AN EPIDEMIOLOGIC PROFILE OF HIV LOS ANGELES COUNTY 2015

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An Epidemiologic Profile of HIV in Los Angeles County

2015

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Executive Summary

This *Epidemiologic Profile of HIV (Profile)* provides updated information about HIV in Los Angeles County (LAC). The *Profile* focuses predominantly on the social and demographic groups most affected by HIV and the behaviors that can transmit HIV. The intent of the *Profile* is to synthesize recent surveillance data and research and highlight changing patterns and emerging trends. Major findings include:

- HIV diagnoses decreased 37% between 2002 and 2013 from 2,500 to 1,830 total persons diagnosed.

- Although cases and rates of new HIV diagnoses have been decreasing, Black/African American (Black/AA) males and females remain disproportionately impacted by HIV in LAC. HIV diagnosis rates in 2013 were 3.2 times higher for Black/AA males compared to White males and rates for Black/AA females were 9 times higher than for White females.

- In 2013, the mode of HIV exposure for the majority of males (97%) and females (80%) diagnosed with HIV in LAC was associated with sex with men.

- Approximately one-third of individuals diagnosed with HIV in 2013 were under the age of 30. There has been a steady increase in the proportion of new diagnoses in LAC residents aged 18-29 years from approximately 8% of all diagnoses in 2002 to 18% of all diagnoses in 2013.

- It is estimated that approximately 60,000 persons are living with HIV in LAC, 14% of whom are unaware of their infection.

- Based on 2014 behavioral surveillance survey data from a representative sample of men who have sex with men (MSM) in LAC, estimated HIV prevalence was highest among Black/African American MSM (34%) followed by Latino (15%) and White (9%) MSM.

- LAC is very large and diverse, both geographically and demographically. Challenges include a lack of affordable housing, overcrowding, homelessness, declining median income, a high proportion of residents without health insurance, and a large and growing immigrant population from many countries who speak a wide variety of languages.

- Compared to the US, the HIV epidemic in LAC has a higher proportion of MSM and fewer persons whose mode of HIV exposure was injection drug use or heterosexual contact.

- The number of new pediatric cases of HIV in LAC continued to decline, due in large measure to the administration of antiretroviral therapy to HIV-infected pregnant women and/or their newborn infants.

- HIV has disproportionately impacted various regions in LAC. Localities with the greatest number of persons diagnosed with HIV and living with HIV (PLWH) are in Metro SPA (SPA 4), followed by the South Bay Service Planning Area (SPA 8) and the San Fernando Valley SPA (SPA 2). The greatest rates of people living with HIV are observed in the cities and communities of SPA 4.

- SPA 1 and SPA 6 are the regions with the highest proportion of females among persons diagnosed with HIV in 2013 (21% and 21%, respectively) and living with HIV (20% and 18%, respectively). These percentages are nearly twice that for the County overall where 11% of newly diagnosed and people living with HIV are female.

- Among the SPAs, the highest percentage of persons diagnosed with HIV as a result of injection drug use (IDU) was in SPA 1, where 10% of newly diagnosed and 13% of people living with HIV (PLWH) had HIV infections that were associated with IDU. These percentages are 2-3 times higher than for the County overall where IDU was the mode of transmission associated with 4% of HIV diagnoses and 5% of PLWH.

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I. INTRODUCTION

This profile is the fifth edition of ***An Epidemiologic Profile of HIV in Los Angeles County*** released by the Division of HIV and STD Programs (DHSP). The Profile contains updated epidemiologic information on HIV in Los Angeles County (LAC). DHSP provides this information to assist community-based organizations, planners, and policy-makers in the planning, implementation, and evaluation of programs and policies that involve HIV care, prevention, education, and research in the County. It is our hope that in providing accurate and timely information, we can assist in reducing the spread and impact of HIV throughout LAC. This Profile supplements the information distributed through the program's *HIV and STD Surveillance reports*, data requests, web site reports, presentations at professional meetings and conferences and to community-based organizations, and peer-reviewed manuscripts and publications.

Several important changes have occurred since the last Profile. In 2010, the White House issued the National HIV/AIDS Strategy (NHAS), a 5-year strategy to address HIV in the US. The primary goals of NHAS were to reduce HIV incidence, increase linkage to care for HIV positive individuals and reduce HIV-health related disparities. Information throughout this Profile, and specifically ***Section III*** and ***Section VII***, can be used to measure the progress that LAC has made towards achieving the NHAS goals. Also in 2010, Congress passed and President Obama signed the Affordable Care Act into law making healthcare more accessible for thousands of LAC residents. Changes in the standard of HIV testing and in classification of HIV have also taken place since the last edition of the Profile**.** Fourth generation HIV tests became available, decreasing the detection window to two weeks after infection. In addition, CDC introduced a classification of HIV stages; Stage 0 to represent Acute HIV infection, Stages 1 and 2 to represent Latent HIV infection; and Stage 3 to represent symptomatic HIV infection (AIDS).

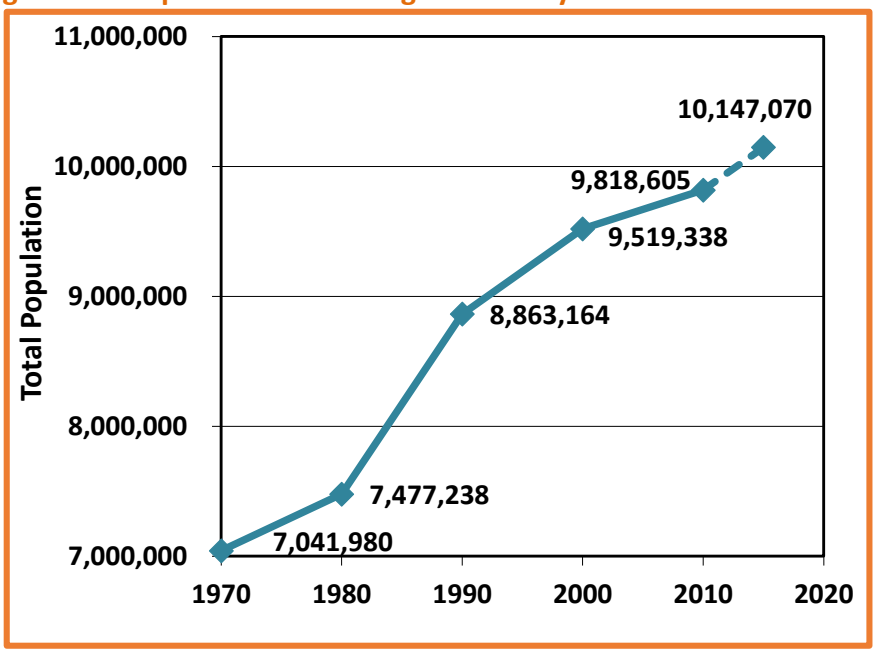
The latest guidance from the Centers for Disease Control and Prevention (CDC) and Health Research Services Administration (HRSA) were followed to complete the Profile. The Profile is divided into seven sections: ***Section I*** is an introduction that describes the resources used to develop the Profile; ***Section II*** is a description of the geographic and socio-demographic characteristics of LAC; ***Section III*** includes information on epidemiologic trends in HIV incidence, prevalence, and mortality countywide; ***Section IV*** includes information on the geographic distribution of HIV by Service Planning Area (SPA) to help planners and policy-makers effectively address regional needs; ***Section V*** describes the epidemic as it impacts specific key populations as identified by the Commission on HIV; ***Section VI*** contains information on the population with co-morbid infections, including Tuberculosis, Sexually Transmitted Diseases, and other diseases related to the treatment and transmission of HIV; and ***Section VII*** summarizes treatment and care for persons living with HIV in LAC using data from the enhanced HIV/AIDS reporting system (eHARS) and local studies. Lastly, appendices are presented including ***Appendix A: Glossary,*** that lists terms used in the Profile with which readers may not be familiar, ***Appendix B: Technical Notes***, contains an explanation of some of the methods, strengths, and limitations of the data cited in the Profile, and ***Appendix C: Data Sources***, describes the various databases and projects used to inform the Profile.

II. DESCRIPTION OF LOS ANGELES COUNTY

A. Overview

Established in 1850, Los Angeles County (LAC) is a large region spanning 4,058 square miles [1]. The diverse topography includes ocean shoreline, mountain ranges with 10,000-foot peaks, densely populated valleys, and a sparsely populated desert. Although LAC accounts for only 2.6% of California's total land area, 26% of California's total population reside within LAC.[1] In fact, with an estimated population of over 10 million people, LAC is the most populated county in the United States [2]. The estimated population of LAC has increased 3.3% since the 2010 US Census, which follows the upward growth trend that has been occurring for decades (Figure 2.1) [3].

Figure 2.1: Population of Los Angeles County 1970-2015



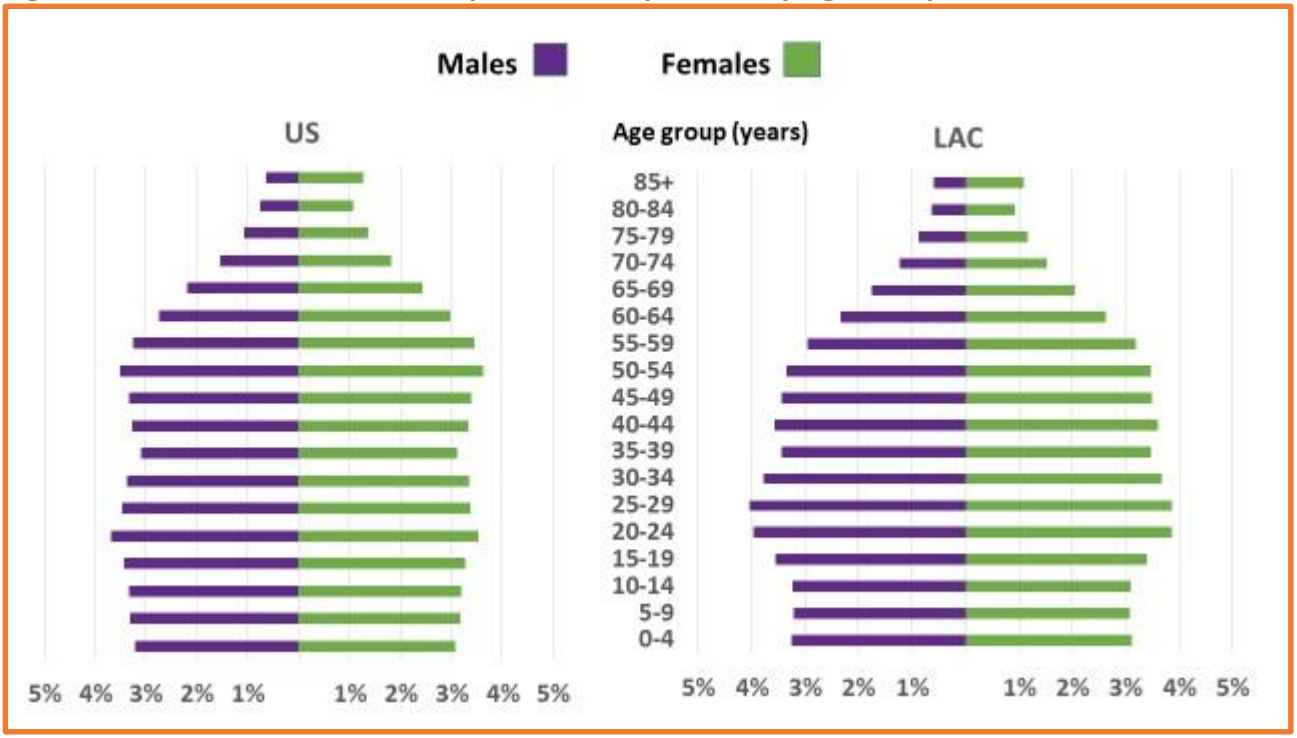
Source: The California Department of Finance [4-5]

LAC is comprised of 88 cities and approximately 140 unincorporated areas [6]. The largest of these is the City of Los Angeles with a population just under 3.9 million [7]. Notably, the City of Los Angeles has one of the highest city populations nationwide, second only to New York City [7].

Demographic Composition: Since the 2010 Census, the gender distribution LAC has remained stable at 50.7% for females and 49.3% for males [1, 8-9]. Figure 2.2 shows the estimated age distribution of LAC and US residents by sex. The slightly narrower base of the population pyramid indicates that the US population generally and LAC population specifically are aging. Compared with the Nation, LAC has a higher percentage of young and middle aged adults and a slightly lower percentage of people aged 50 years and older, signifying that LAC is growing at a faster rate than the US. Similarly, LAC had proportionately fewer residents aged 65 years and

older (12%) than the US (14%), but the same percentage of children under the age of 18 (23%) in 2013 [10]. While the median age in LAC has continued to increase slightly over the past several decades (30.6 years in 1990[8], 32.0 years in 2000[11], 34.8 years in 2010 [12]), the estimated LAC median age of 35.1 years in 2013 was still lower than the median age of 37.3 years for the US overall [13].

Figure 2.2: LAC versus US, 2013 Proportion of Population by Age Group and Sex

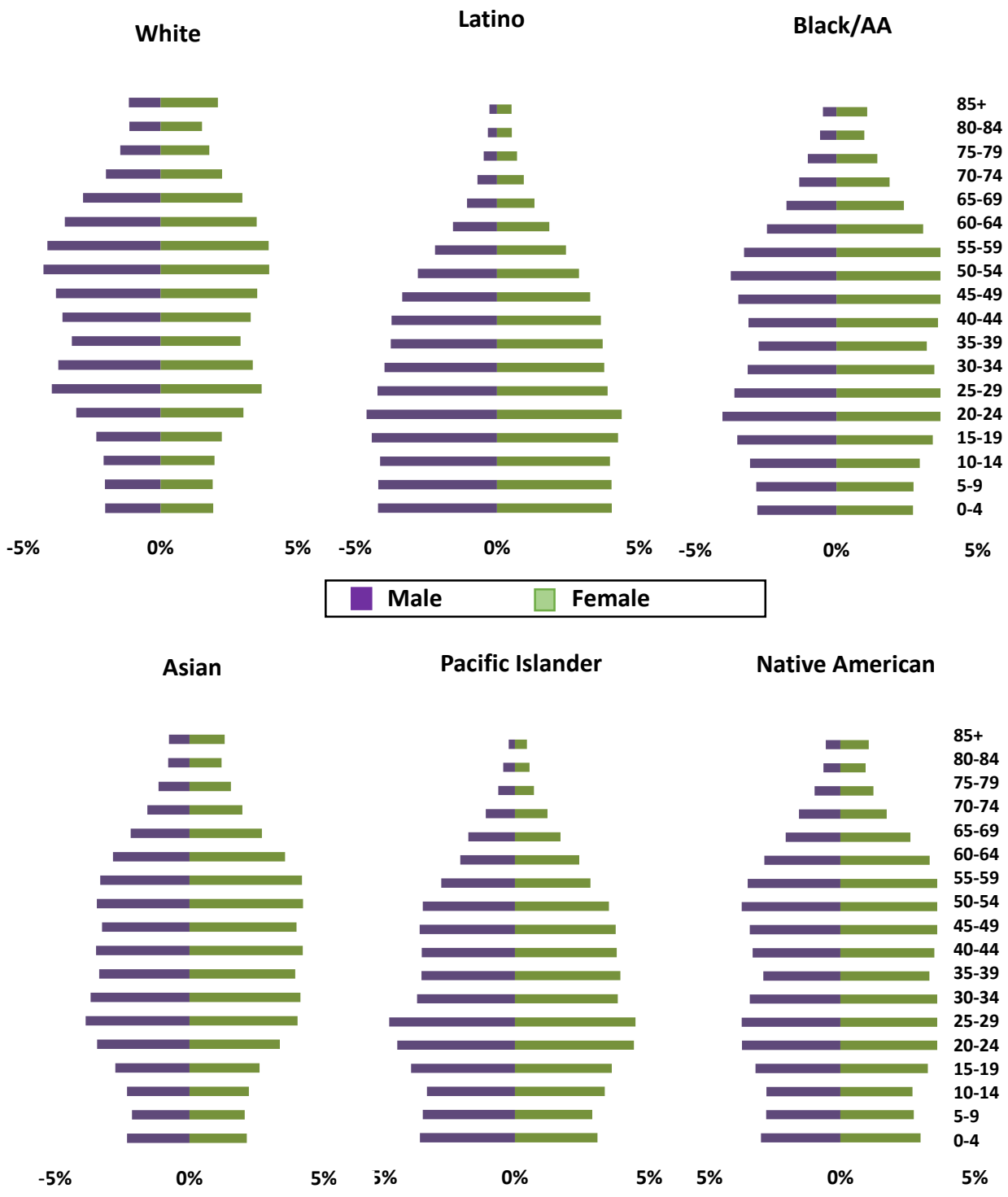


Source: US Census Bureau [14]

Within LAC, the distribution of age varies greatly by race/ethnicity, ranging from a growing population of Latinos (48%), with a broad base of children and young adults, to a declining White population (27%), with a higher proportion of older adults atop a narrower base of children and youth (Figure 2.3) [9]. Accordingly, the ratio of children under the age of 15 years to persons over 65 years was lowest for Whites (0.62:1) and Asians (0.87:1) followed by American Indian/Alaska Natives (AI/AN) alone (1.05:1) and AI/AN alone or in combination with another racial/ethnic group (1.27:1), Black/African Americans (Black/AA) (1.32:1), Pacific Islanders (PI) (2.24:1), and was highest for Latinos (3.61:1) [9]. The estimated median age of LAC residents in 2013 by race/ethnicity ranged from a low of 29 years for Latinos, 38 years for AI/AN alone (not Latino), 33 years for Pacific Islanders, 38 years for Black/AA, 41 years for Asians, to a high of 45 years for Whites [15].

LAC has been characterized by racial/ethnic population changes since the 1700s. First settled by American Indians, subsequent groups of Mexican, European, Chinese, and other immigrants have shaped a region that is today one of the most ethnically diverse in the Nation. While people of European descent compose the majority of the US population, no racial or ethnic

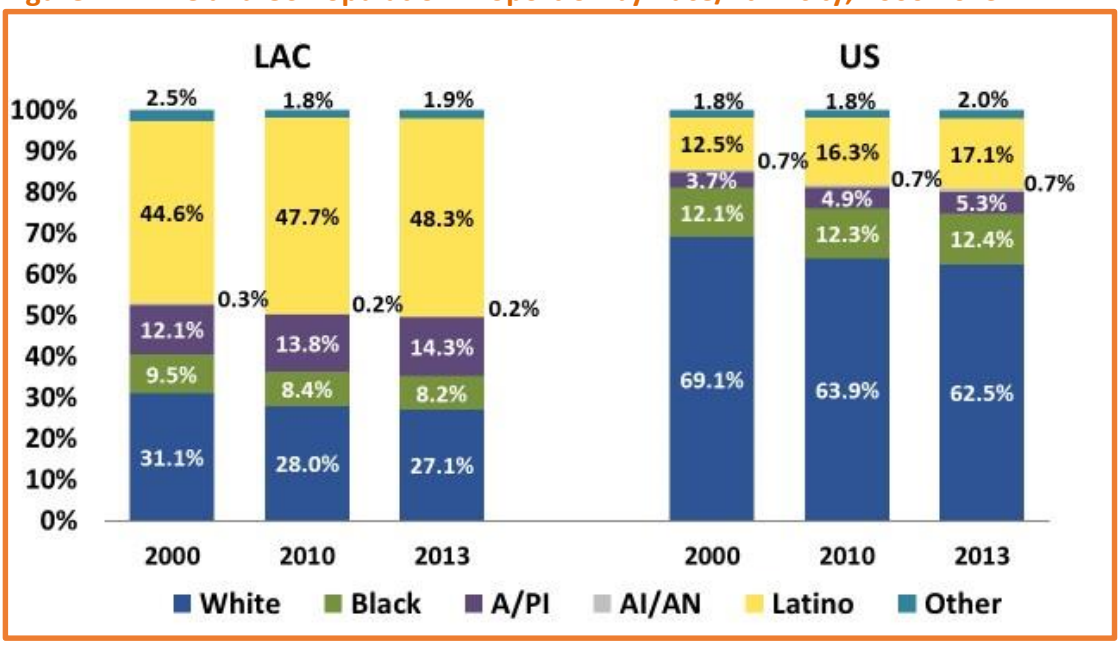
Figure 2.3: Comparison of Population Pyramids in LAC by Race/Ethnicity 2013 Estimates[1]



[1]Latinos are of any race, racial categories are non-Hispanic race alone, except AI/AN (non-Hispanic AI/AN alone or in combination).
Source: US Census Bureau {16}

group constitutes a majority in LAC (see Figure 2.4). However, Latinos made up 48% of the LAC population as of 2013 and are projected to be a majority (51%) by 2020 [17]. Following Latinos, 27% of LAC residents are White, 14% are A/PI, 8% are Black/AA, and 0.2% are AI/AN (0.6% of whom are non-Hispanic AI/AN alone or in combination with another race) [9]. Although AI/AN represent a small proportion of the County's population, this group constitutes one of the largest urban concentrations of AI/AN in the US with nearly 20,000 LAC residents identifying as non-Hispanic AI/AN alone, and over 63,000 identifying as non-Hispanic AI/AN alone or in combination with another race, in 2013. Overall, more than 230,000 LAC residents identified as AI/AN when combined with another racial/ethnic group [9]. While Asians represent only 14% of the population in LAC, they are the fastest-growing racial/ethnic group with a 25% increase in population from 2000 to 2013. Latinos are the second fastest-growing racial/ethnic group with a 14% increase from 2000 to 2013 [9, 11].

Figure 2.4: LAC and US Population Proportion by Race/Ethnicity, 2000-2013[1]



[1]Latino are of any race, racial categories are non-Hispanic race alone, including AI/AN.
Source: US Census Bureau [11, 18]

These broad racial/ethnic categories mask an even greater diversity of ethnic sub-groups in LAC, composed of many nationalities with distinct cultures and languages. Latino residents report numerous places of family origin including Mexico (76.5%), Central America (16.3%), South America (2.8%), Puerto Rico (1.0%), and Cuba (0.8%), with other and unspecified regions accounting for 2.5% of Latino residents' place of family origin [19]. The A/PI populations are composed of 98.3% Asians and 1.7% PIs with diverse backgrounds.[20] Asian residents are primarily Chinese (28.3%), but also include Filipino (23.7%), Korean (15.6%), Japanese (7.5%), Vietnamese (6.8%), Indian (5.8%), Taiwanese (1.7%), with other unspecified groups accounting for another 10.6% [21].

Income and Poverty: Between 2000 and 2013, the median household income for County residents, adjusted for inflation, rose 33% from $42,189 to $55,909 [22-23]. There were significant disparities in income among racial/ethnic groups. The median household income for White residents was $72,012, Asians $64,345, PI $59,411, AI/AN $52,071 (non-Hispanic AI/AN alone or in combination), Latinos $43,678 and Black/AA $38,841 [15, 24].

Twenty-four percent (23.9%) of family households were below 125% of the federal poverty level (FPL) while 26% of households in LAC reported an income above $100,000 (see Technical Note #2) [23, 25]. The highest poverty rates (below 100% FPL) were found in female householder families, with no husband present (30%), followed by other living arrangements (25%) [25]. The lowest poverty rates were among married-couple families (11%) [25]. Among LAC residents, 25% of Black/AA, 24% of Latinos, and 18% of AI/AN (non-Hispanic alone or in combination) were living with incomes below 100% FPL, compared to 15% of Pacific Islanders, 13% of Asians, and 11% of Whites [15].

At the end of 2013, approximately 26% (2.7 million) of LAC residents received some form of financial aid. The majority of these residents (71%) received medical aid [9, 26]. This is an increase from year-end 2000, where 20% of the LAC population (1.7 million, 54% of which received medical assistance) received any financial aid [11, 27]. As of June 2015, about 3.4 million LAC residents received some sort of public assistance, 82% of whom received medical assistance only [28].

Housing and Homelessness: Homelessness is directly related to unemployment. In January 2015, 412,600 (8.2%) of the 5,049,100 LAC residents in the labor force (number not seasonally adjusted) were unemployed and 44,359 (0.4%) of the estimated 10,136,559 LAC residents were homeless; of which 13,528 (30.5%) were chronically homeless (including Glendale, Pasadena, and Long Beach) [29-34]. In addition to high levels of unemployment, the cost and availability of housing in LAC contributes to homelessness. A standard measure of housing affordability has been the 30% rule, meaning no more than 30% of household income should be spent on housing [35]. In 2014, an estimated 45% of LAC homeowners with a mortgage and 60% of renters spent at least 30% of their income on housing [36]. The housing vacancy rate in LAC is very low: in 2014, the rental vacancy rate in LAC was estimated at 3.4% and the homeowner vacancy rate at 1.1% [37]. In 2014, fewer owner-occupied housing units existed in LAC (46%) compared to both California (54%) and the US (63%) [38-40] Compared to the US, and CA overall, LAC has one of the most unaffordable housing markets [41]. The California Association of Realtors estimates that in the fourth quarter of 2014, only 28% of LAC residents were able to purchase a median priced home compared to 31% of CA residents and 59% of US residents [41].

Health Insurance: Recent data from the California Health Interview Survey indicate that the percentage of residents in LAC without health insurance is decreasing [42]. The number of uninsured persons has decreased for adults (ages 18-64 years) from 22.8% in 2007 to 18.8% in 2014 and for children and teens (ages 0-17 years) from 6.7% in 2007 to 4.4% (unstable estimate) in 2014. Among adults aged 18-64 years surveyed in 2014, AI/AN adults reported the highest proportion of being uninsured (33%), followed by Latino (27%), Asian (19%), Black/AA

(12%), and White (6%) adults. Among Asian children, 16% were reported to be without insurance, while 5% of Latino children, 2% Black/AA and less than 0.5% of White children were reported to be without insurance [43]. In addition to health insurance, 23% of adult and 5% of child residents reported having no regular source of health care in 2011 [44]. Please note that the percent estimates among AI/AN and Black/AA adults, as well as Asian, Latino and Black/AA children are statistically unstable and may not be appropriate for planning and/or policy purposes. Data for AI/AN and PI children were not available.

Mortality and Cause of Death: In 2012, the overall age-adjusted death rate for LAC was 581 deaths per 100,000 population [45]. Table 2.1 shows the ten leading causes of death in LAC, CA, and across the US [45-46]. Stage 3 HIV (AIDS), has not been among the overall leading causes of death since 2004 in LAC [45]. However, the 2012 HIV death rate among Black/AA males (12 per 100,000 population) was four times the HIV death rate of Latino males (3 per 100,000) and three times that of White males (4 per 100,000) [45].

Table 2.1: Ten Leading Causes of Mortality LAC, CA, US, 2012[1]

	LAC[2]	CA[3]	US[3]
1	Coronary heart disease	Diseases of heart	Diseases of heart
2	Stroke	Malignant neoplasms	Malignant neoplasms
3	Lung Cancer	Cerebrovascular diseases	Chronic lower respiratory diseases
4	COPD	Chronic lower respiratory diseases	Cerebrovascular diseases
5	Alzheimer's disease	Alzheimer's disease	Accidents (unintentional injuries)
6	Diabetes mellitus	Accidents (unintentional injuries)	Alzheimer's disease
7	Influenza and pneumonia	Diabetes mellitus	Diabetes mellitus
8	Colorectal Cancer	Influenza and pneumonia	Influenza and pneumonia
9	Chronic liver disease and cirrhosis	Chronic liver disease and cirrhosis	Nephritis, nephrotic syndrome and nephrosis
10	Essential hypertension and hypertensive renal disease	Essential hypertension and hypertensive renal disease	Intentional self-harm (suicide)

[1]The death categories for LAC differ from those used for CA and the US (see technical notes).
[2]Data Source: Los Angeles County Department of Public Health[47]
[3]Data Source: CDC Wonder [46] (see technical notes)

Education: The LAC Office of Education is the nation's largest regional education agency [48]. In 2014-2015, there were 1.5 million students enrolled in 2,283 public schools in 93 school districts in the County [49]. Nearly one-fourth (24.7%) of all California students were enrolled in LAC public schools [49]. Forty-two percent (42%) of enrolled public school students in LAC attend Los Angeles Unified School District, the largest school district in the County [49]. Latinos represent 65% of all students in county public schools followed by Whites (14.3%), Black/AA

(8.1%), Asians (7.6%), Filipinos (2.2%), Pacific Islanders (0.4%) and AI/AN (0.3%) [49]. Students in LAC schools speak 92 different languages [49]. In 2013-2014, calculations for LAC high school graduation rates were at 77.9% [50]. Graduation rates also reflect significant disparities between racial/ethnic groups, with the lowest 2013 graduation rates among AI/AN (65.3%) and Black/AA students (67.9%) compared with Asian-not Pacific Islander (93.4%) and White students (86.4%) [50]. Additionally, dropout rates are highest among Black/AA students (19.5%) followed by AI/AN (18.7%), Latino (14.2%), Pacific Islander (12.7%), White (7.8%), Filipino (4.5%), and Asian (4%) students [50]. Among LAC adults over the age of 25 years, 23.4% did not graduate from high school [51].

Incarcerated Persons: The correctional system in LAC includes federal, state, and county facilities. Currently, within LAC, the federal facility houses just over 800 inmates, the California Department of Corrections facility houses nearly 3,500 inmates, and the eight LAC-run jail facilities have a daily census of about 19,000 inmates [52-54]. The Los Angeles County jail system is one of the largest in the world. According to the California Department of Justice, there were 290,733 arrests (excluding status offenses) in LAC in 2014, of which juvenile offenders accounted for 5.2%, representing a decrease from 11.2% in 2008. Half (50%) of all adults arrested were Latino, 23% Black/AA, 21% White, and 6% other. Latino youth accounted for nearly two-thirds of juvenile arrests (60%), followed by Black/AA (26%), Whites (10%), and other races/ethnicities (4%) [55]. As of 2014, 55,265 individuals were on probation in Los Angeles County [56].

Mental Illness: Mental illness is defined as an individual having any mental, behavioral, or emotional disorder in the past year that met the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV 4th edition) criteria (excluding developmental and substance use disorders). Serious mental illness (SMI) is defined as any mental, behavioral, or emotional disorder that substantially interfered with or limited one or more major life activities [57]. The Substance Abuse and Mental Health Services Administration (SAMHSA) estimates that in 2013, 19% of US residents aged 18 years or older have a history of mental illness within the past year and 4% suffer from SMI, while an average (2010-2012 average) of 17% of LAC adults aged 18 years or older have a history of mental illness and 3.5% suffer from SMI [57-58]. According to the 2011 LAC Health Survey, 7.5% of LAC adults sought mental health care in 2011 [44, 59]. This varied by race, with Black/AA residents the most likely to seek mental health care (12.1%), followed by White (10.6%), Latino (5.3%) and A/PI (4.4%) residents [44, 59].

Service Planning Areas: In 1998, LAC aggregated its 26 health districts into eight service planning areas or SPAs. SPAs were created by the Children's Planning Council and approved by the County Board of Supervisors in 1993 to make public health service more responsive to local needs [60]. The service planning areas for LAC are: Antelope Valley, SPA 1; San Fernando Valley, SPA 2; San Gabriel Valley, SPA 3; Metro, SPA 4; West, SPA 5; South, SPA 6; East, SPA 7; and South Bay, SPA 8. The location and boundaries of these SPAs are illustrated in Figure 2.5.

Figure 2.5: LAC SPA Boundaries Map

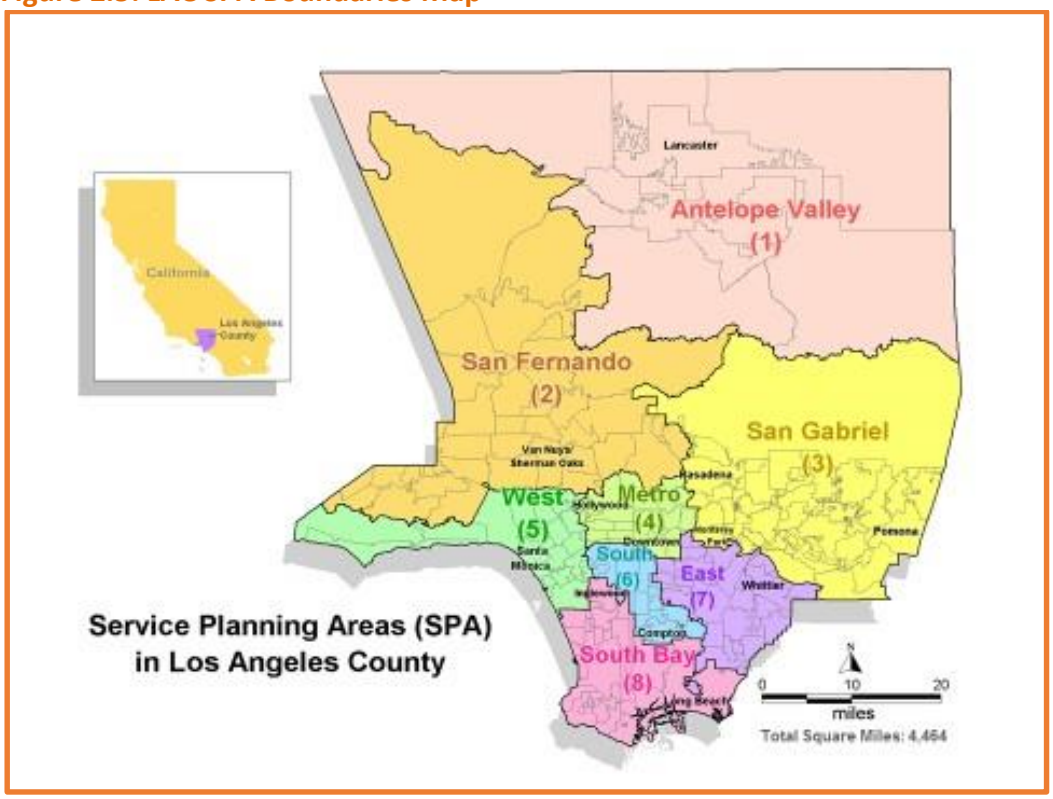


Table 2.2 gives a brief overview of geographic and socio-demographic characteristics by SPA. As seen in the table, the size and composition of the SPAs varies greatly. For example, in 2012, Metro and South have a population density of over 12,000 persons per square mile, while the Antelope Valley's population density is less than 250 persons per square mile. Latinos make up the majority of the population in the Metro (52%), South (68%), and East (74%) SPAs, while Whites predominate in the West (65%) and San Fernando Valley (46%). The SPA with the largest proportion of Black/AA is South (29%), while the largest proportion of A/PI is in San Gabriel Valley (28%). AI/AN make up 0.2% of the population in all SPAs except Antelope Valley (0.4%).[44] The proportion of AI/AN represents the number of individuals who identify as only AI/AN, and does not include those of mixed race/ethnicity.

