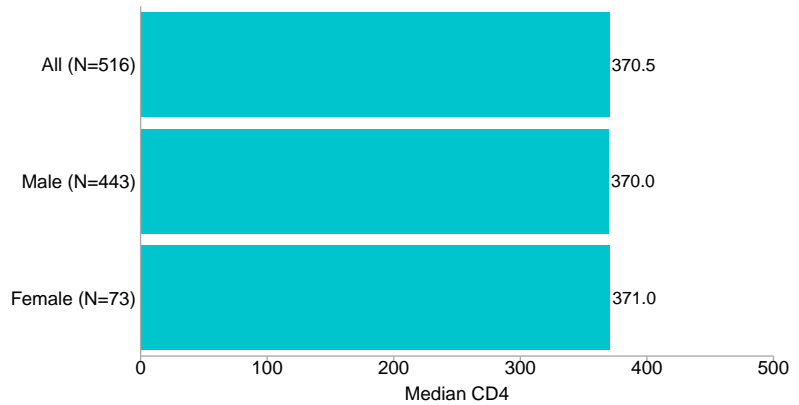
Among those diagnosed with HIV disease in 2012-2014 and for whom a CD4 count was conducted within 90 days, the median CD4 count at the time of diagnosis was 370.5 cells/mm³. Whites had the highest median CD4 count at diagnosis among all racial/ethnic groups and Asian Pacific Islanders and Latinos the lowest.



¹Note that the analyses presented in this section exclude 135 cases (20.7% of all diagnoses) with a first CD4 count more than 90 days after diagnosis.

Median CD4 within 90 days of diagnosis was comparable between males and females. This is consistent with the lack of difference in late diagnosis by sex.

Figure 2.18: First CD4 Count at Diagnosis by Sex, Alameda County, 2012-2014



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

Those aged 20-29 had a substantially higher median CD4 count at diagnosis than any other age group. Median CD4 count was generally lower in successively older age groups, with the possible exception of those aged 50-59. 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 2.19: First CD4 Count at Diagnosis by Age, Alameda County, 2012-2014

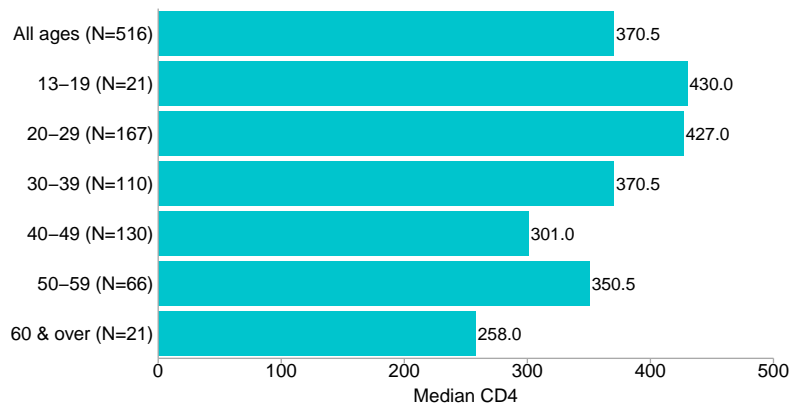


Table 2.1: New HIV Diagnoses, Alameda County, 2013-2015

NOTE: This table spans multiple pages.

| Characteristic | Category | Average Annual Count | Percent | Average Annual Diagnosis Rate per 100,000 | 95% Confidence Interval |
|-----------------------------|-----------|----------------------|---------|---|-------------------------|
| All Diagnoses | -- | 226.0 | 100.0% | 14.4 | 12.5 - 16.3 |
| Sex ^a | Male | 191.7 | 84.8% | 24.9 | 21.4 - 28.4 |
| | Female | 34.3 | 15.2% | 4.3 | 2.9 - 5.7 |
| Race/Ethnicity ^b | AfrAmer | 86.7 | 38.3% | 49.1 | 38.8 - 59.5 |
| | White | 56.3 | 24.9% | 10.9 | 8.0 - 13.7 |
| | Latino | 52.0 | 23.0% | 14.4 | 10.5 - 18.3 |
| | API | 24.7 | 10.9% | 5.6 | 4.4 - 7.1 |
| | Other/Unk | 6.3 | 2.8% | -- | -- |
| Age (years) ^c | 0-12 | 0.0 | 0.0% | ** | ** |
| | 13-19 | 6.0 | 2.7% | 4.3 | 2.6 - 6.9 |
| | 20-29 | 75.0 | 33.2% | 33.3 | 25.7 - 40.8 |
| | 30-39 | 53.0 | 23.5% | 23.2 | 16.9 - 29.4 |
| | 40-49 | 47.7 | 21.1% | 21.2 | 15.2 - 27.2 |
| | 50-59 | 31.0 | 13.7% | 14.4 | 11.6 - 17.6 |
| | 60 & over | 13.3 | 5.9% | 4.7 | 3.4 - 6.5 |

Table 2.1: New HIV Diagnoses, Alameda County, 2013-2015 (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 | 20.3 | 9.0% | 15.1 | 11.5 - 19.3 |
| | Oakland Area | 131.0 | 58.0% | 26.2 | 21.7 - 30.7 |
| | Central County | 43.0 | 19.0% | 11.6 | 8.1 - 15.0 |
| | South County | 18.3 | 8.1% | 5.4 | 4.1 - 7.0 |
| | Tri-Valley | 12.3 | 5.5% | 5.8 | 4.1 - 8.0 |
| | Remainder of county | * | * | * | * |
| | Unknown | * | * | -- | -- |

Source: Alameda County eHARS, 2016 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: HIV Diagnosis Rates by Sex and Age, Alameda County, 2013-2015

| Sex ^a | Age | Average Annual Count | Percent | Average Annual Diagnosis Rate per 100,000 | 95% Confidence Interval |
|------------------|-----------|----------------------|---------------------|---|-------------------------|
| All | All ages | 226.0 | 100.0% ^H | 14.4 | 12.5 - 16.3 |
| | 0-4 | 0.0 | 0.0% | ** | ** |
| | 5-12 | 0.0 | 0.0% | ** | ** |
| | 13-19 | 6.0 | 2.7% ^H | 4.3 | 2.6 - 6.9 |
| | 20-24 | 32.3 | 14.3% ^H | 28.3 | 23.0 - 34.6 |
| | 25-29 | 42.7 | 18.9% ^H | 38.3 | 26.8 - 49.9 |
| | 30-39 | 53.0 | 23.5% ^H | 23.2 | 16.9 - 29.4 |
| | 40-49 | 47.7 | 21.1% ^H | 21.2 | 15.2 - 27.2 |
| | 50 & over | 44.3 | 19.6% ^H | 8.9 | 6.3 - 11.6 |
| Male | All ages | 191.7 | 84.8% ^H | 24.9 | 21.4 - 28.4 |
| | 0-4 | * | * | * | * |
| | 5-12 | 0.0 | 0.0% | ** | ** |
| | 13-19 | * | * | * | * |
| | 20-24 | 29.0 | 12.8% ^H | 50.1 | 40.1 - 61.8 |
| | 25-29 | 39.7 | 17.6% ^H | 70.9 | 48.8 - 92.9 |
| | 30-39 | 45.3 | 20.1% ^H | 40.3 | 28.6 - 52.1 |
| | 40-49 | 40.0 | 17.7% ^H | 35.9 | 24.8 - 47.0 |
| | 50 & over | 33.0 | 14.6% ^H | 14.3 | 11.6 - 17.4 |
| Female | All ages | 34.3 | 15.2% ^H | 4.3 | 2.9 - 5.7 |
| | 0-4 | * | * | * | * |
| | 5-12 | 0.0 | 0.0% | ** | ** |
| | 13-19 | * | * | * | * |
| | 20-24 | 3.3 | 1.5% ^H | ** | ** |
| | 25-29 | 3.0 | 1.3% ^H | ** | ** |
| | 30-39 | 7.7 | 3.4% ^H | 6.6 | 4.2 - 9.9 |
| | 40-49 | 7.7 | 3.4% ^H | 6.7 | 4.3 - 10.1 |
| | 50 & over | 11.3 | 5.0% ^H | 4.3 | 3.0 - 6.0 |

Source: Alameda County eHARS, 2016 Q2

[a] Refers to sex assigned at birth

[*] Some cells suppressed to protect confidentiality.

[**] Unstable estimates not shown.

Table 2.3: HIV Diagnosis Rates by Sex and Race/Ethnicity, Alameda County, 2013-2015

| Sex ^a | Race/ Ethnicity ^b | Average Annual Count | Percent | Average Annual Diagnosis Rate per 100,000 | 95% Confidence Interval |
|------------------|---------------------------------|----------------------------|---------|---|-------------------------------|
| All | All races | 226.0 | 100.0% | 14.4 | 12.5 - 16.3 |
| | AfrAmer | 86.7 | 38.3% | 49.1 | 38.8 - 59.5 |
| | White | 56.3 | 24.9% | 10.9 | 8.0 - 13.7 |
| | Latino | 52.0 | 23.0% | 14.4 | 10.5 - 18.3 |
| | API | 24.7 | 10.9% | 5.6 | 4.4 - 7.1 |
| | Other/Unk | 6.3 | 2.8% | -- | -- |
| | Male | All races | 191.7 | 84.8% | 24.9 |
| AfrAmer | | 66.0 | 29.2% | 79.8 | 60.6 - 99.1 |
| White | | 49.7 | 22.0% | 19.3 | 13.9 - 24.7 |
| Latino | | 48.0 | 21.2% | 26.0 | 18.7 - 33.4 |
| API | | * | * | * | * |
| Other/Unk | | * | * | -- | -- |
| Female | | All races | 34.3 | 15.2% | 4.3 |
| | AfrAmer | 20.7 | 9.1% | 22.1 | 16.9 - 28.3 |
| | White | 6.7 | 2.9% | 2.6 | 1.6 - 4.0 |
| | Latino | 4.0 | 1.8% | 2.3 | 1.2 - 3.9 |
| | API | * | * | * | * |
| | Other/Unk | * | * | -- | -- |

Source: Alameda County eHARS, 2016 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.

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

Table 2.4: HIV Diagnosis Rates by Race/Ethnicity and Age, Alameda County, 2013-2015

NOTE: This table spans multiple pages.

| Race/ Ethnicity ^a | Age | Average Annual Count | Percent | Average Annual Diagnosis Rate per 100,000 | 95% Confidence Interval |
|---------------------------------|-----------|----------------------------|----------|---|-------------------------------|
| All races | All ages | 226.0 | 100.0% ¶ | 14.4 | 12.5 - 16.3 |
| | 0-4 | 0.0 | 0.0% | ** | ** |
| | 5-12 | 0.0 | 0.0% | ** | ** |
| | 13-19 | 6.0 | 2.7% ¶ | 4.3 | 2.6 - 6.9 |
| | 20-24 | 32.3 | 14.3% H | 28.3 | 23.0 - 34.6 |
| | 25-29 | 42.7 | 18.9% H | 38.3 | 26.8 - 49.9 |
| | 30-39 | 53.0 | 23.5% H | 23.2 | 16.9 - 29.4 |
| | 40-49 | 47.7 | 21.1% H | 21.2 | 15.2 - 27.2 |
| | 50 & over | 44.3 | 19.6% ¶ | 8.9 | 6.3 - 11.6 |
| | AfrAmer | All ages | 86.7 | 38.3% H | 49.1 |
| 0-4 | | 0.0 | 0.0% | ** | ** |
| 5-12 | | 0.0 | 0.0% | ** | ** |
| 13-19 | | 4.0 | 1.8% H | 23.5 | 12.1 - 41.0 |
| 20-24 | | 15.3 | 6.8% H | 123.4 | 90.3 - 164.6 |
| 25-29 | | 16.7 | 7.4% H | 147.4 | 109.4 - 194.4 |
| 30-39 | | 18.7 | 8.3% H | 80.7 | 60.9 - 104.7 |
| 40-49 | | 13.3 | 5.9% H | 51.7 | 36.9 - 70.4 |
| 50 & over | | 18.7 | 8.3% H | 31.1 | 23.5 - 40.4 |
| White | All ages | 56.3 | 24.9% H | 10.9 | 8.0 - 13.7 |
| | 0-4 | * | * | * | * |
| | 5-12 | 0.0 | 0.0% | ** | ** |
| | 13-19 | * | * | * | * |
| | 20-24 | 5.3 | 2.4% H | 17.1 | 9.8 - 27.8 |
| | 25-29 | 9.0 | 4.0% H | 28.2 | 18.6 - 41.0 |
| | 30-39 | 11.3 | 5.0% H | 17.8 | 12.3 - 24.9 |
| | 40-49 | 15.7 | 6.9% H | 20.2 | 14.9 - 26.9 |
| | 50 & over | 14.7 | 6.5% H | 6.5 | 4.7 - 8.7 |

Table 2.4: HIV Diagnosis Rates by Race/Ethnicity and Age, Alameda County, 2013-2015 (continued)

NOTE: This table spans multiple pages.

| Race/ Ethnicity ^a | Age | Average Annual Count | Percent | Average Annual Diagnosis Rate per 100,000 | 95% Confidence Interval |
|---------------------------------|-----------|----------------------------|--------------------|---|-------------------------------|
| Latino | All ages | 52.0 | 23.0% ^H | 14.4 | 10.5 - 18.3 |
| | 0-4 | * | * | * | * |
| | 5-12 | 0.0 | 0.0% | ** | ** |
| | 13-19 | * | * | * | * |
| | 20-24 | 6.7 | 2.9% ^H | 20.5 | 12.5 - 31.7 |
| | 25-29 | 12.3 | 5.5% ^H | 38.3 | 27.0 - 52.8 |
| | 30-39 | 13.0 | 5.8% ^H | 21.1 | 15.0 - 28.8 |
| | 40-49 | 12.7 | 5.6% ^H | 27.1 | 19.2 - 37.2 |
| | 50 & over | 6.0 | 2.7% ^H | 9.6 | 5.7 - 15.2 |
| API | All ages | 24.7 | 10.9% ^I | 5.6 | 4.4 - 7.1 |
| | 0-4 | 0.0 | 0.0% | ** | ** |
| | 5-12 | 0.0 | 0.0% | ** | ** |
| | 13-19 | * | * | * | * |
| | 20-24 | * | * | * | * |
| | 25-29 | * | * | * | * |
| | 30-39 | * | * | * | * |
| | 40-49 | * | * | * | * |
| | 50 & over | 3.0 | 1.3% ^I | ** | ** |

Table 2.4: HIV Diagnosis Rates by Race/Ethnicity and Age, Alameda County, 2013-2015 (continued)

NOTE: This table spans multiple pages.

| Race/ Ethnicity ^a | Age | Average Annual Count | Percent | Average Annual Diagnosis Rate per 100,000 | 95% Confidence Interval |
|---------------------------------|-----------|----------------------------|---------|---|-------------------------------|
| Other/Unk | All ages | 6.3 | 2.8% | -- | -- |
| | 0-4 | 0.0 | 0.0% | -- | -- |
| | 5-12 | 0.0 | 0.0% | -- | -- |
| | 13-19 | 0.0 | 0.0% | -- | -- |
| | 20-24 | * | * | -- | -- |
| | 25-29 | * | * | -- | -- |
| | 30-39 | * | * | -- | -- |
| | 40-49 | * | * | -- | -- |
| | 50 & over | 2.0 | 0.9% | -- | -- |

