

HIV Annual Surveillance Report



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HIV Annual Surveillance Report, 2015

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Introduction

In 1981, the Centers for Disease Control and Prevention (CDC) published a Morbidity and Mortality Weekly Report (MMWR), describing five cases of a rare lung infection, *pneumocystis carini pneumonia* (PCP) in previously healthy young gay men in Los Angeles, marking the first official reporting of what would later become known as the Acquired Immunodeficiency Syndrome (AIDS) epidemic. AIDS is caused by infection with Human Immunodeficiency Virus (HIV). HIV weakens a person's immune system by destroying CD4 cells (i.e., T-cells), a type of white blood cells that fight disease and infection. In the past three and half decades, HIV has emerged as an intractable global public health problem. There were approximately 36.7 million people worldwide living with HIV at the end of 2015, according to UNAIDS.

HIV infection progresses in stages. Many, but not all, persons infected with HIV develop flu-like symptoms called acute retroviral syndrome (ARS) two to four weeks after infection. After the acute infection, HIV moves into a period of clinical latency where the virus is developing in a person without producing symptoms. AIDS is the last stage (Stage 3) of HIV infection and occurs when the immune system is damaged to an extent that the person is vulnerable to life-threatening opportunistic infections (OI) such as PCP, and a malignant neoplasm Kaposi sarcoma (KS).

It is possible for HIV-infected individuals to spread HIV even if they do not currently have symptoms. HIV is most commonly spread through unprotected sexual contact (most notably anal or vaginal sexual contact) or through sharing equipment for injection drug use. HIV can also be spread from mother to child during pregnancy, birth or breastfeeding. The rigorous testing of the United States blood supply that has been implemented since the beginning of the AIDS epidemic has greatly reduced the risk of getting HIV from contaminated blood transfusions or organ/tissue transplants.

No effective cure exists for HIV. Antiretroviral Therapy (ART) can help control HIV infection, slow progression to AIDS, and reduce (but not eliminate) the risk of spreading HIV. For a disease with no cure, prevention demands primacy.

Today there are many available tools to help prevent the spread of HIV in populations. It is of utmost importance for individuals within a population to know their own HIV status and know the HIV status of sexual partners. Promotion of comprehensive sex education, drug recovery and needle exchange programs can help reduce the risk of HIV spreading in communities. Achieving viral suppression for HIV-infected persons helps prevent the spread of HIV and delay the progression of HIV to Stage 3 infection (AIDS). Newer medications such as pre-exposure prophylaxis (PrEP) and post-exposure prophylaxis (PEP) may be appropriate prevention strategies for some populations under medical guidance.

The biological challenges of the AIDS epidemic and HIV prevention cannot be understood without the context of persistent societal challenges. Continued, visible efforts to reduce discrimination and isolation caused by stigma are essential for the success of any HIV prevention efforts.

Purpose

The purpose of this report is to provide community members and partners with an overview and enhanced understanding of HIV and AIDS (Stage 3 HIV) in Sacramento County, including trends, case distribution, transmission, disparities, and deaths. It is our hope that the information in this report is used to inform evidence-based prevention and care efforts, and to help partners secure resources to assist in these efforts.

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For comments or questions about this report, please contact the Epidemiology Program Manager, Jamie White, at whiteja@saccounty.net

Executive Summary

Cumulative Cases

- There were a cumulative total of 1,762 HIV-infected persons who had not yet progressed to Stage 3 infection (AIDS) ever-diagnosed in Sacramento County by the end of 2015.
- There were a cumulative total of 4,283 HIV-infected persons who had already progressed to AIDS ever-diagnosed in Sacramento County by the end of 2015.

People Living with HIV (PLWH)

- HIV remains a large burden in Sacramento County. As of December 31, 2015, there were a total of 4,101 Sacramento County residents who were living with HIV (any stage); about one out of every 360 County residents was infected with HIV at the end of 2015.
- Zip codes 95823, 95814 and 95816 had the highest counts (>200 persons each) and percent (≥5% each) of total PLWH. Geographic areas with the highest burden of HIV may warrant additional HIV prevention resources.

Newly-Diagnosed Cases

- In 2015, there were 151 newly-diagnosed HIV cases and 33 newly-diagnosed Stage 3 HIV (AIDS) cases reported to Sacramento County.
- There was an increase in the number (+69.7%) and rate (+59.4%) of newly-diagnosed HIV cases from 2006 to 2015. The County rate of newly-diagnosed HIV cases has historically been below the State rate, but has recently begun to approach the State rate.
- The increase in new HIV infections coupled with a relatively low number of new Stage 3 HIV infections (AIDS cases) indicates that there may be increased local active transmission of the virus despite the County having some recent success in slowing the progression of the virus in HIV-infected residents.
- Increased provider education and increased local and state staffing resources would likely help improve the accuracy and timeliness of new HIV and AIDS case reporting.

2015 Case Characteristics

- Whites had the highest number (72) of newly-diagnosed HIV infections, and Whites and Hispanics had equally high numbers (12) of newly-diagnosed AIDS. The number of new HIV infections among Hispanics more than doubled compared to 2006 (16 to 36).
- The magnitude of racial disparities in newly-diagnosed HIV and AIDS cases has decreased since 2010, but disparities still persist. Blacks had the highest rates of both newly-diagnosed HIV (24.6 per 100,000 population) and AIDS (5.5 per 100,000) cases.
- Males had a rate of newly-diagnosed HIV 5.7 times higher than the rate for females, and a rate of newly-diagnosed AIDS 10.3 times higher than the rate for females. Males accounted for

84.7% of new HIV cases and 90.9% of new AIDS cases.

- For males, the leading transmission category was men who have sex with men (MSM), accounting for 71.1% of new HIV infections and 57.6% of new AIDS cases in males. A large proportion of female cases had no identified or reported risk factor. Among female cases with a known transmission category, heterosexual contact accounted for 90.9% of new HIV infections and all of new AIDS cases in females. IDU has declined as a transmission category over recent years, likely due to the efforts of local harm reduction services and possibly a shift in substances of choice over time.
- Young adults and adolescents accounted for 27.8% of new HIV infections and 24.2% of new AIDS cases. There was a notable decrease in the proportion of new HIV infections and AIDS cases occurring among children and adolescents under age 20 compared to 2006.
- While targeted testing of higher-risk populations (e.g., MSM, IDU, serodiscordant couples) is essential for maximizing available resources, the data showing the local diversity of HIV-infected persons provide evidence to support that it would be unwise to limit HIV testing to any single racial/ethnic group, sex, sexual orientation, or age group in Sacramento County.

Concurrent Diagnoses

- Nearly all (97.0%) new AIDS cases in 2015 were diagnosed with Stage 3 HIV infection (AIDS) within one year of initial HIV diagnosis. This finding is especially alarming as these persons may have been unknowingly exposing other people in the community to the virus for many years.
- Non-White residents were more likely than White residents to be concurrently diagnosed with HIV and AIDS during the most recent ten years. Increasing access to care and normalizing opt-in testing among local providers may help reduce the number of concurrently diagnosed cases and disparities in concurrent diagnoses.

Mortality

- Among cases ever-diagnosed in Sacramento County, 2,393 (55.9%) AIDS cases were deceased by the end of 2015.
- HIV-infected persons appear to be living longer; the all-cause mortality rate for Sacramento County cases has decreased from 4.4 to 0.9 per 100,000 population from 2006 to 2015. The rate of death attributed to HIV/AIDS (i.e., listed as the cause of death on the death certificate) has also decreased from 2.8 to 1.6 per 100,000 population.

Ryan White (RW) Program

- Clients enrolled in the County RW program have better HIV care & treatment outcomes compared to Statewide RW averages.
- The vast majority (83.8%) of County RW clients have a suppressed viral load, which is essential to help prevent spread of the virus in our community. Resources to at minimum maintain this program are indispensable for the control of HIV in Sacramento County.

Technical Notes

Surveillance of HIV Infection

California (CA) healthcare providers and clinical laboratories have been required by law to report cases of Human Immunodeficiency Virus (HIV) to local health departments since July 1, 2002. HIV reporting in CA was initially code-based, without identifying patients by name. Effective April 17, 2006, CA Health and Safety (H&S) Code Section 121022(a) required providers and laboratories to begin confidentially reporting HIV infection by patient name. HIV infection must be reported by traceable mail, person-to-person transfer, or electronically within seven calendar days of diagnosis. Acquired Immunodeficiency Syndrome (AIDS) has been nationally notifiable by patient name since 2000. In 2008, AIDS was re-classified in the CDC National Notifiable Disease Surveillance System (NNDSS) as HIV Stage 3 infection.