The largest proportions of youth (persons <18 years of age) reside in the Antelope Valley (31%) and South SPAs (32%), while West SPA has the highest proportion of seniors (persons aged 65 years or older) (14%). South SPA has the largest percentage of people living at less than 100% FPL (31%), followed by the Metro (25%) and Antelope Valley SPAs (21%). Antelope Valley SPA (1) had the highest unemployment rate as of 2011, at 17%. In the South SPA, 61% of residents have a high school diploma and 12% have a college degree, a striking difference from the West SPA, where 93% of residents have a high school diploma, and 56% have a college degree [44].

Residents, aged 18-64 years, of the South and Metro SPAs were the least likely to have health insurance (38% and 36%, respectively). Adults in the South, Metro, and San Fernando Valley SPAs were least likely to have a regular source of medical care (29%, 25%, and 25%, respectively). The Antelope Valley, Metro, and South SPAs had the lowest percentage of

prenatal care visits in the first trimester (67%, 79%, and 77%, respectively), while also having the highest teen birth rates among mothers below the age of 20 at delivery (34, 36, and 51, respectively, per 1,000 live births) (see Table 2.2).

Table 2.2: LAC Population Characteristics by Service Planning Area (SPA), 2011

	SPA							
	AV (1)	**SFV (2)**	**SGV (3)**	**Metro (4)**	**West (5)**	**South (6)**	**East (7)**	**South Bay (8)**
Population	386,526	2,136,581	1,752,126	1,120,091	637,129	1,009,550	1,295,828	1,528,363
Area (sq. miles)	1,743.2	1,122.6	432.4	93.1	210.9	77.3	164.0	327.0
Population Density	222	1,903	4,052	12,031	3,021	13,060	7,901	4,673
Age < 18 years	31%	24%	24%	20%	16%	32%	28%	25%
Age 65+ years	8%	11%	12%	10%	14%	7%	10%	11%
Latino	44%	39%	46%	52%	16%	68%	74%	40%
White	36%	46%	22%	25%	65%	2%	14%	30%
Black/AA	15%	3%	4%	5%	6%	29%	3%	15%
Asian/PI	4%	11%	28%	18%	13%	2%	9%	16%
AI/AN	0.4%	0.2%	0.2%	0.2%	0.2%	0.1%	0.2%	0.2%
High school diploma	75%	81%	76%	72%	93%	61%	73%	81%
College degree/Post Grad	16%	31%	26%	28%	56%	12%	15%	27%
Unemployment[1]	17 %	13%	14%	15%	8%	16%	14%	13%
Living below 100% federal poverty level	21%	15%	13%	25%	13%	31%	16%	17%
Teen birth rate/1000 live births[2]	34	19	22	36	6	51	31	26
Prenatal care in 1st trimester[3]	67%	88%	83%	79%	85%	77%	82%	80%
Adults (18-64) without health insurance	20%	27%	27%	36%	13%	38%	32%	27%
Adults with no regular source of medical care	18%	25%	23%	25%	23%	29%	20%	21%

Source: LAC Key Indicators of Health [44]; [1]among those seeking employment; [2]indicates a mother < than 20 years of age at delivery
[3] Percent of total births.
AV=Antelope Valley, SFV=San Fernando Valley, SGV=San Gabriel Valley, AA=African American, PI=Pacific Islander, AI=American Indian, AN=Alaska Native

References

1. U.S. Census Bureau. *State & County QuickFacts - Los Angeles County*. Available from: http://quickfacts.census.gov/qfd/states/06/06037.html.
2. U.S. Census Bureau. *2010 Census Brief: Population Distribution and Change: 2000 to 2010*. March 2011; Available from: http://www.census.gov/prod/cen2010/briefs/c2010br-01.pdf.
3. California Department of Finance - Demographic Research Unit, *E-4 Population Estimates for Cities, Counties, and State 2011-2015 with 2010 Benchmarks*
4. California Department of Finance - Demographic Research Unit, *1850-2010 Historical US Census Populations of Counties and Incorporated Cities/Towns in California*
5. California Department of Finance - Demographic Research Unit, *P-2: State and County Population Projections by Race/Ethnicity and Age (5-year groups): 2010-2060.*
6. County of Los Angeles. *Geography & Statistics - Cities and Communities*. Available from: https://www.lacounty.gov/government/geography-statistics/cities-and-communities.
7. U.S. Census Bureau. *Vintage 2013 Population Estimates - Table 2 The 15 Most Populous Cities: July 1, 2013*. Available from: https://www.census.gov/newsroom/releases/pdf/cb14-89_pop_table2.pdf.
8. U.S. Census Bureau, *DP-1 Profile of General Population and Housing Characteristics.* 2010.
9. U.S. Census Bureau-Population Division, *CC-EST2014-ALLDATA-06. Annual County Resident Population by Age, Sex, Race, and Hispanic Origin: April 1, 2010 to July 1, 2014.* June 2015.
10. U.S. Census Bureau-Population Division, *PEPAGESEX. Annual Estimates of the Resident Population for Selected Age Groups by Sex for the United States, States, Counties, and Puerto Rico Commonwealth and Municipios: April 1, 2010 to July 1, 2014.* June 2015.
11. U.S. Census Bureau, *DP-1. Profile of General Demographic Characteristics - Los Angeles County* 2000.
12. U.S. Census Bureau. *1990 Census of Population, General Population Characteristics, California Section 3 of 3, Table 76 General Characteristics of Persons, Households, and Families: 1990, County and County Subdivision* 1990; Available from: http://www2.census.gov/library/publications/decennial/1990/cp-1/cp-1-6-3.pdf.
13. U.S. Census Bureau. *GCT0101. Median Age of the Total Population - United States -- County by State; and for Puerto Rico*. 2013 American Community Survey 5-Year Estimates Available from: http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_13_5YR_GCT0101.US05PR&prodType=table.
14. U.S. Census Bureau. Population Division, June 2015. *Annual Estimates of the Resident Population for Selected Age Groups by Sex for the United States, States, Counties, and Puerto Rico Commonwealth and Municipios: April 1, 2010 to July 1, 2014. Population Estimates. Los Angeles County, CA and the United States for July 1, 2013*
15. U.S. Census Bureau. *S0201. Selected Population Profile in the United States - Los Angeles County. 2013 American Community Survey 3-Year Estimates* Available from: http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_13_3YR_S0201&prodType=table.
16. US Census Bureau, Population Division, June 2015. *Annual County Resident Population Estimates by Age, Sex, Race, and Hispanic Origin: April 1, 2010 to July 1, 2014 – Los Angeles County, CA, July 1, 2013.*
17. California Department of Finance- Demographic Research Unit. *Report P-2 "State and County Population Projections by Race/Ethnicity and Age (5-year groups)" 2010 through 2060 (as of July 1)*. Available from: http://www.dof.ca.gov/research/demographic/reports/projections/P-2/.
18. US Census Bureau, Population Division. PEPSR6H - *Annual Estimates of the Resident Population by Sex, Race, and Hispanic Origin for the United States, States, and Counties: April 1, 2010 to July 1, 2014*.
19. U.S. Census Bureau, *B03001. Hispanic or Latino Origin by Specific Origin.* 2009-2013 American Community Survey 5-Year Estimates.
20. U.S. Census Bureau, *DP05. ACS Demographic and Housing Estimates.* 2009-2013 American Community Survey 5-Year Estimates.
21. U.S. Census Bureau, *2009-2013 5-Year American Community Survey. B02006 - ASIAN ALONE BY SELECTED GROUPS Universe: Total Asian alone population - Los Angeles County.*

22. U.S. Census Bureau, *DP-3. Profile of Selected Economic Characteristics.* 2000.
23. U.S. Census Bureau, *S1901. Income in the Past 12 Months*. 2009-2013 American Community Survey 5-Year Estimates.
24. U.S. Census Bureau, *B19013l. Median Household Income in the Past 12 Months (in 2013 Inflation-Adjusted Dollars) (Hispanic or Latino Householder) - Los Angeles County*.
25. U.S. Census Bureau, *S1703. Selected Characteristics of People at Specified Levels of Poverty in the Past 12 months.* 2009-2013 American Community Survey 5-Year Estimates.
26. Los Angeles County Department of Social Services, *Statistical Report.* December 2014.
27. Los Angeles County Department of Social Services, *Statistical Report.* December 2009.
28. County of Los Angeles Department of Public Social Services, *Statistical Report*. June 2015.
29. California Department of Finance- Demographic Research Unit. *E-1: City/County/State Population Estimates with Annual Percent Change January 1, 2014 and 2015*. Available from: http://www.dof.ca.gov/research/demographic/reports/estimates/e-1/view.php
30. State of California Employment Development Department - Labor Market Information Division. *Unemployment Rates and Labor Force Tables. Monthly/Annual Average Data (Excel), Los Angeles, Not Seasonally Adjusted, 1990-current)*. September 2015; Available from: http://www.labormarketinfo.edd.ca.gov/data/unemployment-and-labor-force.html#Table.
31. Los Angeles Homeless Services Authority. *Homeless Count Results*. 2015; Available from: http://www.lahsa.org/homelesscount_results.
32. City of Pasadena. *Homeless County & Subpopulation Survey: Final Report 2015*. April 2015; Available from: http://www.urban-initiatives.org/Pasadena_Partnership/PDFs/2015%20Homeless%20Count%20and%20Survey%20Report%20-%20Final%20Final%20for%20Distribution.pdf.
33. City of Long Beach - Department of Health and Human Services - Homeless Services Division, *Biennial Homeless Count Comparison 2011, 2012, and 2015, Homelessness Data Exchange (HDX).*
34. City of Glendale Homeless Count. 2015; Available from: http://www.glendaleca.gov/home/showdocument?id=22891.
35. Mary Schwartz and Ellen Wilson - US Census Bureau. *Who Can Afford To Live in a Home?: A look at data from the 2006 American Community Survey*. Available from: http://www.census.gov/housing/census/publications/who-can-afford.pdf
36. U.S. Census Bureau, *S0201. Selected Population Profile in the United States - Los Angeles County. 2014 American Community Survey 1-Year Estimates.*
37. Office of Policy Development and Research (PD&R) - Economic & Market Analysis Division (EMAD) Pacific Regional Office. *Market at a Glance, Los Angeles County, CA*. November 5, 2015; Available from: http://www.huduser.gov/portal/MCCharts/countyCharts.html?countyID=06037&countyName=Los%20Angeles%20County%2C%20CA&dt=November%205,%202015
38. U.S. Census Bureau. *S0201. Selected Population Profile in the United States*. 2014 American Community Survey 1-Year Estimates Available from: http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_14_1YR_S0201&prodType=table.
39. U.S. Census Bureau. *S0201. Selected Population Profile in the United States - California*. 2014 American Community Survey 1-Year Estimates; Available from: http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_14_1YR_S0201&prodType=table.
40. U.S. Census Bureau. *S0201. Selected Population Profile in the United States - Los Angeles County*. 2014 American Community Survey 1-Year Estimates; Available from: http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_14_1YR_S0201&prodType=table.
41. California Association of Realtors. *First Quarter 2015 California Housing Affordability*. Available from: http://www.car.org/newsstand/newsreleases/2015releases/1qtrhousingaff.
42. 2014 California Health Interview Survey
43. Los Angeles County Department of Public Health - Office of Health Assessment and Epidemiology, *2011 Los Angeles County Health Survey.*

44. Los Angeles County Department of Public Health - Office of Health Assessment and Epidemiology, *Key Indicators of Health by Service Planning Area.* March 2013.
45. Los Angeles County Department of Public Health - Office of Health Assessment and Epidemiology. *Mortality in Los Angeles County 2012: Leading causes of death and premature death with trends for 2003-2012*. August 2015; Available from: http://publichealth.lacounty.gov/dca/data/documents/mortalityrpt12.pdf.
46. Centers for Disease Control and Prevention - National Center for Health Statistics. *Underlying Cause of Death 1999-2013 on CDC WONDER Online Database, released 2015. Data are from the Multiple Cause of Death Files, 1999-2013, as compiled from data provided by the 57 vital statistics jurisdictions through the Vital Statistics Cooperative Program*. Available from: http://wonder.cdc.gov/ucd-icd10.html
47. Los Angeles County Department of Public Health - Office of Health Assessment and Epidemiology. *Mortality in Los Angeles County 2011: Leading causes of death and premature death with trends for 2002-2012*. August 2015.
48. Los Angeles County Office of Education. 8/17/15]; Available from: http://www.lacoe.edu/AboutLACOE.aspx.
49. Los Angeles County Office of Education. *2015-2016 Fact Sheet*. Available from: http://www.lacoe.edu/Portals/0/LACOE/LACOE%20ID%20FACT_2015_16revised.pdf.
50. California Department of Education Data Reporting Office. *Cohort Outcome Data for the Class of 2013-14*. 8/17/15]; Available from: http://dq.cde.ca.gov/dataquest/cohortrates/GradRates.aspx?cds=19000000000000&TheYear=2013-14&Agg=O&Topic=Graduates&RC=County&SubGroup=Ethnic/Racial.
51. U.S. Census Bureau, *S1501. Educational Attainment.* 2009-2013 American Community Survey 5-Year Estimates.
52. California Department of Corrections and Rehabilitation. *Weekly Report of Population*. August 17, 2015; Available from: http://www.cdcr.ca.gov/Reports_Research/Offender_Information_Services_Branch/WeeklyWed/TPOP1A/TPOP1Ad150812.pdf.
53. Federal Bureau of Prisons. *Inmate Population Report*. August 13, 2015 August 17, 2015]; Available from: http://www.bop.gov/about/statistics/population_statistics.jsp#pop_report_cont
54. Los Angeles County Sheriff's Department. Available from: http://sheriff.lacounty.gov/wps/portal/lasd.
55. California Department of Justice. *CJSC Statistics: Arrest Data File*. 2014; Available from: https://oag.ca.gov/crime/cjsc/stats/arrests.
56. California Department of Justice. *Adult Probation Caseload and Actions, Los Angeles County 2014*. Available from: https://oag.ca.gov/crime/cjsc/stats/adult-probation.
57. SAMHSA, *The NSDUH Report: Substance Use and Mental Health Estimates from the 2013 National Survey on Drug Use and Health: Overview of Findings.* **September 4, 2014**.
58. SAMHSA - Center for Behavioral Health Statistics and Quality. *National Survey on Drug Use and Health, 2010, 2011, and 2012 (2010 Data - Revised March 2012 and October 2013, 2011 Data - Revised October 2013). Table 5.10 - Serious Mental Illness in the Past Year and Any Mental Illness in the Past Year in California among Persons Aged 18 or Older, by Substate Region: Percentages, Annual Averages Based on 2010, 2011, and 2012 NSDUHs - Region 11 (Los Angeles)*. Available from: http://www.samhsa.gov/data/sites/default/files/substate2k12-StateTabs/NSDUHsubstateStateTabsCA2012.htm.
59. Los Angeles County Department of Public Health - Office of Health Assessment and Epidemiology, *Los Angeles Health Survey*. 2011.
60. Results-based Accountability. *Los Angeles Children's Planning Council Uses the Power of Outcomes and Indicators from Planning to Budgets*. Available from: http://raguide.org/results-based-accountability-successstories/los-angeles-childrens-planning-council-uses-the-power-of-outcomes-and-indicators-from-planning-tobudgets/

III. Epidemiology of HIV in Los Angeles County

A. Background

This section summarizes data collected through HIV Case Surveillance and supplemental HIV surveillance activities, including HIV Incidence Surveillance, Molecular HIV Surveillance, and Perinatal Surveillance.

HIV Surveillance is a core public health activity that began in Los Angeles County (LAC) in 1982 with the collection of data on stage 3 HIV (AIDS), and was expanded to include all HIV diagnoses in 2002 (see technical notes for description of new HIV stages). A person with HIV is included in our surveillance system only after a confirmed report from a physician and/or laboratory. As of this report, there is a backlog of over 4,000 laboratory notifications pending investigation to determine if they represent individuals with HIV that have not yet been reported. Therefore, the HIV data presented in this report are preliminary.

The LAC HIV surveillance program uses active and passive techniques to identify and collect information on persons who are diagnosed with an HIV infection at hospitals, clinics, private physicians' offices, laboratories, community-based organizations (CBOs), and hospices. As part of active surveillance activities, staff from the Division of HIV and STD Programs (DHSP) routinely contact and visit sites to facilitate the completion of HIV case reports. Passive surveillance includes the submission of case report forms from sites to DHSP without prompts from surveillance staff. Together DHSP and the individual providers determine if they will participate in HIV surveillance as an active or passive surveillance site based on factors including number of annual diagnoses and provider preference.

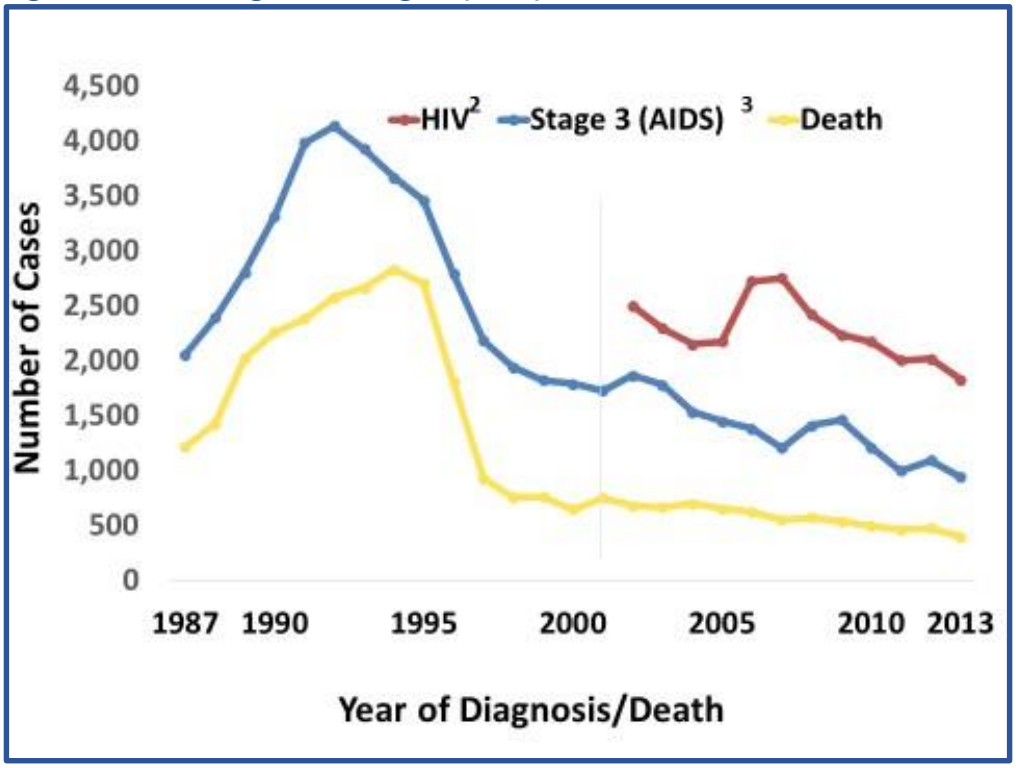
HIV surveillance activities include the collection of information on clinical factors, demographics and the mode of exposure—how the virus was transmitted, for example through sexual activity, injection drug use, or from mother to child— to monitor transmission trends and quickly intervene when changes occur. HIV positive individuals recently reported to the surveillance system are more likely to be reported without sufficient risk factor information, thus recent HIV diagnoses among some transmission categories may be underestimated unless an adjustment is made. For persons who have no reported risk for HIV, the mode of exposure is redistributed to other valid exposure categories based on the sex-and race-specific distribution of other reported cases. This adjustment takes into account information collected from routinely investigated and re-categorized HIV cases in previous years (see technical notes).

B. Overview

A cumulative total of 85,500 people infected with HIV have been diagnosed and reported in LAC. Consistent with national HIV trends, in LAC we continue to see an overall decline in HIV morbidity and mortality. Notably, significant changes in HIV reporting regulations have correlated with increases in the number of reported cases. For example, a 26% increase in the number of HIV diagnoses in 2006 corresponds with the implementation of named reporting.

Similarly, increases in the number of stage 3 (AIDS) diagnoses in 2002 and 2008 correspond with expanded laboratory reporting requirements (Figure 3.1).

Figure 3.1: HIV Diagnoses, Stage 3 (AIDS) Classifications and Deaths, LAC 1987-2013[1]



[1]Data are provisional due to reporting delay (2012-2013).; [2]In 2002 HIV reporting by non-named code began.
[3]Changes that influenced Stage 3 HIV include a case definition changed (1993), introduction of HAART (1996) and mandated CD4 reporting (2008).
Source: DHSP, LAC-DPH; data as of December 31, 2014

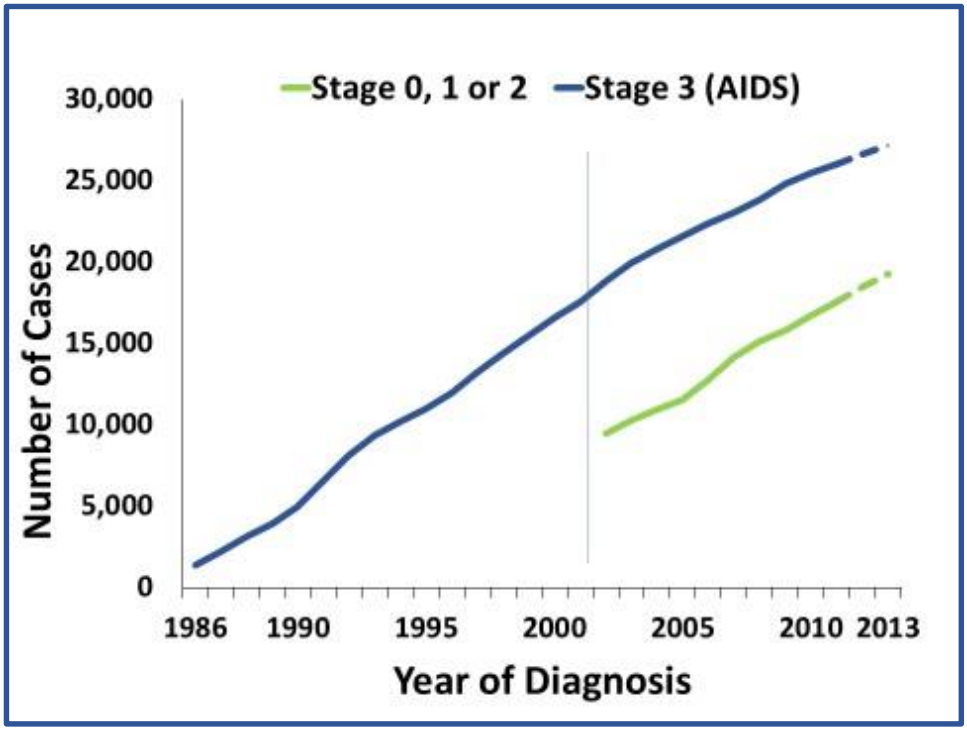
As of December 31, 2014, a cumulative total of 85,500 people were diagnosed with HIV in LAC. Of these, 62,651 (73%) persons have been diagnosed with stage 3 HIV (AIDS) and 34,883 people have died (41% cumulative case-fatality). However, since the introduction of antiretroviral treatment in 1996, the decline in deaths has outpaced the decline in new HIV diagnoses, and the number of persons living with HIV (PLWH) has continued to increase in LAC (Figure 3.2).

Currently, nearly 49,000 PLWH have been diagnosed and reported to HIV surveillance as living in LAC. We estimate, however, that nearly 60,000 PLWH were residing in LAC at the end of 2014 (Figure 3.3). This estimate accounts for persons with HIV laboratory reports that are awaiting confirmation and the number of PLWH who remain untested and therefore unaware of their HIV infection.

C. HIV Diagnosis

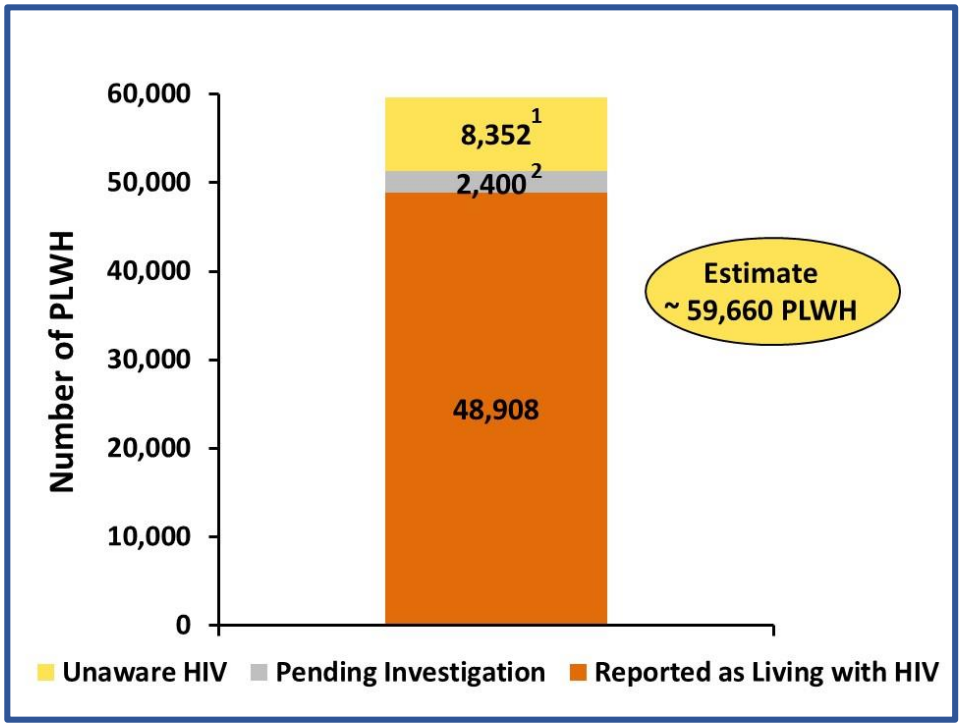
***Gender*:** The number of male adults and adolescents diagnosed with HIV annually in LAC peaked in 2007 at 2,400 diagnoses and has since fallen to under 2,000 diagnoses annually

Figure 3.2: Number of Persons Living with HIV by Year and Stage, LAC 1986-2013[1, 2]



[1]Data are provisional due to reporting delay (2012-2013).; [2]In 2002 HIV reporting by non-named code began.
Source: DHSP, LAC-DPH; data as of December 31, 2014

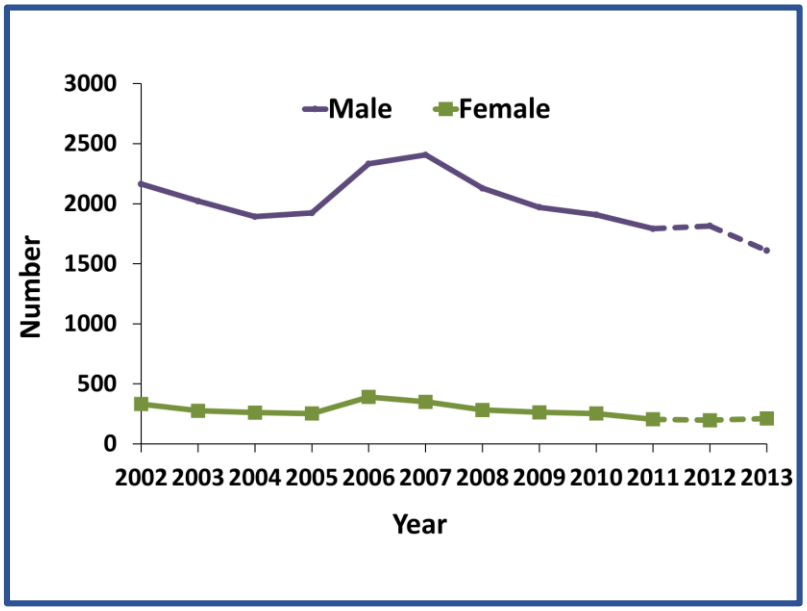
Figure 3.3: Estimated Number of LAC Residents Living with HIV at the End of 2014



[1] CDC estimates 14% of persons living with HIV are unaware of their infection.
[2] Approximately 4,800 labs are pending investigation, an estimated 2,400 of these will represent unduplicated PLWH
LAC-DPH; data as December 31, 2014

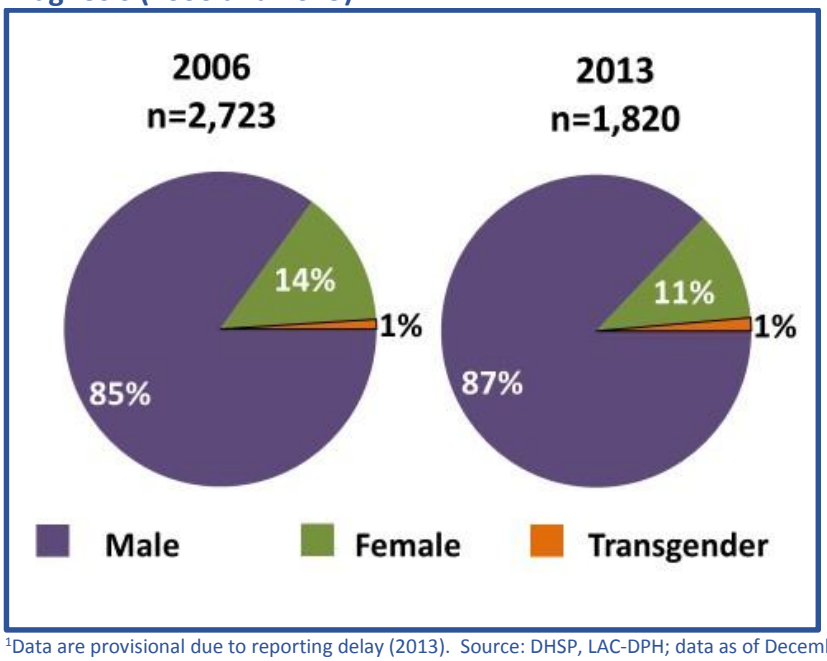
for 14% of new HIV diagnoses (Figure 3.5). By 2011, the number of female diagnoses had fallen to nearly half the number in 2006 (n=202), and has remained at around 200 new diagnoses annually. A small number of transgender people are reportedly diagnosed with HIV annually. In 2013, 25 transgender people were diagnosed, which was about 1% of the annual diagnoses. Because of inconsistent or incomplete reporting of current gender, these data may not represent the true burden of HIV in transgender LAC residents.