Source: Alameda County eHARS, 2016 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 2.5: Late Diagnosis by Sex and Age, Alameda County, 2012-2014

| Sex ^a | Age at Diagnosis | All Diagnoses | | late_dx | | |
|------------------|------------------|----------------------|----------------|----------------------|-------------|-------|
| | | Average Annual Count | Column Percent | Average Annual Count | Row Percent | |
| All | All ages | 217.0 | 100.0% | 78.0 | ⊢ | 35.9% |
| | 5-12 | * | * | 0.0 | | * |
| | 13-19 | * | * | 2.3 | | * |
| | 20-24 | 31.3 | 14.4% | 7.3 | ⊢ | 23.4% |
| | 25-29 | 36.0 | 16.6% | 11.3 | ⊢ | 31.5% |
| | 30-39 | 49.7 | 22.9% | 17.0 | ⊢ | 34.2% |
| | 40-49 | 55.0 | 25.3% | 24.0 | ⊢ | 43.6% |
| | 50 & over | 37.0 | 17.1% | 16.0 | ⊢ | 43.2% |
| Male | All ages | 187.7 | 86.5% | 69.0 | ⊢ | 36.8% |
| | 5-12 | * | * | 0.0 | | * |
| | 13-19 | * | * | 2.0 | | * |
| | 20-24 | 29.7 | 13.7% | 7.0 | ⊢ | 23.6% |
| | 25-29 | 32.3 | 14.9% | 10.3 | ⊢ | 32.0% |
| | 30-39 | 43.3 | 20.0% | 15.3 | ⊢ | 35.4% |
| | 40-49 | 47.7 | 22.0% | 21.0 | ⊢ | 44.1% |
| | 50 & over | 28.7 | 13.2% | 13.3 | ⊢ | ** |
| Female | All ages | 29.3 | 13.5% | 9.0 | ⊢ | 30.7% |
| | 5-12 | 0.0 | 0.0% | 0.0 | | ** |
| | 13-19 | 2.0 | 0.9% | 0.3 | ⊢ | ** |
| | 20-24 | 1.7 | 0.8% | 0.3 | ⊢ | ** |
| | 25-29 | 3.7 | 1.7% | 1.0 | ⊢ | ** |
| | 30-39 | 6.3 | 2.9% | 1.7 | ⊢ | ** |
| | 40-49 | 7.3 | 3.4% | 3.0 | ⊢ | ** |
| | 50 & over | 8.3 | 3.8% | 2.7 | ⊢ | ** |

Source: Alameda County eHARS, 2016 Q2

[a] Refers to sex assigned at birth

[*] Some cells suppressed to protect confidentiality.

[**] Unstable estimates not shown.

Table 2.6: Late Diagnosis by Sex and Race/Ethnicity, Alameda County, 2012-2014

| Sex ^a | Race/ Ethnicity ^b | All Diagnoses | | late_dx | |
|------------------|---------------------------------|----------------------------|----------------|----------------------------|-------------|
| | | Average Annual Count | Column Percent | Average Annual Count | Row Percent |
| All | All races | 217.0 | 100.0% | 78.0 | 35.9% |
| | AfrAmer | 84.3 | 38.9% | 29.3 | 34.8% |
| | White | 50.7 | 23.3% | 16.7 | 32.9% |
| | Latino | 50.7 | 23.3% | 20.3 | 40.1% |
| | API | 24.0 | 11.1% | 7.7 | ** |
| | Other/Unk | 7.3 | 3.4% | 4.0 | ** |
| Male | All races | 187.7 | 86.5% | 69.0 | 36.8% |
| | AfrAmer | 66.7 | 30.7% | 24.0 | 36.0% |
| | White | 45.7 | 21.0% | 15.3 | 33.6% |
| | Latino | 46.7 | 21.5% | 19.0 | 40.7% |
| | API | * | * | 7.7 | * |
| | Other/Unk | * | * | 3.0 | * |
| Female | All races | 29.3 | 13.5% | 9.0 | 30.7% |
| | AfrAmer | 17.7 | 8.1% | 5.3 | ** |
| | White | 5.0 | 2.3% | 1.3 | ** |
| | Latino | 4.0 | 1.8% | 1.3 | ** |
| | API | * | * | 0.0 | * |
| | Other/Unk | * | * | 1.0 | * |

Source: Alameda County eHARS, 2016 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 2.7: Late Diagnosis by Race/Ethnicity and Age, Alameda County, 2012-2014

NOTE: This table spans multiple pages.

| Race/ Ethnicity ^a | Age at Diagnosis | All Diagnoses | | late_dx | | |
|---------------------------------|---------------------|----------------------------|----------------|----------------------------|-------------|-------|
| | | Average Annual Count | Column Percent | Average Annual Count | Row Percent | |
| All races | All ages | 217.0 | 100.0% | 78.0 | H | 35.9% |
| | 5-12 | * | * | 0.0 | | * |
| | 13-19 | * | * | 2.3 | | * |
| | 20-24 | 31.3 | 14.4% | 7.3 | HH | 23.4% |
| | 25-29 | 36.0 | 16.6% | 11.3 | HH | 31.5% |
| | 30-39 | 49.7 | 22.9% | 17.0 | HH | 34.2% |
| | 40-49 | 55.0 | 25.3% | 24.0 | HH | 43.6% |
| | 50 & over | 37.0 | 17.1% | 16.0 | HH | 43.2% |
| AfrAmer | All ages | 84.3 | 38.9% | 29.3 | HH | 34.8% |
| | 5-12 | * | * | 0.0 | | * |
| | 13-19 | * | * | 1.0 | | * |
| | 20-24 | 14.3 | 6.6% | 3.0 | HHH | ** |
| | 25-29 | 14.0 | 6.5% | 4.7 | HHH | ** |
| | 30-39 | 18.7 | 8.6% | 5.3 | HHH | ** |
| | 40-49 | 17.7 | 8.1% | 9.7 | HHH | ** |
| | 50 & over | 15.0 | 6.9% | 5.7 | HHH | ** |
| White | All ages | 50.7 | 23.3% | 16.7 | HH | 32.9% |
| | 5-12 | * | * | 0.0 | | * |
| | 13-19 | * | * | 0.0 | | * |
| | 20-24 | 4.7 | 2.2% | 1.0 | HHHH | ** |
| | 25-29 | 6.7 | 3.1% | 1.0 | HHH | ** |
| | 30-39 | 9.0 | 4.1% | 4.0 | HHH | ** |
| | 40-49 | 16.7 | 7.7% | 5.3 | HHH | ** |
| | 50 & over | 13.3 | 6.1% | 5.3 | HHH | ** |

Table 2.7: Late Diagnosis by Race/Ethnicity and Age, Alameda County, 2012-2014 (continued)

NOTE: This table spans multiple pages.

| Race/ Ethnicity ^a | Age at Diagnosis | All Diagnoses | | late_dx | |
|---------------------------------|---------------------|----------------------------|----------------|----------------------------|-------------|
| | | Average Annual Count | Column Percent | Average Annual Count | Row Percent |
| Latino | All ages | 50.7 | 23.3% | 20.3 | 40.1% |
| | 5-12 | 0.0 | 0.0% | 0.0 | ** |
| | 13-19 | 2.0 | 0.9% | 0.7 | ** |
| | 20-24 | 6.7 | 3.1% | 2.0 | ** |
| | 25-29 | 11.0 | 5.1% | 3.7 | ** |
| | 30-39 | 12.7 | 5.8% | 4.0 | ** |
| | 40-49 | 13.0 | 6.0% | 6.7 | ** |
| | 50 & over | 5.3 | 2.5% | 3.3 | ** |
| API | All ages | 24.0 | 11.1% | 7.7 | ** |
| | 5-12 | 0.0 | 0.0% | 0.0 | ** |
| | 13-19 | * | * | 0.3 | * |
| | 20-24 | * | * | 1.0 | * |
| | 25-29 | * | * | 1.3 | * |
| | 30-39 | 7.3 | 3.4% | 2.7 | ** |
| | 40-49 | * | * | 1.7 | * |
| | 50 & over | 1.7 | 0.8% | 0.7 | ** |
| Other/Unk | All ages | 7.3 | 3.4% | 4.0 | ** |
| | 5-12 | 0.0 | 0.0% | 0.0 | ** |
| | 13-19 | * | * | 0.3 | * |
| | 20-24 | * | * | 0.3 | * |
| | 25-29 | * | * | 0.7 | * |
| | 30-39 | 2.0 | 0.9% | 1.0 | ** |
| | 40-49 | * | * | 0.7 | * |
| | 50 & over | 1.7 | 0.8% | 1.0 | ** |

Source: Alameda County eHARS, 2016 Q2

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

[*] Some cells suppressed to protect confidentiality.

[**] Unstable estimates not shown.

People Living with HIV

In the United States, there were an estimated 955,081 PLHIV at the end of 2014. Prevalence was highest among men as compared to women (555.3 vs. 169.2 PLHIV per 100,000 population), those aged 45-49 and 50-54 (729.6 and 748.8 per 100,000 respectively), African Americans and Latinos (1,025.2 and 358.3 per 100,000 respectively), and in the northeast and south (419.5 and 352.5 per 100,000 respectively). That same year, California had an estimated 126,241 PLHIV for an overall prevalence of 327.5 per 100,000 population. HIV prevalence in women in California (77.3 per 100,000) was half that of women nationally. [4]

This chapter examines prevalence, or the proportion of people in Alameda County with HIV infection, reflecting the overall burden of HIV in the population. Data presented do not include those with undiagnosed infection but include all diagnosed PLHIV, regardless of the stage of their infection, and include newly diagnosed cases.¹ 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 at the end of this chapter.

¹PLHIV counts exclude those that only moved to Alameda County after their diagnosis and have never seen an HIV healthcare provider in Alameda County. The latter limitation is due to the criteria the California Department of Public Health (CDPH) uses to determine the subset of the statewide HIV database to which local health departments have access ([1] resided in the county at first HIV diagnosis or at progression to Stage 3 infection (AIDS), or [2] have ever had an HIV-related laboratory result ordered by a healthcare provider in the county). So, for example, the 5,801 persons we know of and believe to have been living with HIV in Alameda County at year-end 2014 are not all but rather 94.7% of the 6,125 PLHIV CDPH knows of and believes to have been living here at that time (based on data reported to them through December 31, 2015). The discrepancy in overall PLHIV counts may be offset by the fact that some of the persons believed to have been living in the county may actually have moved out of the county as surveillance data do not reflect a person's residence at all times with perfect accuracy.

Characteristics of PLHIV

At the end of 2015, there were an estimated 5,897 PLHIV in Alameda County.

Similar to the distribution of sex among new diagnoses of HIV, those living with HIV in Alameda County at year-end 2015 were predominantly male (82.4%).

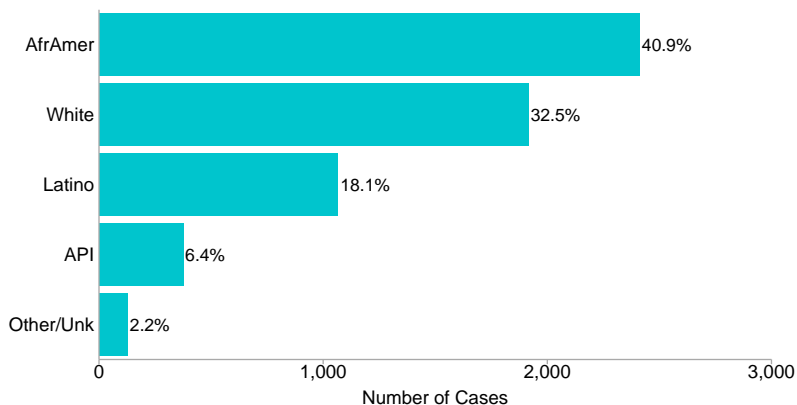
Figure 3.1: PLHIV by Sex, Alameda County, year-end 2015



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

Approximately 41% of PLHIV in Alameda County were African American and 32.5% were white. Latinos and Asians and Pacific Islanders each comprised a smaller proportion of PLHIV.

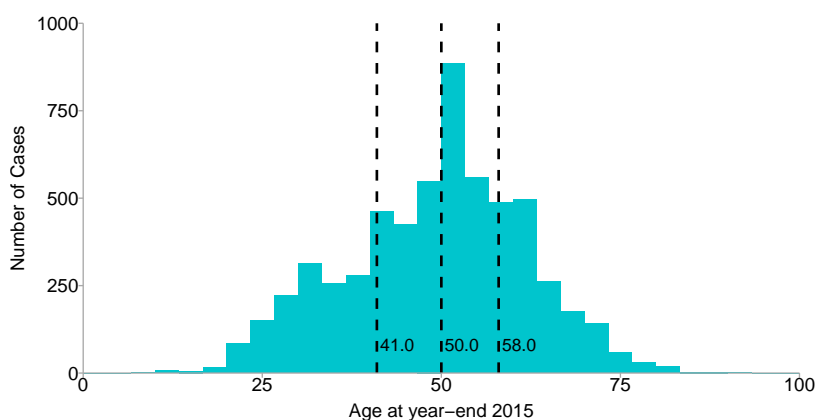
Figure 3.2: PLHIV by Race/Ethnicity, Alameda County, year-end 2015



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

Half of PLHIV were in their fifties or older. Only about a quarter were in their thirties or younger at year-end 2015.

Figure 3.3: Age of PLHIV, Alameda County, year-end 2015



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

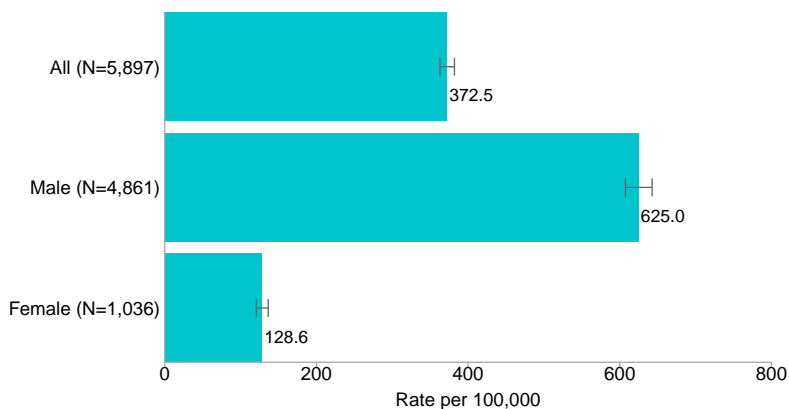
Race/ethnic disparities in numbers of PLHIV were more apparent among women compared to men—while there were approximately equal proportions of African Americans and whites among males, there were nearly four times as many African American women compared to white women (Table 3.3).

Prevalence Rates

At the end of 2015 there were 5,897 people living with HIV in Alameda County for a prevalence rate of 372.5 per 100,000 or 0.4% of residents.