The Sacramento County Public Health (SCPH) Sexually Transmitted Disease (STD) Control Program investigates and reports cases of HIV and AIDS to the California Department of Public Health (CDPH) Office of AIDS (OA). The SCPH STD Control Unit reports cases using the enhanced HIV/AIDS Reporting System (eHARS), a web-based application provided by CDC.

Data Sources

CDPH OA prepares line-listed datasets from information reported in eHARS that are specific to each local health jurisdiction (LHD). These cumulative datasets consist of nearly 600 data variables and are sent securely back to respective LHDs on a quarterly basis under terms of a Data Use Agreement (DUA). The Sacramento County DUA dataset includes all persons, regardless of vital status, who currently reside in Sacramento County and/or who resided in Sacramento County at time of HIV diagnosis and/or time of Stage 3 (AIDS) diagnosis. Data from the most recently available dataset, December 2016, was used to prepare this report. The December 2015 dataset was used to obtain address information at end of 2015. The 2006-2015 Sacramento County Death Statistical Master Files were used as additional sources of HIV-related death data.

Reporting Delays and Under-Reporting

SCPH relies on local health care providers and laboratories for timely reporting of HIV-positive test results in accordance with the law. The volume of HIV laboratory reports, SCPH staffing resources, and CDPH OA staffing resources may result in additional delays in new cases of HIV and AIDS being reported in eHARS. CDC HIV Surveillance Guidelines estimate that between 85% and 95% of cases for a given year should be represented in eHARS one year after diagnosis. The dataset used for this report (December 2016) includes data reported only one year later than the most recent data displayed in this report and therefore may be incomplete. Consequently, the 2015 HIV and AIDS statistics in this report is a likely underrepresentation of actual 2015 numbers and should be interpreted with caution.

In addition to persons who have been diagnosed but not yet reported, HIV-infected persons who have not been tested or have only tested anonymously are not included in this dataset. The CDC estimates that about 20% of all HIV-infected persons in the United States are unaware of their status. Numbers presented in this report should be considered a minimum count of the actual HIV-infected population in Sacramento County.

HIV Case Definition and Staging

The CDC and the Council of State and Territorial Epidemiologists (CSTE) revised the surveillance case definition of HIV infection in 2014 primarily to address changes in diagnostic criteria. A summary of these changes can be found in a CDC Morbidity and Mortality Weekly Report (MMWR):

<https://www.cdc.gov/mmwr/preview/mmwrhtml/rr6303a1.htm>.

AIDS is a progression of HIV infection (not a separate disease), classified as Stage 3 HIV infection (the last stage) according to the current (2014) surveillance case definition. The stages of HIV infection are as follows:

- **HIV infection, Stage 0 (New infection):** First positive HIV test result within six months after a negative HIV test result. The stage remains Stage 0 until six months after the first positive test result. After six months, the stage may be reclassified as 1, 2, 3, or unknown if based on a CD4+ T-lymphocyte result or the diagnosis of an opportunistic infection (OI). The diagnosis of an AIDS-defining condition or a low CD4 test result before the six months have elapsed does not change the stage from Stage 0 to Stage 3.
- **HIV infection, Stages 1 (Acute infection):** No AIDS-defining condition and either CD4 count of ≥ 500 cells/ μ L or CD4 percentage of total lymphocytes of ≥ 29 .
- **HIV infection, Stage 2 (Clinical latency/chronic HIV infection):** No AIDS-defining condition and either CD4 count of 200-499 cells/ μ L or CD4 percentage of total lymphocytes of 14-28.
- **HIV infection, Stage 3 (AIDS):** Documentation of AIDS-defining condition (excluding Stage 0). A list of AIDS-defining conditions can be found here: <https://www.cdc.gov/mmwr/preview/mmwrhtml/rr5710a2.htm>
- **HIV infection, unknown Stage:** No reported information on AIDS-defining conditions and no information available on CD4 count or percentage.

People living with HIV may progress through these stages at different rates, depending on a variety of factors including age, nutrition status, stress, genetics, or co-infection with other conditions. Without anti-retroviral therapy, the clinical latency stage lasts an average of ten years, but some infected individuals may progress faster.

Tabulation and Presentation of Data

Data Analysis and Management

All data presented in this report were analyzed using SAS 9.3 analytics software. Data were managed in Microsoft Access 2010.

Newly-Diagnosed Cases

Estimation of true incidence (i.e., newly-acquired infections) was beyond the scope of this report. Newly-diagnosed cases of HIV and AIDS are presented as ‘new cases,’ but might not accurately approximate active transmission of HIV and progression to AIDS. New cases of HIV were included if the patient resided in Sacramento County at time of initial HIV diagnosis. New cases of AIDS were included if the patient resided in Sacramento County at time that the patient’s HIV infection was diagnosed as having progressed to Stage 3 HIV infection (AIDS). Implementation of HIV reporting requirements several years after mandated AIDS reporting resulted in some patients having a documented HIV diagnosis date later than their documented AIDS diagnosis date. For purposes of analyses in this report, the earlier of these two dates was used as the HIV diagnosis date.

Rates

Rates are expressed in this report as the number of newly diagnosed HIV or Stage 3 (AIDS) cases each calendar year per 100,000 persons. Death rates are also calculated per 100,000 persons. Population denominators used in calculating HIV/AIDS rates were from the State of California, Department of Finance (DOF) population projections. All rates presented are crude rates.

Cumulative Cases

Cumulative cases are the total number of HIV or HIV Stage 3 (AIDS) cases ever diagnosed in Sacramento County, regardless of patients’ current vital status. Address of residence at time of diagnosis was used to calculate cumulative cases.

Prevalence and People Living with HIV

HIV Prevalence is the proportion of persons in a population who are infected with HIV. Prevalence is often used to estimate the current burden of HIV within a community. People living with HIV (PLWH) are presented as the total number of persons currently living with HIV (all stages) in Sacramento County. Calculations for prevalence and PLWH exclude individuals who had deceased as of December 31, 2015. Cases were included if their most recent known address was in Sacramento County, regardless of residence at time of HIV and/or AIDS diagnosis.

Choropleth Maps

ESRI ArcGIS for Desktop 10.4 was used to create all maps presented in this report. A threshold of 80% match score was used to geocode cases’ current address of residence (as of December 31, 2015) to create the choropleth map by BOS districts. A total of 619 (15.1%) addresses were excluded either because they listed a PO Box or were unable to be geocoded due to missing, incomplete or incorrect addresses. Patient zip alone without a specific geocoded address was sufficient to map by zip code.

Deaths

The mortality data presented in this report differed depending upon the data source from which the data were obtained:

- 1) County eHARS dataset: Death counts were derived from the variable for current vital status (i.e., alive or dead). Cases were assumed to be living unless their deaths had been reported in eHARS at the time of the County dataset creation. Counts included all deaths to HIV cases (all stages), regardless of the underlying cause of death.

2) Sacramento County Death Statistical Master Files: Counts and rates included all deaths to persons who were Sacramento County residents at the time of death with HIV listed as the underlying cause of death on the death certificate. Persons who were infected with HIV but had an underlying cause of death as something other than HIV/AIDS listed on the death certificate were not included as HIV/AIDS deaths.

Age

Several age variables were used in this report. The variables used for age group assignment depended up the presentation of data:

- 1) For presentations of data on persons living with diagnosed HIV infection, all stages (PLWH), the age-group assignment was based on the person's age as of December 31 of the specified year.
- 2) For presentation of data on cumulative cases or newly diagnosed cases, the age-group assignment was based on the person's age at the time of HIV or AIDS diagnosis, respectively.
- 3) For presentations of data on deaths of persons with diagnosed HIV infection (including infections classified as Stage 3), the age-group assignment was based on the person's age at the time of death.

Sex and Gender

Sex designations in this report are based on a person's reported sex at birth. Data for current gender, including transgender, are not presented in this report due to incomplete and inconsistent collection and reporting of gender identity.