Figure 3.4: Number of Adult/Adolescents Diagnosed with HIV by Birth Sex and Year of Diagnosis, 2002-2013[1]



[1]Data are provisional due to reporting delay (2012-2013); Source: DHSP, LAC-DPH; data as of December 31, 2014

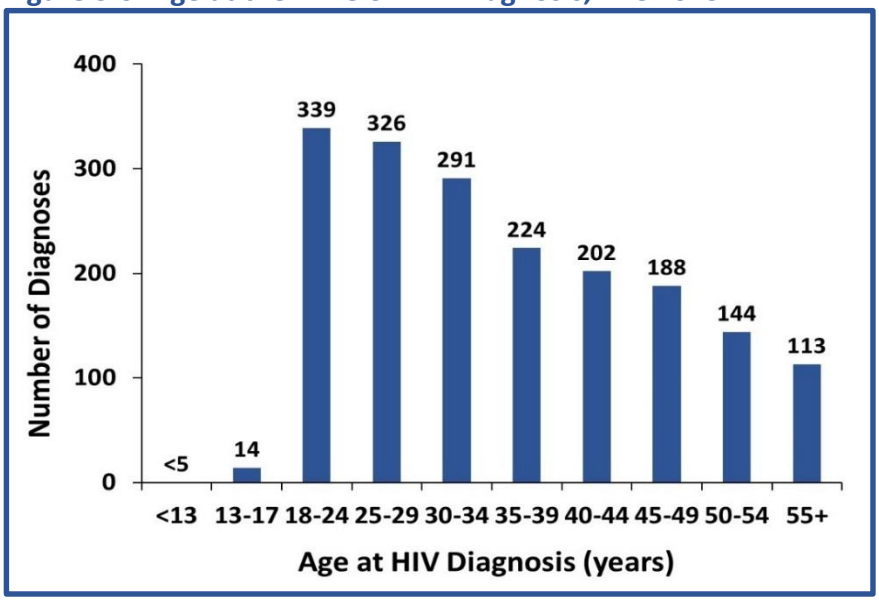
Figure 3.5: Proportion of Adult/Adolescents Diagnosed with HIV by Birth Sex and Year of Diagnosis (2006 and 2013)[1]



[1]Data are provisional due to reporting delay (2013). Source: DHSP, LAC-DPH; data as of December 31, 2014

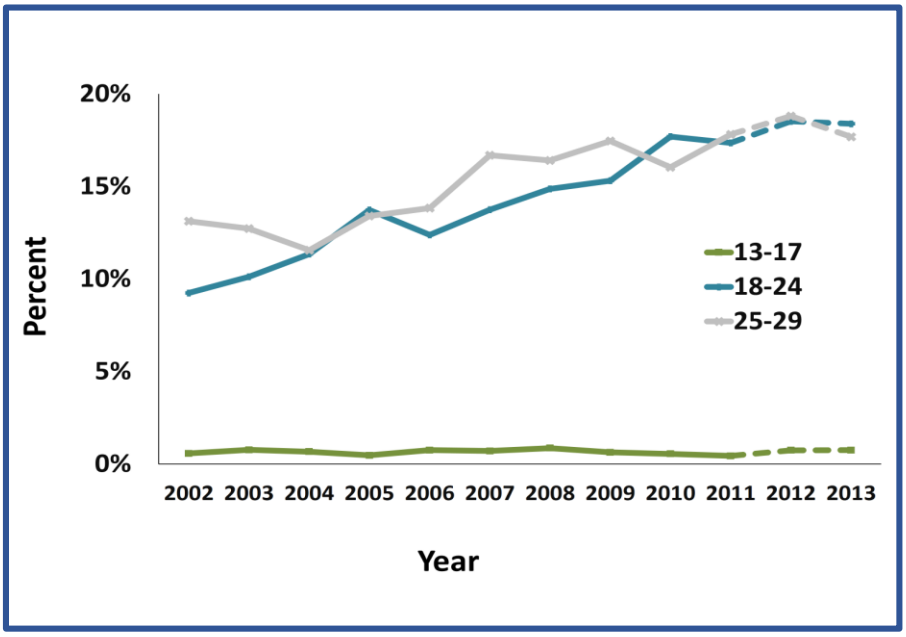
Age: About one-third of individuals diagnosed with HIV in 2013 were under the age of 30 (Figure 3.6). Very few diagnoses among adolescents were observed and the number of HIV-infected youth has remained stable since the onset of HIV reporting. In contrast, we observed a steady increase in the proportion of new diagnoses in LAC residents aged 18-29 years from 2002 to 2013 (Figure 3.7).

Figure 3.6: Age at the Time of HIV Diagnosis, LAC 2013[1]



[1]Data are provisional due to reporting delay. Source: DHSP, LAC-DPH; data as of December 31, 2014

Figure 3.7: Percent of Individuals Newly Diagnosed with HIV among Persons under 30 Years of Age, by Year of Diagnosis, LAC 2002-2013[1]

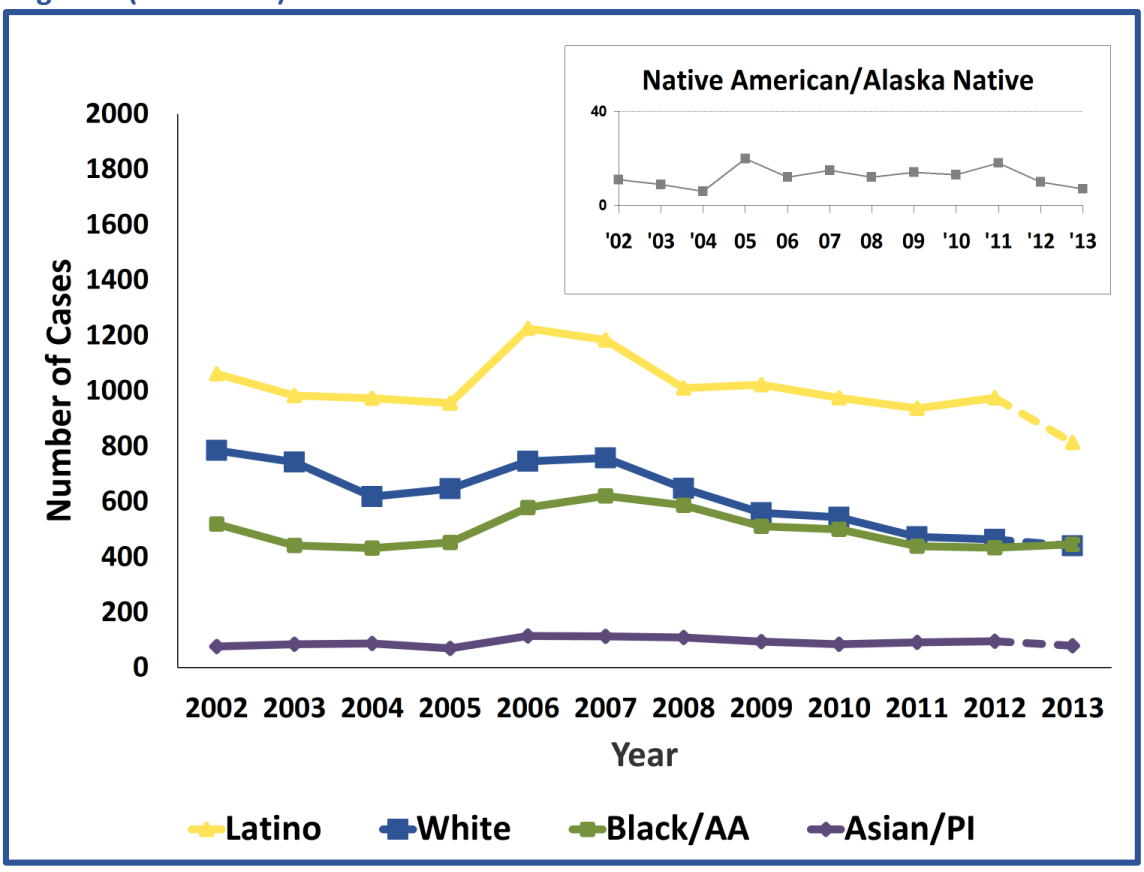


[1]Data are provisional due to reporting delay (2012-2013). Source: DHSP, LAC-DPH; data as of December 31, 2014

Race/Ethnicity: The annual number of adults and adolescents diagnosed with an HIV infection remained relatively stable for most racial/ethnic groups since HIV reporting was implemented in 2002 (Figure 3.8). However, the proportion of diagnoses by race has shifted (Figure 3.9). From 2002 to 2013 the proportion of Whites among new HIV diagnoses in LAC decreased from nearly one-third of newly diagnosed adults and adolescents to less than a quarter. In contrast, over the same time period, the proportion of new HIV diagnoses increased for Latinos (43% to 45%), Blacks/African Americans (Black/AA; 21% to 24%) and Asian/Pacific Islanders (A/PI; 3% to 4%). Overall, the proportion of AI/AN remained stable at 0.4% of all new HIV diagnoses.

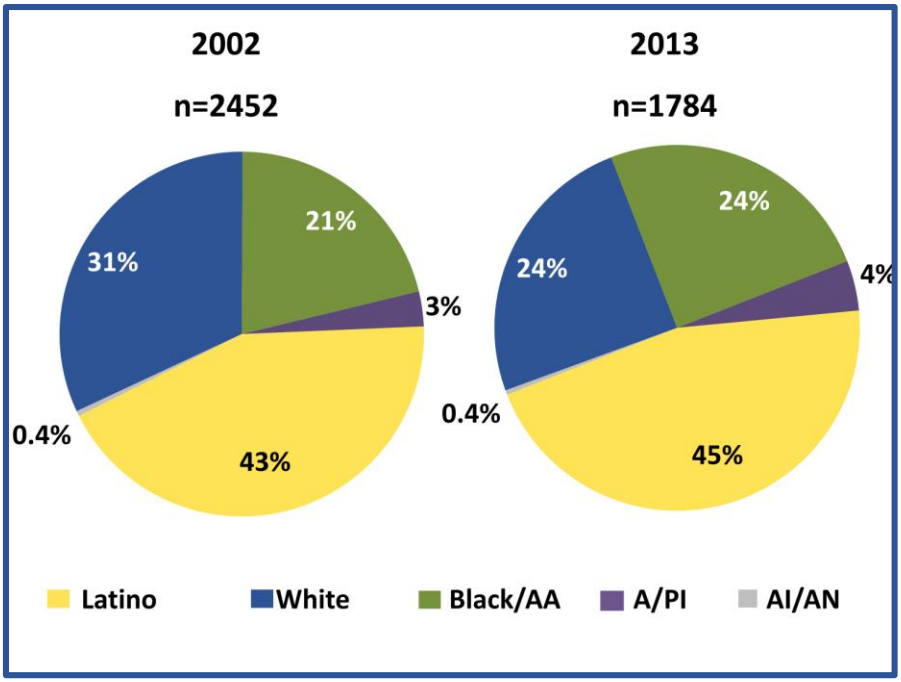
The rate of HIV diagnoses decreased from 2006 to 2010 for each racial/ethnic group and across male and females are presented in Figures 3.10 and 3.11 (due to small numbers, rates were not calculated for transgender individuals). At the time of this report data presented for 2011-2013 was preliminary and trends for these years should be interpreted cautiously

Figure 3.8: Number of Adult/Adolescents Diagnosed with HIV by Race/Ethnicity and Year of Diagnosis (2002-2013)[1]



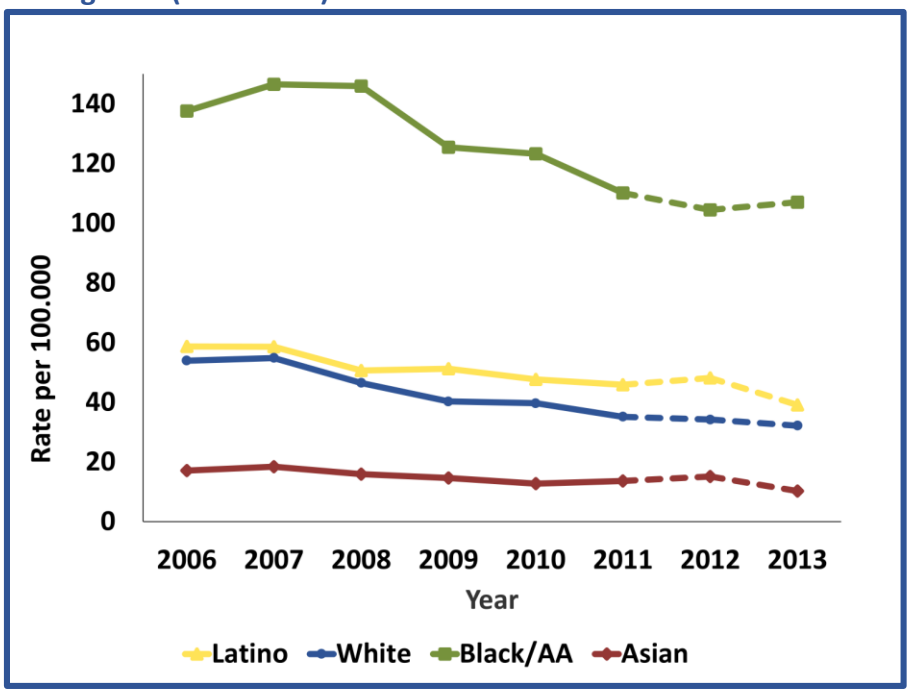
[1]Data are provisional due to reporting delay (2012-2013).
Source: DHSP, LAC-DPH; data as of December 31, 2014

Figure 3.9: Proportion of Adult/Adolescents Diagnosed with HIV Diagnosed with HIV in 2002 and 2013 by Race/Ethnicity[1]



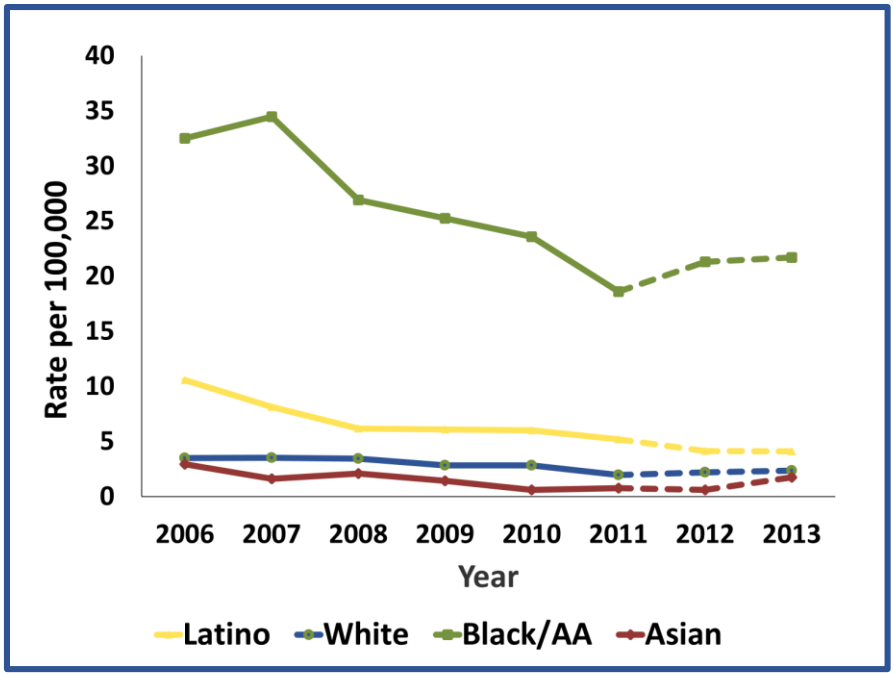
[1]Data are provisional due to reporting delay (2013).
Source: DHSP, LAC-DPH; data as of December 31, 2014

Figure 3.10: Rate of Male Adult/Adolescents Diagnosed with HIV by Race/Ethnicity and Year of Diagnosis (2002-2013)[1, 2]



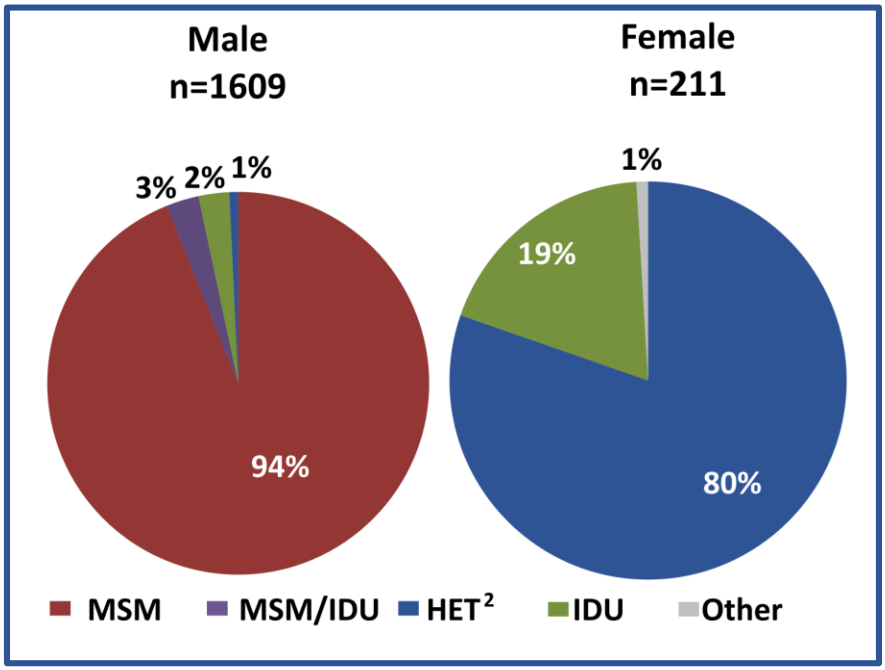
[1]Data are provisional due to reporting delay (2012-2013).
[2]Rates for Pacific Islanders and American Indian/Alaska Natives are unstable and therefore not presented.
Source: DHSP, LAC-DPH; data as of December 31, 2014

Figure 3.11: Rate of Female Adult/Adolescents Diagnosed with HIV by Race/Ethnicity and Year of Diagnosis (2002-2013)[1, 2]



[1]Data are provisional due to reporting delay (2012-2013).
[2]Rates for Pacific Islanders and American Indian/Alaska Natives are unstable and therefore not presented.
Source: DHSP, LAC-DPH; data as of December 31, 2014

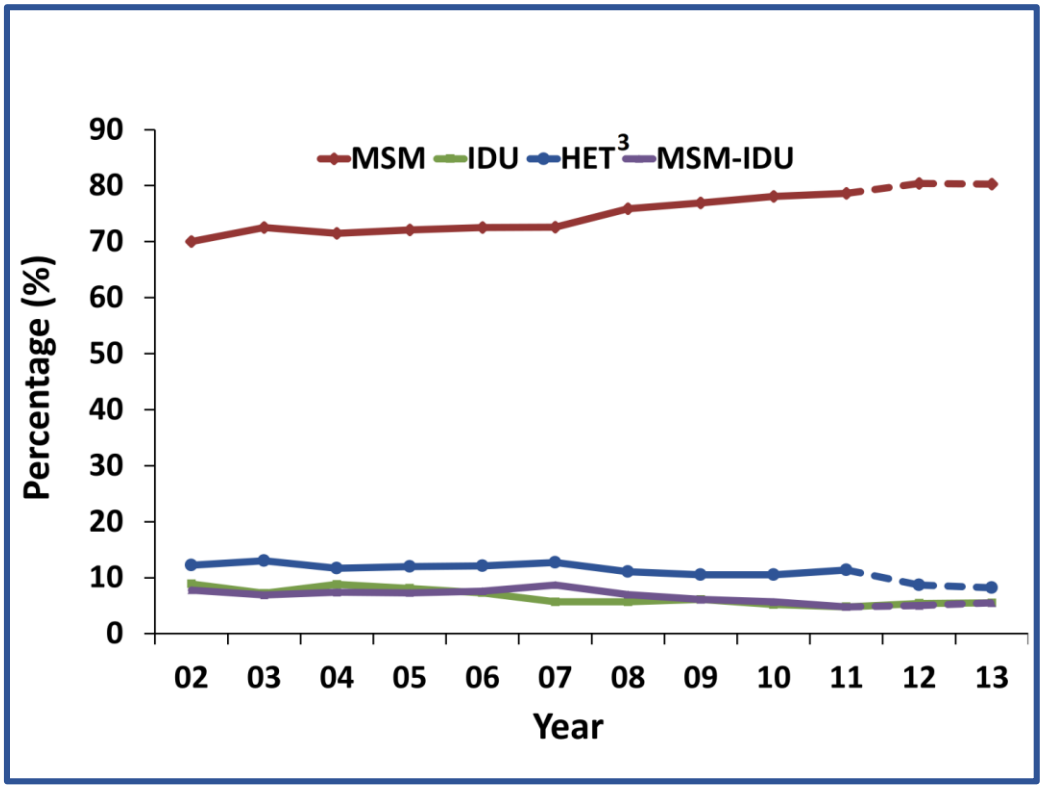
Figure 3.12: Proportion of Adult/Adolescents Diagnosed with HIV in 2013 by Sex at Birth and Mode of Exposure[1]



[1]Data are provisional due to reporting delay.
[2]Heterosexual contact is sexual contact with a person known to have, or to be at high risk for HIV infection.
Source: DHSP, LAC-DPH; data as of December 31, 2014

Mode of Exposure: The most common risk factor for HIV in LAC is sex with an HIV-infected male, accounting for 97% of cases among males and 80% of cases among females (Figure 3.12). Annually men who have sex with men (MSM) compose the majority of HIV diagnoses (Figure 3.13). Since 2002, the proportion of new diagnoses who are MSM, including MSM who inject drugs (MSM/IDU) increased from 78% to 85% of people diagnosed with HIV (Figure 3.13).

Figure 3.13: Proportion of Adult/Adolescents Diagnosed with HIV by Adjusted Mode of Exposure and Year of Diagnosis, LAC 2002-2013[1,2]



[1]Cases with no identified risk were redistributed using CDC protocol.
[2]Data are provisional due to reporting delay (2012-2013).
[3]Heterosexual contact is sexual contact with a person known to have, or to be at high risk for HIV infection.
Source: DHSP, LAC-DPH; data as of December 31, 2014

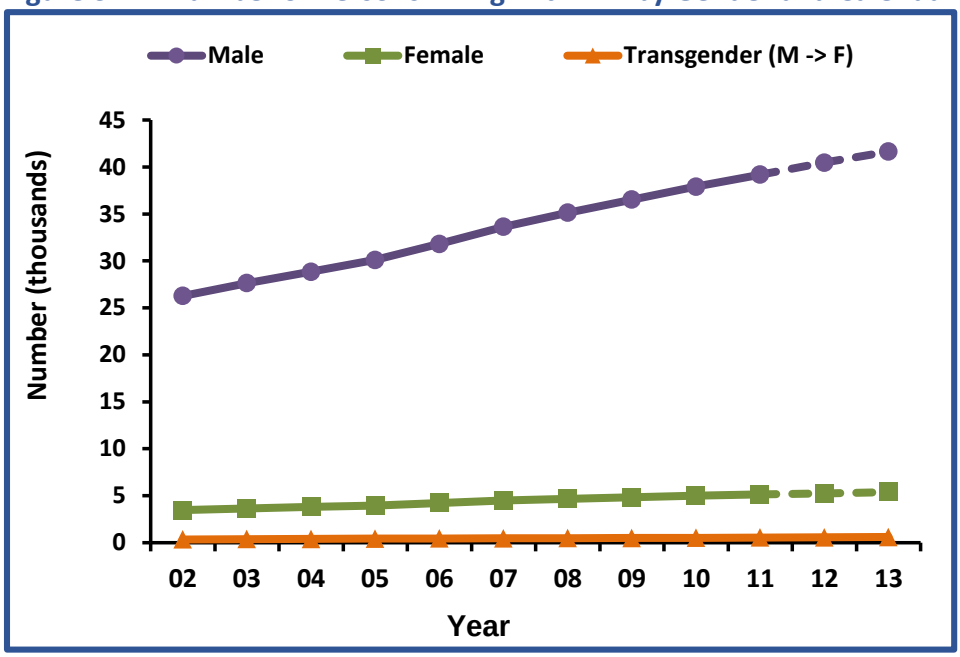
D. Persons Living with HIV

Gender: The number of both males and females living with HIV has increased steadily since 2002, when mandatory reporting for HIV, regardless of stage, began in LAC (Figure 3.14). As of December 31, 2014, approximately 43,000 PLWH residing in LAC identified as male, 5,500 as female and 590 as male to female transgender. However, this number is likely an underestimate due to inaccuracies in reporting of gender identity. For estimates of the transgender community in LAC, see Section V.

Age: Figure 3.15 shows the current age, as of December 2014, of PLWH in LAC. With advances in HIV treatment, we have seen an increase in the average age of PLWH. Three quarters (76%) of PLWH are 40 years or older, and nearly half of these individuals are over 50 years of age. The

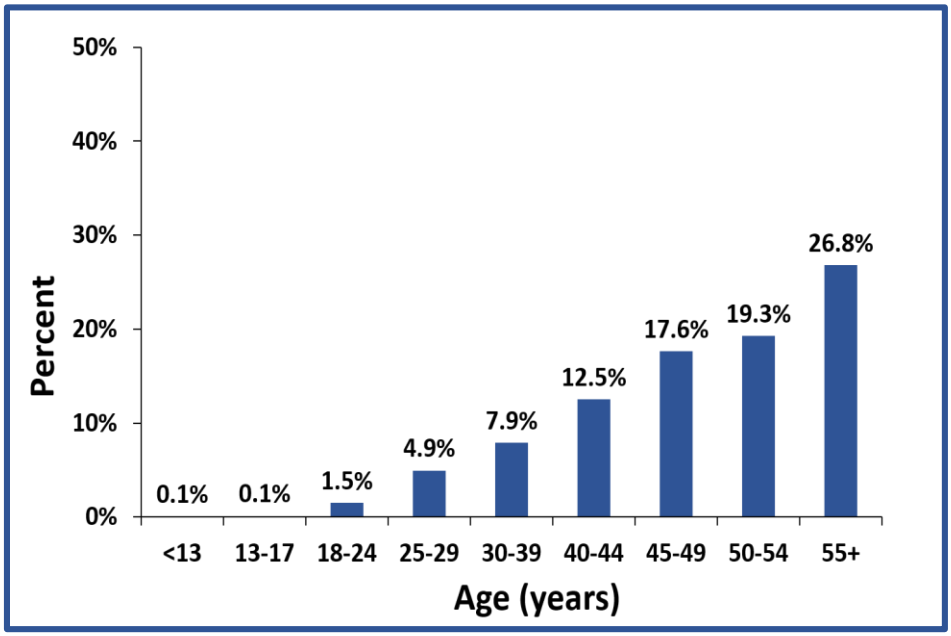
median age of PLWH in LAC is currently 48 years, compared with a median age of 44 years reported in the 2009 Profile.

Figure 3.14: Number of Persons Living with HIV by Gender and Calendar Year[1]



[1]Data is provisional due to reporting delay (2012-2013). Source: DHSP, LAC-DPH; data as of December 31, 2014

Figure 3.15: Age of Persons Living with HIV in LAC as of 2014 (n=47,615)[1]

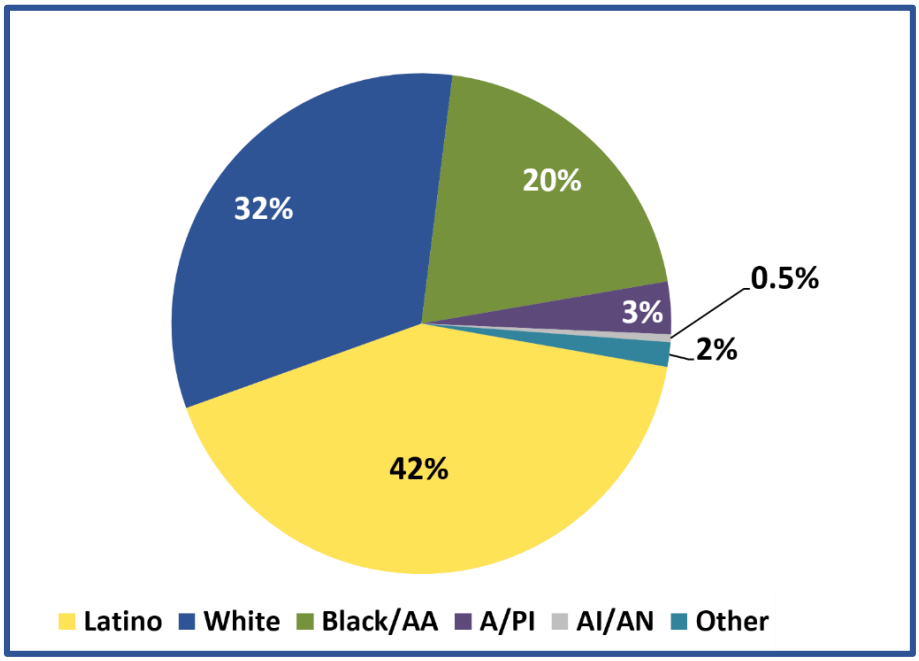


[1]Data for 2012-2014 are provisional due to reporting delay. Source: DHSP, LAC-DPH; data as of December 31, 2014

Race/Ethnicity: As seen in Figure 3.16, 42% of PLWH in LAC are Latino, 32% are White, 20% are Black/AA, and 3% are A/PI. Less than 1% of PLWH in LAC are AI/AN. The racial/ethnic distribution of PLWH differs by gender. Most notably, in 2013, Black/AA PLWH comprised 35%

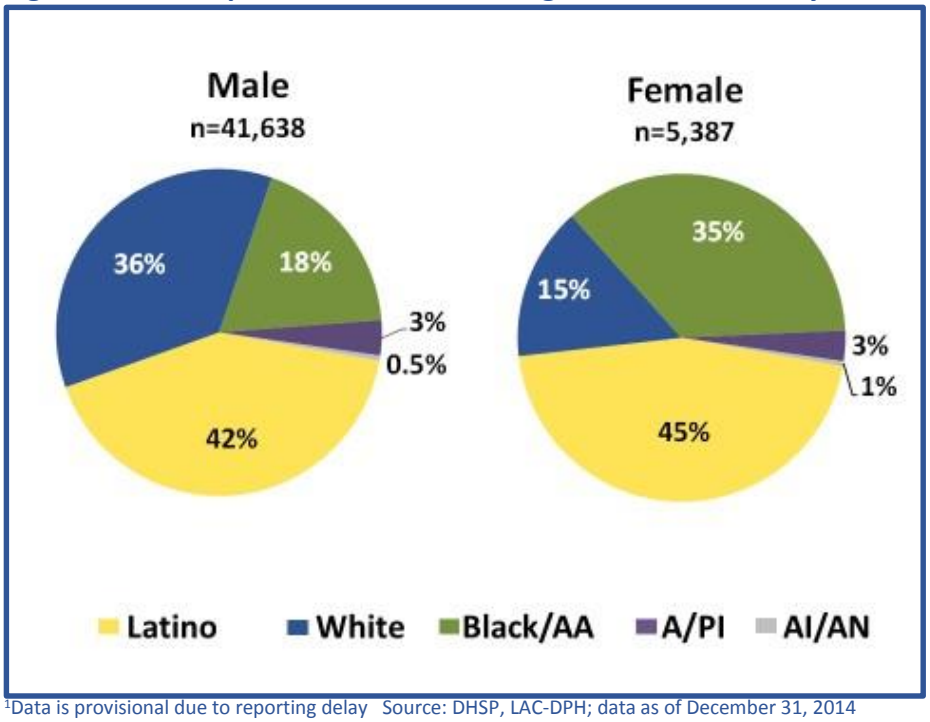
of females living with HIV compared with 18% of males (Figure 3.17). The proportion of Black/AA living with HIV that are female has consistently been higher than the proportion of females in any other racial/ethnic group (Figure 3.18).

Figure 3.16: Proportion of Persons Living with HIV by Race/Ethnicity, 2013[1]



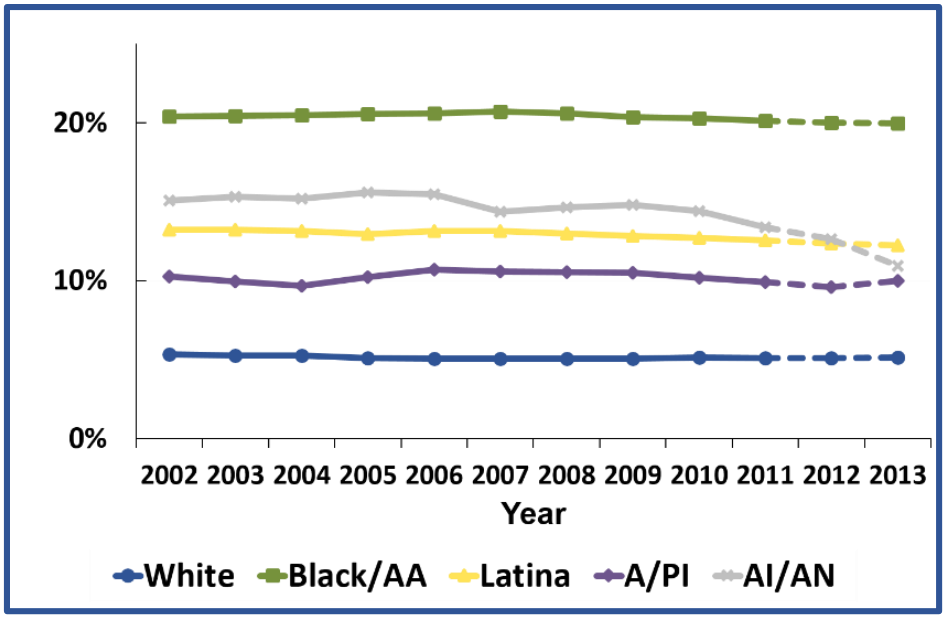
[1]Data is provisional due to reporting delay Source: DHSP, LAC-DPH; data as of December 31, 2014

Figure 3.17: Proportion of Persons Living with HIV in 2013 by Race/Ethnicity and Gender[1]



[1]Data is provisional due to reporting delay Source: DHSP, LAC-DPH; data as of December 31, 2014

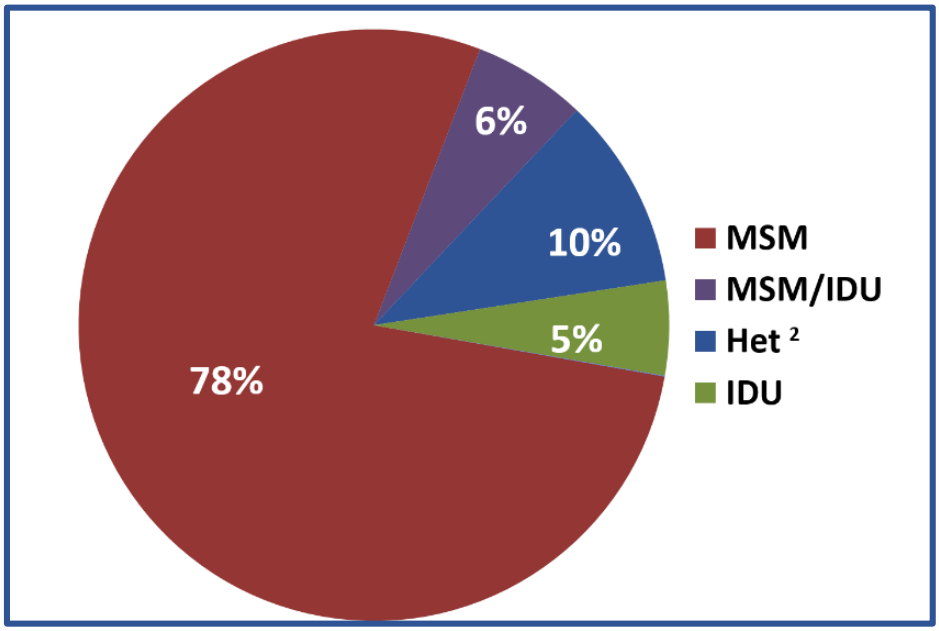
Figure 3.18: Proportion of Female Adults/Adolescents Living with HIV by Race/Ethnicity (n=5,387), LAC 2002-2013[1]



[1]Data is provisional due to reporting delay (2012-2013)
Source: DHSP, LAC-DPH; data as of December 31, 2014

Mode of Exposure: We estimate that 78% of PLWH are MSM and 6% MSM/IDU. Other reported modes of exposure include IDU (5%), and heterosexual contact (10%) (Figure 3.19).