HIV prevalence was about five times higher among males as compared to females at year-end 2015.

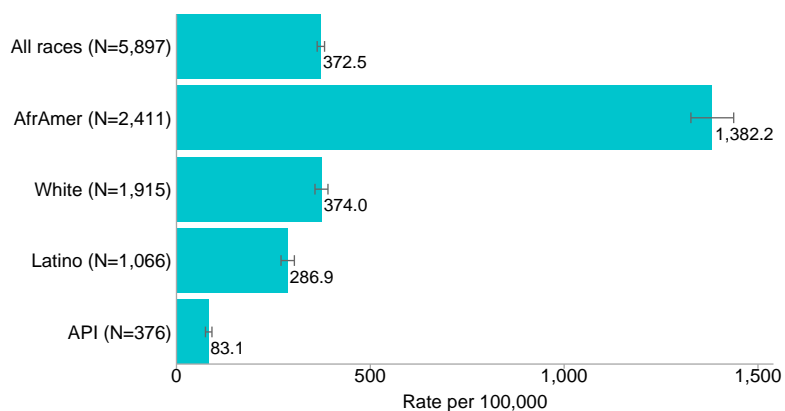
Figure 3.4: Prevalence of HIV by Sex, Alameda County, year-end 2015



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

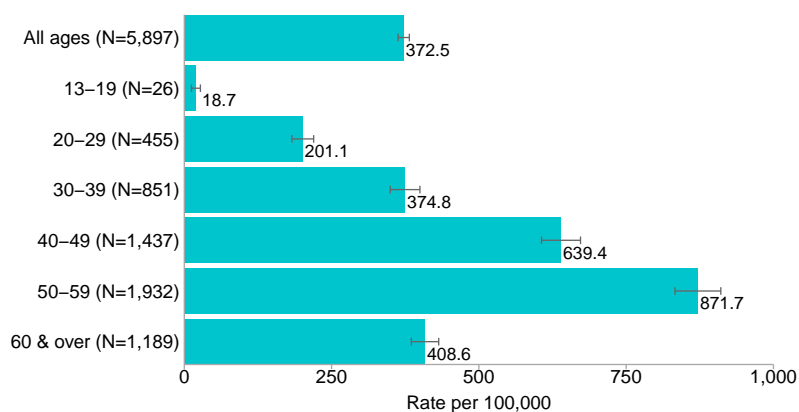
African Americans carried over 3.5 times the burden of HIV compared to the next most impacted group in Alameda County—whites. The burden of HIV was lowest among Asians and Pacific Islanders.

Figure 3.5: Prevalence of HIV by Race/Ethnicity, Alameda County, year-end 2015



HIV prevalence was higher in each successive age group ranging from 18.7 per 100,000 youth aged 13-19 to a high of 871.7 per 100,000 people ages 50-59. 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. This finding is consistent with the improved survival of PLHIV in the ART era.

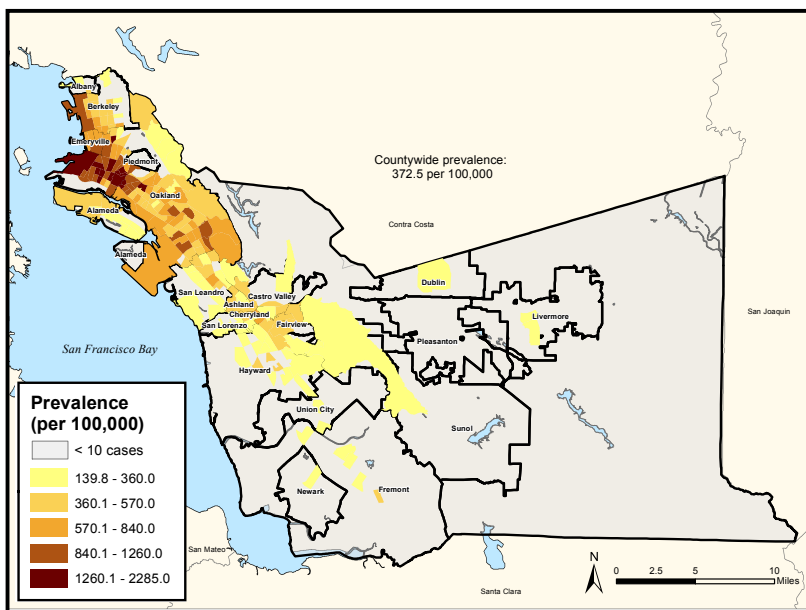
Figure 3.6: Prevalence of HIV by Age, Alameda County, year-end 2015



The disparity in prevalence rates by race was more pronounced among females compared to males. While prevalence was about 3 times higher among African American males compared to white males, it was more than 10 times higher among African American females compared to white females (see Table 3.3). Additionally, although HIV prevalence was higher among white males than Latino males, this was not the case among females.

Oakland had the highest HIV prevalence within Alameda County followed by the central county region.

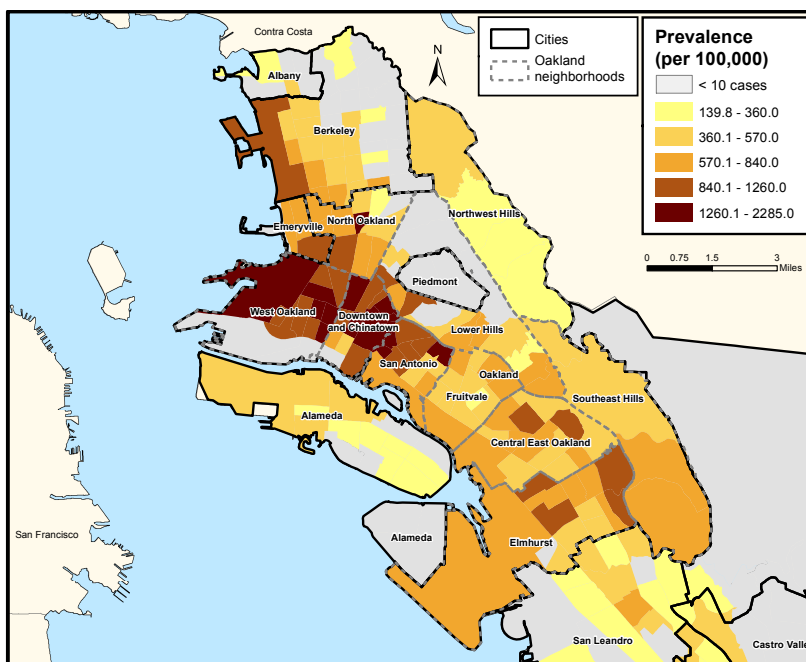
Figure 3.7: Prevalence of HIV by Census Tract of Residence, Alameda County, year-end 2015



NOTE: N=4,990; an additional 761 PLHIV (13.23% of all) are not represented due to incomplete street address.

The North and West Oakland, Downtown, Chinatown, and San Antonio neighborhoods had the highest HIV prevalence rate, ranging from 1-2% of residents.

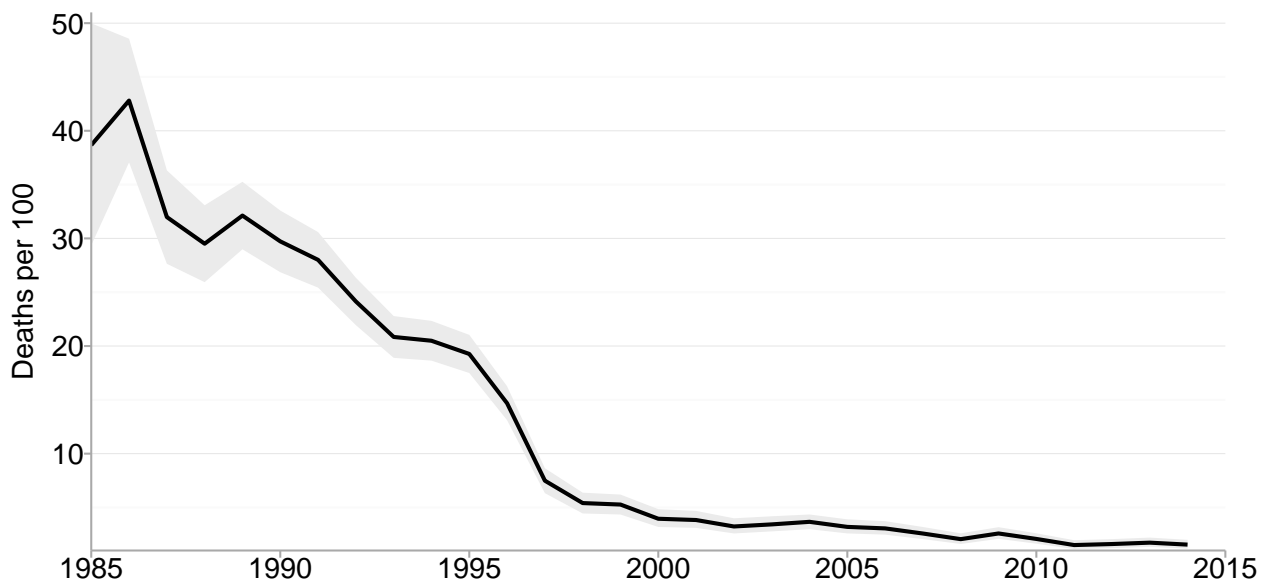
Figure 3.8: Prevalence of HIV by Census Tract of Residence, Oakland and Surrounding Area, year-end 2015



Deaths Among Alameda County Residents Ever Diagnosed with AIDS

Although HIV without AIDS has only been reportable by name in California 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 2013, there were 57 deaths among the 3,755 residents ever diagnosed with AIDS for a rate of 1.47 deaths per 100 residents.

Figure 3.9: Death Rate among Alameda County Residents Ever Diagnosed with AIDS, 1985-2013



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.

Table 3.1 : People Living with HIV Disease and Prevalence Rates, Alameda County, Year-End 2015

NOTE: This table spans multiple pages.

| Characteristic | Category | Count | Percent | Prevalence per 100,000 | 95% Confidence Interval |
|-----------------------------|-----------|-------|---------|------------------------|-------------------------|
| All PLHIV | -- | 5,897 | 100.0% | 372.5 | 363.0 - 382.0 |
| Sex ^a | Male | 4,861 | 82.4% | 625.0 | 607.5 - 642.6 |
| | Female | 1,036 | 17.6% | 128.6 | 120.8 - 136.5 |
| Race/Ethnicity ^b | AfrAmer | 2,411 | 40.9% | H 1,382.2 | 1,327.0 - 1,437.4 |
| | White | 1,915 | 32.5% | I 374.0 | 357.3 - 390.8 |
| | Latino | 1,066 | 18.1% | H 286.9 | 269.7 - 304.1 |
| | API | 376 | 6.4% | I 83.1 | 74.7 - 91.5 |
| | Other/Unk | 129 | 2.2% | -- | -- |
| Age (years) ^c | 0-12 | 7 | 0.1% | I ** | ** |
| | 13-19 | 26 | 0.4% | I 18.7 | 12.2 - 27.4 |
| | 20-29 | 455 | 7.7% | I 201.1 | 182.6 - 219.6 |
| | 30-39 | 851 | 14.4% | H 374.8 | 349.6 - 399.9 |
| | 40-49 | 1,437 | 24.4% | H 639.4 | 606.4 - 672.5 |
| | 50-59 | 1,932 | 32.8% | H 871.7 | 832.9 - 910.6 |
| | 60 & over | 1,189 | 20.2% | H 408.6 | 385.4 - 431.8 |

Table 3.1: People Living with HIV Disease and Prevalence Rates, Alameda County, Year-End 2015 (continued)

NOTE: This table spans multiple pages.

| Characteristic | Category | Count | Percent | Prevalence per 100,000 | 95% Confidence Interval |
|----------------|---------------------|-------|---------|------------------------|-------------------------|
| Residence | North County | 497 | 8.4% | H 363.9 | 331.9 - 395.9 |
| | Oakland Area | 3,653 | 61.9% | H 723.6 | 700.2 - 747.1 |
| | Central County | 1,085 | 18.4% | H 288.6 | 271.4 - 305.8 |
| | South County | 405 | 6.9% | I 118.4 | 106.9 - 130.0 |
| | Tri-Valley | 238 | 4.0% | I 110.9 | 96.8 - 125.0 |
| | Remainder of county | 14 | 0.2% | H 156.7 | 85.7 - 262.9 |
| | Unknown | 5 | 0.1% | ** | ** |

Source: Alameda County eHARS, 2016 Q2

[a] Refers to sex assigned at birth

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

[c] Age at year-end 2015

[**] 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 2015

| Sex ^a | Age | Count | Percent | | Prevalence per 100,000 | 95% Confidence Interval |
|------------------|-----------|-------|---------|---|------------------------|-------------------------|
| All | All ages | 5,897 | 100.0% | | 372.5 | 363.0 - 382.0 |
| | 0-12 | 7 | 0.1% | | ** | ** |
| | 13-19 | 26 | 0.4% | | 18.7 | 12.2 - 27.4 |
| | 20-29 | 455 | 7.7% | | 201.1 | 182.6 - 219.6 |
| | 30-39 | 851 | 14.4% | H | 374.8 | 349.6 - 399.9 |
| | 40-49 | 1,437 | 24.4% | H | 639.4 | 606.4 - 672.5 |
| | 50-59 | 1,932 | 32.8% | H | 871.7 | 832.9 - 910.6 |
| | 60 & over | 1,189 | 20.2% | H | 408.6 | 385.4 - 431.8 |
| Male | All ages | 4,861 | 82.4% | H | 625.0 | 607.5 - 642.6 |
| | 0-12 | * | * | | * | * |
| | 13-19 | * | * | | * | * |
| | 20-29 | 400 | 6.8% | H | 349.8 | 315.5 - 384.0 |
| | 30-39 | 695 | 11.8% | H | 623.9 | 577.5 - 670.3 |
| | 40-49 | 1,149 | 19.5% | H | 1,031.2 | 971.6 - 1,090.8 |
| | 50-59 | 1,617 | 27.4% | H | 1,489.7 | 1,417.1 - 1,562.3 |
| | 60 & over | 978 | 16.6% | H | 746.9 | 700.1 - 793.8 |
| Female | All ages | 1,036 | 17.6% | | 128.6 | 120.8 - 136.5 |
| | 0-12 | * | * | | * | * |
| | 13-19 | * | * | | * | * |
| | 20-29 | 55 | 0.9% | | 49.1 | 37.0 - 64.0 |
| | 30-39 | 156 | 2.6% | H | 134.9 | 113.7 - 156.0 |
| | 40-49 | 288 | 4.9% | H | 254.2 | 224.8 - 283.5 |
| | 50-59 | 315 | 5.3% | H | 278.6 | 247.8 - 309.3 |
| | 60 & over | 211 | 3.6% | H | 131.8 | 114.0 - 149.6 |

Source: Alameda County eHARS, 2016 Q2

[a] Refers to sex assigned at birth

[*] Some cells suppressed to protect confidentiality.

[**] Unstable estimates not shown.