Race/Ethnicity

Race and ethnicity categories used for tabulation in this report follow the Office of Management and Budget (OMB) Standards for the Classification of Federal Data on Race and Ethnicity. Persons of Hispanic or Latino ethnicity are categorized as Hispanic/Latino regardless of race. 'Hispanic' in this report indicates Hispanic/Latino ethnicity. Non-Hispanic/non-Latino race categories include American Indian or Alaska Native (AI/AN), Asian, Black or African American (Black), Native Hawaiian or other Pacific Islander, and White. Previous standards combined the Asian and Native Hawaiian or other Pacific Islander race categories as Asian or Pacific Islander (API). This report uses the combined API category for continuity with legacy data and due to small numbers within these race categories.

Transmission Category

Transmission category is a classification of the risk factor that is most likely to have been responsible for transmission based on a presumed hierarchical probability of risk. For surveillance purposes, only one transmission category was assigned to each HIV case even if a person had more than one reported risk factor. The only exception is men who have sex with men (MSM) and had used injection drugs; this group is a separate transmission category. MSM is a categorization based upon reported history of sexual contact (i.e., ever had homosexual or bisexual contact) and is not based on self-reported sexual orientation or identity.

Concurrent diagnosis

The definition of concurrent diagnosis of HIV and AIDS is not consistent in literature. For purposes of this report, concurrent diagnosis was defined as a patient having a Stage 3 (AIDS) diagnosis within one year of an HIV diagnosis.

Burden of HIV in Sacramento County

The cumulative number of newly-diagnosed Stage 3 HIV (AIDS) cases each year among Sacramento County residents reached a peak of 316 cases in 1994 and has declined since then. An expansion of the AIDS surveillance case definition in 1993 likely contributed to this increase.

Figure 1 shows the current vital status (living or deceased as of December 31, 2015) of AIDS cases by the year in which they were diagnosed. The cumulative number of persons living with AIDS has steadily increased as deaths have declined, most noticeably since antiretroviral therapy (ART) became widely available in 1995. There were a cumulative total of 1,841 persons who were residents of Sacramento County at the time of AIDS diagnosis and were still alive by the end of 2015. These persons may or not still currently reside in Sacramento County.

Figure 1 Vital Status of AIDS Cases by Year of Diagnosis, Sacramento County, 1982-2015

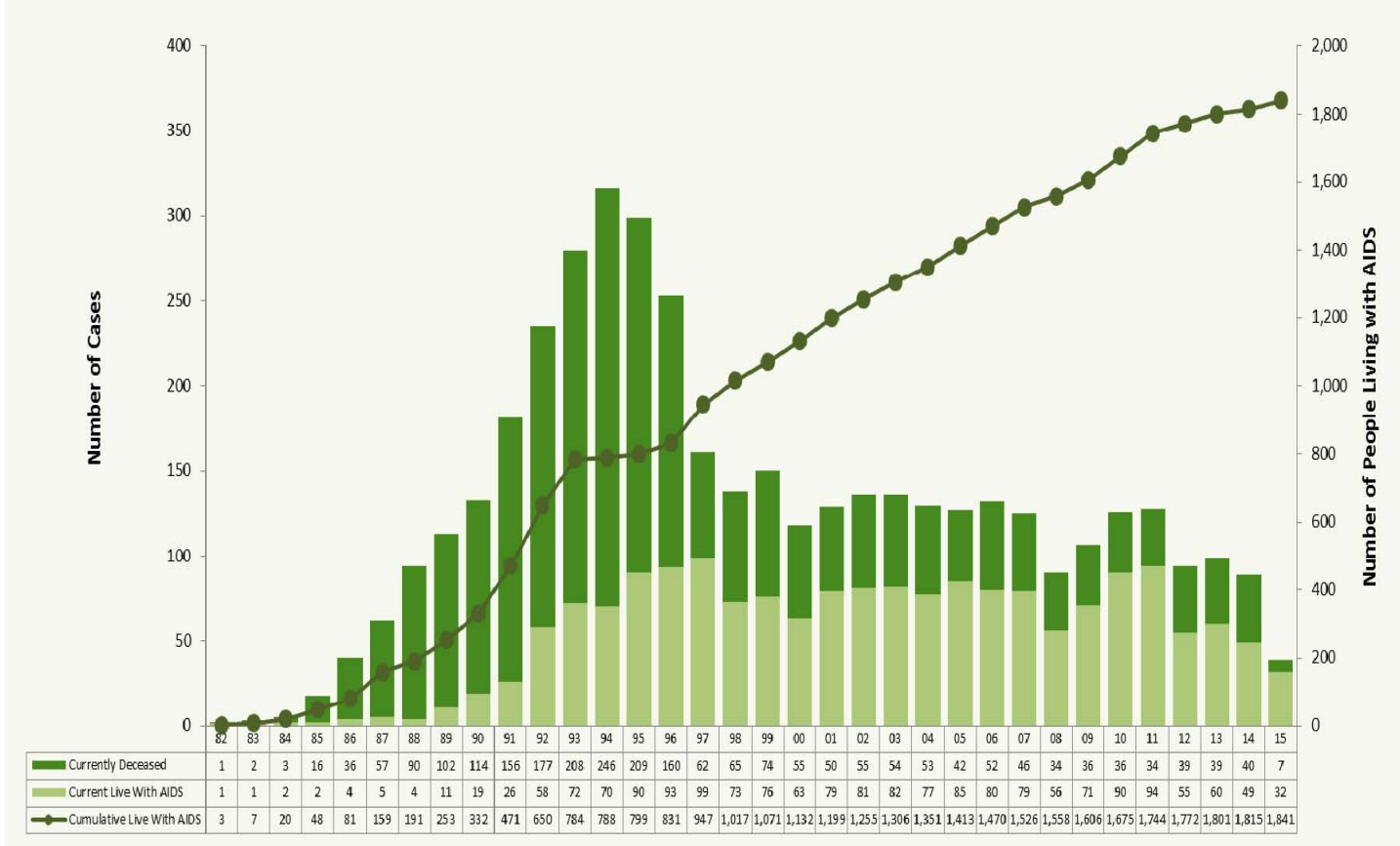


Table 1 shows the distribution of cumulative HIV cases (who have not yet progressed to Stage 3), cumulative AIDS cases (Stage 3), and people living with any stage of HIV (PLWH) by gender, race/ethnicity, age group and transmission category. There have been 1,762 HIV cases that have not progressed to Stage 3 and 4,291 Stage 3 (AIDS) cases ever-diagnoses among County residents. There were a total of 4,101 PLWH who were currently residing in the County at the end of 2015; this means that about one out of every 360 residents in the County were infected with HIV.