Figure 3.19: Proportion of Persons Living with HIV by Adjusted Mode of Exposure (n=47,615), LAC 2013[1]



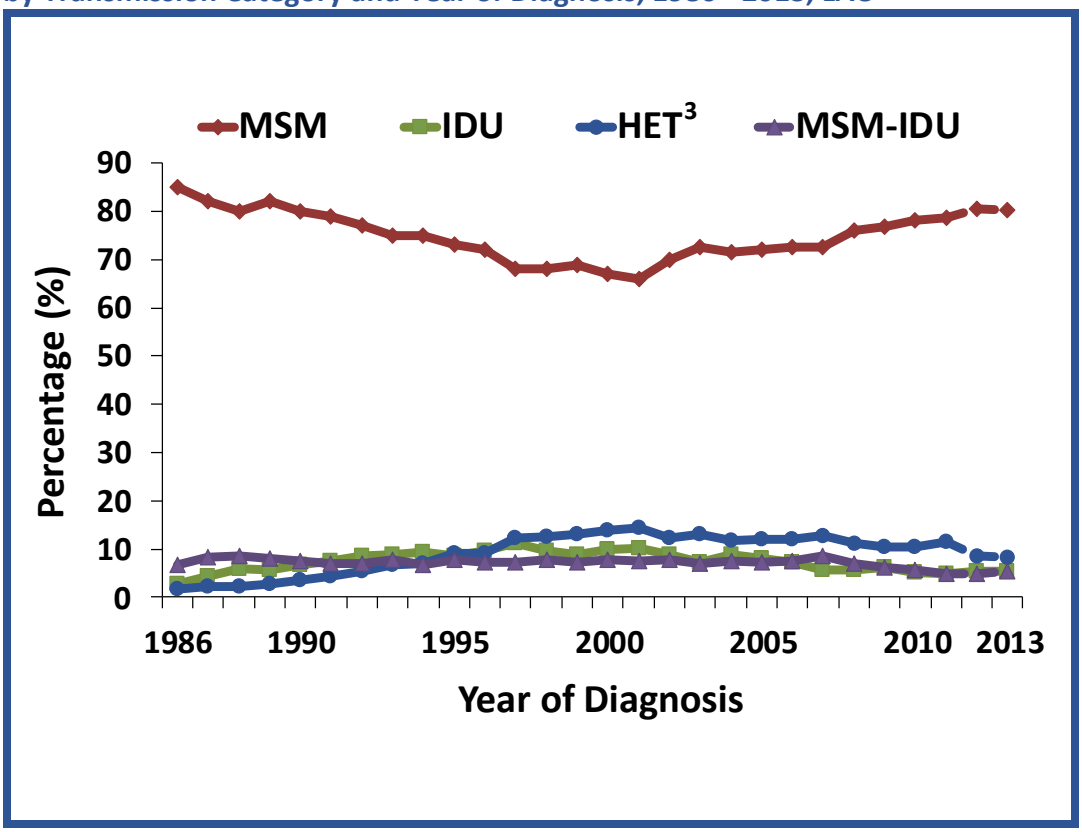
[1]Data are provisional due to reporting delay; Cases with no identified risk behaviors were redistributed into risk categories.
[2]Heterosexual contact with a person known to have, or to be at high risk for, HIV infection.
Source: DHSP, LAC-DPH; data as of December 31, 2014

E. Stage 3 HIV (AIDS)

Stage 3 (AIDS) is the symptomatic phase of HIV infection. The introduction of improved HIV treatments beginning in 1996 contributed to a significant delay in the progression of HIV to stage 3 (AIDS) for many individuals. This section presents data on stage 3 diagnoses including 3-year survival following stage 3 classification.

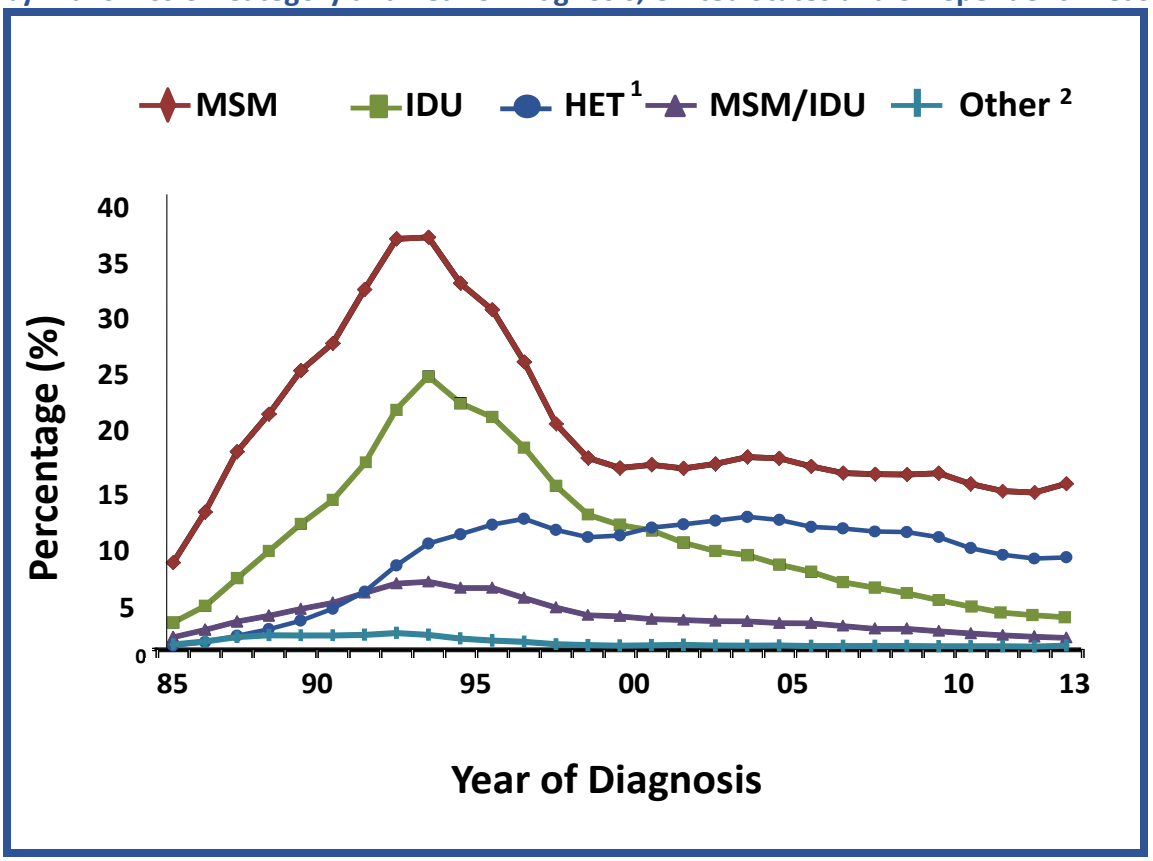
Mode of Exposure and Gender: The distribution of persons classified as stage 3 by adjusted modes of exposure differs greatly between LAC and other regions of the country—such as the South and Northeast United States. LAC continues to have a higher proportion of stage 3 cases among MSM and smaller proportions among heterosexuals and IDUs than the nation overall. These differences can be seen when comparing Figures 3.20 and 3.21.

Figure 3.20: Stage 3 (AIDS) Classifications among Adults and Adolescents with HIV Infection, by Transmission Category and Year of Diagnosis, 1986 - 2013, LAC[1,2]



[1]Cases with no identified risk were redistributed using CDC protocol.; [2]Data are provisional due to reporting delay (2012-2013).
[3]Heterosexual contact is sexual contact with a person known to have, or to be at high risk for HIV infection.; Source: DHSP, LAC-DPH; data as of December 31, 2014

Figure 3.21: Stage 3 (AIDS) Classifications among Adults and Adolescents with HIV Infection, by Transmission Category and Year of Diagnosis, United States and 6 Dependent Areas



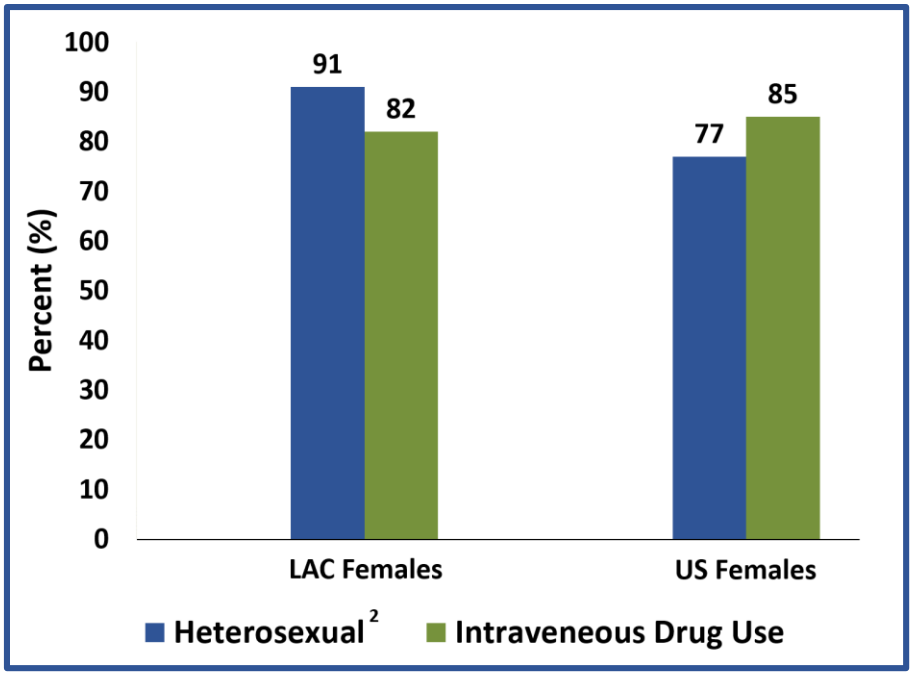
Note. All displayed data have been statistically adjusted to account for reporting delays and missing transmission category, but not for incomplete reporting.

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

[2] Includes hemophilia, blood transfusion, perinatal exposure, and risk factor not reported or not identified. Source: U.S. Centers for Disease Control and Prevention

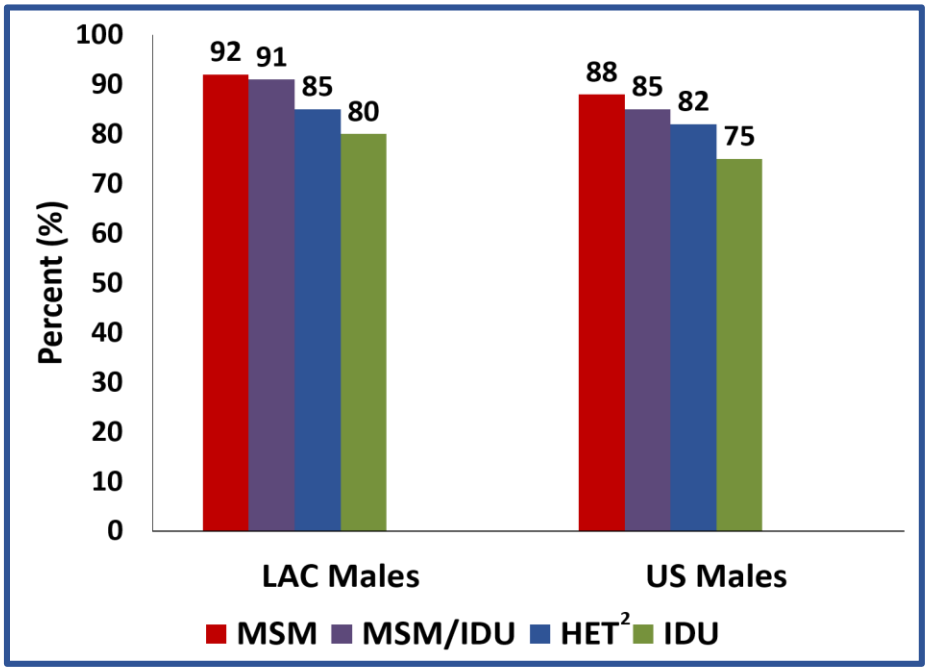
Figure 3.22 presents data on survival rates for more than 36 months after a stage 3 HIV diagnosis, broken down by mode of exposure, amongst HIV-infected LAC females as compared to US females. Figure 3.23 presents the analogous data for HIV-infected males.

Figure 3.22: Survival for More Than 3 Years After a Stage 3 (AIDS) Classification during 2004-2009, by Transmission Category[1]—Females, LAC and United States



[1]Cases with no identified risk were redistributed using CDC protocol.
[2]Heterosexual contact is sexual contact with a person known to have, or to be at high risk for HIV infection.
Source: DHSP, LAC-DPH; data as of December 31, 2014; U.S. Centers for Disease Control and Prevention

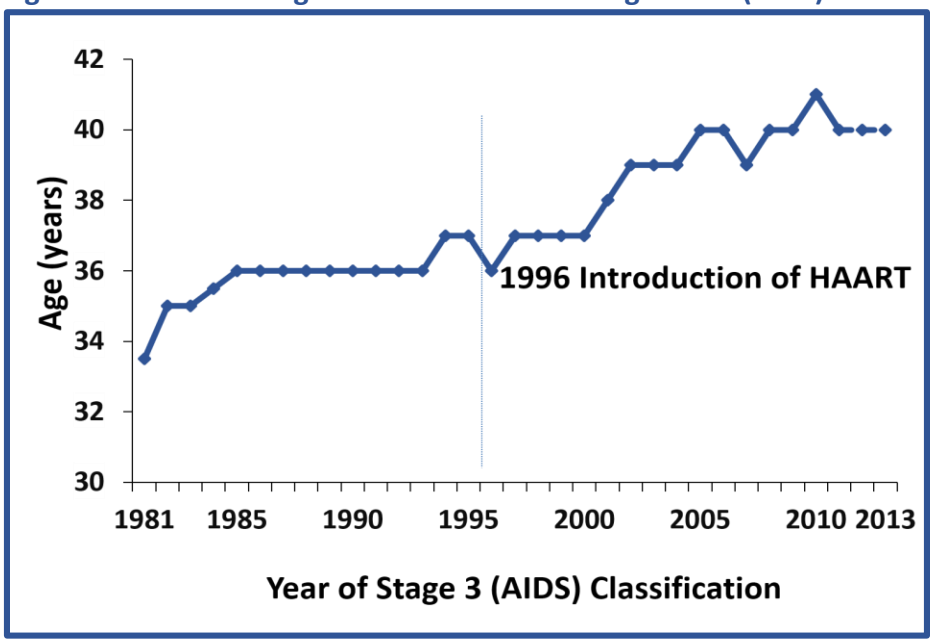
Figure 3.23: Survival for More Than 3 Years after a Stage 3 (AIDS) Classification during 2004-2009, by Transmission Category[1]—Males, LAC and United States



[1]Cases with no identified risk were redistributed using CDC protocol.
[2]Heterosexual contact is sexual contact with a person known to have, or to be at high risk for HIV infection.
Source: DHSP, LAC-DPH; data as of December 31, 2014; Centers for Disease Control and Prevention

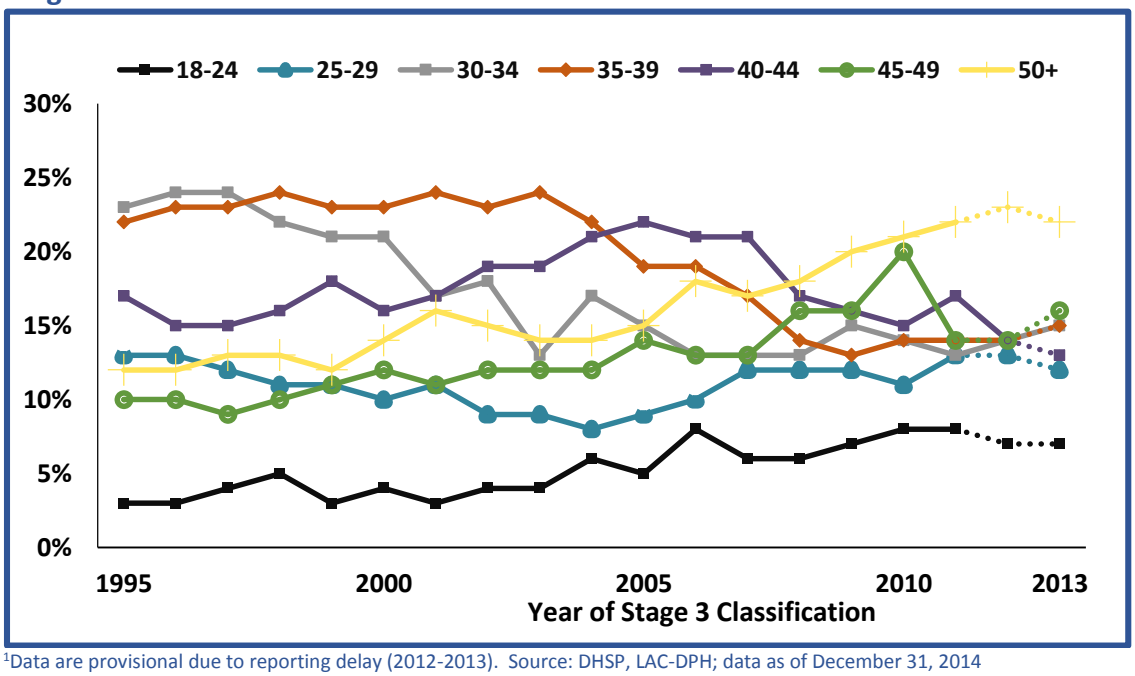
Age: The median age at stage 3 diagnosis has increased from 33.5 years in 1981 to 40 years in 2013 (see Figure 3.24). Between 1995 (prior to the introduction of more effective HIV treatments) and 2013, the proportion of people classified as stage 3 among persons aged 25-44 years decreased, while the proportion of those diagnosed at age 50 years or older nearly doubled from 12% of new stage 3 diagnoses in 1995 to 22% in 2013 (Figure 3.25).

Figure 3.24: Median Age at Classification of Stage 3 HIV (AIDS)[1]



[1]Data are provisional due to reporting delay (2012-2013). Source: DHSP, LAC-DPH; data as of December 31, 2014

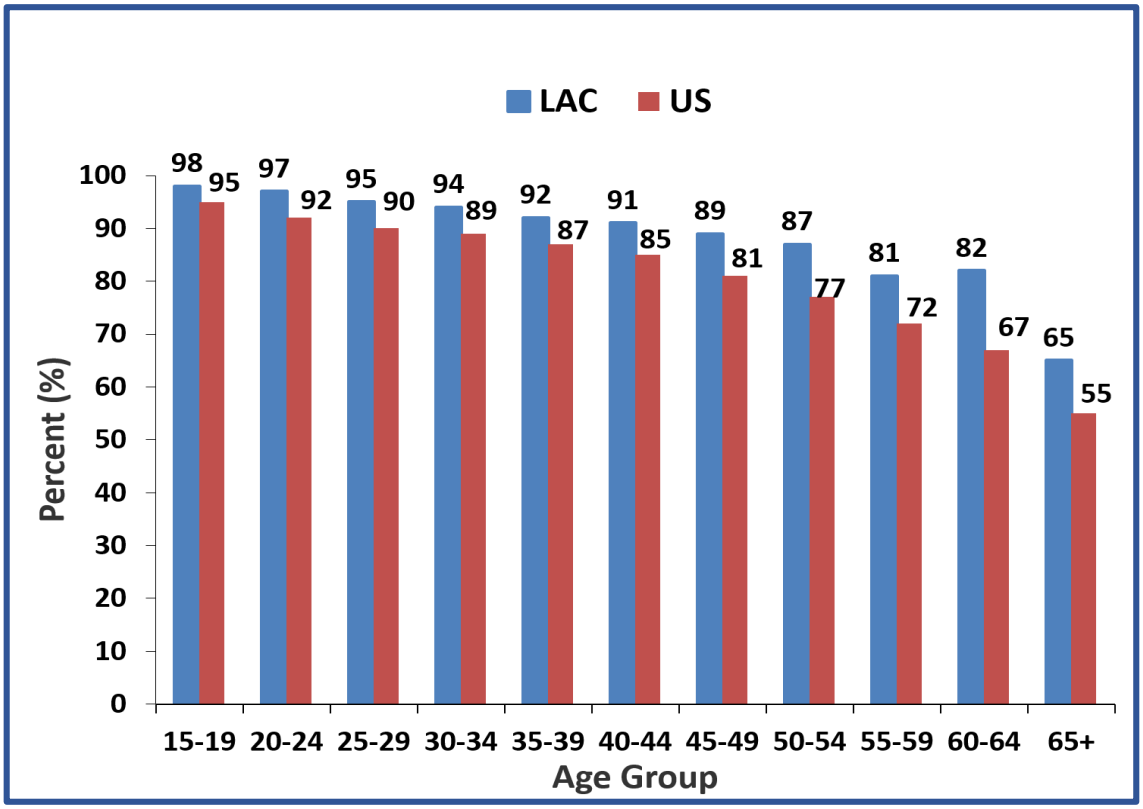
Figure 3.25: Proportion of Individuals Classified as Stage 3 (AIDS) by Age Group at Time of Diagnosis and Year[1]



[1]Data are provisional due to reporting delay (2012-2013). Source: DHSP, LAC-DPH; data as of December 31, 2014

Life expectancy 36 months after being classified as stage 3 decreased with increasing age group (Figure 3.26). Across all age groups, a greater proportion of LAC residents survived 3 years after being classified as stage 3 compared to the US overall (Figure 3.26).

Figure 3.26: Proportion of Individuals Classified as Stage 3 (AIDS) in 2004-2009 and Surviving at Least 36 Months, LAC and United States

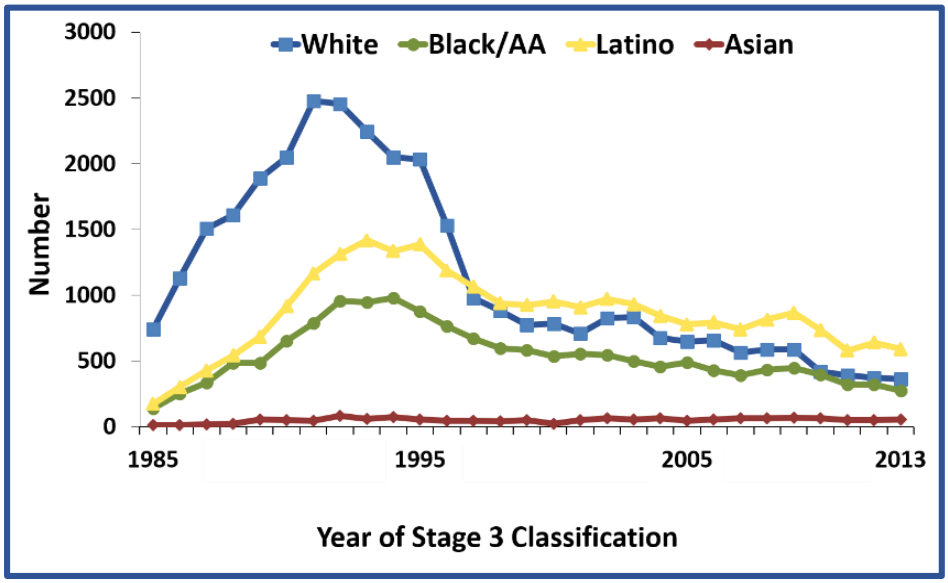


Source: DHSP, LAC-DPH; data as of December 31, 2014; Centers for Disease Control and Prevention

Race/Ethnicity: Figures 3.27 and 3.28 show the number of people classified as stage 3 by race/ethnicity in LAC and the US overall. In LAC, the number of Latinos classified as stage 3 has been higher than any other racial/ethnic group whereas in the US, the number of Latinos classified with stage 3 is lower than Black and White Americans.

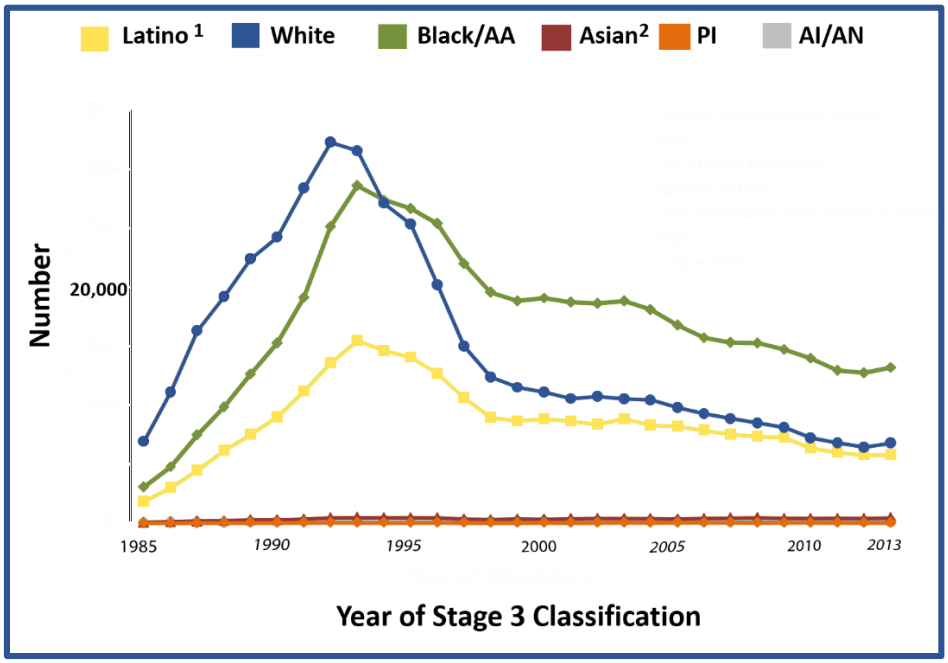
Figure 3.29 presents data on survival after stage 3 HIV (AIDS) classification by racial/ethnic categories, in LAC and in the US generally. The proportions of White, Black/AA and Latino PLWH surviving over 3 years after progression to stage 3 was comparable in the US and LAC. However, fewer Pacific Islanders and AI/AN survived 36 months after stage 3 classification in LAC compared to the US in general.

Figure 3.27: Stage 3 (AIDS) Classifications among Adults and Adolescents with HIV Infection, by Race/Ethnicity 1985–2013—LAC[1]



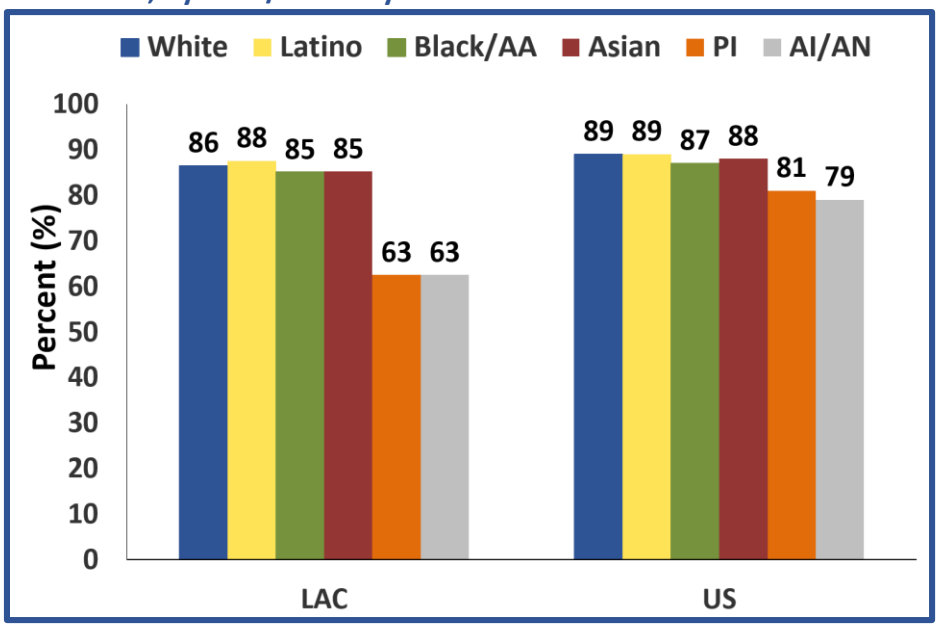
[1]Data are provisional due to reporting delay (2012-2013); Due to small numbers of Pacific Islanders and American Indian and Alaska Natives diagnosed with stage 3 (AIDS) annually, data for these groups are not presented.
Source: DHSP, LAC-DPH; data as of December 31, 2014

Figure 3.28: Stage 3 (AIDS) Classifications among Adults and Adolescents with HIV Infection, by Race/Ethnicity 1985–2013—United States and 6 Dependent Areas



Note. All displayed data have been statistically adjusted to account for reporting delays, but not for incomplete reporting.
[1] Includes Asian/Pacific Islander legacy cases.
[2] Hispanics/Latinos can be of any race.
Source: Centers for Disease Control and Prevention

Figure 3.29: Survival for More than 36 Months after a Stage 3 (AIDS) Classification during 2004–2009, by Race/Ethnicity—LAC and United States[1]



[1]LAC data are provisional due to reporting delay.
Source: DHSP, LAC-DPH; data as of December 31, 2014; Centers for Disease Control and Prevention

F. National Trends

Table 3.1 compares HIV incidence estimates (HIV Incidence Surveillance methods and additional data below in *Supplemental Surveillance Projects*), HIV diagnoses and PLWH in the US, LAC and 7 other large metropolitan cities. When available, both numbers and rates are provided. Rates are an effective way of examining the impact of HIV in populations of different sizes. For example, LAC has nearly 6 times the number of estimated new HIV infections as compared to San Francisco County, however San Francisco County has double the rate of new infections.

CDC estimates 47,500 persons in the US were infected with HIV in 2010 [1]. This estimate accounts for people who were diagnosed and reported to HIV surveillance and those that remained unaware of their HIV infection. In LAC, we estimate that just over 2,100 new HIV infections occurred in LAC in 2010 (4.5% of estimated new US infections). In comparison to other cities funded for HIV Incidence Surveillance, LAC had one of the highest numbers, but the lowest rates of new HIV infections. However, incidence estimates for the densely populated and urban "Metro" area (Service Planning Area 4) of LAC (106 per 100,000) were among the highest in the nation (see Section IV for more information on the geographical distribution of HIV incidence estimated in LAC).

CDC reports that in the US over 48,000 individuals with HIV infection were diagnosed and reported to HIV surveillance in 2013 (Table 3.1). With over 2,000 HIV infections diagnosed in 2013, LAC accounts for 4.2% of new HIV diagnoses in the US. Only New York City has more

individuals newly diagnosed with HIV annually and more PLWH than LAC. While the case count is high, LAC as a whole has a lower rate of both HIV diagnoses and PLWH than many comparable cities. Of note, the "Metro" SPA has a new HIV diagnoses rate of 42 per 100,000 residents, which is twice that of LAC in general and second only to Miami's rate of new diagnoses (see Section IV for more information on the geographical distribution of HIV in LAC).