Table 3.3: HIV Prevalence by Sex and Race/Ethnicity, Alameda County, Year-End 2015

| Sex ^a | Race/ Ethnicity ^b | Count | Percent | | Prevalence per 100,000 | 95% Confidence Interval |
|------------------|---------------------------------|-----------|---------|-------|---------------------------|-------------------------------|
| All | All races | 5,897 | 100.0% | I | 372.5 | 363.0 - 382.0 |
| | AfrAmer | 2,411 | 40.9% | H | 1,382.2 | 1,327.0 - 1,437.4 |
| | White | 1,915 | 32.5% | I | 374.0 | 357.3 - 390.8 |
| | Latino | 1,066 | 18.1% | II | 286.9 | 269.7 - 304.1 |
| | API | 376 | 6.4% | III | 83.1 | 74.7 - 91.5 |
| | Other/Unk | 129 | 2.2% | | -- | -- |
| | Male | All races | 4,861 | 82.4% | II | 625.0 |
| Male | AfrAmer | 1,763 | 29.9% | H | 2,151.4 | 2,051.0 - 2,251.8 |
| | White | 1,746 | 29.6% | H | 685.2 | 653.1 - 717.4 |
| | Latino | 926 | 15.7% | H | 489.7 | 458.2 - 521.2 |
| | API | 316 | 5.4% | I | 146.0 | 129.9 - 162.1 |
| | Other/Unk | 110 | 1.9% | | -- | -- |
| | Female | All races | 1,036 | 17.6% | II | 128.6 |
| Female | AfrAmer | 648 | 11.0% | H | 700.7 | 646.7 - 754.6 |
| | White | 169 | 2.9% | I | 65.7 | 55.8 - 75.6 |
| | Latino | 140 | 2.4% | I | 76.7 | 64.0 - 89.4 |
| | API | 60 | 1.0% | I | 25.4 | 19.4 - 32.7 |
| | Other/Unk | 19 | 0.3% | | -- | -- |

Source: Alameda County eHARS, 2016 Q2

[a] Refers to sex assigned at birth

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

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

Table 3.4: HIV Prevalence by Race/Ethnicity and Age, Alameda County, Year-End 2015

NOTE: This table spans multiple pages.

| Race/ Ethnicity ^a | Age | Count | Percent | Prevalence per 100,000 | 95% Confidence Interval |
|---------------------------------|-----------|-------|---------|---------------------------|-------------------------------|
| All races | All ages | 5,897 | 100.0% | 372.5 | 363.0 - 382.0 |
| | 0-12 | 7 | 0.1% | ** | ** |
| | 13-19 | 26 | 0.4% | 18.7 | 12.2 - 27.4 |
| | 20-29 | 455 | 7.7% | 201.1 | 182.6 - 219.6 |
| | 30-39 | 851 | 14.4% | 374.8 | 349.6 - 399.9 |
| | 40-49 | 1,437 | 24.4% | 639.4 | 606.4 - 672.5 |
| | 50-59 | 1,932 | 32.8% | 871.7 | 832.9 - 910.6 |
| | 60 & over | 1,189 | 20.2% | 408.6 | 385.4 - 431.8 |
| AfrAmer | All ages | 2,411 | 40.9% H | 1,382.2 | 1,327.0 - 1,437.4 |
| | 0-12 | 5 | 0.1% | ** | ** |
| | 13-19 | 17 | 0.3% H | 101.3 | 59.0 - 162.1 |
| | 20-29 | 203 | 3.4% H | 863.4 | 744.6 - 982.1 |
| | 30-39 | 346 | 5.9% H | 1,562.6 | 1,398.0 - 1,727.3 |
| | 40-49 | 554 | 9.4% H | 2,202.1 | 2,018.7 - 2,385.5 |
| | 50-59 | 795 | 13.5% H | 2,934.4 | 2,730.4 - 3,138.4 |
| | 60 & over | 491 | 8.3% H | 1,420.3 | 1,294.6 - 1,545.9 |
| White | All ages | 1,915 | 32.5% | 374.0 | 357.3 - 390.8 |
| | 0-12 | * | * | * | * |
| | 13-19 | * | * | * | * |
| | 20-29 | 83 | 1.4% | 132.1 | 105.2 - 163.8 |
| | 30-39 | 184 | 3.1% H | 304.8 | 260.8 - 348.9 |
| | 40-49 | 396 | 6.7% H | 530.5 | 478.2 - 582.7 |
| | 50-59 | 750 | 12.7% H | 806.8 | 749.0 - 864.5 |
| | 60 & over | 498 | 8.4% H | 360.4 | 328.8 - 392.1 |

Table 3.4: HIV Prevalence by Race/Ethnicity and Age, Alameda County, Year-End 2015 (continued)

NOTE: This table spans multiple pages.

| Race/ Ethnicity ^a | Age | Count | Percent | Prevalence per 100,000 | 95% Confidence Interval |
|---------------------------------|-----------|-------|---------|---------------------------|-------------------------------|
| Latino | All ages | 1,066 | 18.1% ¶ | 286.9 | 269.7 - 304.1 |
| | 0-12 | * | * | * | * |
| | 13-19 | * | * | * | * |
| | 20-29 | 116 | 2.0% ¶ | 177.2 | 145.0 - 209.5 |
| | 30-39 | 215 | 3.6% ¶ | 340.0 | 294.5 - 385.4 |
| | 40-49 | 330 | 5.6% ¶ | 681.3 | 607.8 - 754.9 |
| | 50-59 | 267 | 4.5% ¶ | 818.3 | 720.2 - 916.5 |
| | 60 & over | 132 | 2.2% ¶ | 405.9 | 336.6 - 475.1 |
| API | All ages | 376 | 6.4% ¶ | 83.1 | 74.7 - 91.5 |
| | 0-12 | * | * | * | * |
| | 13-19 | * | * | * | * |
| | 20-29 | 36 | 0.6% ¶ | 57.2 | 40.1 - 79.2 |
| | 30-39 | 83 | 1.4% ¶ | 114.3 | 91.0 - 141.7 |
| | 40-49 | 116 | 2.0% ¶ | 168.2 | 137.6 - 198.8 |
| | 50-59 | 90 | 1.5% ¶ | 143.8 | 115.6 - 176.8 |
| | 60 & over | 50 | 0.8% ¶ | 63.2 | 46.9 - 83.3 |
| Other/Unk | All ages | 129 | 2.2% | -- | -- |
| | 0-12 | 0 | 0.0% | -- | -- |
| | 13-19 | 0 | 0.0% | -- | -- |
| | 20-29 | 17 | 0.3% | -- | -- |
| | 30-39 | 23 | 0.4% | -- | -- |
| | 40-49 | 41 | 0.7% | -- | -- |
| | 50-59 | 30 | 0.5% | -- | -- |
| | 60 & over | 18 | 0.3% | -- | -- |

Source: Alameda County eHARS, 2016 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.

The Continuum of HIV Care

Anti-retroviral therapy (ART), when taken regularly, can suppress HIV, limiting the damage done by the virus to the immune system as well as lowering the likelihood of ongoing transmission. ART thus benefits both 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 to 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 has gained enormous popularity as a framework for conceptualizing HIV care and prevention efforts.

In the United States, the CDC estimated that 84.0% of persons diagnosed in 2014 linked to care within 3 months.¹ Additionally, CDC estimated that, at the end of 2013, 87.0% of all PLHIV had been diagnosed and that, among those still alive and who had been diagnosed by the end of the previous year, 70.9% received any HIV care, 56.5% were retained in continuous care, and 54.7% were virally suppressed.

In California, 81.8% of those diagnosed in 2014 were estimated to have linked to care within 3 months. By the end of 2013, 90.3% of PLHIV were believed to have been diagnosed and, among those still alive and who had been diagnosed by the end of the previous year, 71.1% of were estimated to have received any HIV care in 2013, 55.9% were estimated to have been retained in continuous care, and 55.6% were estimated to have been virally suppressed at last test.² [5]

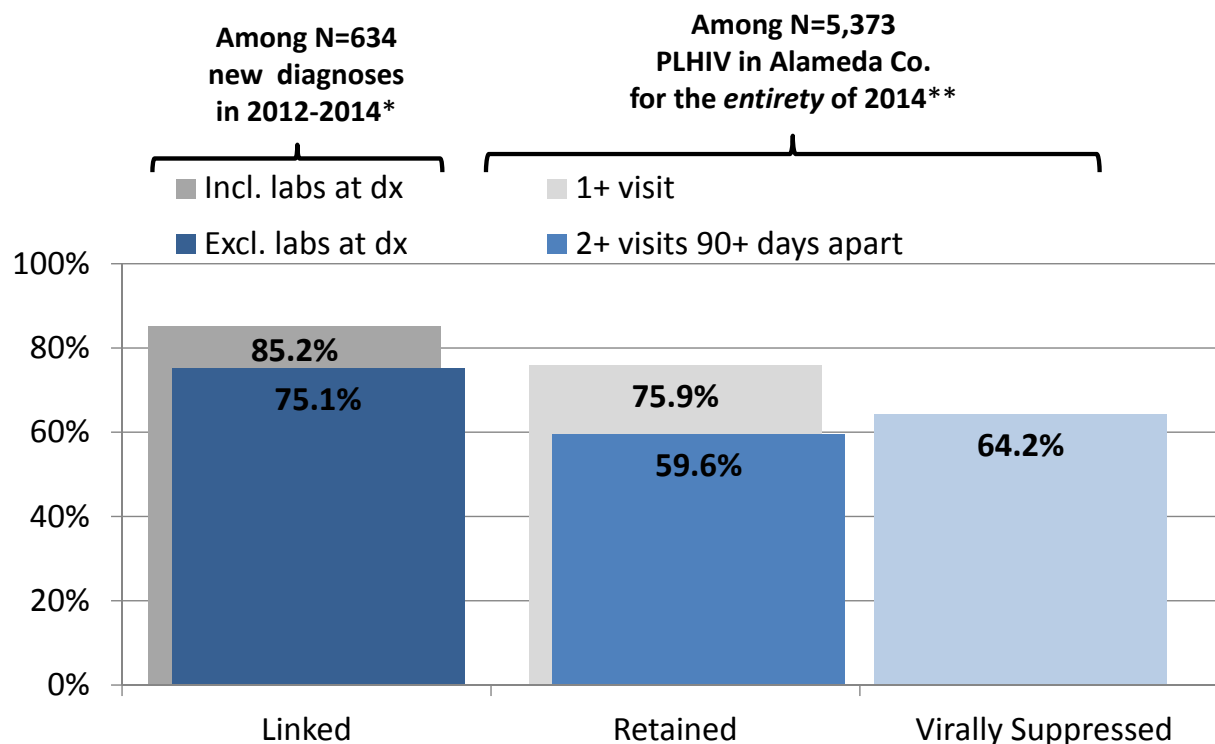
¹Among those aged 13 or older at diagnosis in the 33 jurisdictions with complete laboratory reporting.

²Data on receipt of HIV medical care and viral suppression are based on data for PLHIV aged 13 or older, diagnosed by year-end 2012, alive at year-end 2013, and residing in the 33 jurisdictions with complete laboratory reporting. CD4 or viral load tests ordered in 2013 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 2013 <200 copies/mL.

The Overall Continuum of Care

In Alameda County, between 75.1% and 85.2% of new diagnoses between 2012 and 2014 were linked to care within 3 months, depending on whether HIV-related labs ordered on the date of diagnosis were included as a marker of linkage. Approximately 59.6% of PLHIV in Alameda County for the entirety of 2014 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 4.6% higher (64.2%) that same year.

Figure 4.1: The Continuum of HIV Care in Alameda County



* Of 651 total diagnoses, 17 died within 90 days and were excluded from analysis

** Of 5,662 PLHIV at year-end 2013, 62 were known to have died and an additional 227 to have moved out of Alameda County in 2014

This chapter presents data on select measures along the continuum of HIV 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.

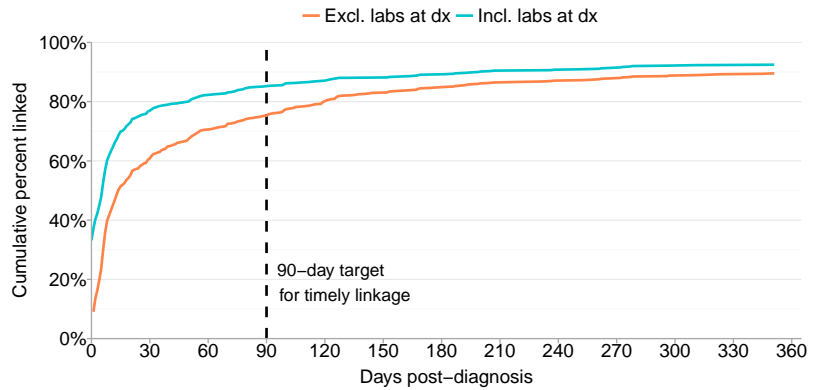
Linkage to Care

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 always a definitive indicator of linkage to care. For example, a health care provider may order these tests concurrently with a confirmatory test or a patient may not return for the test results. 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 what might be considered upper and lower bounds on the proportion linked. Patients who died within 90 days of diagnosis were not included (N=17).

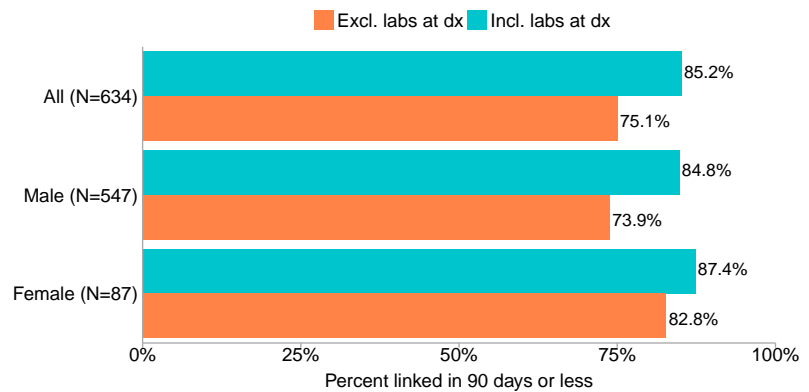
The median time from diagnosis to first CD4 or viral load among Alameda County residents diagnosed in 2012-2014 was 5.5 days. Excluding labs ordered on the date of diagnosis, the median time from diagnosis was 13.5 days.

Figure 4.2: Days Between Diagnosis and First CD4 or Viral Load, Alameda County, 2012-2014



Overall, just over 85% of those diagnosed with HIV in Alameda County from 2012 to 2014 were linked to HIV care within 90 days of their diagnosis. Excluding labs ordered on date of diagnosis, about 75% of newly diagnosed cases were linked. Differences by sex assigned at birth were not statistically significant.

Figure 4.3: Linkage to HIV Care within 90 Days of Diagnosis by Sex, Alameda County, 2012-2014



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

Timely linkage to HIV care by race/ethnicity was highest among Asians and Pacific Islanders and lowest among African Americans. Differences by race/ethnicity were not statistically significant.

Linkage was generally higher at the extremes of the age spectrum and lower among those in their thirties and forties. Differences by age group were not statistically significant.