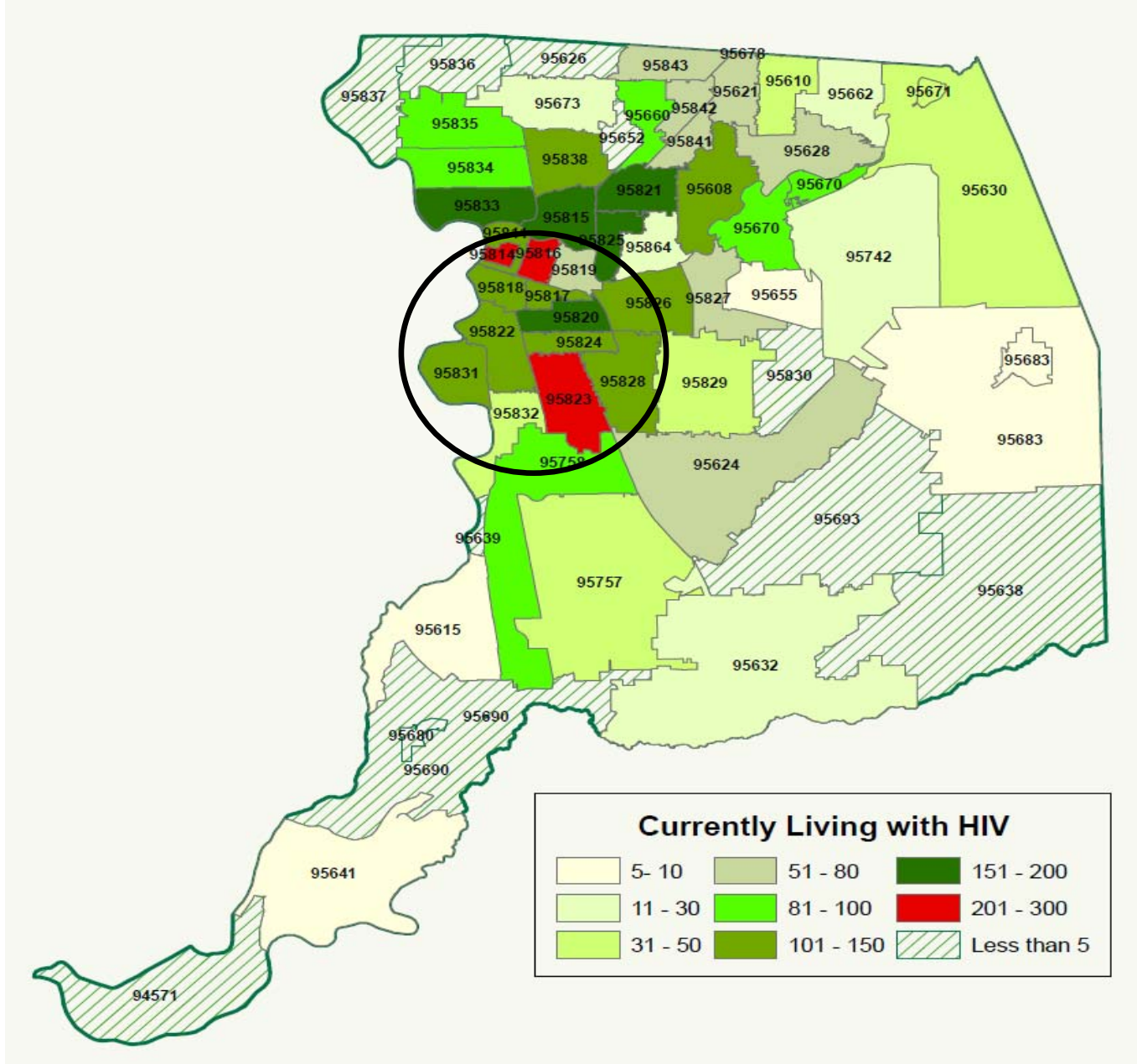
Table 1. Burden of HIV/AIDS Cases in Sacramento as of December 31, 2015

Indications	Cumulative Diagnosed HIV and Stage 3 (AIDS Case)				People Living with HIV (All Stages)	
	HIV	%	AIDS	%	HIV/AIDS	%
Sex						
Male	1,468	83.3	3,756	87.5	3,415	83.3
Female	294	16.7	535	12.5	686	16.7
Race/Ethnicity						
White	904	51.3	2,589	60.3	2,060	50.2
Black	407	23.1	941	21.9	1,038	25.3
Hispanic	317	18.0	581	13.5	726	17.7
Asian/PI	74	4.2	89	2.1	148	3.6
American Indian/Alaska Native	14	0.8	33	0.8	25	0.6
Multi-Race	40	2.3	54	1.3	96	2.3
Unknown	6	0.3	4	0.1	8	0.2
Transmission Category						
MSM	1,015	57.6	2,476	57.7	2,271	55.4
IDU only	132	7.5	561	13.1	393	9.6
Heterosexual contact only	339	19.2	585	13.6	766	18.7
MSM/ IDU	105	6.0	476	11.1	356	8.7
Perinatal exposure	14	0.8	26	0.6	33	0.8
Other	157	8.9	167	3.9	282	6.9
Age Group						
Less than 13	18	1.0	25	0.6	10	0.2
13-19	66	3.7	24	0.6	11	0.3
20-29	518	29.4	707	16.5	338	8.2
30-39	538	30.5	1692	39.4	626	15.3
40-49	389	22.1	1259	29.3	951	23.2
50 and Older	233	13.2	584	13.6	2165	52.8
Total	1,762	100.0	4,291	100.0	4,101	100.0

Males represented the vast majority of cumulative HIV (83.3%) and cumulative AIDS (87.5%) cases. Whites represented about half of cumulative HIV cases (51.3%) and three out of every five cumulative AIDS cases (60.3%). Blacks had the next highest proportion of cumulative HIV (23.1%) and cumulative AIDS cases (21.9%), followed by Hispanics (18.0% for HIV and 13.5% for AIDS). The age groups 20-29 and 30-39 (age at time of diagnosis) each represented about 30% of the cumulative HIV cases. The age group with the highest proportion of cumulative AIDS cases was 30-39 (39.4%), followed by 40-49 (29.3%).

PLWH as of December 31, 2015 were also much more likely to be male (83.3%). Half were White (50.2%), one fourth were Black (25.3%) and less than one fifth (17.7%) were Hispanic. The population of PLWH currently residing in Sacramento County represent a much older population, with about half (49.7%) over age 50.

Map 1. Currently Living with HIV (all Stages) in Sacramento County by Zip Code as of 2015 (N= 4,101)



Map 1 shows the spatial distribution of PLWH by zip code as of the end of 2015. Nearly 66% of people diagnosed with HIV (any stage) were located in the following zip codes: 95823, 95814, 95816, 95833, 95825, 95820, 95815, 95821, 95811, 95822, 95826, 95838, 95818, 95831, 95817, 95828, 95608 and 95824. Each of these zip codes had over 100 PLWH. Zip code 95823 had nearly 300 PLWH as of the end of 2015. Zip codes 95671 and 95814 contain State and/or County correctional facilities. Detailed counts and percents by zip code can be found in Appendix B, Table 6 of this report.

Trends in HIV Diagnoses, 2006-2015

Newly-Diagnosed HIV Infection

From 2006 to 2015, the total number of newly-diagnosed HIV infections increased by 69.7% from 89 cases in 2006 to 151 cases in 2015 [Figure 2]. The number of newly-diagnosed HIV infections was highest in 2012 (185 cases) during the most recent ten years. The rate of newly-diagnosed HIV infection increased 59.4% from 6.4 per 100,000 in 2006 to 10.2 in 2015. While Sacramento County has had a consistently lower rate of newly-diagnosed HIV infections compared to California overall for all listed years, the rates have recently begun to converge; the rate ratio was 0.4 in 2006 and 1.0 in 2014 (State as referent).

Figure 2. Newly-Diagnosed HIV Infections and Rates, Sacramento County, 2006-2015



HIV by Race/Ethnicity

Figure 3 and Figure 4 show the number and rates of newly-diagnosed HIV infections, respectively, by select race/ethnicity during the most recent ten years. The number of HIV infections among Hispanics more than doubled in 2015 compared to 2006. The largest number of cases for all listed years was among Whites [Figure 3]. Blacks had the highest HIV rates across all the listed years, but the magnitude of racial disparities between HIV rates for Blacks compared to Whites was the lowest in 2015 (rate ratio 2.3) than in any other single year of the most recent ten years. Hispanics had an 83.1% increase in HIV rates from 5.9 in 2006 to 10.8 in 2015 [Figure 4].

Figure 3. HIV Cases by Select Race/Ethnicity, Sacramento County, 2006-2015



Figure 4. HIV Rates by Select Race/Ethnicity, Sacramento County, 2006-2015



HIV by Sex

Males had much higher rates of newly-diagnosed HIV infections compared to females for all listed years [Figure 5]. Both males and females had increases in HIV rates from 2006 to 2015; males increased from 10.7 to 20.2 per 100,000 (+65.4%), while females increased from 2.3 to 3.1 per 100,000 (+34.8%). HIV rates were highest for males in 2012 (23.0 per 100,000) and for females in 2014 (4.8 per 100,000).

Figure 5. HIV Cases and Rates by Sex, Sacramento County, 2006-2015



HIV by Transmission Category

The transmission category for most males diagnosed with HIV infection in Sacramento County was men who have sex with men (MSM) across all listed years. In 2015, 71.1% of male HIV infections were MSM. The number of male HIV cases in the heterosexual contact transmission category increased from 2006 to 2014 (+78.6%) and then dramatically decreased (-72.0%) from 2014 to 2015 [Figure 6]. Heterosexual contact was the leading transmission category for female HIV cases, accounting for over half of female cases for all listed year, except for 2015 for which there is a large number (12) of female cases with no reported or identified risk factor [Figure 7]. The proportion of female cases with a transmission category of IDU dramatically decreased from 43.8% in 2006 to 4.3% in 2015 [Figure 7].