Table 3.1: Estimated HIV infections, Diagnoses of HIV Infection and Number of People Living with HIV (PLWH) in the US and 8 Metropolitan Areas

	Incidence Estimate (2010)		*Annual Diagnoses[1] (2013)*		*PLWH[1] (2012)*	
Geographic Area	**N (95% CI)**	**Rate**	**N**	**Rate**	**N**	**Rate**
Miami, FL[2]	--	--	1,332	51	26,904	1,038
Philadelphia, PA[3]	*	*	768	36	18,423	861
Washington, D.C.[3]	656 (449-863)	126	1,634	35	29,465	638
San Francisco, CA[3]	357 (220-495)	51	464	29	16,327	1,043
New York, NY[3]	2,284	*	3,849	27	121,833	864
Houston, TX[3]	1,258 (938-1577)	30	1,556	25	24,270	393
Chicago, IL	*	*	1,706	23	27,976	383
LAC, CA[2]	2,117 (1,619-2,614)	25	2,026	20	45,633	459
United States[3]	47,500 (42,000-53,000)	19	48,114	15	933,295	294

*Jurisdiction did not provide rate in their published report.
[1]Diagnoses of HIV Infection in the United States and Dependent Areas, 2013 [2]
[2]Miami is not a funded HIV Incidence Surveillance jurisdiction.
[3]Data source HIV Incidence estimates: DHSP, LAC-DPH; data as of May 12, 2015; District of Columbia Department of Health [3]; San Francisco Department of Public Health [4]; New York City Department of Health and Mental Hygiene [5]; Houston [6]; Estimated HIV incidence in the United States [1]

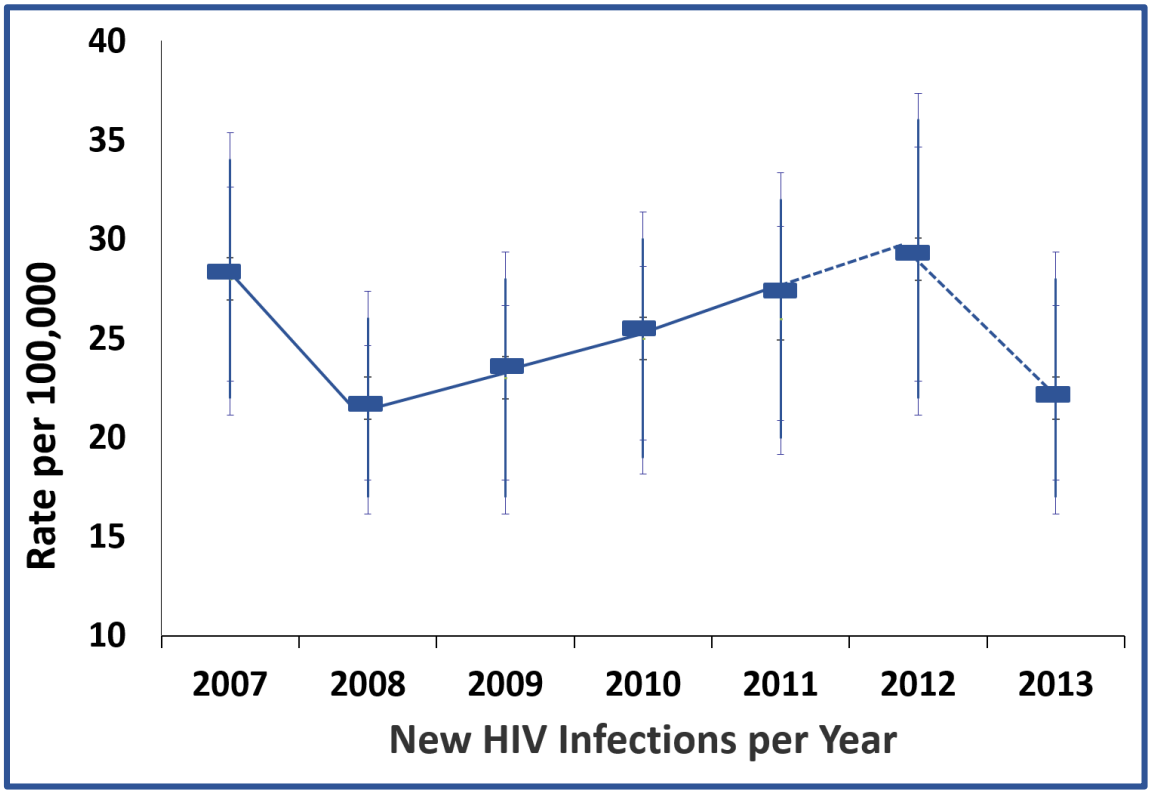
G. HIV Incidence Surveillance

HIV Incidence Surveillance (HIS) is a CDC-developed methodology that estimates the number of people newly infected with HIV. The estimation relies upon a technique, called stratified extrapolation analysis[1], to account both for people who have been diagnosed with HIV and those who remain unaware of their infection. Incidence estimates produced through HIS are limited in that they rely upon individuals who have tested for HIV, have remnant sera from an HIV positive test available and have accurately reported their HIV testing behaviors prior to their first positive HIV test. For this reason, these estimates should be interpreted cautiously. For HIV incidence estimation methods, refer to the technical notes.

Overall, we estimate that approximately 2,000 new HIV infections occur annually in LAC. Figure 3.30 shows the estimated rate of new infections per year from 2007-2013. The marker in the graph indicates the point estimate for each year, while the vertical line shows the 95% confidence interval around that estimate. For example, in 2013, we estimate a rate of new HIV infection of 22/100,000 with the 95% confidence interval of 12-22/100,000). There was a significant trend for increased incidence from 2008 to 2012 ($p<0.05$ for 2008 vs 2012).

However, preliminary analysis for 2013 shows a (non-significant) decrease in HIV incidence from 2012 to 2013. As the Case Surveillance dataset for 2012 and 2013 is not yet complete, these results should be interpreted only as an indication of a possible preliminary decrease in new infections.

Fig 3.30: Estimated Rate of New HIV Infections by Year, LAC 2007-2013[1]



[1]Data is provisional due to reporting delay (2012-2013)
Source: DHSP, LAC-DPH; data as of May 12, 2015

In Table 3.2, we report incidence estimates for 2010-2013 by demographic and risk behavior to highlight the groups that are at highest risk of new infection in LAC. Because the majority of our infections occur among MSM, men are more likely than women to have a new HIV infection. We estimate that the groups at highest risk for new HIV infection are adult MSM, adults under the age of 35 years, and Black/AA individuals (indicate in bold font). In fact, sub analysis of young MSM allows us to estimate that the high rates of HIV infections among MSM are a result of the disproportionately high rates of HIV infection among young Black/AA MSM (Figure 3.31).

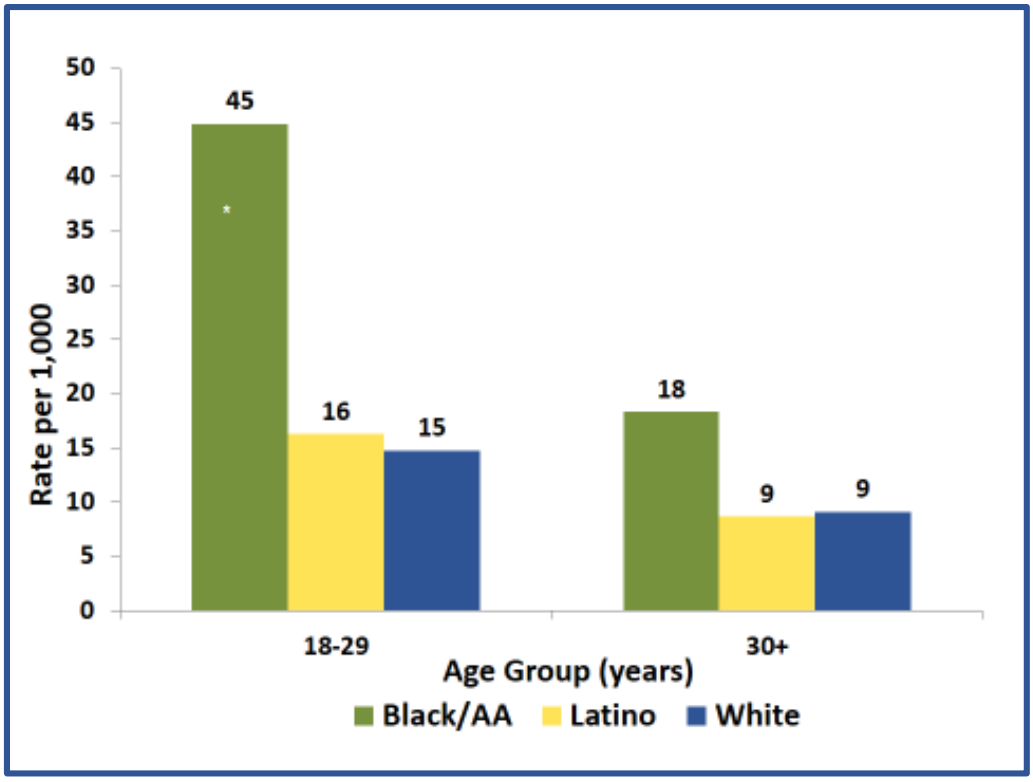
Table 3.2: Estimated Number, 95% Confidence Interval and Rate (per 100,000) of Estimated New HIV Infections by Demographic and Risk Behavior Group, LAC HIV Incidence Surveillance[1]

	2010		*2011*		*2012*		*2013*	
	N (95% CI)	**Rate**	**N (95% CI)**	**Rate**	**N (95% CI)**	**Rate**	**N (95% CI)**	**Rate**
Gender								
Male	1,919 (1,460-2,379)	**48**	1,904 (1,452-2,356)	**48**	2,126 (159-2,661)	**53**	1,624 (1,218-2,031)	**40**
Female	234 (92-377)	5	211 (74-349)	5	232 (60-404)	6	241 (90-391)	6
Transgender	*	*	*	*	*	*	*	*
Age Group								
18-24 years	463 (283-643)	41	510 (313-707)	**48**	566 (311-822)	53	466 (243-690)	44
25-29 years	377 (229-525)	55	356 (214-497)	47	472 (276-667)	**62**	378 (237-520)	**50**
30-34 years	367 (208-526)	**57**	545 (362-728)	39	365 (168-561)	50	308 (164-453)	41
35-39 years	313 (154-471)	43	283 (165-400)	38	270 (126-414)	39	204 (93-314)	29
40-49 years	406 (216-596)	26	262 (134-390)	33	438 (224-652)	31	302 (167-437)	22
50+ years	196 (75-316)	7	230 (65-396)	8	209 (62-356)	7	174 (78-270)	6
Race/Ethnicity*								
White	667 (391-943)	26	463 (270-655)	19	659 (407-908)	27	503 (326-680)	21
Black/AA	332 (181-483)	**46**	491 (287-694)	**72**	427 (209-646)	**63**	383 (215-551)	**55**
Latino	935 (661-1209)	24	1,004 (703-1,304)	27	1,111 (767-1,455)	30	844 (581-1,106)	22
Mode of Transmission								
HET	202 (64-340)	2	171 (23-319)	2	*	*	*	*
IDU	*	*	*	*	*	*	*	*
MSM	1,841 (1,410-2,272)	**798**	1,864 (1,415-2,313)	**861**	2,063 (1,538-2,588)	**946**	1,574 (1,165-1,983)	**763**

[1]Incidence estimates are calculated separately for each demographic group. Therefore, numbers in the breakdown may not add up to annual total

*Data completeness or sample size did not meet the criteria to calculate a stratified incidence estimate for transgender individuals, IDU, A/PIs or AI/AN.

Figure 3.31: Estimated Rate of New HIV Infection among Young MSM by Race/Ethnicity and Age Group, HIV Incidence Surveillance 2012[1, 2]



[1]Data is provisional due to reporting delay;
[2]Incidence estimates for Black/AA and Latino MSM aged 18-29 years and for Black/AA MSM aged 30+ years compared with Latino and White MSM differ significantly ($p<0.01$).
Source: DHSP, LAC-DPH; data as May 12, 2015

H. Molecular HIV Surveillance

HIV nucleotide sequences are collected as part of the CDC-funded Molecular HIV Surveillance (MHS) activities and are analyzed to assess the prevalence of drug resistant HIV strains, to monitor genetic diversity of HIV, to describe HIV transmission patterns, and help guide programmatic and prevention efforts.

Since the introduction of highly active antiretroviral therapy (HAART) for routine clinical care, transmitted drug resistance (TDR) has been an emerging public health challenge. HAART has been effective in slowing the progression of immunodeficiency in persons infected with HIV-1. However, the benefits of HAART have been mitigated somewhat by the emergence of drug resistant strains that both limit first-line treatment options and decrease the effectiveness of subsequent HAART regimens. Since May 2006, LAC DHSP has worked in collaboration with the CDC to incorporate Molecular HIV Surveillance (MHS), formerly known as Variant, Atypical and Resistant HIV Surveillance (VARHS) into routine HIV surveillance activities. MHS collects genetic sequence data from the *pol* region (Protease and Reverse Transcriptase) of HIV-1 from newly diagnosed persons. Through MHS, we are able to estimate the prevalence of transmitted HIV drug resistance, describe the demographic characteristics associated with TDR and to investigate the distribution of HIV-1 subtypes among persons newly diagnosed with HIV in LAC.

From 2007 through 2009, 1,414 sequences were obtained through HIV resistance surveillance. To identify drug resistance-associated mutations in LAC, we adopted a mutation list developed by the World Health Organization and modified by CDC [7-8]. Overall, 257 sequences (18%) had some genetic evidence of drug resistance. Of these, 122 (9%) exhibited evidence of resistance to non-nucleoside reverse transcriptase inhibitors, 121 (9%) to nucleoside reverse transcriptase inhibitors and 76 (5%) to protease inhibitors. Subtype B was dominant (97%), followed by subtypes C (1.2%), CRF01_AE (0.8%), CRF02_AG (0.4%), A (0.3%) and F (0.1%).

With a TDR prevalence of 18%, LAC ranks high compared with other jurisdictions across the nation (12-18%) [9]. The prevalence of TDR in recent (19%) and longstanding (17%) HIV cases was similar, thus providing additional support for the notion that TDR-associated mutations may persist well beyond the period of recent infection. HIV-1 CRF01_AE, historically observed in central Africa and Asia, was observed to be circulating among MSM and heterosexuals in LAC. Together, these findings underscore the need for continued and expanded HIV resistance surveillance to inform healthcare providers, policy makers and at risk populations of emerging trends in HIV drug resistance. In particular, these findings highlight the importance of performing baseline HIV genotype testing as recommended in the US guidelines for the use of antiretroviral agents in HIV-1-infected adults and adolescents.

I. HIV Infection in Children

Through March 2015, a cumulative total of 550 children under the age of 13 years have been reported with HIV since reporting began in LAC in 1982. Fifty-three percent (n=293) of all pediatric HIV (all stages) cases in LAC are male and 47% (n=257) female. Among the 550 pediatric cases, there was a total of 325 (59%) children living with HIV in LAC at the end of March, 2015

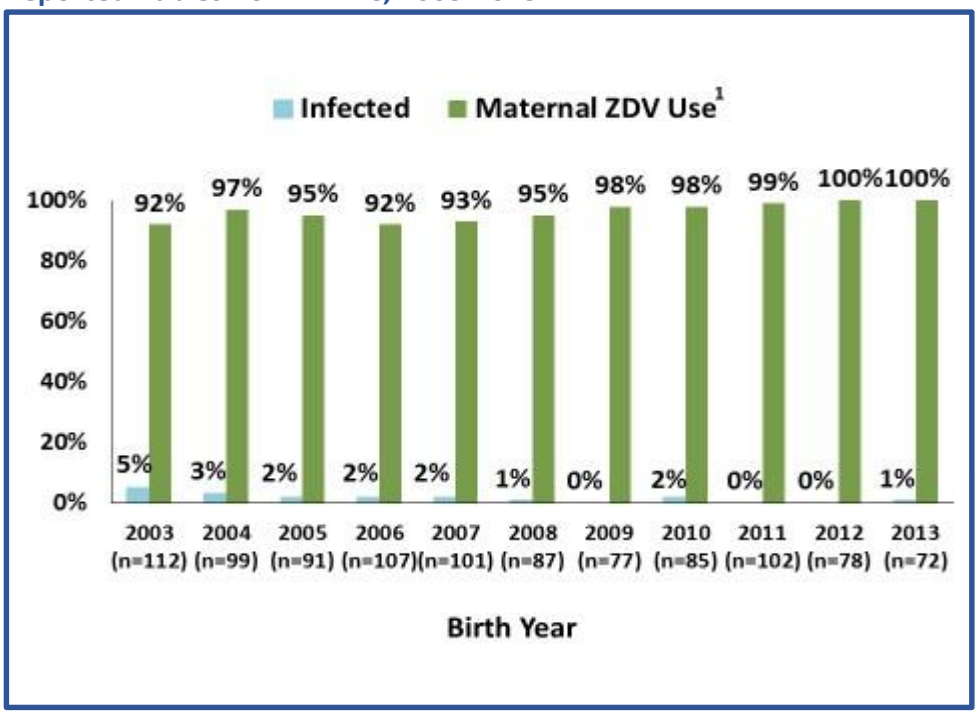
The racial/ethnic distribution for children diagnosed with HIV is similar to that of adult female cases. Compared with the US as a whole, the HIV epidemic in LAC involves proportionally more Latinos (LAC: 47% Latino, 32% Black/AA, 17% White, 2% A/PI, 1% AI/AN and 1% other/unknown; US: 10% Latino, 62% Black/AA, 16% White, 8% A/PI, <1% AI/AN and 3% other).

Since the implementation of universal blood donor screening in 1985 and the treatment of blood products received by those with hemophilia and other blood clotting disorders, the majority of infected children have been exposed to HIV via perinatal (mother-to-child) transmission. Of the 550 children diagnosed with HIV cumulatively, 76% acquired HIV from their mothers; 17% were infected through a blood transfusion; 5% had hemophilia or a coagulation disorder; 1% had another exposure; and no exposure category could be determined for 1% of children. However, since 2006, perinatal exposure was the sole risk factor among all children under age 13 years diagnosed with HIV.

Despite major successes in reducing mother-to-child transmission of HIV, both locally and nationally, perinatal HIV prevention efforts fail to reach all HIV-infected pregnant women in LAC, and transmission still occurs. In 2003 5% of HIV positive mothers transmitted HIV during

labor. By 2013, mother to infant transmission was reduced to 1% (Figure 3.31). Among HIV-infected women delivered during the 2013 project year, 100% of HIV-infected pregnant women received ART during pregnancy and/or at labor and delivery, accounting for the transmission rate reduction to one percent (Figure 3.31). Most of the HIV infections (70%) occurring in babies born between 1999 and 2013 resulted from missed opportunities for prevention primarily due to the lack of prenatal care and/or failure to identify and treat mothers for HIV during their pregnancies.

Figure 3.32: Rates of Perinatal HIV Transmission and Maternal Zidovudine (ZDV) Use for Reported Babies Born in LAC, 2003-2013[1]



[1]Defined as ZDV or other antiretroviral received prenatally or during labor/delivery
Source: DHSP, LAC-DHSP: data as of December 31, 2014

J. Enhanced Perinatal Surveillance (EPS) Project

With the emphasis on advancing HIV prevention and further reducing perinatal HIV transmission in high prevalence areas, the CDC created the EPS project in 1999 as an extension of routine HIV surveillance activities. LAC was one of the original 15 sites nationwide funded to conduct active surveillance for HIV-exposed infants and children less than 13 years of age. EPS is a longitudinal, IRB-approved study linking mother-infant pairs through retrospective medical records review of both the mother and child's medical records. Follow-up reviews on the infant are done every 6 months to document new symptoms, treatment regimens, birth defects, and immunologic status until the infant reaches 18 months of age or until his/her HIV-infection status is determined. EPS collects data on: the timing and receipt of prenatal care; maternal HIV testing history; antiretroviral therapy during pregnancy, labor, and delivery; substance use and STD history during pregnancy; maternal CD4 count, viral load and disease status; timing and characteristics of labor and delivery; neonatal antiretroviral therapy; pediatric PCP prophylaxis;

infant's HIV antibody and DNA/RNA testing; pediatric HIV status; breast feeding; birth defects; sibling HIV status; and follow-up care of both mother and child.

As of January 2015, EPS reported a total of 2,735 HIV-exposed and -infected children who were less than 13 years of age and were receiving medical treatment in LAC for exposure to HIV. Of these, 1,990 (73%) were not HIV infected, 274 (10%) were classified with pediatric stage 3 HIV (AIDS), 376 (14%) were classified as pediatric HIV stages 0, 1, or 2, and 95 (3%) were individuals with indeterminate HIV status.

HIV Testing in Pregnant Women

Of the 5,526 women living with HIV in LAC as of December 2014, 41% (n=2,280) were of childbearing age (15-44 years old). Between 2008 and 2013, there were 503 infants reportedly born to HIV-positive mothers in LAC, representing an average of 84 perinatal HIV exposures per year in LAC. Since the mid-1990s, the number of incident pediatric HIV infections in LAC has decreased from a peak of 32 children in 1998 to only one in 2013. EPS data suggest that early identification and the widespread use of antiretroviral therapy in HIV-infected mothers during pregnancy and/or labor and delivery have been major factors in the decline of perinatal HIV transmission to infants born in LAC (Figure 3.32). However, despite this declining trend, the continued mother-to-child transmission of HIV in LAC demonstrates the need for enhanced HIV testing and treatment of pregnant women.

Elimination of perinatal HIV transmission starts with the early identification of HIV-infected pregnant women. Early prenatal care and ARV therapy significantly reduce the risk of HIV transmission. The passage of AB 682 (in 2008), has helped eliminate barriers to pregnant women receiving an HIV test. The law makes HIV testing more routine and as a result, HIV testing in prenatal care has increased. However, pregnant women who do not receive prenatal care and may not be aware of their HIV status are at greatest risk of transmitting HIV to their newborns. Therefore, the bill's opt-out testing provision also provides rapid HIV testing in without consent labor and delivery settings. Between 2006 and 2011, the California Department of Public Health (CDPH)-Office of AIDS contracted with the Pacific AIDS Education and Training Center (PAETC) and Stanford University to provide training, technical assistance, and capacity building to hospitals in order to implement rapid HIV testing in labor and delivery units. Currently, all labor and delivery facilities in LAC have implemented rapid HIV testing protocols to ensure that women learn their HIV status and to maximally prevent mother-to-child transmission. As a result, pediatric HIV surveillance data has shown an increase in HIV-infected women with no prenatal care receiving antiretroviral therapy during labor and delivery. However, cumulative data since 2003, shows that only 56% of the infected mothers in LAC with no prenatal care received antiretroviral therapy during labor and delivery, which underscores the reality that rapid testing at labor and delivery is still not being uniformly practiced to prevent perinatal HIV transmission.

References

1. Hall, HI, Song, R, Rhodes P, et al. Estimation of HIV Incidence in the United States, *JAMA*. Aug 6 2008; 300(5);520-529.
2. Centers for Disease Control and Prevention. *HIV Surveillance Report, 2013*; vol. 25. http://www.cdc.gov/hiv/library/reports/surveillance/. Published February 2015. Accessed Mar. 2017.
3. District of Colombia Department of Health. Strategic Information Division. *Annual Epidemiology and Surveillance Report*. District of Colombia; 2015. Accessed Mar. 2017.
4. *San Francisco Department of Public Health*. HIV Epidemiology Section. *HIV Epidemiology Annual Report*. San Francisco, CA; 2014. Accessed Mar. 2017.
5. HIV Epidemiology and Field Services Program. *HIV Surveillance Annual Report, 2013.*New York City, Department of Health and Mental Hygiene: New York, NY. December 2014. Accessed Mar. 2017.
6. Houston Health Department, HIV Surveillance Program. *HIV Infection in Houston: An Epidemiologic Profile 2010-2014*. Houston, Texas; 2015. Web. 29 Mar. 2017.
7. Bennett DE, Bertagnolio S, Sutherland D, Gilks CF. The World Health Organization's global strategy for prevention and assessment of HIV drug resistance. *Antivir Ther*. 2008;13 Suppl 2:1-13.
8. Wheeler WH, Ziebell RA, Zabina H, et al. Prevalence of transmitted drug resistance associated mutations and HIV-1 subtypes in new HIV-1 diagnoses, U.S.-2006. *AIDS*. 2010 May 15;24(8):1203.
9. Sey K, Ma Y, Lan YC, et al. Prevalence and circulation patterns of variant, atypical and resistant HIV in Los Angeles county (2007-2009). J Med Virol. 2014;86:1639–1647.
10. CDC. *Pediatric HIV Surveillance*. https://www.cdc.gov/hiv/pdf/library/slidesets/cdc-hiv-surveillance-pediatric.pdf. Accessed Mar. 2017.

IV. GEOGRAPHIC DISTRIBUTION OF HIV IN LOS ANGELES COUNTY

The geographic distribution of HIV varies and affects specific areas of Los Angeles County disproportionately. In an effort to characterize local health needs regionally, in 1998, 26 health districts in Los Angeles County (LAC) were aggregated into eight Service Planning Areas, or SPAs. This section examines the average numbers and annual rates of newly diagnosed HIV infections in 2011-2013 and persons living with diagnosed HIV infection (PLWH) (all stages) at year-end 2014 by SPA as well as by select cities and communities within each SPA. The number of new diagnoses and PLWH in LAC does not include unreported cases and/or persons unaware of their infection, and are based on data reported through December 31, 2014. In addition, for the first time, we provide HIV incidence estimates by SPA (Table 4.1), with the methodology for HIV incidence estimates detailed in the technical notes.

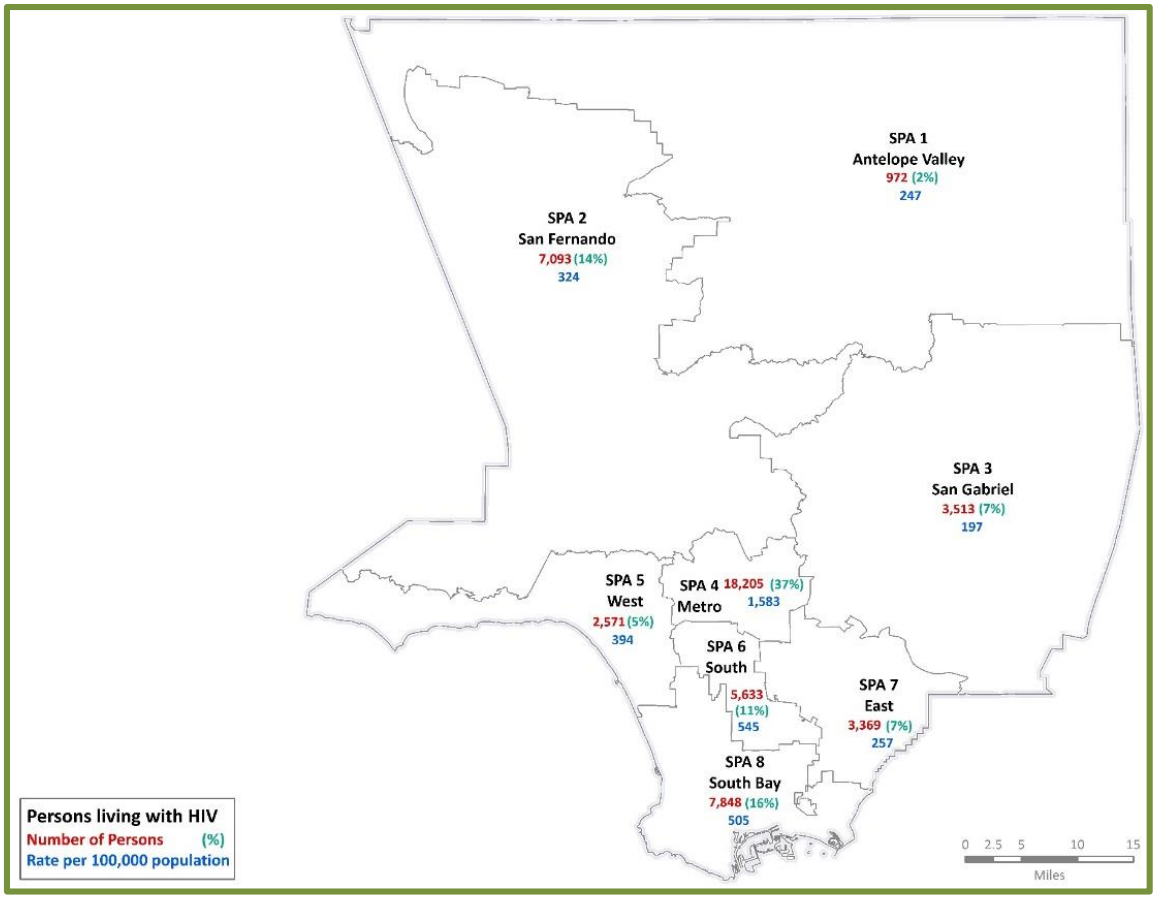
The map in Figure 4.1 depicts the number (in red), percent (in green), and rate per 100,000 population (in blue) of PLWH reported in LAC by SPA. The geographic distribution of PLWH is based on the most recently reported LAC residence, regardless of residence at diagnosis, and is different from the definition of PLWH in other sections of this Profile (see technical notes).

HIV prevalence varies across SPAs within LA County, with SPA 4 (Metro) having the highest number (18,205) and proportion (37%) of PLWH, followed by SPA 8 (South Bay) with 7,848 PLWH (16%). SPA 1 (Antelope Valley) has the lowest number (972) and percent (2%) of PLWH in LAC. While the overall county rate of PLWH is 490 per 100,000 population, SPA 4 (Metro) has the highest rate, three times that of the county rate (1,583 per 100,000 population), followed by SPA 6 (South) with a rate of 545 per 100,000. The lowest rate per 100,000 population is found in SPA 3 (San Gabriel Valley) with 197 per 100,000 (Figure 4.1).

To depict the geographic distribution in small areas, we used the April 2015 version of the LA County Board Approved Statistical Areas (BASA) shapefile to define city and community boundaries. The city/community is assigned based on projected geo-coordinates (X, Y) of reported residential address. For PLWH only, the city or ZIP Code of residence was used to approximate the city/community location when detailed street address of residence was not available.

The rates of PLWH, based on most recent addresses, for the City of Los Angeles and other incorporated cities and unincorporated areas in LAC is depicted in Figure 4.2. The overall rate of PLWH in LAC was 490 per 100,000. The rate varied across cities and communities. The highest rates of PLWH at year-end 2014, shaded in dark brown, occurred in SPA 4, which includes West Hollywood and the Wholesale District, followed by Hollywood/Hollywood Hills, Silverlake, Downtown, Los Feliz, East Hollywood, Carthay, Melrose, and Mid-City. Other cities and communities with high rates of PLWH (shaded in orange) can be found in all SPAs (Figure 4.2).

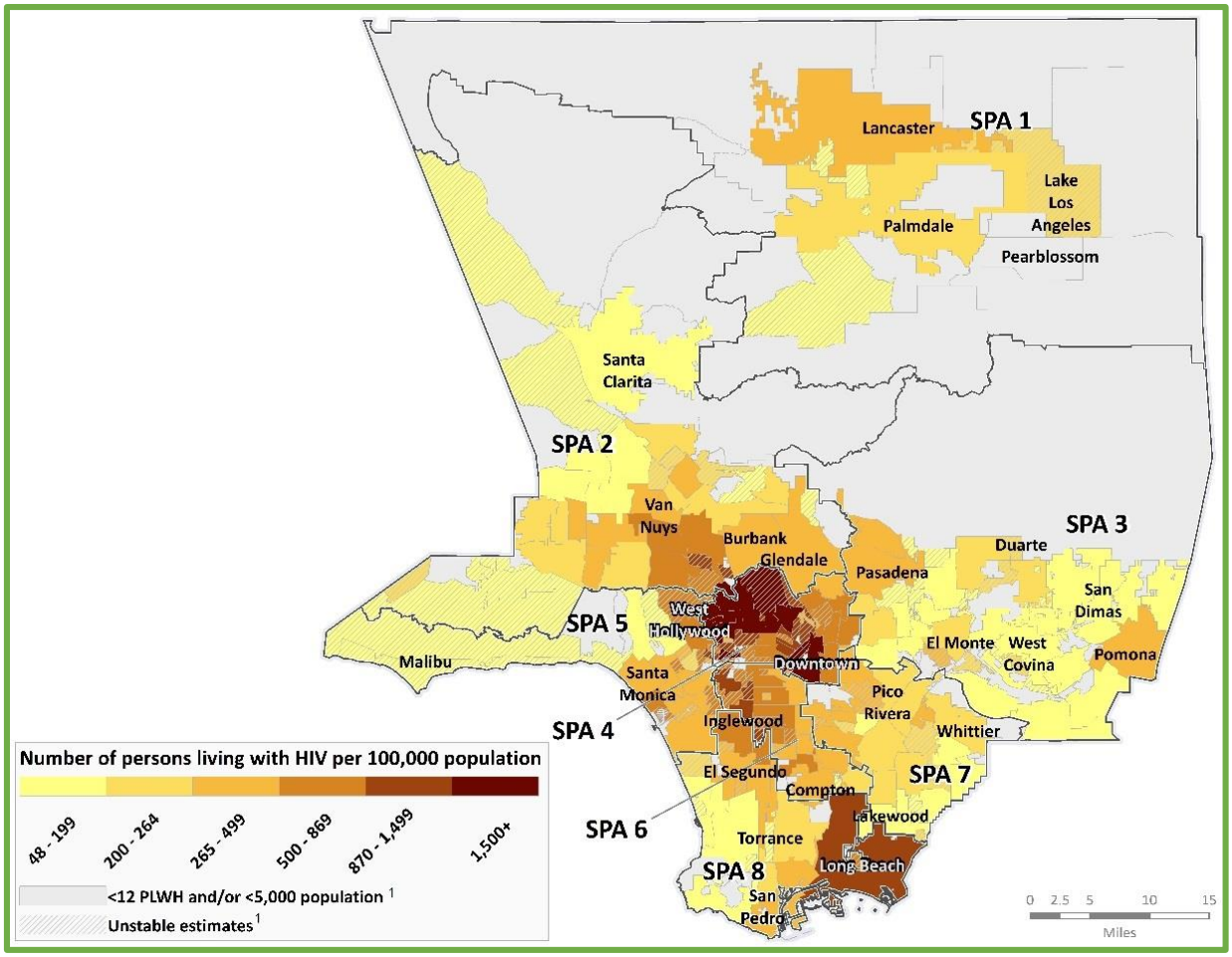
Figure 4.1 Number, Percent, and Rate[1] per 100,000 Population of Persons Living with Diagnosed HIV (all Stages)[2] by SPA[3], Year-End 2014 – LAC (N=49,344) [4]



[1]Rates are based on population estimates for 2014. Population estimates were prepared by Hedderson Demographic Services for LAC Internal Service Department, 03/12/2015 (see technical notes).; [2]PLWH include persons who were diagnosed with HIV regardless of current stage of the disease and living in LAC at year-end 2014 based on most current residential information. Thus, the numbers and rates of PLWH in this map may differ from the reports of PLWH in other sections of this *Profile* and previous DHSP reports which were based on the residence at time of HIV diagnoses (see technical notes); [3]Service Planning Area boundaries are based on the definition as of 2012.
[4]Data reported as of December 31, 2014; data excludes 140 (<1%) PLWH with unknown SPA information.