Figure 4.4: Linkage to HIV Care within 90 Days of Diagnosis by Race/Ethnicity, Alameda County, 2012-2014

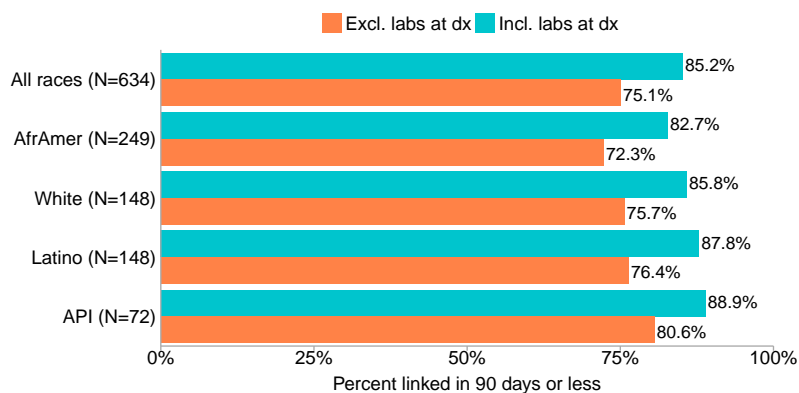
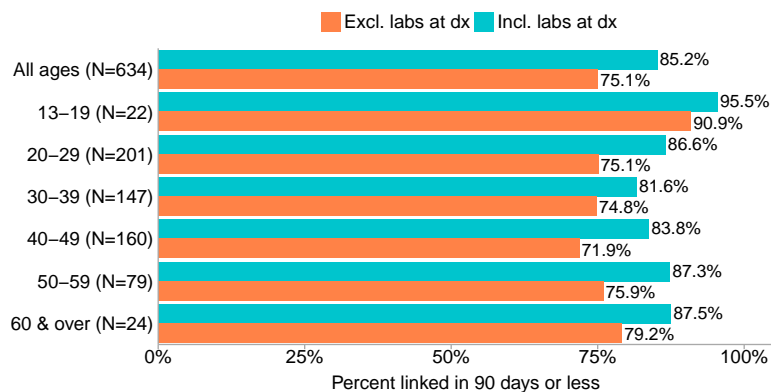


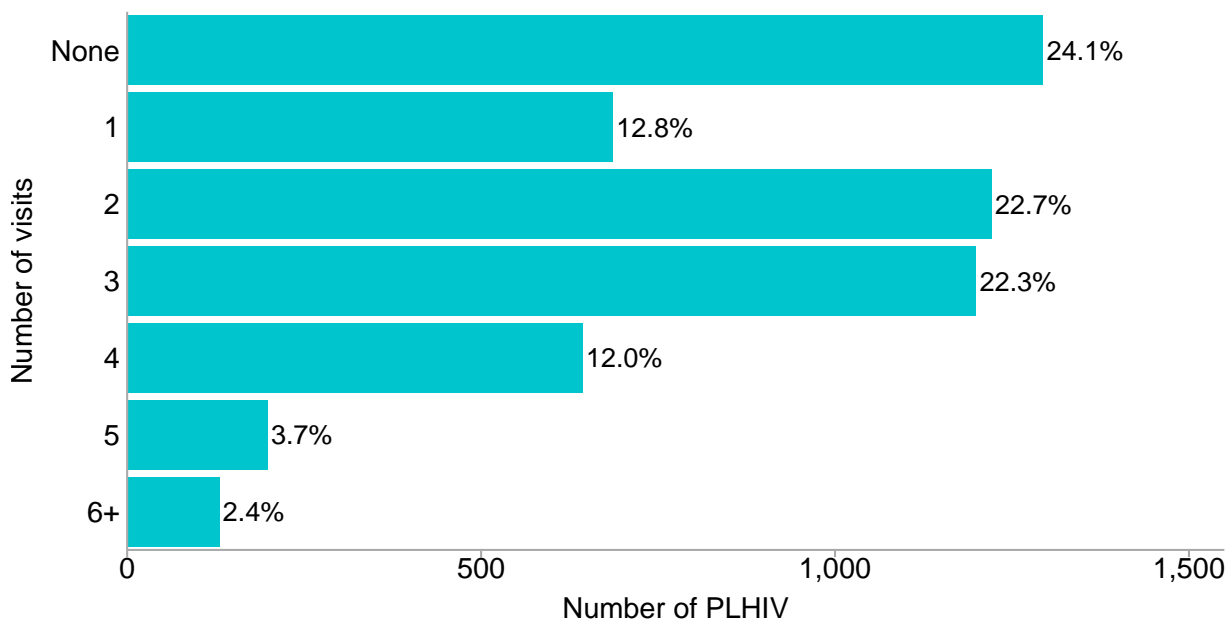
Figure 4.5: Linkage to HIV Care within 90 Days of Diagnosis by Age, Alameda County, 2012-2014



Retention in Care

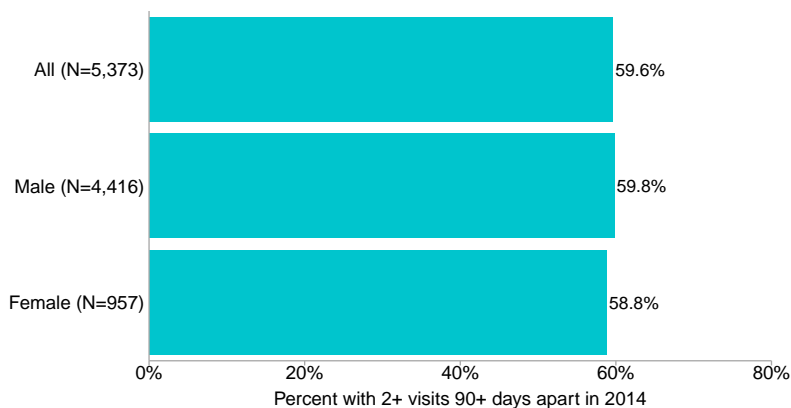
In 2014, 75.9% of PLHIV¹ had one or more visits to an HIV care provider. About 15% of all PLHIV had only a single visit; however, it is possible that some had additional visits, but no lab tests were ordered.

Figure 4.6: Number of HIV Care Visits per PLHIV in 2014, Alameda County



In 2014, 59.6% of PLHIV had two or more visits 90 days or more apart. Differences by sex were not statistically significant.

Figure 4.7: Retention in HIV Care by Sex, Alameda County, 2014

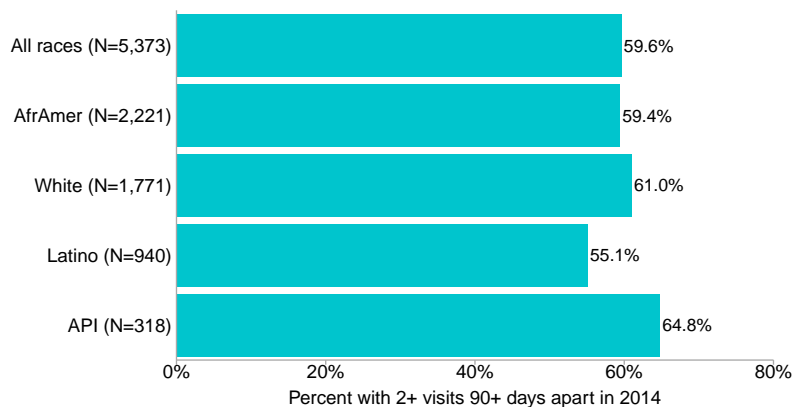


NOTE: “Sex” refers to sex assigned at birth.

¹PLHIV that died or moved in 2014 were excluded from all analysis of retention in care.

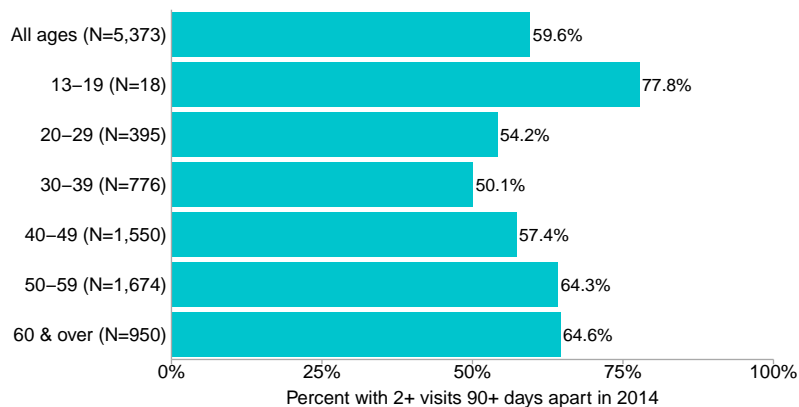
Asian and Pacific Islander PLHIV had the highest rates of retention in HIV care in 2014, followed by whites. Only about 55% of Latino PLHIV were retained in care.

Figure 4.8: Retention in HIV Care by Race/Ethnicity, Alameda County, 2014



PLHIV aged 30-39 at year-end 2014 had the lowest rates of retention in care; successively younger and successively older age groups had higher rates. Retention was highest among those ages 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, 2014

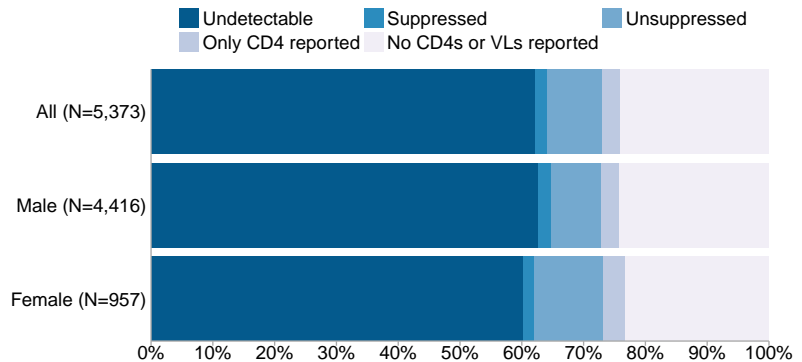


Virologic Status

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 2014 were excluded. Disparities in virologic suppression among PLHIV in care can suggest potential differences in ART use or effectiveness.

Approximately 64% of PLHIV were virally suppressed at their most recent test in 2014, with the majority being undetectable. Virologic suppression was about 3% lower among female PLHIV compared to male PLHIV, but this difference was not statistically significant. Among those in care, viral suppression was higher among males than females (Table 4.13).

Figure 4.10: Virologic Status by Sex, Alameda County, 2014



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

In 2014, almost 70% of white and Asian and Pacific Islander PLHIV were virally suppressed. Viral suppression was about 10% lower in all other racial/ethnic groups. Similar disparities were seen among those in care (Table 4.14).

Figure 4.11: Virologic Status by Race/Ethnicity, Alameda County, 2014

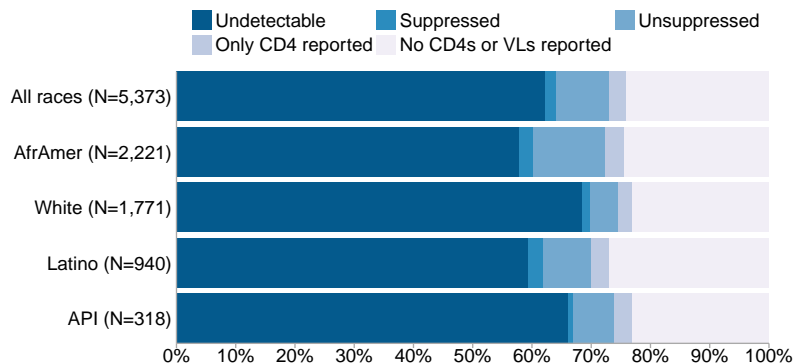
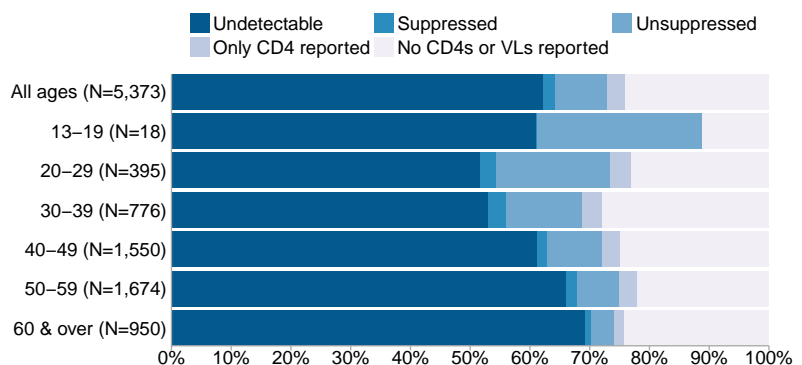


Figure 4.12: Virologic Status by Age, Alameda County, 2014



Viral suppression rates generally increased as age increased, ranging from about 54% among those ages 20-29 to 70% among those ages 60 and over. A similar pattern was seen among those in care (Table 4.15).