Figure 6. HIV Cases by Transmission Category for Males, 2006-2015



Figure 7. HIV Cases by Transmission Category for Females, 2006-2015



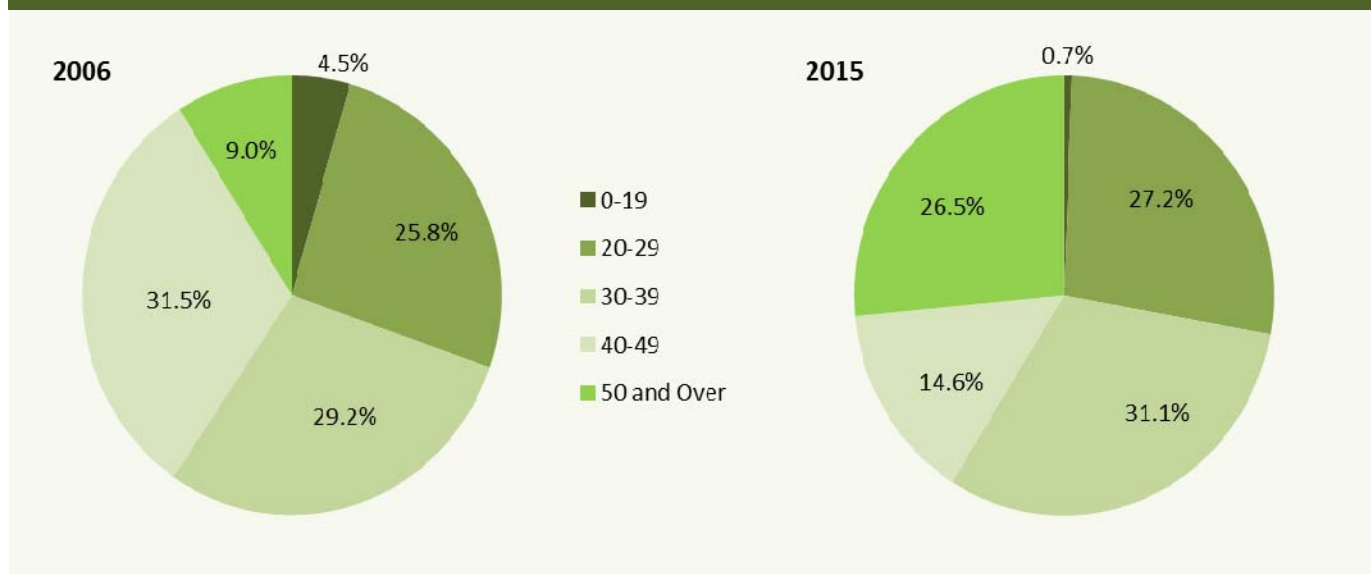
HIV by Age Group

Table 2 shows the annual number of HIV infections diagnosed between 2006 and 2015 by age group at time of diagnosis. About 77.2% of all HIV cases in the ten years were distributed in the 20 to 49 age groups. Figure 8 compares the proportion of cases by age group in 2006 to 2015. The proportion of new HIV cases under age 30 was less in 2015 (27.8%) compared to 2006 (30.3%); although the proportion of young adults age 20-29 increased by 5.4%, the proportion of children and adolescents under age 20 decreased by 84.4%. The proportion of HIV cases in the age 50 and older group almost tripled compared to 2006 (9.0% to 26.5%).

Table 2. HIV Cases by Age Group, Sacramento County, 2006-2015

Age Group	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
0-19	4	11	7	15	7	12	6	12	8	1
20-29	23	43	51	43	60	57	63	57	61	41
30-39	26	35	38	45	35	38	44	40	40	47
40-49	28	32	40	33	45	40	35	33	38	22
50 and Over	8	22	18	32	36	29	37	26	34	40
Total	89	143	154	168	183	176	185	168	181	151

Figure 8. Percentage of HIV Cases by Age Group, Sacramento County, 2006 vs. 2015

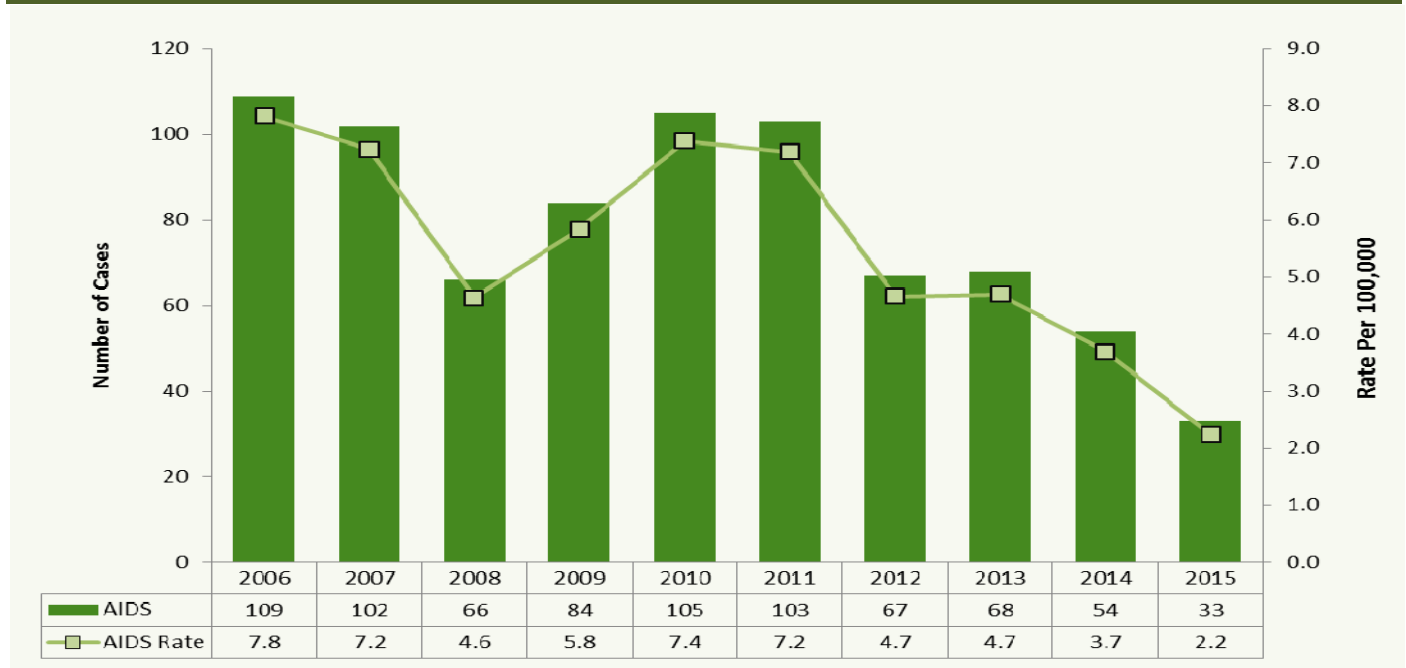


Trends in Stage 3 HIV (AIDS) Diagnoses, 2006-2015

Newly-Diagnosed Stage 3 HIV (AIDS)

The total number of newly diagnosed Stage 3 HIV (AIDS) cases fluctuated over the most recent ten years [Figure 9]. The Sacramento Area experienced funding cuts to prevention and early intervention programs in 2008 and 2009 (+59.1%) totaling \$2 million, which likely contributed to the sharp increase in AIDS cases and rates from 2008 to 2010 by creating an environment in which persons who may have been HIV positive did not get tested until they were symptomatic and their infection had already progressed to Stage 3. Since 2010, AIDS cases and rates have steadily declined in Sacramento; there was a decrease of 68.6% from 105 cases in 2010 to 33 cases in 2015.