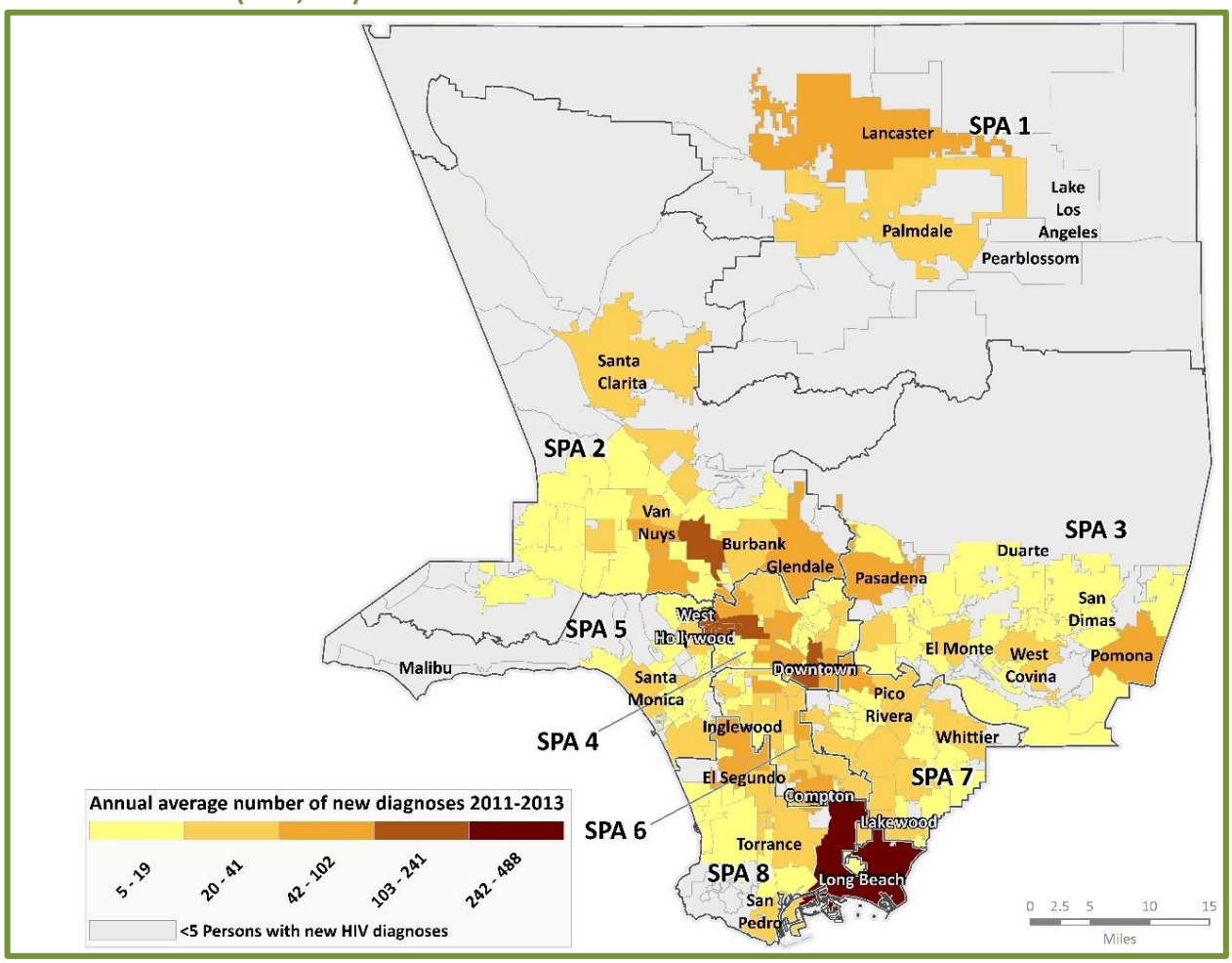
The number of new HIV diagnoses in 2011-2013 for cities and communities within LAC reported through December 31, 2014 is shown in Figure 4.3. The overall average annual HIV diagnosis rate during this period is 20 per 100,000 for LAC.

Figure 4.2 Rates[1] of Persons Living with Diagnosed HIV Infection[2] per 100,000 Population by City/Community of Current Residence[3] and SPA[4], Year-End 2014 – LAC (N=49,344)[5]



[1]Rates are based on population estimates for 2014 (see technical notes). Rates for areas with <12 PLWH or <5,000 population are not presented here due to unstable estimates and shaded in grey (see technical notes). Additionally, rates based on areas with <25,000 population are not reliable due to unstable estimates of the underlying population and filled with a diagonal hatch pattern (see technical notes).
[2]PLWH include persons who were diagnosed with HIV regardless of current stage of the disease and living in LAC at year-end 2014 based on most current residential information. Thus the numbers and rates of PLWH in this map may differ from the reports of PLWH in other sections of this *Profile* and previous DHSP reports which were based on the residence at time of HIV diagnoses (see technical notes).
[3]The city or community boundaries are based on the April 2015 version of the LA County Board Approved Statistical Areas (BASA) shapefile. For PLWH, the city/community is assigned based on projected geo-coordinates (X, Y) of the most current residential information. About 15% of PLWH who did not have a complete street address of residence, the city or ZIP Code of residence was used to approximate the city/community location.
[4]Service Planning Area boundaries are based on the definition as of 2012.; [5]Data reported as of December 31, 2014.

Figure 4.3 Number of New HIV (All Stages) Diagnoses by City/Community[1] of Residence at Diagnosis and SPA[2], 2011-2013[3] – LAC (N=5,829)[4]



[1]The city or community boundaries are based on the April 2015 version of the LA County Board Approved Statistical Areas (BASA) shapefile. For persons diagnosed with HIV, the city/community is assigned based on projected geo-coordinates (X, Y) of the residential information at time of diagnosis. About 3.4% of persons who did not have a complete street address of residence at diagnosis were excluded.
[2]Service Planning Area boundaries are based on the definition as of 2012.
[3]Data are provisional due to reporting delay; [4]Data reported as of December 31, 2014.

HIV incidence is the estimated total number of new (total number of diagnosed and undiagnosed) HIV infections in a given time period. In recent years, LAC has relied upon the CDC-developed methodology to estimate the number of new HIV infections through HIV Incidence Surveillance (HIS) activities. Using the HIS generated HIV incidence estimates, we can monitor the emerging trends in the County's HIV epidemic and guide the development of policies and programs to serve communities and populations most affected by HIV. The HIV incidence estimates should be interpreted with caution as they are subject to limitations, most notably the underlying assumption that people who are newly diagnosed have the same HIV risks as those individuals who remain undiagnosed. For HIV incidence estimation methods, refer to the technical notes.

The estimated HIV incidence for 2013 with respective 95% confidence intervals (95% CI) for each SPA in LAC is detailed in Table 4.1. The Metro LA (SPA 4) is estimated to have the greatest HIV incidence with 87 per 100,000 (95% CI: 59-114) residents in the county, followed by South LA (SPA 6) with an incidence of 43 per 100,000 (95% CI: 22-63) residents.

Table 4.1 Estimated HIV Incidence and 95% Confidence Intervals by SPA[2] in LAC, HIV Incidence Surveillance, 2013

	HIV Incidence Estimates, 2013[1,2]			
Service Planning Area (SPA)[2]	**N**	**95% CI**	**Rate/100,000**	**95% CI**
SPA 1 – Antelope Valley[1]	-	-	-	-
SPA 2 – San Fernando Valley	252	131-373	16	9-24
SPA 3 – San Gabriel Valley	135	45-224	11	4-18
SPA 4 – Metro	697	477-918	87	59-114
SPA 5 – West[1]	-	-	-	-
SPA 6 – South	278	143-412	43	22-63
SPA 7 – East	132	47-217	15	5-25
SPA 8 – South Bay	217	103-331	20	10-31

[1]Sample size did not meet the criteria to calculate a stratified incidence estimate for SPA 1 (Antelope Valley) and SPA 5 (West).
[2]Incidence estimates are calculated separately for each group, therefore, numbers in the breakdown may not add up to annual total.

HIV Surveillance Data by SPA

In the following parts of this section (A-H), the HIV epidemic will be presented in detail by SPA using (1) a bar chart comparing the distribution of PLWH by demographic and risk characteristics, (2) a table for select cities/communities with the number and average annual rate for HIV diagnoses in 2011-2013 and number and rate of PLWH at year-end 2014, and (3) a choropleth map displaying the rates of PLWH as of the end of 2014 by city/community. The cities/communities with the highest rates of PLWH are listed within the SPA-specific tables.

A. SPA 1: Antelope Valley

SPA 1 has one of the two lowest average annual HIV diagnosis rates and the second lowest rate of PLWH in LAC. The number and average annual rate of newly diagnosed HIV infections in 2011-2013 and PLWH at year-end 2014 for SPA 1 are described in Table 4.2. Based on the HIV surveillance data, the annual average HIV diagnosis rate in 2011-2013 for SPA 1 was 9 per 100,000 population and the rate of PLWH was 247 per 100,000 population in SPA 1 (Table 4.2). Most newly diagnosed HIV-infected persons and PLWH were male (80% and 78%, respectively). Twenty percent of new diagnoses within SPA 1 were among women – nearly twice the county total (11%) [2]. SPA 1 also had the largest proportion of females living with HIV (21%) (Figure 4.4). Latinos and Blacks/AAs represented 42% and 35%, respectively, of new diagnoses [2]; similarly, 34% and 37% of PLWH at year-end 2014 were Latino and Black/AA, respectively (Figure 4.4). In SPA 1, half of all newly diagnosed persons [2] and 74% of PLWH (Figure 4.4) were aged 40 years and above.

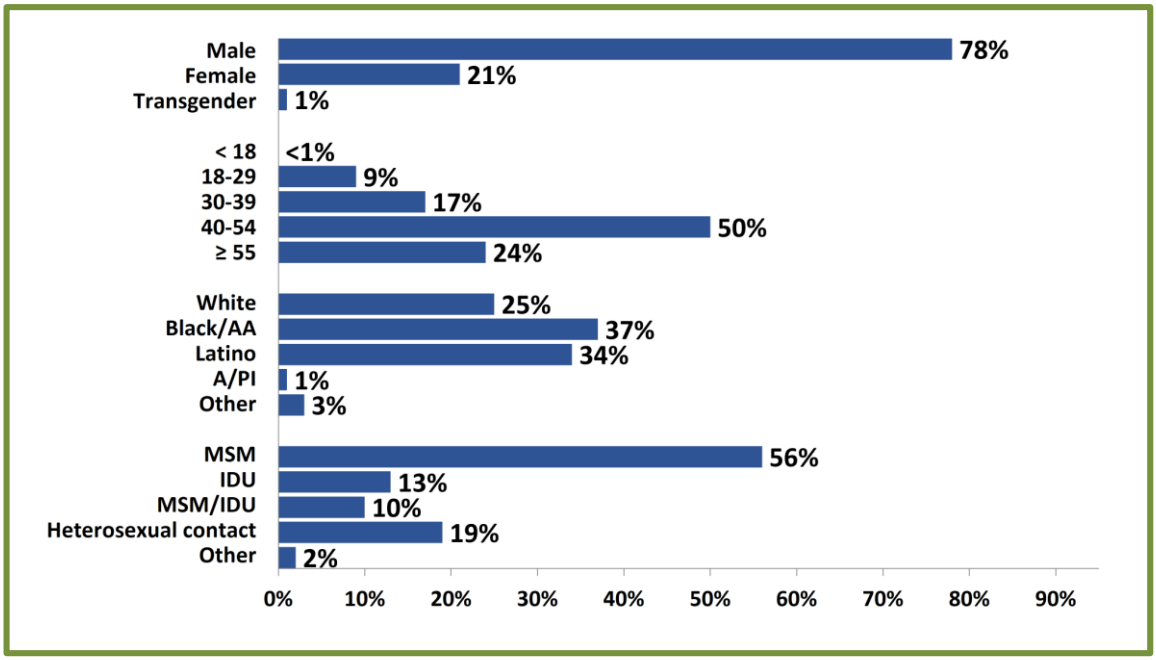
The primary mode of HIV exposure for persons newly diagnosed with HIV and PLWH in SPA 1 is male-to-male sex. After redistributing persons without confirmed risk information (see technical notes), male-to-male sexual contact, including MSM/IDU, accounted for nearly three quarters of new HIV diagnoses in 2011-2013 [2]; similarly, two of three (66%) PLWH reported MSM as a risk exposure: 56% MSM and 10% MSM/ID (Figure 4.4). Compared with other SPAs, a higher proportion of new diagnoses [2] and PLWH report heterosexual (16% and 19%, respectively) or IDU (10% and 13%, respectively) exposure in SPA 1 (Figure 4.4). Figure 4.5 shows low rates of PLWH throughout the cities/communities of SPA 1.

Table 4.2 Number and Rate[1] of Reported Diagnoses of HIV Infection in 2011-2013[2] and Persons Living with Diagnosed HIV[3] at Year-End 2014 for Select Cities/Communities[4] within LAC SPA 1[5]

	New HIV diagnoses in 2011-2013 [1,2,4,6]		*PLWH at year-end 2014 [1,2,3,4,6]*	
City/community	**N**	**Avg. Rate/yr.**	**N**	**Rate**
Lancaster	53	11	455	284
Lake Los Angeles, Uninc. [7]	<5	-	29	221
Palmdale	39	8	312	200
Acton, Uninc. [7]	<5	-	15	187
Pearblossom, Uninc. [7]	<5	-	13	174
Quartz Hill, Uninc. [7]	<5	-	19	100
SPA 1 Total	106	9	972	247

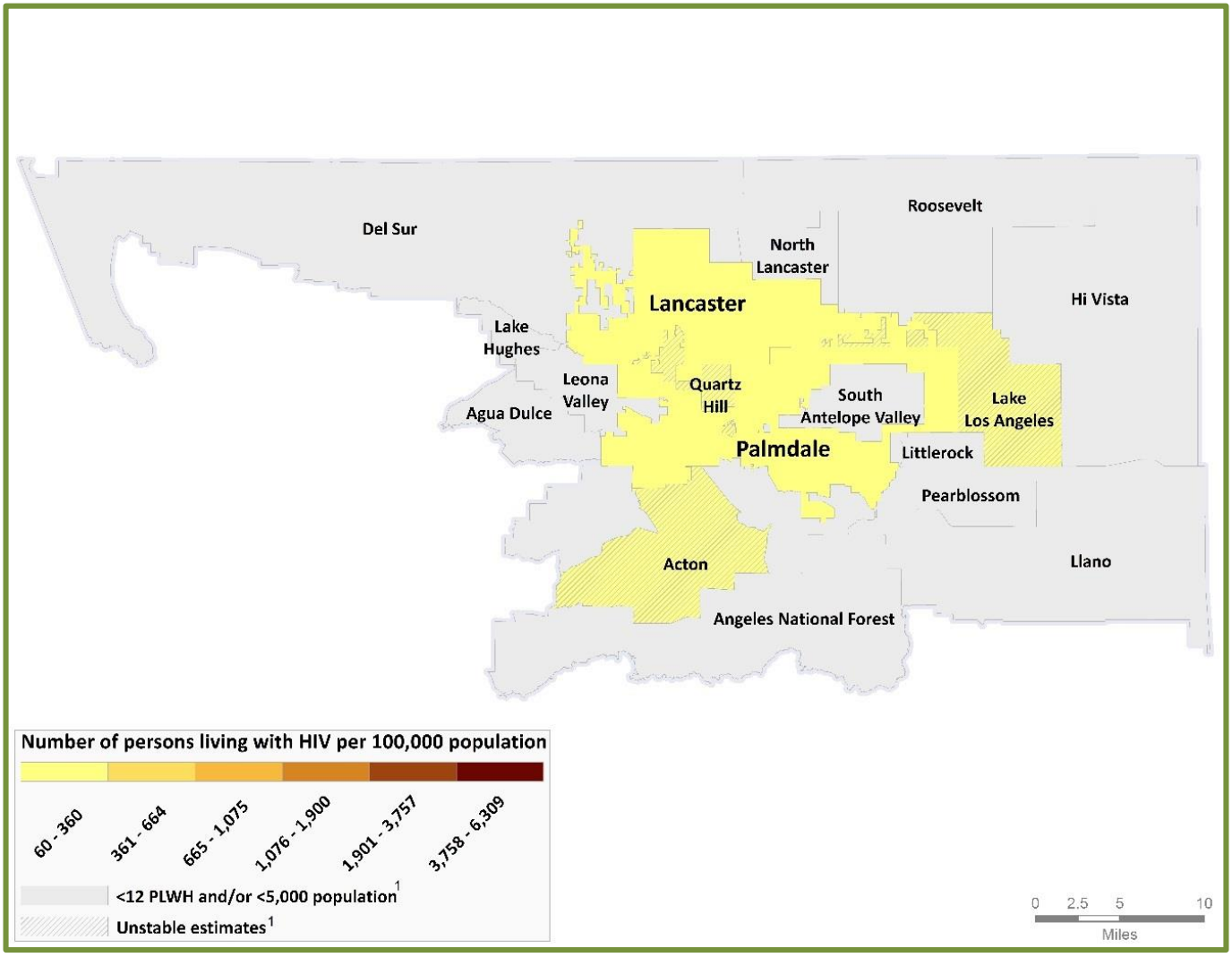
[1]Average annual rates for new HIV diagnoses in 2011-2013 are based on population estimates for 2012 and rates for PLWH at year-end 2014 are based on population estimates for 2014 (see technical notes). Rates for areas based on observations fewer than 12 and/or <5,000 population are not displayed (see technical notes).
[2]Data are provisional due to reporting delay.
[3]PLWH include persons who were diagnosed with HIV regardless of current stage of the disease and living in LAC at year-end 2014 based on most current residential information. Thus the numbers and rates of PLWH in this table may differ from the reports of PLWH in other sections of this *Profile* and previous DHSP reports which were based on the residence at time of HIV diagnoses (see technical notes).
[4]The assignment of city or community boundaries for each person is based on the available geo-coordinates (X,Y) of the residence and the April 2015 version of LA County Board Approved Statistical Areas (BASA) shapefile. The residence at diagnosis is used to obtain the aggregated HIV diagnosis rates at the city or community level while the most current residential information is used for the rate of PLWH. Additionally, for PLWH only, when street address information is not available, city or ZIP Code of residence is used to approximate the city/community location.
[5]Service Planning Area boundaries are based on the definition as of 2012.
[6]Data reported as of December 31, 2014.
[7]Rates are based on areas with <25,000 population and may not be reliable due to unstable estimates of the underlying population (see technical notes); Uninc.=Unincorporated area.

Figure 4.4 Persons Living with Diagnosed HIV Infection[1] by Gender, Age Group[2], Race/Ethnicity[3], and Risk[4], Year-End 2014 – LAC SPA 1 (n=972)[5]



[1]PLWH include persons who were diagnosed with HIV regardless of current stage of the disease and living in LAC at year-end 2014 based on most current residential information. Thus the numbers and rates of PLWH in this chart may differ from the reports of PLWH in other sections of this *Profile* and previous DHSP reports which were based on the residence at time of HIV diagnoses (see technical notes).
[2]Age at year-end 2014
[3]Other race/ethnicity includes American Indian/Alaska Native and Multiracial groups; AA=African American, A/PI=Asian/Pacific Islander
[4]Persons without an identified risk factor were assigned a risk factor using CDC-recommended multiple imputation (MI) methods (see technical notes). Other risks include hemophilia or coagulation disorder, transfusion recipient, perinatal exposure and confirmed other risk; MSM=Men who have sex with men, IDU=injection drug user
[5]Data reported as of December 31, 2014.

Figure 4.5 Rates[1] of Persons Living with Diagnosed HIV Infection (All Stages)[2] per 100,000 Population by City/Community[3] of Current Residence, Year-End 2014 – LAC SPA 1 (n=972)[4]



[1]Rates are based on population estimates for 2014 (see technical notes). Rates for areas with <12 PLWH or <5,000 population are not presented here due to unstable estimates and shaded in grey (see technical notes). Additionally, rates based on areas with <25,000 population are not reliable due to unstable estimates of the underlying population and filled with a diagonal hatch pattern (see technical notes).

[2]PLWH include persons who were diagnosed with HIV regardless of current stage of the disease and living in LAC at year-end 2014 based on most current residential information. Thus the numbers and rates of PLWH in this map may differ from the reports of PLWH in other sections of this *Profile* and previous DHSP reports which were based on the residence at time of HIV diagnoses (see technical notes).

[3]The city or community boundaries are based on the April 2015 version of the LA County Board Approved Statistical Areas (BASA) shapefile. For PLWH, the city/community is assigned based on projected geo-coordinates (X, Y) of the most current residential information. For PLWH who did not have a complete street address of residence, the city or ZIP Code of residence was used to approximate the city/community location

[4]Service Planning Area boundaries are based on the definition as of 2012; data reported as of December 31, 2014.

B. SPA 2: San Fernando Valley

SPA 2 has the third highest numbers of both new diagnoses and PLWH and the fifth highest rates of both average annual new HIV diagnoses and PLWH in LAC. The average annual HIV diagnosis rate in 2011-2013, based on reported cases, was 12 per 100,000 and the rate of PLWH was 324 per 100,000 (Table 4.3). Within SPA 2 in 2011-2013, the highest number and rates (stable estimates) of reported new HIV diagnoses were observed in North Hollywood, Van Nuys, and Sherman Oaks. Nearly one third of PLWH in SPA 2 were living in North Hollywood, Sherman Oaks, or Van Nuys; the three highest rates (stable estimates) of PLWH in the San Fernando Valley SPA were found in North Hollywood, Valley Glen, Sherman Oaks, and Van Nuys (Table 4.3).

Most new HIV diagnoses were among males (90%), Latinos and Whites (47% and 32%, respectively) and MSM (85% MSM and 2% MSM/IDU) [2]. Most PLWH were male (88%), aged 40 years and older (74%), and either Latino or

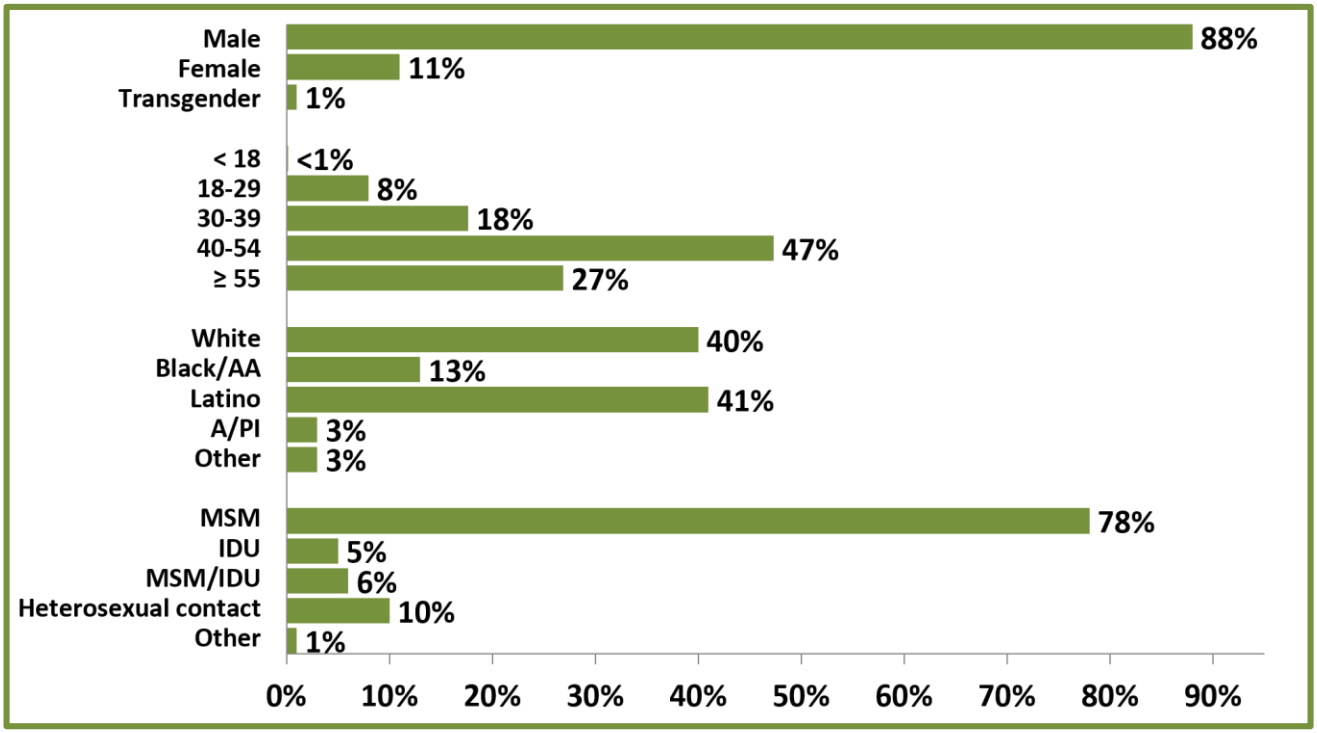
White (41% and 40%, respectively) (Figure 4.6). Figure 4.6 shows the adjusted mode of exposure for PLWH in SPA 2. MSM represent 84% of PLWH in SPA 2 (78% MSM and 6% MSM/IDU). Cities and communities with the highest rates of PLWH are further illustrated in the geographic map of PLWH in SPA 2 (Figure 4.7). The highest rates of PLWH are clustered in Toluca Lake, Valley Village, Studio City, and North Hollywood, followed by Valley Glen, Sherman Oaks, Van Nuys, and Panorama City.

Table 4.3 Number and Rate[1] of Reported Diagnoses of HIV Infection in 2011-2013[2] and Persons Living with Diagnosed HIV[3] at Year-End 2014 for Select Cities/Communities[4] within LAC SPA 2[5]

	New HIV diagnoses in 2011-2013 [1,2,4,6]		*PLWH at year-end 2014 [1,2,3,4,6]*	
City/community	**N**	**Avg. Rate/yr.**	**N**	**Rate**
Toluca Lake[7]	6	-	87	1075
Valley Village[7]	19	28	237	1031
Studio City[7]	13	21	167	796
North Hollywood	142	33	1178	794
Valley Glen	13	15	195	664
Sherman Oaks	48	19	536	643
Van Nuys	53	20	523	579
Panorama City	28	13	273	371
Reseda	26	12	267	360
Tarzana	11	-	99	336
Lake Balboa	14	12	130	318
North Hills	28	16	182	308
Pacoima	36	16	235	306
Winnetka	17	11	152	304
Burbank	29	9	317	300
Canyon Country, Uninc.[7]	<5	-	16	245
Glendale	50	9	539	274
SPA 2 Total	783	12	7093	324

[1]Average annual rates for new HIV diagnoses in 2011-2013 are based on population estimates for 2012 and rates for PLWH at year-end 2014 are based on population estimates for 2014 (see technical notes). Rates for areas based on observations fewer than 12 and/or <5,000 population are not displayed (see technical notes).;
[2]Data are provisional due to reporting delay.
[3]PLWH include persons who were diagnosed with HIV regardless of current stage of the disease and living in LAC at year-end 2014 based on most current residential information. Thus the numbers and rates of PLWH in this table may differ from the reports of PLWH in other sections of this *Profile* and previous DHSP reports which were based on the residence at time of HIV diagnoses (see technical notes).
[4]The assignment of city or community boundaries for each person is based on the available geo-coordinates (X,Y) of the residence and the April 2015 version of LA County Board Approved Statistical Areas (BASA) shapefile. The residence at diagnosis is used to obtain the aggregated HIV diagnosis rates at the city or community level while the most current residential information is used for the rate of PLWH. Additionally, for PLWH only, when street address information is not available, city or ZIP Code of residence is used to approximate the city/community location.
[5]Service Planning Area boundaries are based on the definition as of 2012; [6]Data reported as of December 31, 2014; [7]Rates are based on areas with <25,000 population and may not be reliable due to unstable estimates of the underlying population (see technical notes); Uninc.=Unincorporated area.

Figure 4.6 Persons Living with Diagnosed HIV Infection[1] by Gender, Age Group[2], Race/Ethnicity[3], and Risk[4], Year-End 2014 – LAC SPA 2 (n=7,093)[5]



[1]PLWH include persons who were diagnosed with HIV regardless of current stage of the disease and living in LAC at year-end 2014 based on most current residential information. Thus the numbers and rates of PLWH in this chart may differ from the reports of PLWH in other sections of this *Profile* and previous DHSP reports which were based on the residence at time of HIV diagnoses (see technical notes).

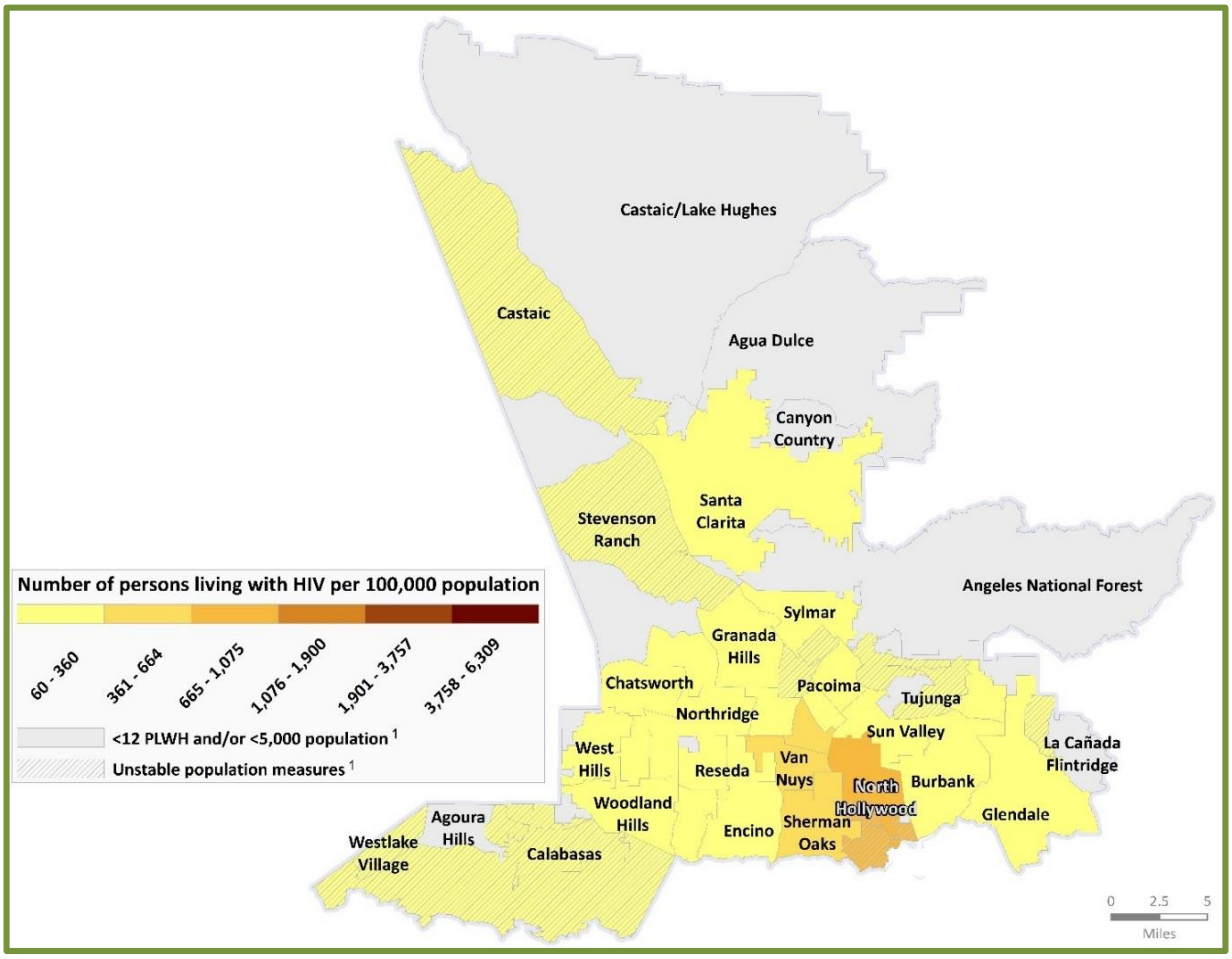
[2]Age at year-end 2014

[3]Other race/ethnicity includes American Indian/Alaska Native and Multiracial groups; AA=African American, A/PI=Asian/Pacific Islander

[4]Persons without an identified risk factor were assigned a risk factor using CDC-recommended multiple imputation (MI) methods (see technical notes). Other risks include hemophilia or coagulation disorder, transfusion recipient, perinatal exposure and confirmed other risk; MSM=Men who have sex with men, IDU=injection drug user

[5]Data reported as of December 31, 2014.

Figure 4.7 Rates[1] of Persons Living with Diagnosed HIV Infection (All Stages)[2] per 100,000 Population by City/Community[3] of Current Residence, Year-End 2014 – LAC SPA 2 (n=7,093)[4]



[1]Rates are based on population estimates for 2014 (see technical notes). Rates for areas with <12 PLWH or <5,000 population are not presented here due to unstable estimates and shaded in grey (see technical notes). Additionally, rates based on areas with <25,000 population are not reliable due to unstable estimates of the underlying population and filled with a diagonal hatch pattern (see technical notes).