Table 4.1: Timely Linkage to HIV Care Among New Diagnoses by Sex and Age, Alameda County, 2012-2014

| Sex ^a | Age at Diagnosis | All Diagnoses | | linked90_inclDxDt | |
|------------------|------------------|----------------------|----------------|----------------------|-------------|
| | | Average Annual Count | Column Percent | Average Annual Count | Row Percent |
| All | All ages | 211.3 | 100.0% | 180.0 | 85.2% |
| | 5-12 | * | * | 0.3 | * |
| | 13-19 | * | * | 7.0 | * |
| | 20-24 | 31.3 | 14.8% | 28.0 | ** |
| | 25-29 | 35.7 | 16.9% | 30.0 | 84.1% |
| | 30-39 | 49.0 | 23.2% | 40.0 | 81.6% |
| | 40-49 | 53.3 | 25.2% | 44.7 | 83.8% |
| | 50 & over | 34.3 | 16.2% | 30.0 | 87.4% |
| Male | All ages | 182.3 | 86.3% | 154.7 | 84.8% |
| | 5-12 | * | * | 0.3 | * |
| | 13-19 | * | * | 5.3 | * |
| | 20-24 | 29.7 | 14.0% | 26.3 | ** |
| | 25-29 | 32.0 | 15.1% | 26.7 | 83.3% |
| | 30-39 | 42.7 | 20.2% | 35.0 | 82.0% |
| | 40-49 | 46.0 | 21.8% | 39.0 | 84.8% |
| | 50 & over | 26.3 | 12.5% | 22.0 | 83.5% |
| Female | All ages | 29.0 | 13.7% | 25.3 | 87.4% |
| | 5-12 | 0.0 | 0.0% | 0.0 | ** |
| | 13-19 | 2.0 | 0.9% | 1.7 | ** |
| | 20-24 | 1.7 | 0.8% | 1.7 | 100.0% |
| | 25-29 | 3.7 | 1.7% | 3.3 | ** |
| | 30-39 | 6.3 | 3.0% | 5.0 | ** |
| | 40-49 | 7.3 | 3.5% | 5.7 | ** |
| | 50 & over | 8.0 | 3.8% | 8.0 | 100.0% |

Source: Alameda County eHARS, 2016 Q2

NOTE: Excludes N=17 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, 2012-2014

| Sex ^a | Race/ Ethnicity ^b | All Diagnoses | | linked90_inclDxDt | |
|------------------|---------------------------------|----------------------------|----------------|----------------------------|-------------|
| | | Average Annual Count | Column Percent | Average Annual Count | Row Percent |
| All | All races | 211.3 | 100.0% | 180.0 | 85.2% |
| | AfrAmer | 83.0 | 39.3% | 68.7 | 82.7% |
| | White | 49.3 | 23.3% | 42.3 | 85.8% |
| | Latino | 49.3 | 23.3% | 43.3 | 87.8% |
| | API | 24.0 | 11.4% | 21.3 | ** |
| | Other/Unk | 5.7 | 2.7% | 4.3 | ** |
| Male | All races | 182.3 | 86.3% | 154.7 | 84.8% |
| | AfrAmer | 65.3 | 30.9% | 53.3 | 81.6% |
| | White | 44.3 | 21.0% | 37.7 | 85.0% |
| | Latino | 45.3 | 21.5% | 40.0 | 88.2% |
| | API | * | * | 20.0 | * |
| | Other/Unk | * | * | 3.7 | * |
| Female | All races | 29.0 | 13.7% | 25.3 | 87.4% |
| | AfrAmer | 17.7 | 8.4% | 15.3 | ** |
| | White | 5.0 | 2.4% | 4.7 | ** |
| | Latino | 4.0 | 1.9% | 3.3 | ** |
| | API | * | * | 1.3 | * |
| | Other/Unk | * | * | 0.7 | * |

Source: Alameda County eHARS, 2016 Q2

NOTE: Excludes N=17 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, 2012-2014

NOTE: This table spans multiple pages.

| Race/ Ethnicity ^a | Age at Diagnosis | All Diagnoses | | linked90_incIDxDt | |
|---------------------------------|---------------------|----------------------------|----------------|----------------------------|-------------|
| | | Average Annual Count | Column Percent | Average Annual Count | Row Percent |
| All races | All ages | 211.3 | 100.0% | 180.0 | 85.2% |
| | 5-12 | * | * | 0.3 | * |
| | 13-19 | * | * | 7.0 | * |
| | 20-24 | 31.3 | 14.8% | 28.0 | ** |
| | 25-29 | 35.7 | 16.9% | 30.0 | 84.1% |
| | 30-39 | 49.0 | 23.2% | 40.0 | 81.6% |
| | 40-49 | 53.3 | 25.2% | 44.7 | 83.8% |
| | 50 & over | 34.3 | 16.2% | 30.0 | 87.4% |
| AfrAmer | All ages | 83.0 | 39.3% | 68.7 | 82.7% |
| | 5-12 | * | * | 0.3 | * |
| | 13-19 | * | * | 4.0 | * |
| | 20-24 | 14.3 | 6.8% | 12.3 | ** |
| | 25-29 | 14.0 | 6.6% | 11.7 | ** |
| | 30-39 | 18.3 | 8.7% | 14.0 | ** |
| | 40-49 | 17.7 | 8.4% | 15.0 | ** |
| | 50 & over | 14.0 | 6.6% | 11.3 | ** |
| White | All ages | 49.3 | 23.3% | 42.3 | 85.8% |
| | 5-12 | * | * | 0.0 | * |
| | 13-19 | * | * | 0.3 | * |
| | 20-24 | 4.7 | 2.2% | 4.7 | 100.0% |
| | 25-29 | 6.7 | 3.2% | 6.3 | ** |
| | 30-39 | 9.0 | 4.3% | 6.3 | ** |
| | 40-49 | 16.0 | 7.6% | 13.3 | ** |
| | 50 & over | 12.7 | 6.0% | 11.3 | ** |

Table 4.3: Timely Linkage to HIV Care Among New Diagnoses by Race/Ethnicity and Age, Alameda County, 2012-2014 (continued)

NOTE: This table spans multiple pages.

| Race/ Ethnicity ^a | Age at Diagnosis | All Diagnoses | | linked90_incIDxDt | |
|---------------------------------|---------------------|----------------------------|----------------|----------------------------|-------------|
| | | Average Annual Count | Column Percent | Average Annual Count | Row Percent |
| Latino | All ages | 49.3 | 23.3% | 43.3 | 87.8% |
| | 5-12 | 0.0 | 0.0% | 0.0 | ** |
| | 13-19 | 2.0 | 0.9% | 2.0 | 100.0% |
| | 20-24 | 6.7 | 3.2% | 6.0 | ** |
| | 25-29 | 10.7 | 5.0% | 8.0 | ** |
| | 30-39 | 12.7 | 6.0% | 11.7 | ** |
| | 40-49 | 12.3 | 5.8% | 10.7 | ** |
| | 50 & over | 5.0 | 2.4% | 5.0 | 100.0% |
| API | All ages | 24.0 | 11.4% | 21.3 | ** |
| | 5-12 | 0.0 | 0.0% | 0.0 | ** |
| | 13-19 | * | * | 0.7 | * |
| | 20-24 | * | * | 4.0 | * |
| | 25-29 | * | * | 3.3 | * |
| | 30-39 | 7.3 | 3.5% | 6.3 | ** |
| | 40-49 | * | * | 5.3 | * |
| | 50 & over | * | * | 1.7 | * |
| Other/Unk | All ages | 5.7 | 2.7% | 4.3 | ** |
| | 5-12 | 0.0 | 0.0% | 0.0 | ** |
| | 13-19 | 0.0 | 0.0% | 0.0 | ** |
| | 20-24 | * | * | 1.0 | * |
| | 25-29 | * | * | 0.7 | * |
| | 30-39 | 1.7 | 0.8% | 1.7 | 100.0% |
| | 40-49 | * | * | 0.3 | * |
| | 50 & over | * | * | 0.7 | * |

Source: Alameda County eHARS, 2016 Q2

NOTE: Excludes N=17 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 2014 Among PLHIV at Year-End 2013 by Sex and Age, Alameda County

| Sex ^a | Age at Year-End 2013 | All PLHIV | | 1+ Visits in 2014 ^b | |
|------------------|----------------------|-----------|----------------|--------------------------------|--------------|
| | | Count | Column Percent | Count | Row Percent |
| All | All ages | 5,373 | 100.0% | 4,079 | H 75.9% |
| | 0-12 | 10 | 0.2% | 8 | ----- ** |
| | 13-19 | 18 | 0.3% | 16 | ----- ** |
| | 20-29 | 395 | 7.4% | 304 | ----- 77.0% |
| | 30-39 | 776 | 14.4% | 560 | ----- 72.2% |
| | 40-49 | 1,550 | 28.8% | 1,165 | ----- 75.2% |
| | 50-59 | 1,674 | 31.2% | 1,306 | ----- 78.0% |
| | 60 & over | 950 | 17.7% | 720 | ----- 75.8% |
| Male | All ages | 4,416 | 82.2% | 3,345 | H 75.7% |
| | 0-12 | * | * | 5 | * |
| | 13-19 | * | * | 6 | * |
| | 20-29 | 342 | 6.4% | 263 | ----- 76.9% |
| | 30-39 | 603 | 11.2% | 437 | ----- 72.5% |
| | 40-49 | 1,255 | 23.4% | 933 | ----- 74.3% |
| | 50-59 | 1,416 | 26.4% | 1,101 | ----- 77.8% |
| | 60 & over | 787 | 14.6% | 600 | ----- 76.2% |
| Female | All ages | 957 | 17.8% | 734 | ----- 76.7% |
| | 0-12 | * | * | 3 | * |
| | 13-19 | * | * | 10 | * |
| | 20-29 | 53 | 1.0% | 41 | ----- ** |
| | 30-39 | 173 | 3.2% | 123 | ----- 71.1% |
| | 40-49 | 295 | 5.5% | 232 | ----- 78.6% |
| | 50-59 | 258 | 4.8% | 205 | ----- 79.5% |
| | 60 & over | 163 | 3.0% | 120 | ----- 73.6% |

Source: Alameda County eHARS, 2016 Q2

NOTE: Excludes PLHIV at year-end 2013 who died (N=62) or moved out of the county (N=227) in 2014.

[a] Refers to sex assigned at birth

[b] Reported HIV viral load and CD4 laboratory tests results taken as markers of HIV medical care visits.

[*] Some cells suppressed to protect confidentiality.

[**] Unstable estimates not shown.

Table 4.5: Engagement in HIV Care in 2014 Among PLHIV at Year-End 2013 by Sex and Race/Ethnicity, Alameda County

| Sex ^a | Race/ Ethnicity ^b | All PLHIV | | 1+ Visits in 2014 ^c | | |
|------------------|---------------------------------|-----------|----------------|--------------------------------|-------------|-------|
| | | Count | Column Percent | Count | Row Percent | |
| All | All races | 5,373 | 100.0% | 4,079 | H | 75.9% |
| | AfrAmer | 2,221 | 41.3% | 1,678 | H | 75.6% |
| | White | 1,771 | 33.0% | 1,364 | H | 77.0% |
| | Latino | 940 | 17.5% | 687 | H | 73.1% |
| | API | 318 | 5.9% | 245 | H | 77.0% |
| | Other/Unk | 123 | 2.3% | 105 | H | 85.4% |
| | Male | All races | 4,416 | 82.2% | 3,345 | H |
| AfrAmer | | 1,616 | 30.1% | 1,218 | H | 75.4% |
| White | | 1,618 | 30.1% | 1,241 | H | 76.7% |
| Latino | | 814 | 15.1% | 598 | H | 73.5% |
| API | | 263 | 4.9% | 198 | H | 75.3% |
| Other/Unk | | 105 | 2.0% | 90 | H | 85.7% |
| Female | | All races | 957 | 17.8% | 734 | H |
| | AfrAmer | 605 | 11.3% | 460 | H | 76.0% |
| | White | 153 | 2.8% | 123 | H | 80.4% |
| | Latino | 126 | 2.3% | 89 | H | 70.6% |
| | API | 55 | 1.0% | 47 | H | ** |
| | Other/Unk | 18 | 0.3% | 15 | H | ** |

Source: Alameda County eHARS, 2016 Q2

NOTE: Excludes PLHIV at year-end 2013 who died (N=62) or moved out of the county (N=227) in 2014.

[a] Refers to sex assigned at birth

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

[c] Reported HIV viral load and CD4 laboratory tests results taken as markers of HIV medical care visits.

[**] Unstable estimates not shown.

Table 4.6: Engagement in HIV Care in 2014 Among PLHIV at Year-End 2013 by Race/Ethnicity and Age, Alameda County

NOTE: This table spans multiple pages.

| Race/ Ethnicity ^a | Age at Year-End 2013 | All PLHIV | | 1+ Visits in 2014 ^b | | |
|---------------------------------|----------------------------|-----------|----------------|--------------------------------|-------------|-------|
| | | Count | Column Percent | Count | Row Percent | |
| All races | All ages | 5,373 | 100.0% | 4,079 | H | 75.9% |
| | 0-12 | 10 | 0.2% | 8 | ----- | ** |
| | 13-19 | 18 | 0.3% | 16 | ----- | ** |
| | 20-29 | 395 | 7.4% | 304 | ----- | 77.0% |
| | 30-39 | 776 | 14.4% | 560 | ----- | 72.2% |
| | 40-49 | 1,550 | 28.8% | 1,165 | ----- | 75.2% |
| | 50-59 | 1,674 | 31.2% | 1,306 | ----- | 78.0% |
| | 60 & over | 950 | 17.7% | 720 | ----- | 75.8% |
| AfrAmer | All ages | 2,221 | 41.3% | 1,678 | H | 75.6% |
| | 0-12 | 7 | 0.1% | 6 | ----- | ** |
| | 13-19 | 11 | 0.2% | 9 | ----- | ** |
| | 20-29 | 186 | 3.5% | 151 | ----- | 81.2% |
| | 30-39 | 327 | 6.1% | 236 | ----- | 72.2% |
| | 40-49 | 604 | 11.2% | 456 | ----- | 75.5% |
| | 50-59 | 683 | 12.7% | 531 | ----- | 77.7% |
| | 60 & over | 403 | 7.5% | 289 | ----- | 71.7% |
| White | All ages | 1,771 | 33.0% | 1,364 | H | 77.0% |
| | 0-12 | * | * | 1 | | * |
| | 13-19 | * | * | 2 | | * |
| | 20-29 | 58 | 1.1% | 45 | ----- | ** |
| | 30-39 | 155 | 2.9% | 109 | ----- | 70.3% |
| | 40-49 | 474 | 8.8% | 359 | ----- | 75.7% |
| | 50-59 | 678 | 12.6% | 534 | ----- | 78.8% |
| | 60 & over | 402 | 7.5% | 314 | ----- | 78.1% |

Table 4.6: Engagement in HIV Care in 2014 Among PLHIV at Year-End 2013 by Race/Ethnicity and Age, Alameda County (continued)

NOTE: This table spans multiple pages.

| Race/ Ethnicity ^a | Age at Year-End 2013 | All PLHIV | | 1+ Visits in 2014 ^b | | |
|---------------------------------|----------------------------|-----------|----------------|--------------------------------|-------------|--|
| | | Count | Column Percent | Count | Row Percent | |
| Latino | All ages | 940 | 17.5% | 687 | 73.1% | |
| | 0-12 | * | * | 1 | * | |
| | 13-19 | * | * | 4 | * | |
| | 20-29 | 103 | 1.9% | 75 | 72.8% | |
| | 30-39 | 201 | 3.7% | 139 | 69.2% | |
| | 40-49 | 316 | 5.9% | 226 | 71.5% | |
| | 50-59 | 225 | 4.2% | 172 | 76.4% | |
| | 60 & over | 90 | 1.7% | 70 | 77.8% | |
| API | All ages | 318 | 5.9% | 245 | 77.0% | |
| | 0-12 | * | * | 0 | * | |
| | 13-19 | * | * | 1 | * | |
| | 20-29 | 31 | 0.6% | 19 | ** | |
| | 30-39 | 63 | 1.2% | 52 | 82.5% | |
| | 40-49 | 122 | 2.3% | 93 | 76.2% | |
| | 50-59 | 62 | 1.2% | 48 | ** | |
| | 60 & over | 39 | 0.7% | 32 | ** | |

Table 4.6: Engagement in HIV Care in 2014 Among PLHIV at Year-End 2013 by Race/Ethnicity and Age, Alameda County (continued)

NOTE: This table spans multiple pages.

| Race/ Ethnicity ^a | Age at Year-End 2013 | All PLHIV | | 1+ Visits in 2014 ^b | |
|---------------------------------|----------------------------|-----------|----------------|--------------------------------|-------------|
| | | Count | Column Percent | Count | Row Percent |
| Other/Unk | All ages | 123 | 2.3% | 105 | 85.4% |
| | 0-12 | 0 | 0.0% | 0 | ** |
| | 13-19 | 0 | 0.0% | 0 | ** |
| | 20-29 | 17 | 0.3% | 14 | ** |
| | 30-39 | 30 | 0.6% | 24 | ** |
| | 40-49 | 34 | 0.6% | 31 | ** |
| | 50-59 | 26 | 0.5% | 21 | ** |
| | 60 & over | 16 | 0.3% | 15 | ** |

Source: Alameda County eHARS, 2016 Q2

NOTE: Excludes PLHIV at year-end 2013 who died (N=62) or moved out of the county (N=227) in 2014.