Figure 9. Newly-Diagnosed AIDS Cases and Rates, Sacramento County, 2006-2015



Stage 3 HIV (AIDS) by Race/Ethnicity

The number of newly-diagnosed AIDS cases dramatically dropped from 2006 to 2015 for all listed racial/ethnic groups [Figure 10]. Whites had a greater number of AIDS cases than other racial/ethnic groups for all years except for 2015, when the number of newly-diagnosed Hispanic cases were the same as the number of White cases. Newly-diagnosed cases for Whites decreased by 80.0% from 60 cases in 2006 to 12 cases in 2015. Blacks appear to have been disproportionately affected by the 2010 increase in total new AIDS cases. Racial disparities have decreased since 2010 but still persist. Blacks had higher AIDS incidence rates compared to all other racial/ethnic groups for all listed years [Figure 11]. The rate of newly-diagnosed AIDS cases also significantly decreased for all racial/ethnic groups, most notably among Whites (-79.0%).

Figure 10. AIDS Cases by Select Race/Ethnicity, Sacramento County, 2006-2016



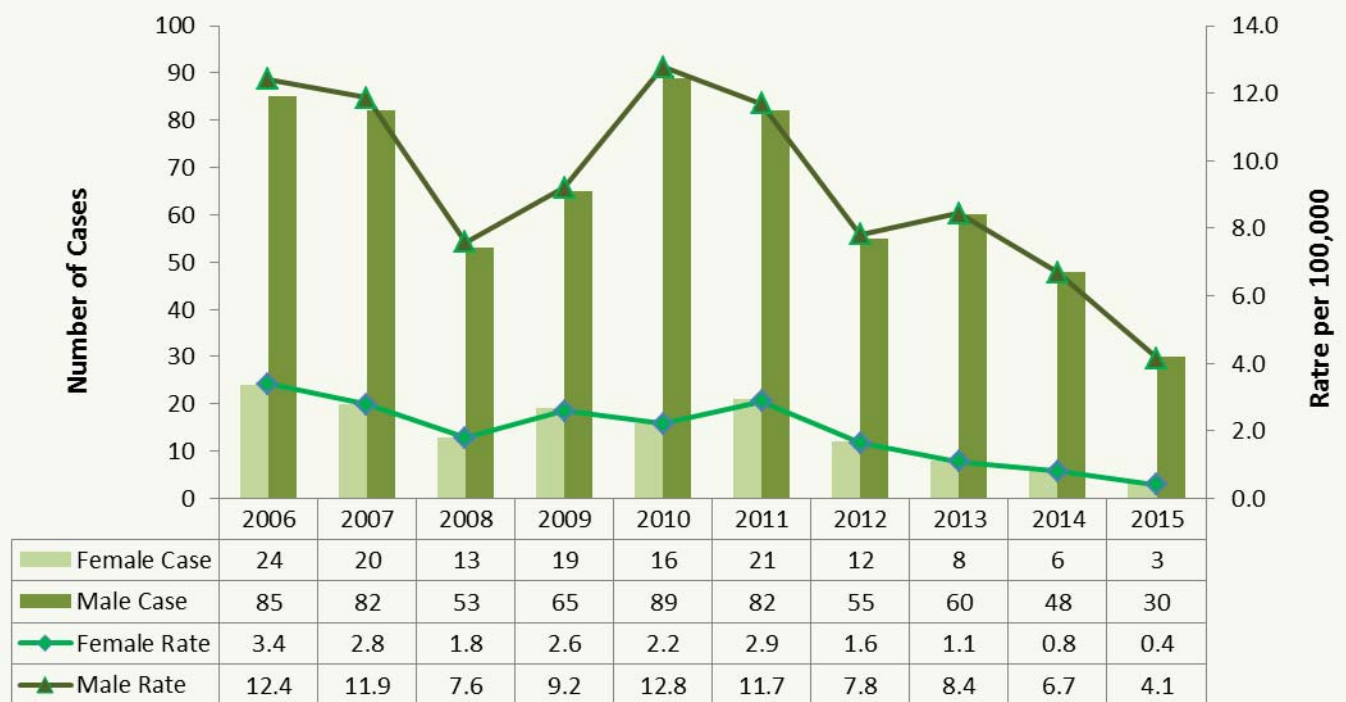
Figure 11. AIDS Rates by Select Race/Ethnicity, Sacramento County, 2006-2015



Stage 3 HIV (AIDS) by Sex

Males had higher rates of newly-diagnosed AIDS compared to females for all listed years [Figure 12]. The rates of newly-diagnosed AIDS for both males and females fluctuated over the past ten years, but greatly decreased overall; AIDS rates for females decreased 88.2% from 3.4 in 2006 to 0.4 in 2015, whereas AIDS rates for males decreased 66.9% from 12.4 in 2006 to 4.1 per 100,000 in 2015. The spike in AIDS cases in 2010 primarily affected males.

Figure 12. Newly-Diagnosed AIDS Rates by Sex, Sacramento County, 2006-2013



Stage 3 HIV (AIDS) by Transmission Category

The principal transmission category for males who progressed to Stage 3 HIV infection (AIDS) was MSM across all listed years [Figure 13]. The second most prevalent transmission category was heterosexual contact. The percentage of total male AIDS cases with heterosexual contact only increased from 12.9% in 2006 to 25.0% in 2014, but in 2015 there was a big drop to just 10.0% of total male cases. The leading transmission category for females was heterosexual contact followed by injection drug use (IDU) [Figure 14]. IDU has declined as a transmission category for both male and female AIDS cases over the most recent ten years.

Table 13. AIDS by Transmission Category for Males, Sacramento County, 2006-2015



Table 14. AIDS by Transmission Category for Females, Sacramento County, 2006-2015



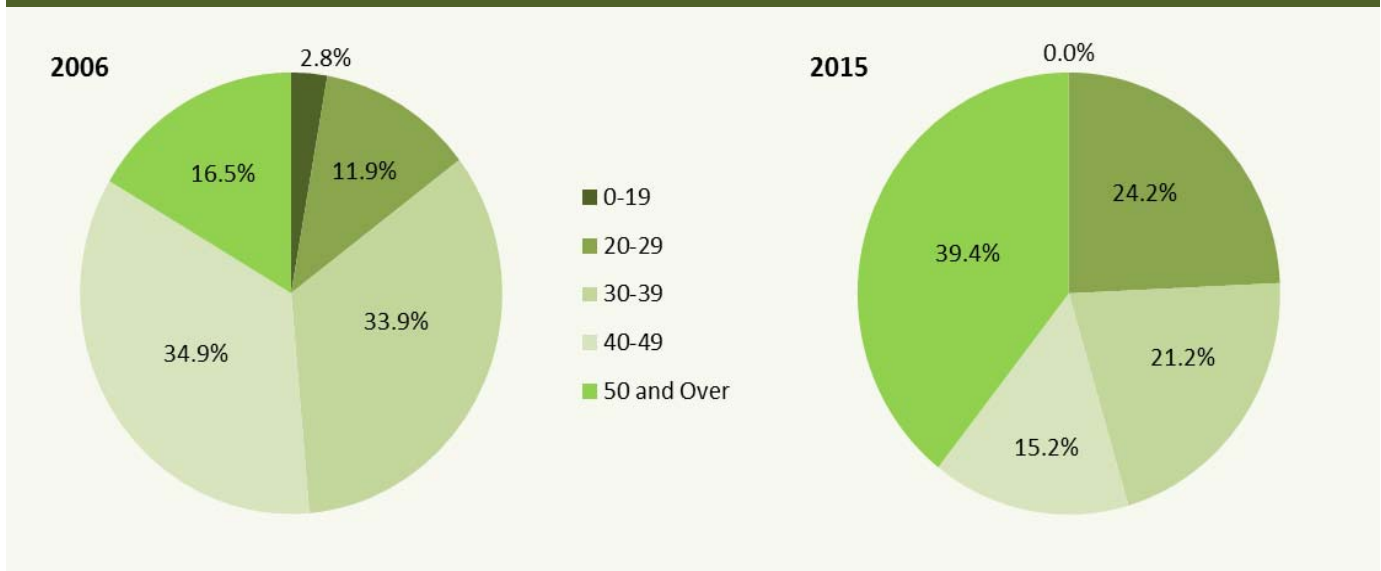
Stage 3 HIV (AIDS) by Age Group

Table 3 shows the annual number of Stage 3 HIV (AIDS) cases diagnosed between 2006 and 2015 by age group at time of diagnosis. Over half of AIDS cases were distributed in the 40-and-older age groups for all listed years. Figure 15 compares the proportion of cases by age group in 2006 to 2015. The proportion of AIDS cases in the 20 to 29 year and 50 and older age groups more than doubled (11.9% to 24.8%, and 16.5% to 39.4%, respectively). The proportion of total AIDS cases in the 30 to 49 and under 20 age groups decreased from 2006 to 2015.