[2]PLWH include persons who were diagnosed with HIV regardless of current stage of the disease and living in LAC at year-end 2014 based on most current residential information. Thus the numbers and rates of PLWH in this map may differ from the reports of PLWH in other sections of this *Profile* and previous DHSP reports which were based on the residence at time of HIV diagnoses (see technical notes).

[3]The city or community boundaries are based on the April 2015 version of the LA County Board Approved Statistical Areas (BASA) shapefile. For PLWH, the city/community is assigned based on projected geo-coordinates (X, Y) of the most current residential information. For PLWH who did not have a complete street address of residence, the city or ZIP Code of residence was used to approximate the city/community location.

[4]Service Planning Area boundaries are based on the definition as of 2012; data reported as of December 31, 2014.

C. SPA 3: San Gabriel Valley

The number and average annual rate of new HIV diagnoses and PLWH for SPA 3 cities/communities is described in Table 4.4. SPA 3 has one of the two lowest average annual HIV diagnosis rates and the lowest rate of PLWH. The average annual HIV diagnosis rate in 2011-2013, based on reported cases, was 9 per 100,000 and the rate of PLWH was 197 per 100,000 (Table 4.4)

Within SPA 3, most newly diagnosed persons in 2011-2013 were male (90%), as were most PLWH at year-end 2014 (85%) (Figure 4.8). Over two-thirds of new HIV diagnoses (68%) were among persons under 40 years of age [2], while 71% of PLWH in SPA 3 were aged 40 years and older (Figure 4.8). The majority of new diagnoses in 2011-2013 and PLWH at year-end 2014 were among Latinos and Whites: Latinos accounted for 58% of new diagnoses [2] and 54% of PLWH; Whites accounted for roughly 17% of reported new diagnoses in 2011-2013 [2] and PLWH at year-end 2014 (22%) (Figure 4.8). Relative to other SPAs, SPA 3 had the highest representation of Asian/Pacific Islanders (A/PI) among persons diagnosed with HIV in 2011-2013 [2] and PLWH at year-end 2014, 11% and 9%, respectively (Figure 4.8). This corresponds to the relatively large underlying A/PI population in SPA 3 (30% in 2014 [2]; Table 2.1).

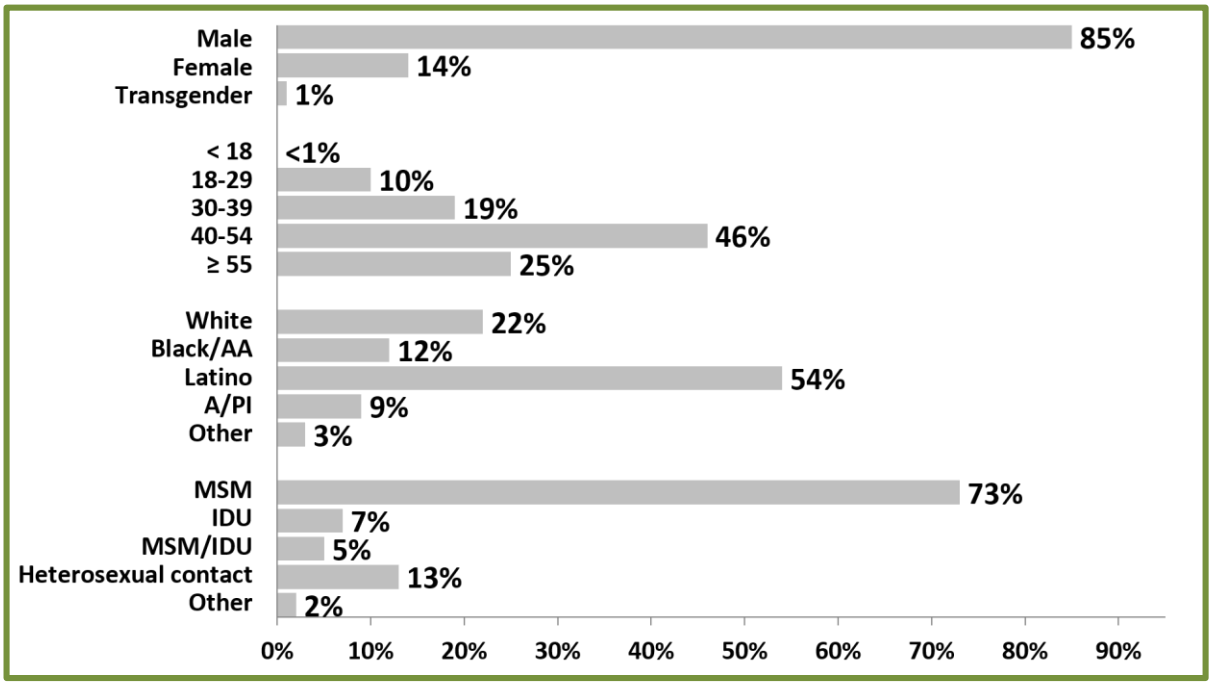
In SPA 3 the predominant mode of exposure for new HIV diagnoses in 2011-2013 is male-male sex. Eighty-six percent of new HIV diagnoses in 2011-2013 had a reported risk factor of MSM (84%) or MSM/IDU (2%), and 10% heterosexual contact [2], while 78% of PLWH in SPA 3 reported MSM, (73% MSM and 5% MSM/IDU) and 13% heterosexual contact as their risk (Figure 4.8). Figure 4.9 shows a map of SPA 3's distribution of PLWH by city/community. Rates of PLWH in SPA 3 are relatively low and evenly dispersed. A slightly higher rate of PLWH in the San Gabriel Valley is found in Pasadena.

Table 4.4 Number and Rate[1] of Reported Diagnoses of HIV Infection in 2011-2013[2] and Persons Living with Diagnosed HIV[3] at Year-End 2014 for Select Cities/Communities[4] within LAC SPA 3[5]

	New HIV diagnoses in 2011-2013 [1,2,4,6]		*PLWH at year-end 2014 [1,2,3,4,6]*	
City/community	**N**	**Avg. Rate/yr.**	**N**	**Rate**
Pasadena	59	14	546	387
Pomona	64	14	501	330
Altadena, Uninc.	16	13	136	319
South El Monte[7]	5	-	55	270
Monrovia	9	-	93	249
Avocado Heights/Bassett/North Whittier[7]	<5	-	36	246
El Monte	40	12	269	233
Duarte[7]	5	-	50	230
Azusa	16	11	107	223
South Pasadena	<5	-	53	203
Valinda, Uninc. [7]	8	-	42	203
Alhambra	29	12	170	200
SPA 3 Total	484	9	3513	197

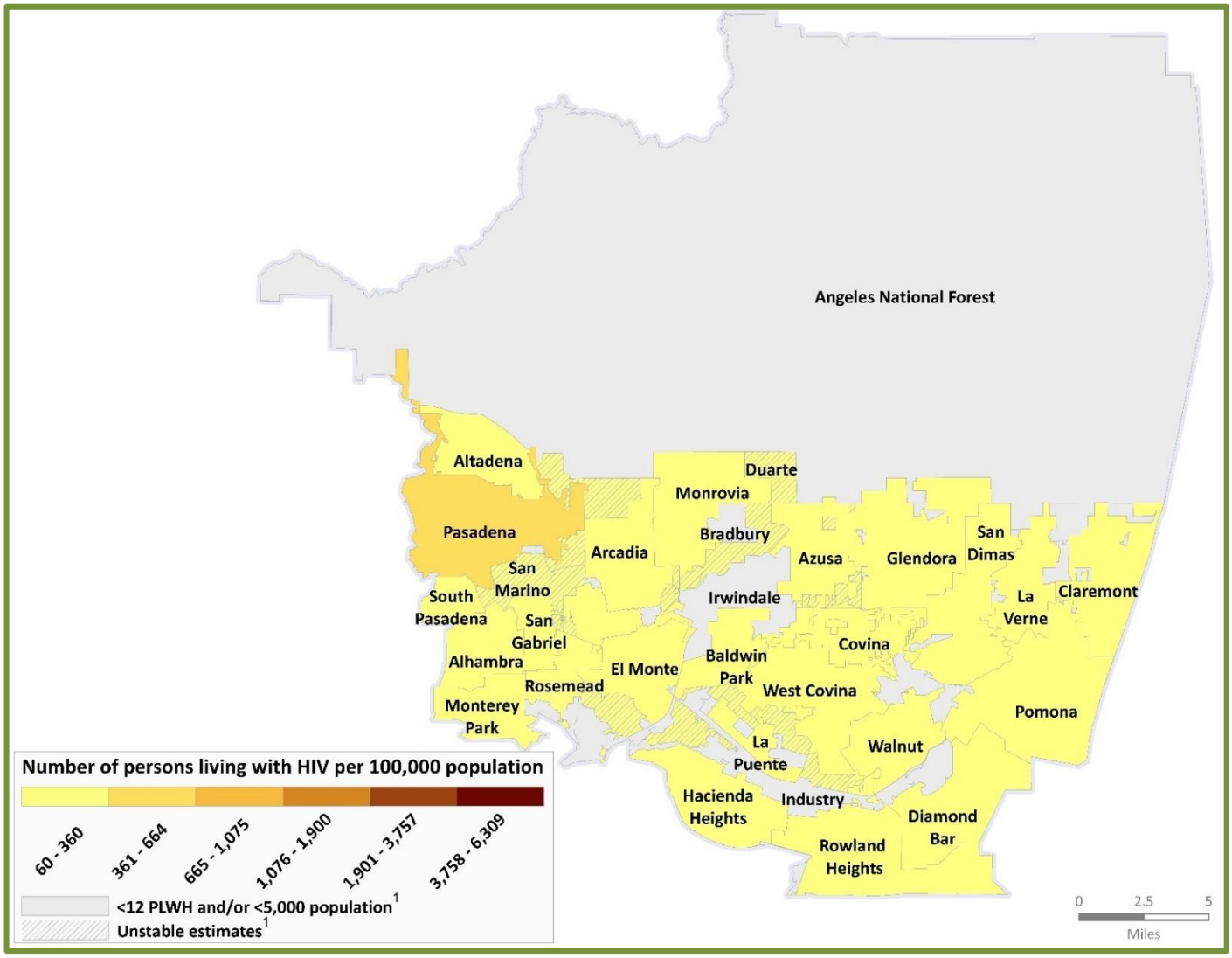
[1]Average annual rates for new HIV diagnoses in 2011-2013 are based on population estimates for 2012 and rates for PLWH at year-end 2014 are based on population estimates for 2014 (see technical notes). Rates for areas based on observations fewer than 12 and/or <5,000 population are not displayed (see technical notes).
[2]Data are provisional due to reporting delay.
[3]PLWH include persons who were diagnosed with HIV regardless of current stage of the disease and living in LAC at year-end 2014 based on most current residential information. Thus the numbers and rates of PLWH in this table may differ from the reports of PLWH in other sections of this *Profile* and previous DHSP reports which were based on the residence at time of HIV diagnoses (see technical notes).
[4]The assignment of city or community boundaries for each person is based on the available geo-coordinates (X,Y) of the residence and the April 2015 version of LA County Board Approved Statistical Areas (BASA) shapefile. The residence at diagnosis is used to obtain the aggregated HIV diagnosis rates at the city or community level while the most current residential information is used for the rate of PLWH. Additionally, for PLWH only, when street address information is not available, city or ZIP Code of residence is used to approximate the city/community location.
[5]Service Planning Area boundaries are based on the definition as of 2012.
[6]Data reported as of December 31, 2014.
[7]Rates are based on areas with <25,000 population and may not be reliable due to unstable estimates of the underlying population (see technical notes); Uninc.=Unincorporated area.

Figure 4.8 Persons Living with Diagnosed HIV Infection[1] by Gender, Age Group[2], Race/Ethnicity[3], and Risk[4], Year-End 2014 – LAC SPA 3 (n=3,513)[5]



[1]PLWH include persons who were diagnosed with HIV regardless of current stage of the disease and living in LAC at year-end 2014 based on most current residential information. Thus the numbers and rates of PLWH in this chart may differ from the reports of PLWH in other sections of this *Profile* and previous DHSP reports which were based on the residence at time of HIV diagnoses (see technical notes); [2]Age at year-end 2014; [3]Other race/ethnicity includes American Indian/Alaska Native and Multiracial groups; AA=African American, A/PI=Asian/Pacific Islander; [4]Persons without an identified risk factor were assigned a risk factor using CDC-recommended multiple imputation (MI) methods (see technical notes). Other risks include hemophilia or coagulation disorder, transfusion recipient, perinatal exposure and confirmed other risk; MSM=Men who have sex with men, IDU=injection drug user; [5]Data reported as of December 31, 2014.

Figure 4.9 Rates[1] of Persons Living with Diagnosed HIV Infection (All Stages)[2] per 100,000 Population by City/Community[3] of Current Residence, Year-End 2014 – LAC SPA 3 (n=3,513)[4]



[1]Rates are based on population estimates for 2014 (see technical notes). Rates for areas with <12 PLWH or <5,000 population are not presented here due to unstable estimates and shaded in grey (see technical notes). Additionally, rates based on areas with <25,000 population are not reliable due to unstable estimates of the underlying population and filled with a diagonal hatch pattern (see technical notes)

[2]PLWH include persons who were diagnosed with HIV regardless of current stage of the disease and living in LAC at year-end 2014 based on most current residential information. Thus the numbers and rates of PLWH in this map may differ from the reports of PLWH in other sections of this *Profile* and previous DHSP reports which were based on the residence at time of HIV diagnoses (see technical notes)

[3]The city or community boundaries are based on the April 2015 version of the LA County Board Approved Statistical Areas (BASA) shapefile. For PLWH, the city/community is assigned based on projected geo-coordinates (X, Y) of the most current residential information. For PLWH who did not have a complete street address of residence, the city or ZIP Code of residence was used to approximate the city/community location

[4]Service Planning Area boundaries are based on the definition as of 2012; data reported as of December 31, 2014.

D. SPA 4: Metropolitan Area

SPA 4 has the highest average annual HIV diagnosis rate and the highest rate of PLWH. The average annual HIV diagnosis rate in 2011-2013, based on reported cases, was 58 per 100,000 and the rate of PLWH was 1,583 per 100,000 (Table 4.5). Since the beginning of the HIV epidemic, Metro (SPA 4) has had the highest HIV rates in the county. Areas within SPA 4 with the highest number and rates of reported diagnoses and PLWH as of 2014 are shown in Table 4.5 below. Nearly half of persons newly diagnosed (47%) and living (48%) with HIV are located in Hollywood/Hollywood Hills, West Hollywood, Wholesale District, and Melrose. The highest rates occurred in West Hollywood, the Wholesale District, Hollywood/Hollywood Hills, and Silverlake (Table 4.5).

Table 4.5 Number and Rate[1] of Reported Diagnoses of HIV Infection in 2011-2013[2] and Persons Living with Diagnosed HIV[3] at Year-End 2014 for Select Cities/Communities[4] within LAC SPA 4[5]

	New HIV diagnoses in 2011-2013 [1,2,4,6]		*PLWH at year-end 2014 [1,2,3,4,6]*	
City/community	**N**	**Avg. Rate/yr.**	**N**	**Rate**
West Hollywood	231	223	2216	6309
Wholesale District	196	173	1841	4955
Hollywood/Hollywood Hills	306	112	3348	3651
Silverlake	60	47	1064	2513
Downtown[7]	66	92	516	2174
Los Feliz[7]	24	37	437	2083
East Hollywood	62	73	601	2065
Carthay[7]	16	40	251	1900
Melrose	180	81	1369	1808
Mid-City[7]	22	53	261	1781
Chinatown[7]	7	-	123	1573
Thai Town[7]	15	52	143	1500
SPA 4 Total	1949	58	18205	1583

[1]Average annual rates for new HIV diagnoses in 2011-2013 are based on population estimates for 2012 and rates for PLWH at year-end 2014 are based on population estimates for 2014 (see technical notes). Rates for areas based on observations fewer than 12 and/or <5,000 population are not displayed (see technical notes).

[2]Data are provisional due to reporting delay.

[3]PLWH include persons who were diagnosed with HIV regardless of current stage of the disease and living in LAC at year-end 2014 based on most current residential information. Thus the numbers and rates of PLWH in this table may differ from the reports of PLWH in other sections of this *Profile* and previous DHSP reports which were based on the residence at time of HIV diagnoses (see technical notes).

[4]The assignment of city or community boundaries for each person is based on the available geo-coordinates (X,Y) of the residence and the April 2015 version of LA County Board Approved Statistical Areas (BASA) shapefile. The residence at diagnosis is used to obtain the aggregated HIV diagnosis rates at the city or community level while the most current residential information is used for the rate of PLWH. Additionally, for PLWH only, when street address information is not available, city or ZIP Code of residence is used to approximate the city/community location.

[5]Service Planning Area boundaries are based on the definition as of 2012.

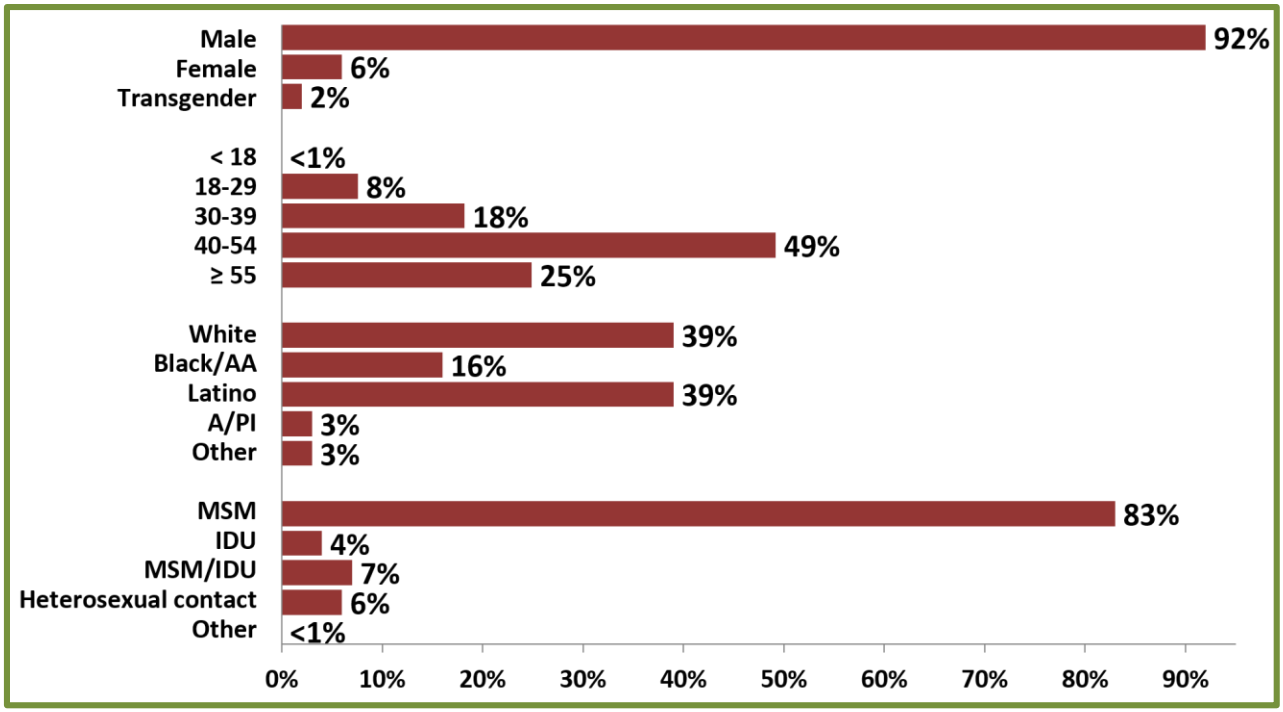
[6]Data reported as of December 31, 2014.

[7]Rates are based on areas with <25,000 population and may not be reliable due to unstable estimates of the underlying population (see technical notes).

Among persons newly diagnosed in SPA 4, most were male (94%), below the age of 40 years (68%), and 44% Latino, 31% White, and 17% Black/AA [2]. Among PLWH in SPA 4, 92% were male and 39% White, 39% Latino, and 16% Black/AA (Figure 4.10). In 2014, Blacks/AAs made up only 5% of the SPA 4 population [3, 4], but represented 16% of PLWH in SPA 4 (Figure 4.10), and 17% of persons diagnosed with HIV in 2011-2013 [2]. The average annual rate of newly reported HIV diagnoses in 2011-2013 among Blacks/AAs in SPA 4 was 3-9 times that in other SPAs [2].

MSM and MSM/IDU together represented 92% of new diagnoses and 90% of PLWH in SPA 4 (Figure 4.10) - the highest proportion of MSM diagnosed and living with HIV among SPAs. Compared with other SPAs, Metro had the lowest proportion of new diagnoses among persons aged 40 years and above (32%) [2]. The map of SPA 4 (Figure 4.11) illustrates the rates of PLWH among cities/communities within SPA 4: the highest rates are found in the cities/communities of West Hollywood and the Wholesale District, followed by lower but still high rates in Hollywood/Hollywood Hills, Silverlake, Downtown, Los Feliz, and East Hollywood.

Figure 4.10 Persons Living with Diagnosed HIV Infection[1] by Gender, Age Group[2], Race/Ethnicity[3], and Risk[4], Year-End 2014 – LAC SPA 4 (n=18,205)[5]



[1]PLWH include persons who were diagnosed with HIV regardless of current stage of the disease and living in LAC at year-end 2014 based on most current residential information. Thus the numbers and rates of PLWH in this chart may differ from the reports of PLWH in other sections of this *Profile* and previous DHSP reports which were based on the residence at time of HIV diagnoses (see technical notes)

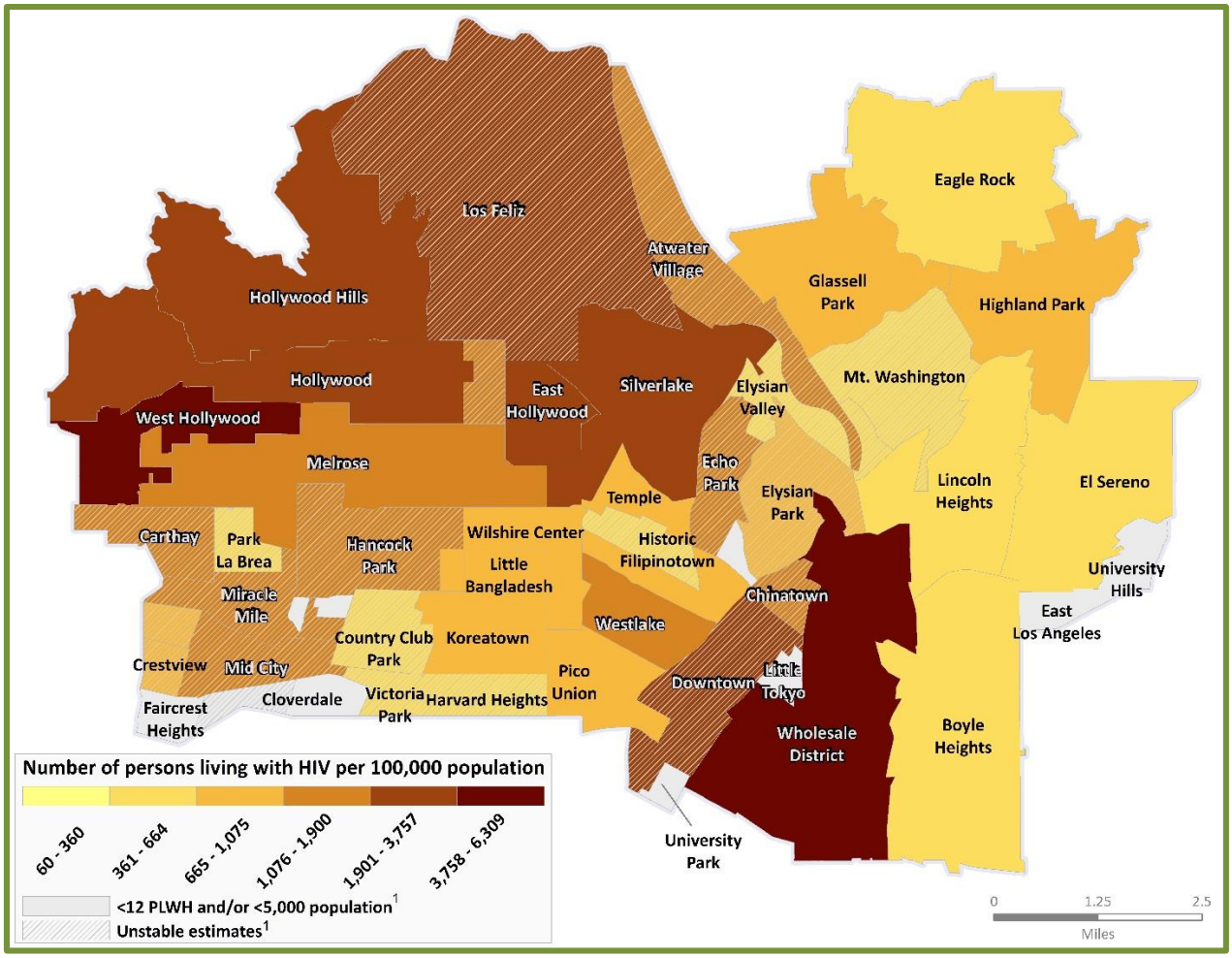
[2]Age at year-end 2014

[3]Other race/ethnicity includes American Indian/Alaska Native and Multiracial groups; AA=African American, A/PI=Asian/Pacific Islander

[4]Persons without an identified risk factor were assigned a risk factor using CDC-recommended multiple imputation (MI) methods (see technical notes). Other risks include hemophilia or coagulation disorder, transfusion recipient, perinatal exposure and confirmed other risk; MSM=Men who have sex with men, IDU=injection drug user

[5]Data reported as of December 31, 2014.

Figure 4.11 Rates[1] of Persons Living with Diagnosed HIV Infection (All Stages)[2] per 100,000 Population by City/Community[3] of Current Residence, Year-End 2014 – LAC SPA 4 (n=18,205) [4]



[1]Rates are based on population estimates for 2014 (see technical notes). Rates for areas with <12 PLWH or <5,000 population are not presented here due to unstable estimates and shaded in grey (see technical notes). Additionally, rates based on areas with <25,000 population are not reliable due to unstable estimates of the underlying population and filled with a diagonal hatch pattern (see technical notes)
[2]PLWH include persons who were diagnosed with HIV regardless of current stage of the disease and living in LAC at year-end 2014 based on most current residential information. Thus the numbers and rates of PLWH in this map may differ from the reports of PLWH in other sections of this *Profile* and previous DHSP reports which were based on the residence at time of HIV diagnoses (see technical notes)
[3]The city or community boundaries are based on the April 2015 version of the LA County Board Approved Statistical Areas (BASA) shapefile. For PLWH, the city/community is assigned based on projected geo-coordinates (X, Y) of the most current residential information. For PLWH who did not have a complete street address of residence, the city or ZIP Code of residence was used to approximate the city/community location;
[4]Service Planning Area boundaries are based on the definition as of 2012; data reported as of December 31, 2014.

E. SPA 5: West

SPA 5 has the fourth highest average annual HIV diagnosis rate and the fourth highest rate of PLWH. The average annual HIV diagnosis rate in 2011-2013, based on reported cases, was 15 per 100,000 and the rate of PLWH was 394 per 100,000 (Table 4.6). The cities and communities with the highest average annual HIV diagnosis rates in SPA 5 include Beverly Hills and Venice with rates of 24 and 23 per 100,000 population, respectively (Table 4.6). Among persons newly diagnosed with HIV in SPA 5, most were male (90%), White (48%), and below the age of 40 years (58%). However, 11% of new diagnoses in SPA 5 were among persons aged 55 years and above, nearly twice the county average (6%) [2]. As seen in Figure 4.12, PLWH in SPA 5 were

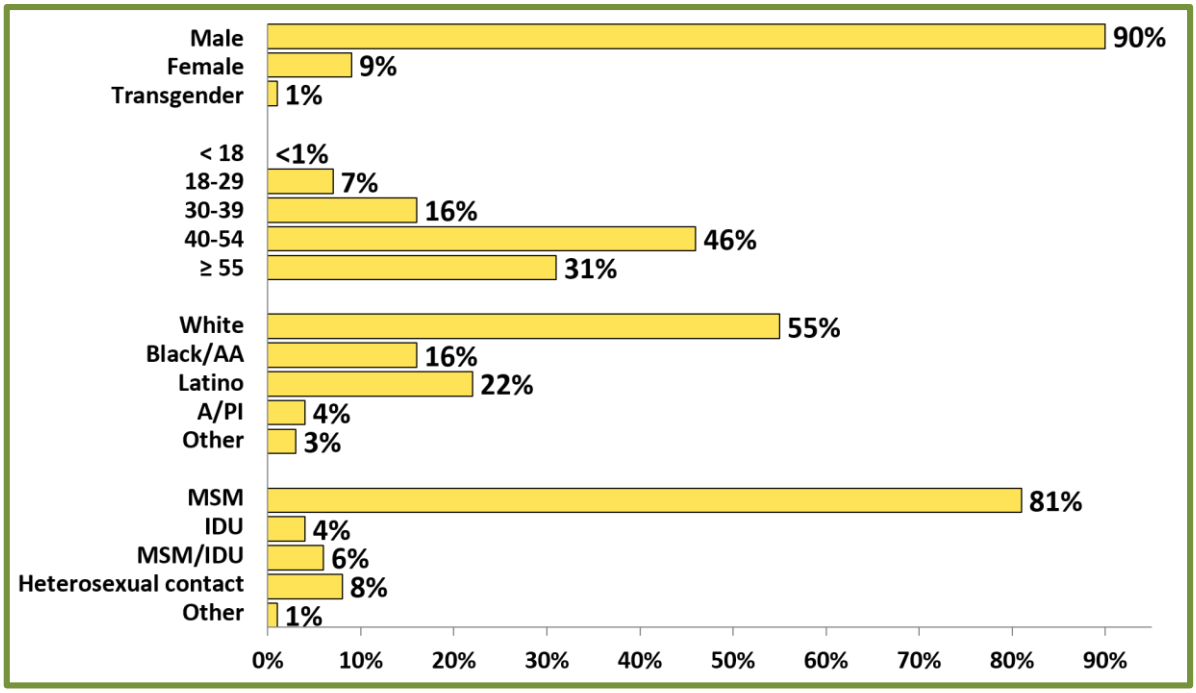
predominantly male (90%), aged 40 years and older (77%), and White (55%). In accordance with the underlying population, West SPA had the highest proportion of PLWH over the age of 40 years and the greatest proportion of Whites among all SPAs. Among newly diagnosed, 89% of persons reported male-male sex (85% MSM and 4% MSM/IDU), while 3% were IDU and 8% heterosexual contact [2]. Similarly, MSM and MSM/IDU together accounted for 87% of PLWH (the largest among SPAs in the County) while 4% were non-MSM IDU and 8% were infected through heterosexual contact. Figure 4.13 shows the geographic distribution of the rates of PLWH in SPA 5, with most PLWH concentrated in Venice, Beverly Crest, and Beverly Hills, followed by Rancho Park, Ladera Heights, Beverlywood, Marina Del Rey, Santa Monica, and West Los Angeles.