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

[b] Reported HIV viral load and CD4 laboratory tests results taken as markers of HIV medical care visits.

[*] Some cells suppressed to protect confidentiality.

[**] Unstable estimates not shown.

Table 4.7: Retention in Continuous HIV Care in 2014 Among PLHIV at Year-End 2013 by Sex and Age, Alameda County

| Sex ^a | Age at Year-End 2013 | All PLHIV | | 2+ Visits 90+ Days Apart in 2014 ^b | | |
|------------------|----------------------|-----------|----------------|---|-------------|-------|
| | | Count | Column Percent | Count | Row Percent | |
| All | All ages | 5,373 | 100.0% | 3,204 | H | 59.6% |
| | 0-12 | 10 | 0.2% | 8 | ————— | ** |
| | 13-19 | 18 | 0.3% | 14 | ————— | ** |
| | 20-29 | 395 | 7.4% | 214 | ——— | 54.2% |
| | 30-39 | 776 | 14.4% | 389 | ——— | 50.1% |
| | 40-49 | 1,550 | 28.8% | 889 | ——— | 57.4% |
| | 50-59 | 1,674 | 31.2% | 1,076 | ——— | 64.3% |
| | 60 & over | 950 | 17.7% | 614 | ——— | 64.6% |
| Male | All ages | 4,416 | 82.2% | 2,641 | H | 59.8% |
| | 0-12 | * | * | 5 | | * |
| | 13-19 | * | * | 5 | | * |
| | 20-29 | 342 | 6.4% | 187 | ——— | 54.7% |
| | 30-39 | 603 | 11.2% | 302 | ——— | 50.1% |
| | 40-49 | 1,255 | 23.4% | 715 | ——— | 57.0% |
| | 50-59 | 1,416 | 26.4% | 910 | ——— | 64.3% |
| | 60 & over | 787 | 14.6% | 517 | ——— | 65.7% |
| Female | All ages | 957 | 17.8% | 563 | ——— | 58.8% |
| | 0-12 | * | * | 3 | | * |
| | 13-19 | * | * | 9 | | * |
| | 20-29 | 53 | 1.0% | 27 | ————— | ** |
| | 30-39 | 173 | 3.2% | 87 | ——— | 50.3% |
| | 40-49 | 295 | 5.5% | 174 | ——— | 59.0% |
| | 50-59 | 258 | 4.8% | 166 | ——— | 64.3% |
| | 60 & over | 163 | 3.0% | 97 | ——— | 59.5% |

Source: Alameda County eHARS, 2016 Q2

NOTE: Excludes PLHIV at year-end 2013 who died (N=62) or moved out of the county (N=227) in 2014.

[a] Refers to sex assigned at birth

[b] Reported HIV viral load and CD4 laboratory tests results taken as markers of HIV medical care visits.

[*] Some cells suppressed to protect confidentiality.

[**] Unstable estimates not shown.

Table 4.8: Retention in Continuous HIV Care in 2014 Among PLHIV at Year-End 2013 by Sex and Race/Ethnicity, Alameda County

| Sex ^a | Race/ Ethnicity ^b | All PLHIV | | 2+ Visits 90+ Days Apart in 2014 ^c | |
|------------------|---------------------------------|-----------|----------------|--|-------------|
| | | Count | Column Percent | Count | Row Percent |
| All | All races | 5,373 | 100.0% | 3,204 | H 59.6% |
| | AfrAmer | 2,221 | 41.3% | 1,320 | H 59.4% |
| | White | 1,771 | 33.0% | 1,080 | H 61.0% |
| | Latino | 940 | 17.5% | 518 | H 55.1% |
| | API | 318 | 5.9% | 206 | H 64.8% |
| | Other/Unk | 123 | 2.3% | 80 | H 65.0% |
| Male | All races | 4,416 | 82.2% | 2,641 | H 59.8% |
| | AfrAmer | 1,616 | 30.1% | 964 | H 59.7% |
| | White | 1,618 | 30.1% | 987 | H 61.0% |
| | Latino | 814 | 15.1% | 451 | H 55.4% |
| | API | 263 | 4.9% | 168 | H 63.9% |
| | Other/Unk | 105 | 2.0% | 71 | H 67.6% |
| Female | All races | 957 | 17.8% | 563 | H 58.8% |
| | AfrAmer | 605 | 11.3% | 356 | H 58.8% |
| | White | 153 | 2.8% | 93 | H 60.8% |
| | Latino | 126 | 2.3% | 67 | H 53.2% |
| | API | 55 | 1.0% | 38 | H ** |
| | Other/Unk | 18 | 0.3% | 9 | H ** |

Source: Alameda County eHARS, 2016 Q2

NOTE: Excludes PLHIV at year-end 2013 who died (N=62) or moved out of the county (N=227) in 2014.

[a] Refers to sex assigned at birth

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

[c] Reported HIV viral load and CD4 laboratory tests results taken as markers of HIV medical care visits.

[**] Unstable estimates not shown.

Table 4.9: Retention in Continuous HIV Care in 2014 Among PLHIV at Year-End 2013 by Race/Ethnicity and Age, Alameda County

NOTE: This table spans multiple pages.

| Race/ Ethnicity ^a | Age at Year-End 2013 | All PLHIV | | 2+ Visits 90+ Days Apart in 2014 ^b | | |
|---------------------------------|----------------------------|-----------|----------------|--|-------------|-------|
| | | Count | Column Percent | Count | Row Percent | |
| All races | All ages | 5,373 | 100.0% | 3,204 | H | 59.6% |
| | 0-12 | 10 | 0.2% | 8 | ----- | ** |
| | 13-19 | 18 | 0.3% | 14 | ----- | ** |
| | 20-29 | 395 | 7.4% | 214 | ----- | 54.2% |
| | 30-39 | 776 | 14.4% | 389 | ----- | 50.1% |
| | 40-49 | 1,550 | 28.8% | 889 | ----- | 57.4% |
| | 50-59 | 1,674 | 31.2% | 1,076 | ----- | 64.3% |
| | 60 & over | 950 | 17.7% | 614 | ----- | 64.6% |
| AfrAmer | All ages | 2,221 | 41.3% | 1,320 | H | 59.4% |
| | 0-12 | 7 | 0.1% | 6 | ----- | ** |
| | 13-19 | 11 | 0.2% | 7 | ----- | ** |
| | 20-29 | 186 | 3.5% | 104 | ----- | 55.9% |
| | 30-39 | 327 | 6.1% | 172 | ----- | 52.6% |
| | 40-49 | 604 | 11.2% | 351 | ----- | 58.1% |
| | 50-59 | 683 | 12.7% | 442 | ----- | 64.7% |
| | 60 & over | 403 | 7.5% | 238 | ----- | 59.1% |
| White | All ages | 1,771 | 33.0% | 1,080 | H | 61.0% |
| | 0-12 | * | * | 1 | | * |
| | 13-19 | * | * | 2 | | * |
| | 20-29 | 58 | 1.1% | 31 | ----- | ** |
| | 30-39 | 155 | 2.9% | 69 | ----- | 44.5% |
| | 40-49 | 474 | 8.8% | 275 | ----- | 58.0% |
| | 50-59 | 678 | 12.6% | 429 | ----- | 63.3% |
| | 60 & over | 402 | 7.5% | 273 | ----- | 67.9% |

Table 4.9: Retention in Continuous HIV Care in 2014 Among PLHIV at Year-End 2013 by Race/Ethnicity and Age, Alameda County (continued)

NOTE: This table spans multiple pages.

| Race/ Ethnicity ^a | Age at Year-End 2013 | All PLHIV | | 2+ Visits 90+ Days Apart in 2014 ^b | | |
|---------------------------------|----------------------------|-----------|----------------|--|-------------|--|
| | | Count | Column Percent | Count | Row Percent | |
| Latino | All ages | 940 | 17.5% | 518 | 55.1% | |
| | 0-12 | * | * | 1 | * | |
| | 13-19 | * | * | 4 | * | |
| | 20-29 | 103 | 1.9% | 54 | 52.4% | |
| | 30-39 | 201 | 3.7% | 92 | 45.8% | |
| | 40-49 | 316 | 5.9% | 167 | 52.8% | |
| | 50-59 | 225 | 4.2% | 143 | 63.6% | |
| | 60 & over | 90 | 1.7% | 57 | 63.3% | |
| API | All ages | 318 | 5.9% | 206 | 64.8% | |
| | 0-12 | * | * | 0 | * | |
| | 13-19 | * | * | 1 | * | |
| | 20-29 | 31 | 0.6% | 16 | ** | |
| | 30-39 | 63 | 1.2% | 41 | ** | |
| | 40-49 | 122 | 2.3% | 71 | 58.2% | |
| | 50-59 | 62 | 1.2% | 45 | ** | |
| | 60 & over | 39 | 0.7% | 32 | ** | |

Table 4.9: Retention in Continuous HIV Care in 2014 Among PLHIV at Year-End 2013 by Race/Ethnicity and Age, Alameda County (continued)

NOTE: This table spans multiple pages.

| Race/ Ethnicity ^a | Age at Year-End 2013 | All PLHIV | | 2+ Visits 90+ Days Apart in 2014 ^b | |
|---------------------------------|----------------------------|-----------|----------------|--|-------------|
| | | Count | Column Percent | Count | Row Percent |
| Other/Unk | All ages | 123 | 2.3% | 80 | 65.0% |
| | 0-12 | 0 | 0.0% | 0 | ** |
| | 13-19 | 0 | 0.0% | 0 | ** |
| | 20-29 | 17 | 0.3% | 9 | ** |
| | 30-39 | 30 | 0.6% | 15 | ** |
| | 40-49 | 34 | 0.6% | 25 | ** |
| | 50-59 | 26 | 0.5% | 17 | ** |
| | 60 & over | 16 | 0.3% | 14 | ** |

Source: Alameda County eHARS, 2016 Q2

NOTE: Excludes PLHIV at year-end 2013 who died (N=62) or moved out of the county (N=227) in 2014.

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

[b] Reported HIV viral load and CD4 laboratory tests results taken as markers of HIV medical care visits.

[*] Some cells suppressed to protect confidentiality.

[**] Unstable estimates not shown.

Table 4.10: Viral Suppression in 2014 Among PLHIV at Year-End 2013 by Sex and Age, Alameda County

| Sex ^a | Age at Year-End 2013 | All PLHIV | | Suppressed at Last Viral Load in 2014 ^b | | |
|------------------|----------------------|-----------|----------------|--|-------------|-------|
| | | Count | Column Percent | Count | Row Percent | |
| All | All ages | 5,373 | 100.0% | 3,449 | H | 64.2% |
| | 0-12 | 10 | 0.2% | 7 | ————— | ** |
| | 13-19 | 18 | 0.3% | 11 | ————— | ** |
| | 20-29 | 395 | 7.4% | 215 | ——— | 54.4% |
| | 30-39 | 776 | 14.4% | 435 | ——— | 56.1% |
| | 40-49 | 1,550 | 28.8% | 975 | ——— | 62.9% |
| | 50-59 | 1,674 | 31.2% | 1,138 | ——— | 68.0% |
| | 60 & over | 950 | 17.7% | 668 | ——— | 70.3% |
| Male | All ages | 4,416 | 82.2% | 2,856 | H | 64.7% |
| | 0-12 | * | * | 5 | | * |
| | 13-19 | * | * | 4 | | * |
| | 20-29 | 342 | 6.4% | 192 | ——— | 56.1% |
| | 30-39 | 603 | 11.2% | 341 | ——— | 56.6% |
| | 40-49 | 1,255 | 23.4% | 793 | ——— | 63.2% |
| | 50-59 | 1,416 | 26.4% | 963 | ——— | 68.0% |
| | 60 & over | 787 | 14.6% | 558 | ——— | 70.9% |
| Female | All ages | 957 | 17.8% | 593 | ——— | 62.0% |
| | 0-12 | * | * | 2 | | * |
| | 13-19 | * | * | 7 | | * |
| | 20-29 | 53 | 1.0% | 23 | ————— | ** |
| | 30-39 | 173 | 3.2% | 94 | ——— | 54.3% |
| | 40-49 | 295 | 5.5% | 182 | ——— | 61.7% |
| | 50-59 | 258 | 4.8% | 175 | ——— | 67.8% |
| | 60 & over | 163 | 3.0% | 110 | ——— | 67.5% |

Source: Alameda County eHARS, 2016 Q2

NOTE: Excludes PLHIV at year-end 2013 who died (N=62) or moved out of the county (N=227) in 2014.

[a] Refers to sex assigned at birth

[b] Viral load categories are defined as follows: Suppressed = 76-199 copies/ml, Unsuppressed = 200+ copies/ml

[*] Some cells suppressed to protect confidentiality.

[**] Unstable estimates not shown.

Table 4.11: Viral Suppression in 2014 Among PLHIV at Year-End 2013 by Sex and Race/Ethnicity, Alameda County

| Sex ^a | Race/ Ethnicity ^b | All PLHIV | | Suppressed at Last Viral Load in 2014 ^c | |
|------------------|---------------------------------|-----------|----------------|---|-------------|
| | | Count | Column Percent | Count | Row Percent |
| All | All races | 5,373 | 100.0% | 3,449 | H 64.2% |
| | AfrAmer | 2,221 | 41.3% | 1,338 | H 60.2% |
| | White | 1,771 | 33.0% | 1,235 | H 69.7% |
| | Latino | 940 | 17.5% | 582 | H 61.9% |
| | API | 318 | 5.9% | 213 | H 67.0% |
| | Other/Unk | 123 | 2.3% | 81 | H 65.9% |
| Male | All races | 4,416 | 82.2% | 2,856 | H 64.7% |
| | AfrAmer | 1,616 | 30.1% | 968 | H 59.9% |
| | White | 1,618 | 30.1% | 1,131 | H 69.9% |
| | Latino | 814 | 15.1% | 507 | H 62.3% |
| | API | 263 | 4.9% | 178 | H 67.7% |
| | Other/Unk | 105 | 2.0% | 72 | H 68.6% |
| Female | All races | 957 | 17.8% | 593 | H 62.0% |
| | AfrAmer | 605 | 11.3% | 370 | H 61.2% |
| | White | 153 | 2.8% | 104 | H 68.0% |
| | Latino | 126 | 2.3% | 75 | H 59.5% |
| | API | 55 | 1.0% | 35 | H ** |
| | Other/Unk | 18 | 0.3% | 9 | H ** |

Source: Alameda County eHARS, 2016 Q2

NOTE: Excludes PLHIV at year-end 2013 who died (N=62) or moved out of the county (N=227) in 2014.

[a] Refers to sex assigned at birth

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

[c] Viral load categories are defined as follows: Suppressed = 76-199 copies/ml, Unsuppressed = 200+ copies/ml

[**] Unstable estimates not shown.