Table 3. AIDS Cases by Age Group, Sacramento County, 2006-2015

Age Group	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
0-19	3	2	2	1	3	0	1	1	0	0
20-29	13	11	12	14	17	27	14	14	9	8
30-39	37	28	17	22	18	18	19	11	14	7
40-49	38	43	24	29	35	29	17	24	15	5
50 and Over	18	18	11	18	32	29	16	18	16	13
Total	109	102	66	84	105	103	67	68	54	33

Figure 15. Percentage of AIDS Cases by Age Group, Sacramento County, 2006 vs. 2015



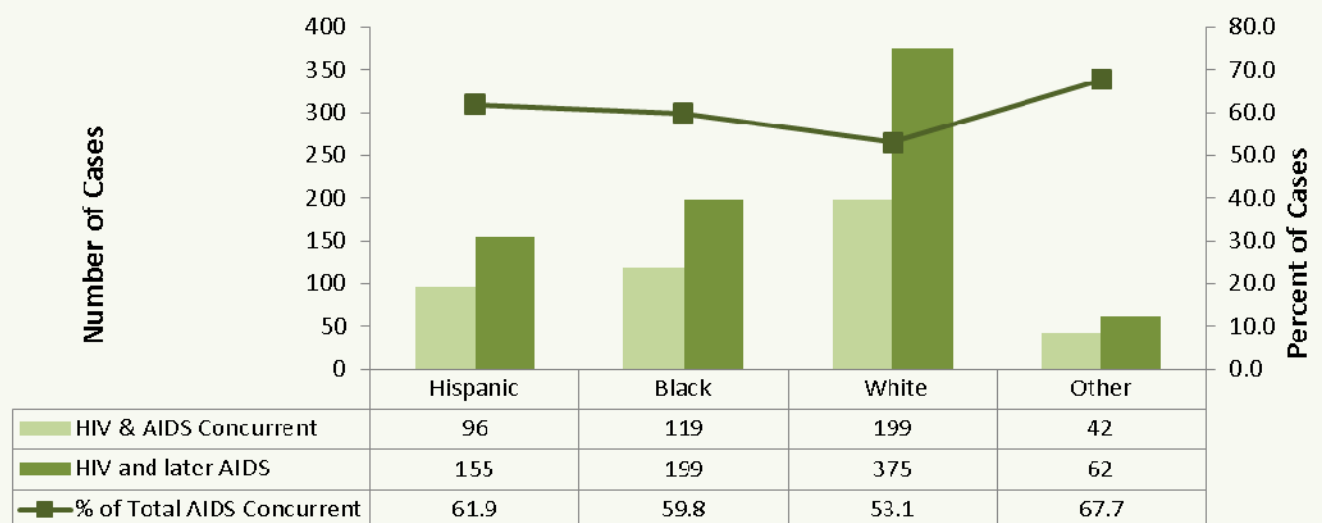
Concurrent HIV and AIDS Diagnoses in 2006-2015

Figure 16 shows HIV-infected persons who were diagnosed with HIV and AIDS concurrently (i.e., were classified as having Stage 3 HIV infection within one year of initial HIV diagnosis). Persons concurrently diagnosed with HIV and AIDS may have unknowingly exposed other persons in our community to the virus for many years since the average time for untreated HIV to progress to Stage 3 HIV (AIDS) is ten years. The percent of total AIDS cases in Sacramento County that were concurrently diagnosed with HIV and AIDS has more than doubled in the most recent ten years. Although Whites make up the largest number of AIDS cases in Sacramento County in the most recent ten years, non-Whites were more likely to be concurrently diagnosed with HIV and AIDS [Figure 17].

Figure 16. Concurrent Diagnoses of HIV and AIDS, Sacramento County, 2006-2015



Figure 17. Concurrent Diagnoses of HIV and AIDS by Select Race/Ethnicity, 2006-2015



Treads in HIV/AIDS Mortality, 2006-2015

Deaths among HIV Cases (all Stages)

From 2006 to 2015, 479 HIV-infected persons diagnosed in Sacramento County died. Table 4 details characteristics of these persons, including sex, race/ethnicity, transmission category and age group from 2006 to 2015. Compared to HIV-infected persons who died in 2006, HIV-infected persons who died in 2015 were more likely to be female (23.1% vs 11.3%), Black (46.2% vs. 25.8%), heterosexual (30.7% vs. 19.4%), and over age 50 at time of death (84.6% vs 41.9%) on average.

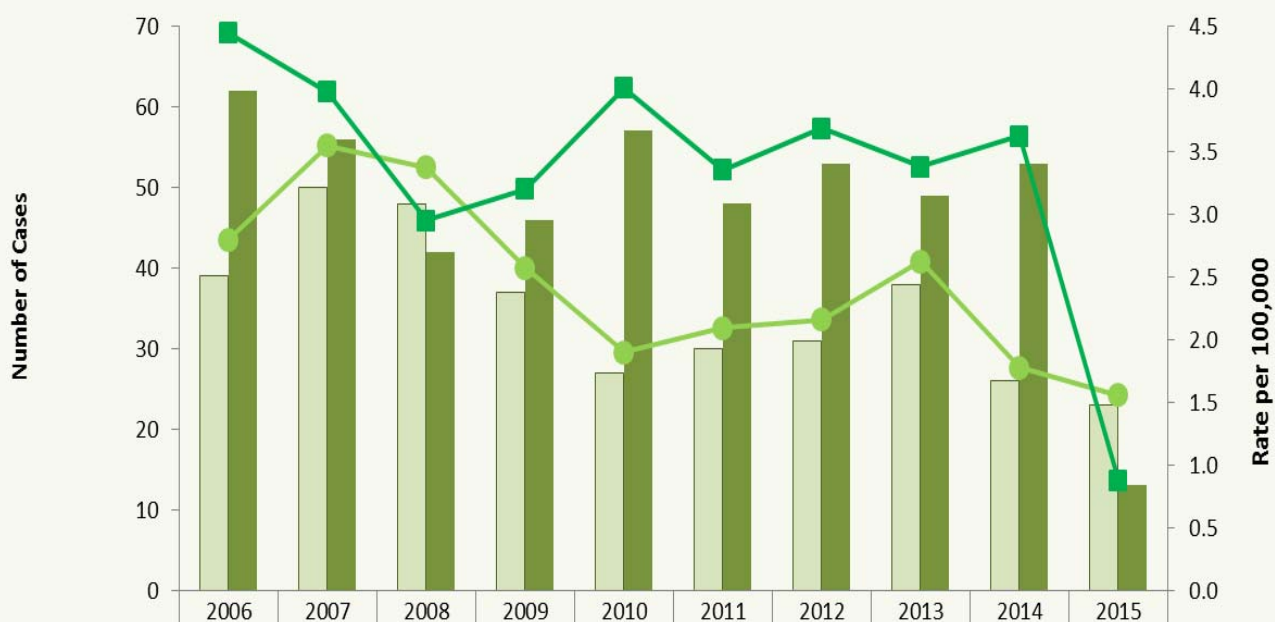
Table 4. Deaths Among HIV (All Stages) by Select Demographic and Risk Characteristics, Sacramento County, 2006-2015

Indications	Year of Death									
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Sex										
Male	55	49	26	39	45	44	39	39	48	10
Female	7	7	16	7	12	4	14	10	5	3
Race/Ethnicity										
White	34	34	24	29	34	28	27	28	29	4
Black	16	10	12	8	13	9	17	12	12	6
Hispanic	10	6	5	5	5	7	5	3	7	2
Asian/PI	0	0	0	0	1	0	0	2	0	1
American Indian/Alaska Native	0	0	0	0	0	0	2	0	0	0
Multi-Race	2	6	1	4	4	4	2	4	5	0
Transmission Category										
MSM	34	26	16	23	24	29	17	21	26	1
IDU only	11	8	11	6	8	9	12	11	10	3
Heterosexual contact only	12	11	12	9	15	4	7	9	9	4
MSM & IDU	3	11	3	7	6	5	7	5	6	3
Other	2	0	0	1	4	1	10	3	2	2
Age Group										
Less than 13	0	0	0	0	0	0	0	0	0	0
13-19	0	0	0	0	0	0	0	0	0	0
20-29	2	3	1	1	3	2	1	2	0	0
30-39	8	11	4	4	6	4	7	5	2	0
40-49	26	22	13	20	21	12	8	10	8	2
50 and Older	26	20	24	21	27	30	37	32	43	11
Total	62	56	42	46	57	48	53	49	53	13