Table 4.12: Viral Suppression in 2014 Among PLHIV at Year-End 2013 by Race/Ethnicity and Age, Alameda County

NOTE: This table spans multiple pages.

| Race/ Ethnicity ^a | Age at Year-End 2013 | All PLHIV | | Suppressed at Last Viral Load in 2014 ^b | | |
|---------------------------------|----------------------------|-----------|----------------|---|-------------|-------|
| | | Count | Column Percent | Count | Row Percent | |
| All races | All ages | 5,373 | 100.0% | 3,449 | H | 64.2% |
| | 0-12 | 10 | 0.2% | 7 | ----- | ** |
| | 13-19 | 18 | 0.3% | 11 | ----- | ** |
| | 20-29 | 395 | 7.4% | 215 | ----- | 54.4% |
| | 30-39 | 776 | 14.4% | 435 | ----- | 56.1% |
| | 40-49 | 1,550 | 28.8% | 975 | ----- | 62.9% |
| | 50-59 | 1,674 | 31.2% | 1,138 | ----- | 68.0% |
| | 60 & over | 950 | 17.7% | 668 | ----- | 70.3% |
| AfrAmer | All ages | 2,221 | 41.3% | 1,338 | ----- | 60.2% |
| | 0-12 | 7 | 0.1% | 6 | ----- | ** |
| | 13-19 | 11 | 0.2% | 5 | ----- | ** |
| | 20-29 | 186 | 3.5% | 98 | ----- | 52.7% |
| | 30-39 | 327 | 6.1% | 171 | ----- | 52.3% |
| | 40-49 | 604 | 11.2% | 361 | ----- | 59.8% |
| | 50-59 | 683 | 12.7% | 440 | ----- | 64.4% |
| | 60 & over | 403 | 7.5% | 257 | ----- | 63.8% |
| White | All ages | 1,771 | 33.0% | 1,235 | ----- | 69.7% |
| | 0-12 | * | * | 1 | | * |
| | 13-19 | * | * | 2 | | * |
| | 20-29 | 58 | 1.1% | 35 | ----- | ** |
| | 30-39 | 155 | 2.9% | 94 | ----- | 60.6% |
| | 40-49 | 474 | 8.8% | 313 | ----- | 66.0% |
| | 50-59 | 678 | 12.6% | 487 | ----- | 71.8% |
| | 60 & over | 402 | 7.5% | 303 | ----- | 75.4% |

Table 4.12: Viral Suppression in 2014 Among PLHIV at Year-End 2013 by Race/Ethnicity and Age, Alameda County (continued)

NOTE: This table spans multiple pages.

| Race/ Ethnicity ^a | Age at Year-End 2013 | All PLHIV | | Suppressed at Last Viral Load in 2014 ^b | | |
|---------------------------------|----------------------------|-----------|----------------|---|-------------|-------|
| | | Count | Column Percent | Count | Row Percent | |
| Latino | All ages | 940 | 17.5% | 582 | H | 61.9% |
| | 0-12 | * | * | 0 | | * |
| | 13-19 | * | * | 3 | | * |
| | 20-29 | 103 | 1.9% | 62 | — — | 60.2% |
| | 30-39 | 201 | 3.7% | 109 | — — | 54.2% |
| | 40-49 | 316 | 5.9% | 196 | — — | 62.0% |
| | 50-59 | 225 | 4.2% | 148 | — — | 65.8% |
| | 60 & over | 90 | 1.7% | 64 | — — | 71.1% |
| API | All ages | 318 | 5.9% | 213 | — — | 67.0% |
| | 0-12 | * | * | 0 | | * |
| | 13-19 | * | * | 1 | | * |
| | 20-29 | 31 | 0.6% | 10 | — — — | ** |
| | 30-39 | 63 | 1.2% | 42 | — — | ** |
| | 40-49 | 122 | 2.3% | 83 | — — | 68.0% |
| | 50-59 | 62 | 1.2% | 46 | — — | ** |
| | 60 & over | 39 | 0.7% | 31 | — — | ** |

Table 4.12: Viral Suppression in 2014 Among PLHIV at Year-End 2013 by Race/Ethnicity and Age, Alameda County (continued)

NOTE: This table spans multiple pages.

| Race/ Ethnicity ^a | Age at Year-End 2013 | All PLHIV | | Suppressed at Last Viral Load in 2014 ^b | |
|---------------------------------|----------------------------|-----------|----------------|---|-------------|
| | | Count | Column Percent | Count | Row Percent |
| Other/Unk | All ages | 123 | 2.3% | 81 | 65.9% |
| | 0-12 | 0 | 0.0% | 0 | ** |
| | 13-19 | 0 | 0.0% | 0 | ** |
| | 20-29 | 17 | 0.3% | 10 | ** |
| | 30-39 | 30 | 0.6% | 19 | ** |
| | 40-49 | 34 | 0.6% | 22 | ** |
| | 50-59 | 26 | 0.5% | 17 | ** |
| | 60 & over | 16 | 0.3% | 13 | ** |

Source: Alameda County eHARS, 2016 Q2

NOTE: Excludes PLHIV at year-end 2013 who died (N=62) or moved out of the county (N=227) in 2014.

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

[b] Viral load categories are defined as follows: Suppressed = 76-199 copies/ml, Unsuppressed = 200+ copies/ml

[*] Some cells suppressed to protect confidentiality.

[**] Unstable estimates not shown.

Table 4.13: Viral Suppression in 2014 Among PLHIV at Year-End 2013 and in Care in 2014 by Sex, Alameda County

| Sex ^a | All PLHIV | | Suppressed at Last Viral Load in 2014 ^b | |
|------------------|-----------|----------------|---|-------------|
| | Count | Column Percent | Count | Row Percent |
| All | 4,079 | 100.0% | 3,449 | 84.6% |
| Male | 3,345 | 82.0% | 2,856 | 85.4% |
| Female | 734 | 18.0% | 593 | 80.8% |

Source: Alameda County eHARS, 2016 Q2

NOTE: Excludes PLHIV at year-end 2013 who died (N=62), moved out of the county (N=227), or did not have any HIV labs reported (N=1294) in 2014.

[a] Refers to sex assigned at birth

[b] Viral load categories are defined as follows: Suppressed = 76-199 copies/ml, Unsuppressed = 200+ copies/ml

Table 4.14: Viral Suppression in 2014 Among PLHIV at Year-End 2013 and in Care in 2014 by Race/Ethnicity, Alameda County

| Race/ Ethnicity ^a | All PLHIV | | Suppressed at Last Viral Load in 2014 ^b | | |
|---------------------------------|-----------|----------------|---|-------------|-------|
| | Count | Column Percent | Count | Row Percent | |
| All races | 4,079 | 100.0% | 3,449 | H | 84.6% |
| AfrAmer | 1,678 | 41.1% | 1,338 | H | 79.7% |
| White | 1,364 | 33.4% | 1,235 | H | 90.5% |
| Latino | 687 | 16.8% | 582 | H | 84.7% |
| API | 245 | 6.0% | 213 | H | 86.9% |
| Other/Unk | 105 | 2.6% | 81 | H | 77.1% |

Source: Alameda County eHARS, 2016 Q2

NOTE: Excludes PLHIV at year-end 2013 who died (N=62), moved out of the county (N=227), or did not have any HIV labs reported (N=1294) in 2014.

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

[b] Viral load categories are defined as follows: Suppressed = 76-199 copies/ml,

Unsuppressed = 200+ copies/ml

[**] Unstable estimates not shown.

Table 4.15: Viral Suppression in 2014 Among PLHIV at Year-End 2013 and in Care in 2014 by Age, Alameda County

| Age at Year-End 2013 | All PLHIV | | Suppressed at Last Viral Load in 2014 ^a | | |
|----------------------------|-----------|----------------|---|-------------|-------|
| | Count | Column Percent | Count | Row Percent | |
| All ages | 4,079 | 100.0% | 3,449 | H | 84.6% |
| 0-12 | 8 | 0.2% | 7 | H | ** |
| 13-19 | 16 | 0.4% | 11 | H | ** |
| 20-29 | 304 | 7.5% | 215 | H | 70.7% |
| 30-39 | 560 | 13.7% | 435 | H | 77.7% |
| 40-49 | 1,165 | 28.6% | 975 | H | 83.7% |
| 50-59 | 1,306 | 32.0% | 1,138 | H | 87.1% |
| 60 & over | 720 | 17.7% | 668 | H | 92.8% |

Source: Alameda County eHARS, 2016 Q2

NOTE: Excludes PLHIV at year-end 2013 who died (N=62), moved out of the county (N=227), or did not have any HIV labs reported (N=1294) in 2014.

[a] Viral load categories are defined as follows: Suppressed = 76-199 copies/ml,

Unsuppressed = 200+ copies/ml

[**] 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.

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 [2] 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 2014 (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 [8], 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 <http://www.cdph.ca.gov/pubsforms/forms/CtrlForms/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.
- (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.
 - (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:

-
- (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.
- (c) 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.
- (d) 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.
- (e) 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.
- (f) 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.
- (g) 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.
- (h) 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. [7] 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 report and complete a standardized case report form (available at <http://www.cdph.ca.gov/pubsforms/forms/CtrlDForms/cdph8641a.pdf>) using information abstracted from the patient's medical record and obtained from the HCP. Forms are then transmitted to CDPH, which in turn routinely submits de-identified data 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.
- **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.

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

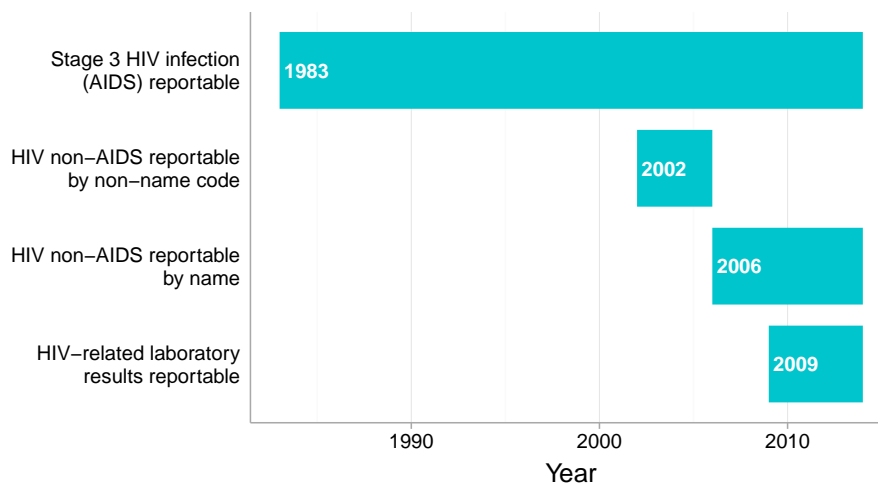
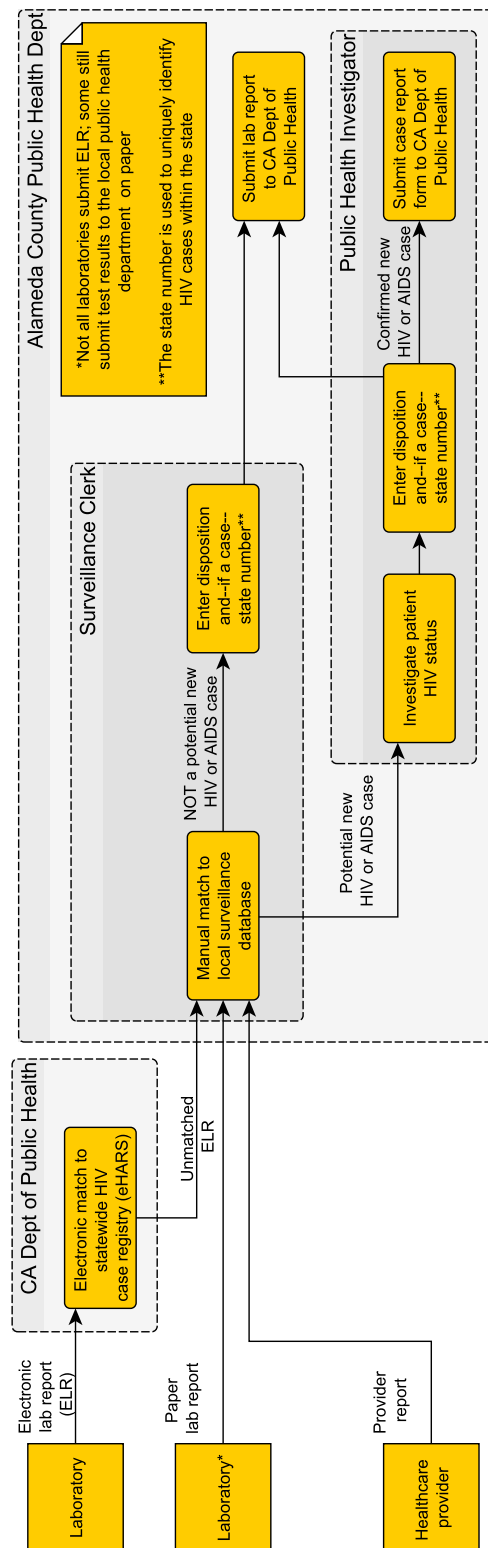


Figure A.2: The HIV Surveillance System in Alameda County



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Bibliography

- [1] California hiv surveillance report — 2014, October 2016. URL <http://www.cdph.ca.gov/programs/aids/Documents/California%20HIV%20Surveillance%20Report%20-%202014.pdf>.
- [2] Joinpoint regression program, version 4.3.1.0, April 2016. URL <https://surveillance.cancer.gov/joinpoint/>.
- [3] Centers for Disease Control and Prevention. Revised surveillance case definition for hiv infection — united states, 2014, April 2014. URL <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr6303a1.htm>.
- [4] Centers for Disease Control and Prevention. Diagnoses of hiv infection in the united states and dependent areas, 2015, November 2016. URL <https://www.cdc.gov/hiv/pdf/library/reports/surveillance/cdc-hiv-surveillance-report-2015-vol-27.pdf>.
- [5] Centers for Disease Control and Prevention. Monitoring selected national hiv prevention and care objectives by using hiv surveillance data—united states and 6 dependent areas—2014, July 2016. URL <https://www.cdc.gov/hiv/pdf/library/reports/surveillance/cdc-hiv-surveillance-supplemental-report-vol-21-4.pdf>.
- [6] Eve Mokotoff, Lucia V. Torian, Monica Olkowski, James T. Murphy, Dena Bensen, Maree Kay Parisi, and Jennifer Chase. Positions statements 2007: Heterosexual hiv transmission classification, 2007. URL www.cste.org/resource/resmgr/PS/07-ID-09.pdf.
- [7] California Department of Public Health. Establishment of state electronic laboratory reporting system for hiv, November 2015. URL <https://www.cdph.ca.gov/programs/aids/Documents/HIVELRLaunchLetter.doc.pdf>.
- [8] Jennifer Parker. Draft suppression/presentation guidelines guidelines for proportions, January 2015. URL https://www.cdc.gov/nchs/data/bsc/bscpres_parker_january2015.pdf.



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