All-Cause Mortality among HIV-Infected Persons vs. Deaths Due to HIV Infection

Figure 16 compares all-cause mortality among persons infected with HIV (“Surveillance Deaths”) to deaths for which HIV infection was listed as the underlying cause of death on the death certificate (“Vital Statistics Deaths”) in Sacramento County. Surveillance deaths among HIV-infected persons decreased by 22.2% from 4.4 per 100,000 in 2006 to 3.6 in 2014. The lower number of surveillance deaths in 2015 compared to deaths with HIV listed as an underlying cause of death is partially due to reporting delays in the surveillance database and should be interpreted with caution. Deaths attributed to HIV/AIDS in Vital Statistics records decreased by 75.0% from 2.8 per 100,000 in 2006 to 1.6 in 2015.

Figure 18. HIV/AIDS Deaths and Death Rates in Sacramento County, 2006-2015



HIV Infection Care in Sacramento County

Ryan White Program

The Ryan White (RW) HIV/AIDS Program provides a comprehensive system of care that includes primary medical care and essential support services for PLWH who are uninsured or underinsured. The Program works with cities, states, and local community-based organizations to provide HIV care and treatment services to more than half a million PLWH each year. The RW Program reaches approximately 52% of all people diagnosed with HIV in the United States. In 2015, 61.6% of PLWH who were uninsured or underinsured in the Sacramento Area had been served in the RW Program. Sacramento County had a higher percentage of eligible clients enrolled in the RW Program compared to the State average across all listed years [Figure 17]. In 2015, 73.7% of PLWH in the Sacramento Area had been linked to care and 72.4% had been retained in care in the same year. Figure 18 shows the care and treatment status of Sacramento County RW clients compared to the status of RW clients statewide in 2014. Sacramento County RW clients had significantly better care and treatment outcomes compared to the State averages. The high percentage of Sacramento County RW clients that had a suppressed viral load is especially encouraging for local prevention efforts.

Figure 19. PLWH in Ryan White Programs, Sacramento County, 2011-2015

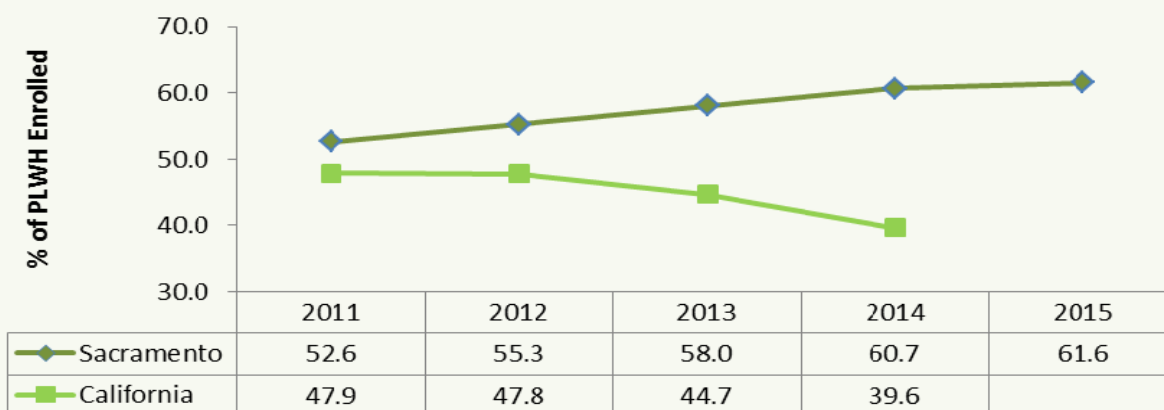
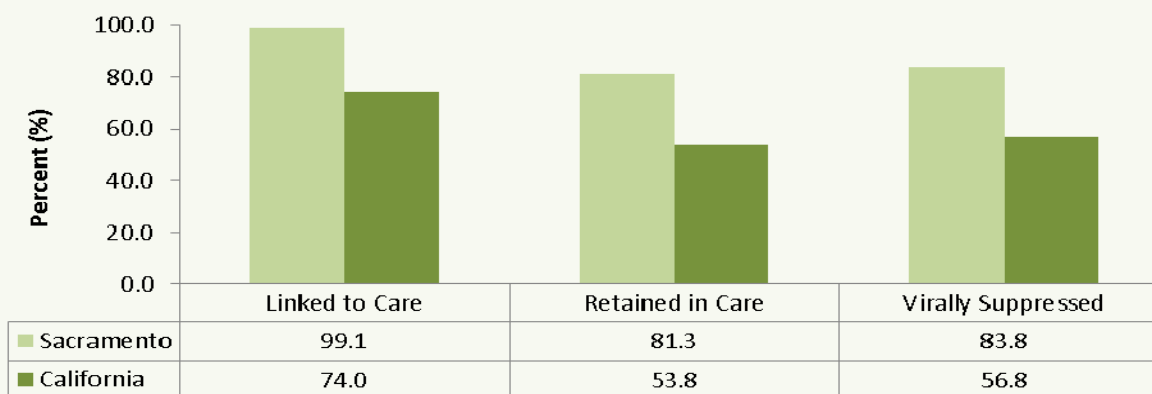


Figure 20. PLWH in Ryan White Program in Care, Sacramento County, 2014



Appendix A

**Table 5. Sacramento Workgroup to Improve Sexual Health (Sac WISH)
Active Member Organization List, April 2017**

Member Organization
BloodSource
California Department of Public Health, STD Control Branch
California Department of Education
California State University, Sacramento
Cares Community Health
CommuniCare Health Centers
County of Sacramento
County of Yolo
Elk Grove School District, Student Support and Health Services
Essential Access (formerly California Family Health Council)
First 5 Sacramento Commission
Gender Health Center
Golden Rule Services
Harm Reduction Services
HealthNet
Los Rios Community College District
People Reaching Out
Planned Parenthood Mar Monte
Sacramento City Unified School District
Sacramento LGBT Community Center
Sacramento Sierra Valley Medical Society
Sutter Medical Center, Sacramento
University of California, Davis School of Public Health
WellSpace Health
Women's Health Specialists

Appendix B

Table 6. PLWH All Stage in Sacramento County As 2015

Zip Code	Living with HIV (All Stage)	Percent of Total	Zip Code	Living with HIV (All Stage)	Percent of Total
95823	286	7.0	95621	69	1.7
95814	212	5.2	95624	63	1.5
95816	203	5.0	95827	57	1.4
95833	174	4.2	95628	56	1.4
95825	161	3.9	95819	56	1.4
95820	157	3.8	95843	51	1.2
95815	155	3.8	95757	50	1.2
95821	151	3.7	95610	48	1.2
95811	138	3.4	95671	45	1.1
95822	130	3.2	95630	38	0.9
95826	128	3.1	95829	38	0.9
95838	128	3.1	95832	34	0.8
95818	122	3.0	95673	30	0.7
95831	119	2.9	95864	27	0.7
95817	110	2.7	95662	25	0.6
95828	110	2.7	95632	19	0.5
95608	104	2.5	95812	19	0.5
95824	102	2.5	95742	16	0.4
95670	96	2.3	95655	8	0.2
95660	90	2.2	95641	7	0.2
95834	83	2.0	95609	6	0.1
95758	82	2.0	95615	5	0.1
95835	81	2.0	95683	5	0.1
95841	80	2.0	Other	50	1.2
95842	77	1.9	Total	4,101	100.0



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Board of Supervisors**

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Patrick Kennedy, District 2
Susan Peters, District 3, Vice Chair
Sue Frost, District 4
Don Nottoli, District 5, Chair**

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**Department of
Health & Human Services
Sherri Z. Heller, EdD, Director**

**County Health Officer
Olivia C. Kasirye, MD, MS**

**County STD Controller
Melody Law, MD, MPH**