Table 4.6 Number and Rate[1] of Reported Diagnoses of HIV Infection in 2011-2013[2] and Persons Living with Diagnosed HIV[3] at Year-End 2014 for Select Cities/Communities[4] within LAC SPA 5[5]

	New HIV diagnoses in 2011-2013 [1,2,4,6]		*PLWH at year-end 2014 [1,2,3,4,6]*	
City/Community	**N**	**Avg. Rate/yr.**	**N**	**Rate**
Venice	23	23	250	750
Beverly Crest[7]	6	-	91	745
Beverly Hills	25	24	256	737
Rancho Park[7]	<5	-	40	613
Ladera Heights, Uninc.[7]	<5	-	36	594
Beverlywood[7]	5	-	73	570
Marina del Rey, Uninc.[7]	8	-	48	515
Santa Monica	23	8	434	469
West Los Angeles	17	16	141	387
Culver City	8	-	140	353
Cadillac-Corning[7]	5	-	24	341
Del Rey	12	14	94	333
Westchester	25	17	163	330
Century City[7]	<5	-	39	328
Palms	23	18	139	320
Mar Vista	9	-	129	318
Playa Vista[7]	5	-	28	297
SPA 5 Total	290	15	2571	394

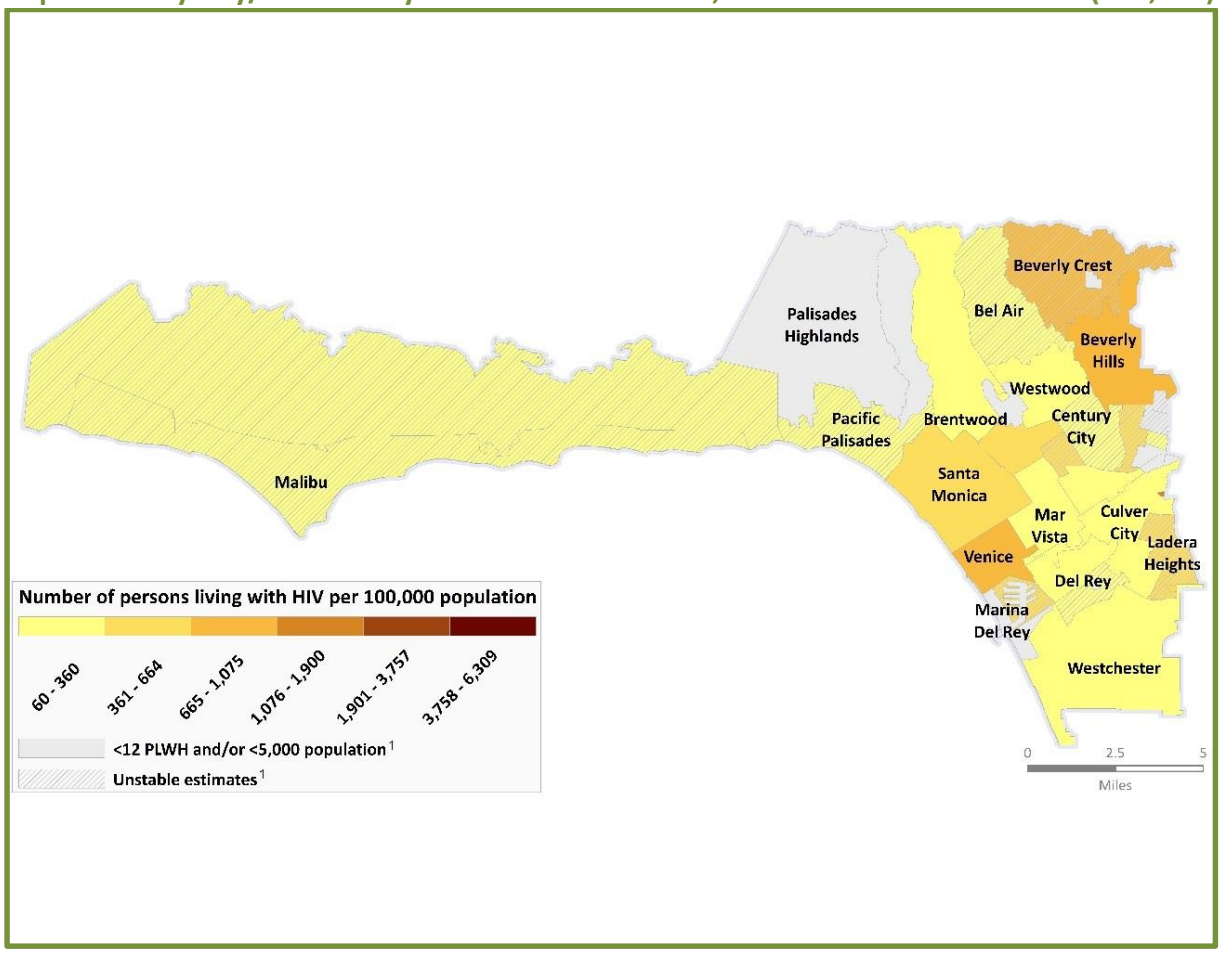
[1]Average annual rates for new HIV diagnoses in 2011-2013 are based on population estimates for 2012 and rates for PLWH at year-end 2014 are based on population estimates for 2014 (see technical notes). Rates for areas based on observations fewer than 12 and/or <5,000 population are not displayed (see technical notes).
[2]Data are provisional due to reporting delay.
[3]PLWH include persons who were diagnosed with HIV regardless of current stage of the disease and living in LAC at year-end 2014 based on most current residential information. Thus the numbers and rates of PLWH in this table may differ from the reports of PLWH in other sections of this *Profile* and previous DHSP reports which were based on the residence at time of HIV diagnoses (see technical notes).
[4]The assignment of city or community boundaries for each person is based on the available geo-coordinates (X,Y) of the residence and the April 2015 version of LA County Board Approved Statistical Areas (BASA) shapefile. The residence at diagnosis is used to obtain the aggregated HIV diagnosis rates at the city or community level while the most current residential information is used for the rate of PLWH. Additionally, for PLWH only, when street address information is not available, city or ZIP Code of residence is used to approximate the city/community location.
[5]Service Planning Area boundaries are based on the definition as of 2012.
[6]Data reported as of December 31, 2014.
[7]Rates are based on areas with <25,000 population and may not be reliable due to unstable estimates of the underlying population (see technical notes); Uninc.=Unincorporated area.

Figure 4.12 Persons Living with Diagnosed HIV Infection[1] by Gender, Age Group[2], Race/Ethnicity[3], and Risk[4], Year-End 2014 – LAC SPA 5 (n=2,571)[5]



[1]PLWH include persons who were diagnosed with HIV regardless of current stage of the disease and living in LAC at year-end 2014 based on most current residential information. Thus the numbers and rates of PLWH in this chart may differ from the reports of PLWH in other sections of this *Profile* and previous DHSP reports which were based on the residence at time of HIV diagnoses (see technical notes).
[2]Age at year-end 2014
[3]Other race/ethnicity includes American Indian/Alaska Native and Multiracial groups; AA=African American, A/PI=Asian/Pacific Islander
[4]Persons without an identified risk factor were assigned a risk factor using CDC-recommended multiple imputation (MI) methods (see technical notes). Other risks include hemophilia or coagulation disorder, transfusion recipient, perinatal exposure and confirmed other risk; MSM=Men who have sex with men, IDU=injection drug user
[5]Data reported as of December 31, 2014

Figure 4.13 Rates[1] of Persons Living with Diagnosed HIV Infection (All Stages)[2] per 100,000 Population by City/Community[3] of Current Residence, Year-End 2014 – LAC SPA 5 (n=2,571)[4]



[1]Rates are based on population estimates for 2014 (see technical notes). Rates for areas with <12 PLWH or <5,000 population are not presented here due to unstable estimates and shaded in grey (see technical notes). Additionally, rates based on areas with <25,000 population are not reliable due to unstable estimates of the underlying population and filled with a diagonal hatch pattern (see technical notes).
[2]PLWH include persons who were diagnosed with HIV regardless of current stage of the disease and living in LAC at year-end 2014 based on most current residential information. Thus the numbers and rates of PLWH in this map may differ from the reports of PLWH in other sections of this *Profile* and previous DHSP reports which were based on the residence at time of HIV diagnoses (see technical notes).
[3]The city or community boundaries are based on the April 2015 version of the LA County Board Approved Statistical Areas (BASA) shapefile. For PLWH, the city/community is assigned based on projected geo-coordinates (X, Y) of the most current residential information. For PLWH who did not have a complete street address of residence, the city or ZIP Code of residence was used to approximate the city/community location.
[4]Service Planning Area boundaries are based on the definition as of 2012; data reported as of December 31, 2014.

F. SPA 6: South

SPA 6 has the second highest average annual rate of new HIV diagnoses and the second highest rate of PLWH in the county. On average, the average annual reported HIV diagnosis rate in 2011-2013 was 25 per 100,000 population; the rate of PLWH at year-end 2014 was 545 per 100,000 (Table 4.7). Cities and communities with the highest HIV rates in SPA 6 are shown in Table 4.7 below, with rates of PLWH ranging from 190 to 1,209 per 100,000. One of the highest average annual rates of new HIV diagnoses and rates of PLWH within SPA 6 are found in the areas of Baldwin Hills, Hyde Park, West Vernon, Exposition Park, and West Adams. SPA 6 has one of the two highest proportions of females living with diagnosed HIV (21%) – nearly twice the county proportion of females living with diagnosed HIV (11%) [2]. The South SPA also had

the highest proportion of Black/AA PLWH. Among PLWH in the South SPA, 49% were Black/AA and 44% Latino (Figure 4.14). SPA 6 had the largest proportion of PLWH below the age of 40 years (33%). Male-to-male sexual contact, including MSM/IDU, accounted for 79% of new HIV diagnoses in 2011-2013 in the South SPA, 16% were infected through heterosexual contact and 5% through injection drug use (non-MSM) [2].

Table 4.7 Number and Rate[1] of Reported Diagnoses of HIV Infection in 2011-2013[2] and Persons Living with Diagnosed HIV[3] at Year-End 2014 for Select Cities/Communities[4] within LAC SPA 6[5]

	New HIV diagnoses in 2011-2013 [1,2,4,6]		*PLWH at year-end 2014 [1,2,3,4,6]*	
City/Community	**N**	**Avg. Rate/yr**	**N**	**Rate**
Baldwin Hills	38	44	352	1209
Alsace[7]	6	-	122	1000
Hyde Park	29	31	310	973
Leimert Park[7]	18	42	142	961
Gramercy Place[7]	13	44	92	901
Crenshaw District[7]	18	46	107	799
View Park/Windsor Hills, Uninc.[7]	14	46	75	731
West Vernon	39	25	376	723
Exposition Park	45	35	308	708
West Adams	30	38	192	703
Vermont Knolls[7]	11	-	110	637
Vermont Vista	41	35	244	615
Manchester Square[7]	9	-	51	614
Cloverdale/Cochran[7]	7	-	89	613
Florence-Firestone	32	23	263	565
South Park	21	19	201	542
Willowbrook, Uninc.	22	22	183	536
Jefferson Park[7]	<5	-	42	530
Harvard Park	28	25	199	521
Green Meadows[7]	9	-	107	516
Adams Normandie[7]	11	-	41	500
SPA 6 Total	756	25	5633	545

[1]Average annual rates for new HIV diagnoses in 2011-2013 are based on population estimates for 2012 and rates for PLWH at year-end 2014 are based on population estimates for 2014 (see technical notes). Rates for areas based on observations fewer than 12 and/or <5,000 population are not displayed (see technical notes).

[2]Data are provisional due to reporting delay.

[3]PLWH include persons who were diagnosed with HIV regardless of current stage of the disease and living in LAC at year-end 2014 based on most current residential information. Thus the numbers and rates of PLWH in this table may differ from the reports of PLWH in other sections of this *Profile* and previous DHSP reports which were based on the residence at time of HIV diagnoses (see technical notes).

[4]The assignment of city or community boundaries for each person is based on the available geo-coordinates (X,Y) of the residence and the April 2015 version of LA County Board Approved Statistical Areas (BASA) shapefile. The residence at diagnosis is used to obtain the aggregated HIV diagnosis rates at the city or community level while the most current residential information is used for the rate of PLWH. Additionally, for PLWH only, when street address information is not available, city or ZIP Code of residence is used to approximate the city/community location.

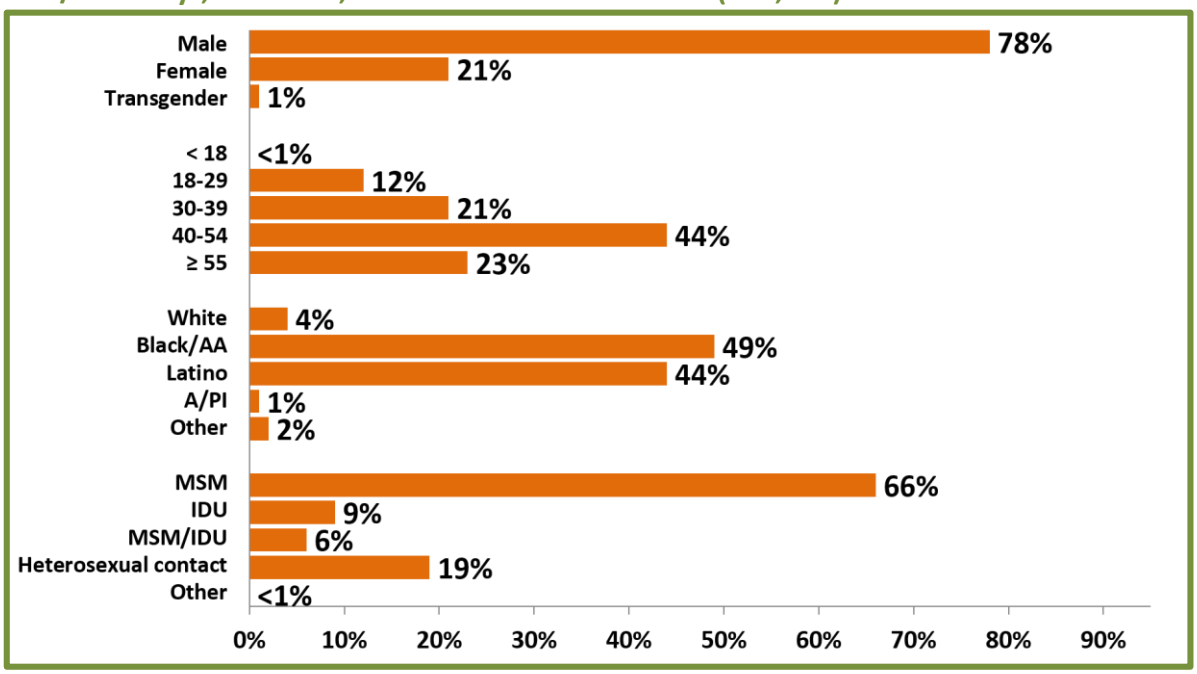
[5]Service Planning Area boundaries are based on the definition as of 2012.

[6]Data reported as of December 31, 2014.

[7]Rates are based on areas with <25,000 population and may not be reliable due to unstable estimates of the underlying population (see technical notes); Uninc.=Unincorporated area.

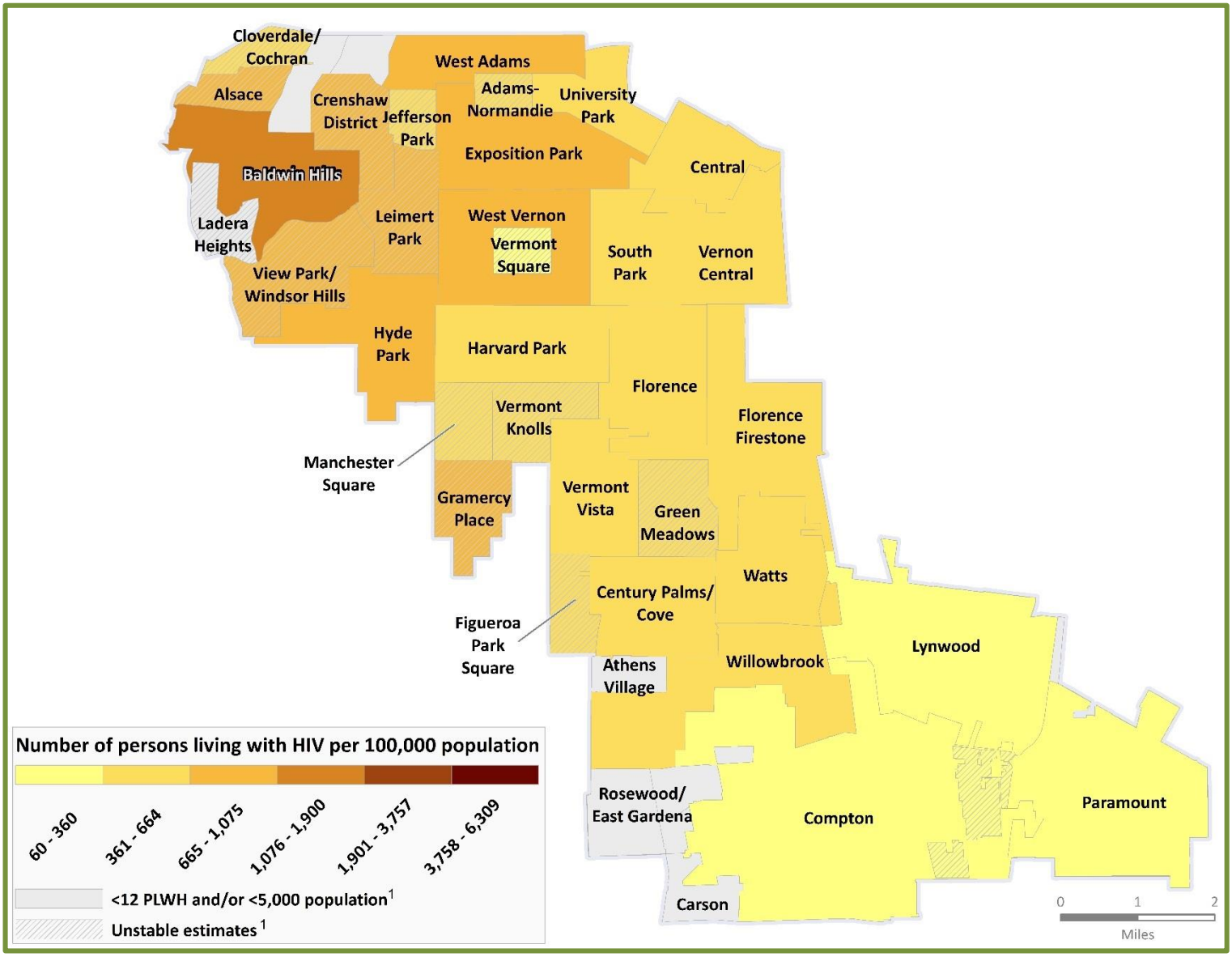
Figure 4.14 shows the adjusted mode of HIV exposure for PLWH at year-end 2014 to be 72% for MSM and MSM/IDU combined, while an estimated 19% and 9% were infected through heterosexual contact and other IDU, respectively. The map (Figure 4.15) of the rate distribution of PLWH at year-end 2014 within SPA 6 reveals higher rates of PLWH towards the northwest of the South SPA, with the highest rate found in Baldwin Hills. Rates increasingly decrease towards the southeast of SPA 6.

Figure 4.14 Persons Living with Diagnosed HIV Infection[1] by Gender, Age Group[2], Race/Ethnicity[3], and Risk[4], Year-End 2014 – LAC SPA 6 (n=5,633)[5]



[1]PLWH include persons who were diagnosed with HIV regardless of current stage of the disease and living in LAC at year-end 2014 based on most current residential information. Thus the numbers and rates of PLWH in this chart may differ from the reports of PLWH in other sections of this *Profile* and previous DHSP reports which were based on the residence at time of HIV diagnoses (see technical notes).
[2]Age at year-end 2014
[3]Other race/ethnicity includes American Indian/Alaska Native and Multiracial groups; AA=African American, A/PI=Asian/Pacific Islander
[4]Persons without an identified risk factor were assigned a risk factor using CDC-recommended multiple imputation (MI) methods (see technical notes). Other risks include hemophilia or coagulation disorder, transfusion recipient, perinatal exposure and confirmed other risk; MSM=Men who have sex with men, IDU=injection drug user
[5]Data reported as of December 31, 2014.

Figure 4.15 Rates[1] of Persons Living with Diagnosed HIV Infection (All Stages)[2] per 100,000 Population by City/Community[3] of Current Residence, Year-End 2014 – LAC SPA 6 (n=5,633)[4]



[1]Rates are based on population estimates for 2014 (see technical notes). Rates for areas with <12 PLWH or <5,000 population are not presented here due to unstable estimates and shaded in grey (see technical notes). Additionally, rates based on areas with <25,000 population are not reliable due to unstable estimates of the underlying population and filled with a diagonal hatch pattern (see technical notes).

[2]PLWH include persons who were diagnosed with HIV regardless of current stage of the disease and living in LAC at year-end 2014 based on most current residential information. Thus the numbers and rates of PLWH in this map may differ from the reports of PLWH in other sections of this *Profile* and previous DHSP reports which were based on the residence at time of HIV diagnoses (see technical notes).

[3]The city or community boundaries are based on the April 2015 version of the LA County Board Approved Statistical Areas (BASA) shapefile. For PLWH, the city/community is assigned based on projected geo-coordinates (X, Y) of the most current residential information. For PLWH who did not have a complete street address of residence, the city or ZIP Code of residence was used to approximate the city/community location.

[4]Service Planning Area boundaries are based on the definition as of 2012; data reported as of December 31, 2014.

G. SPA 7: East

SPA 7 has the second lowest average annual rate of new HIV diagnoses and the third lowest rate of PLWH. On average, the reported annual HIV diagnosis rate in 2011-2013, based on HIV surveillance data, was 12 per 100,000 population; the rate of PLWH at year-end 2014 was 257 per 100,000 (Table 4.8). Cities and communities with the highest average annual rates of new diagnoses and PLWH in the East SPA are shown in Table 4.8. The highest average annual rates of HIV diagnoses within SPA 7 were seen in Huntington Park and Pico Rivera.

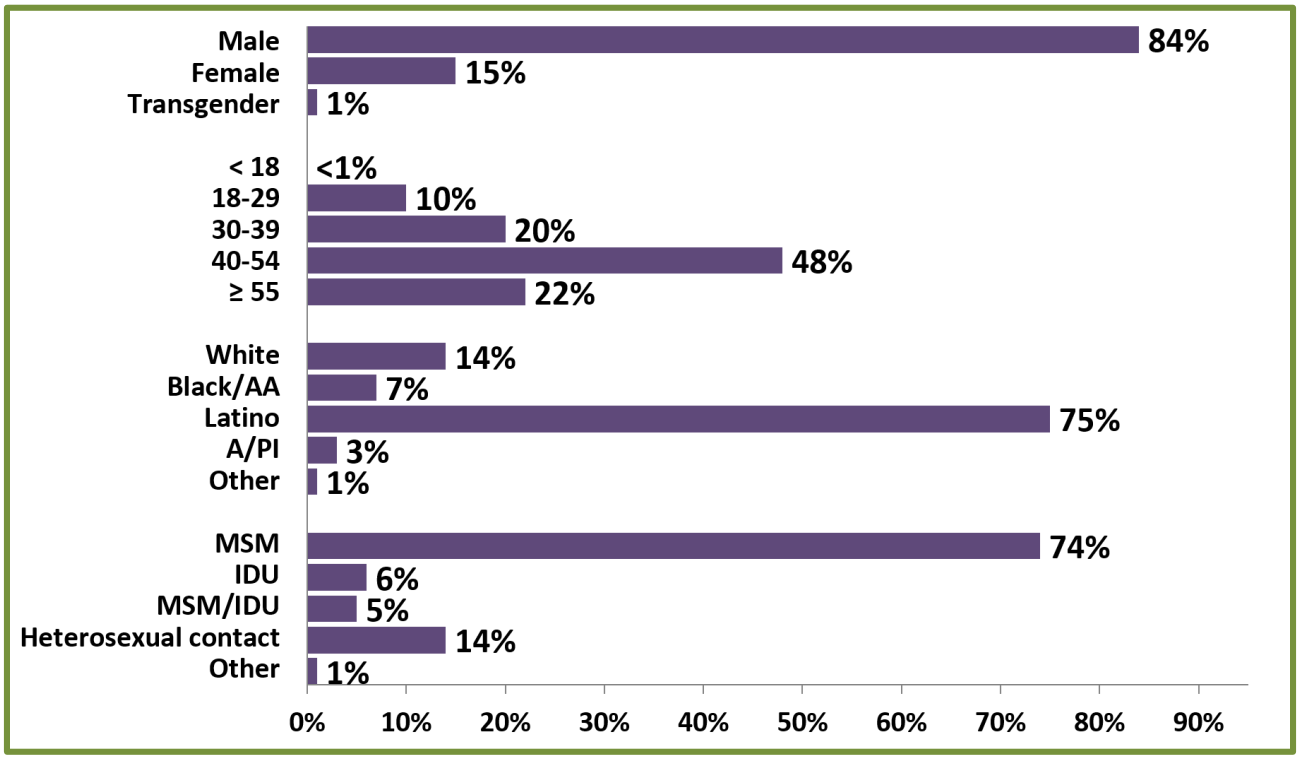
Table 4.8 Number and Rate[1] of Reported Diagnoses of HIV Infection in 2011-2013[2] and Persons Living with Diagnosed HIV[3] at Year-End 2014 for Select Cities/Communities[4] within LAC SPA 7[5]

	New HIV diagnoses in 2011-2013 [1,2,4,6]		*PLWH at year-end 2014 [1,2,3,4,6]*	
City/Community	**N**	**Avg. Rate/yr.**	**N**	**Rate**
Signal Hill[7]	10	-	96	836
Huntington Park	40	23	266	450
Walnut Park, Uninc.[7]	<5	-	62	388
East Los Angeles, Uninc.	55	14	431	340
Bell	14	13	120	334
Commerce[7]	5	-	38	292
West Whttier/Los Nieto, Uninc.	9	-	76	287
Maywood	10	-	78	281
South Gate	30	11	268	279
Montebello	26	14	168	264
Pico Rivera	33	17	166	260
Downey	36	11	276	242
Norwalk	39	12	258	242
Whittier	24	9	208	240
Santa Fe Springs[7]	9	-	42	240
Cudahy[7]	14	20	56	231
Hawaiian Garden[7]	6	-	31	215
Bellflower	21	9	163	209
SPA 7 Total	485	12	3369	257

[1]Average annual rates for new HIV diagnoses in 2011-2013 are based on population estimates for 2012 and rates for PLWH at year-end 2014 are based on population estimates for 2014 (see technical notes). Rates for areas based on observations fewer than 12 and/or <5,000 population are not displayed (see technical notes).
[2]Data are provisional due to reporting delay.
[3]PLWH include persons who were diagnosed with HIV regardless of current stage of the disease and living in LAC at year-end 2014 based on most current residential information. Thus the numbers and rates of PLWH in this table may differ from the reports of PLWH in other sections of this *Profile* and previous DHSP reports which were based on the residence at time of HIV diagnoses (see technical notes).
[4]The assignment of city or community boundaries for each person is based on the available geo-coordinates (X,Y) of the residence and the April 2015 version of LA County Board Approved Statistical Areas (BASA) shapefile. The residence at diagnosis is used to obtain the aggregated HIV diagnosis rates at the city or community level while the most current residential information is used for the rate of PLWH. Additionally, for PLWH only, when street address information is not available, city or ZIP Code of residence is used to approximate the city/community location.
[5]Service Planning Area boundaries are based on the definition as of 2012.
[6]Data reported as of December 31, 2014.
[7]Rates are based on areas with <25,000 population and may not be reliable due to unstable estimates of the underlying population (see technical notes)
Uninc.=Unincorporated area.

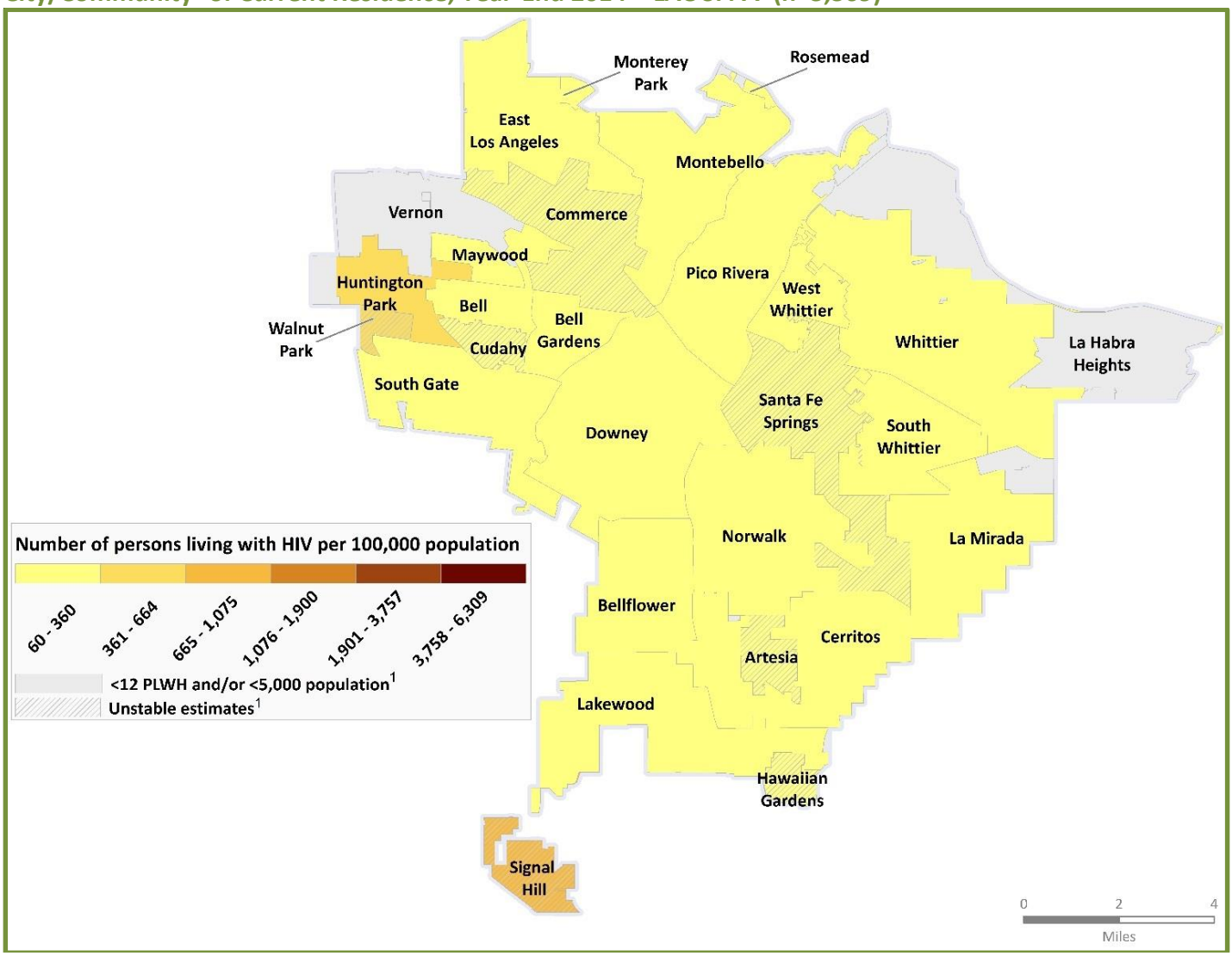
As seen in Figure 4.16, PLWH in SPA 7 were predominately male (84%), aged 40 years and older (70%) and Latino (75%), giving the East SPA the highest proportion of Latino PLWH. This is a reflection of the large underlying Latino SPA 7 population (73% in 2014; see also Table 2.1 for the LAC population characteristics by SPA in 2011) [3,4]. The predominant mode of HIV exposure in SPA 7 was male-male sex. MSM and MSM/IDU together accounted for 89% percent of new HIV diagnoses and 79% of PLWH in SPA 7, while heterosexual contact and IDU accounted for 8% and 3% among newly diagnosed and 14% and 6% among PLWH, respectively. Figure 4.17 shows relatively low rates of PLWH across the cities/communities of SPA 7. The highest rate was found in Signal Hill, followed by Huntington Park and Walnut Park.

Figure 4.16 Persons Living with Diagnosed HIV Infection[1] by Gender, Age Group[2], Race/Ethnicity[3], and Risk[4], Year-End 2014– LAC SPA 7 (n=3,369)[5]



[1]PLWH include persons who were diagnosed with HIV regardless of current stage of the disease and living in LAC at year-end 2014 based on most current residential information. Thus the numbers and rates of PLWH in this chart may differ from the reports of PLWH in other sections of this *Profile* and previous DHSP reports which were based on the residence at time of HIV diagnoses (see technical notes).
[2]Age at year-end 2014
[3]Other race/ethnicity includes American Indian/Alaska Native and Multiracial groups; AA=African American, A/PI=Asian/Pacific Islander
[4]Persons without an identified risk factor were assigned a risk factor using CDC-recommended multiple imputation (MI) methods (see technical notes). Other risks include hemophilia or coagulation disorder, transfusion recipient, perinatal exposure and confirmed other risk; MSM=Men who have sex with men, IDU=injection drug user
[5]Data reported as of December 31, 2014.

Figure 4.17 Rates[1] of Persons Living with Diagnosed HIV Infection (All Stages)[2] per 100,000 Population by City/Community[3] of Current Residence, Year-End 2014 – LAC SPA 7 (n=3,369)[4]



[1]Rates are based on population estimates for 2014 (see technical notes). Rates for areas with <12 PLWH or <5,000 population are not presented here due to unstable estimates and shaded in grey (see technical notes). Additionally, rates based on areas with <25,000 population are not reliable due to unstable estimates of the underlying population and filled with a diagonal hatch pattern (see technical notes).

[2]PLWH include persons who were diagnosed with HIV regardless of current stage of the disease and living in LAC at year-end 2014 based on most current residential information. Thus the numbers and rates of PLWH in this map may differ from the reports of PLWH in other sections of this *Profile* and previous DHSP reports which were based on the residence at time of HIV diagnoses (see technical notes).

[3]The city or community boundaries are based on the April 2015 version of the LA County Board Approved Statistical Areas (BASA) shapefile. For PLWH, the city/community is assigned based on projected geo-coordinates (X, Y) of the most current residential information. For PLWH who did not have a complete street address of residence, the city or ZIP Code of residence was used to approximate the city/community location.

[4]Service Planning Area boundaries are based on the definition as of 2012; data reported as of December 31, 2014.

H. SPA 8: South Bay

SPA 8 has the third highest average annual rate of new HIV diagnoses and the third highest rate of PLWH. On average, the average annual HIV diagnosis rate in 2011-2013, based on reported cases, was 20 per 100,000 population in SPA 8; the rate of PLWH at year-end 2014 was 505 per 100,000. Long Beach and several other cities/communities in SPA 8 with high HIV rates are shown below (Table 4.9). At year-end 2014, the City of Long Beach had the highest PLWH rate (1,000 per 100,000 population) within SPA 8 and the highest numbers of new diagnoses in 2011-2013 (n=488) and PLWH at year-end 2014 (n=4,709) in LAC (Table 4.9).

Among new HIV diagnoses in 2011-2013, the majority were male (87%), under the age of 40 years (66%), and Latino (38%), Black/AA (34%) and White (22%) [2]. Among PLWH in SPA 8, 86% were male [2], 76% aged 40 years or older, 33% White, 33% Latino, 27% Black/AA, and 4% A/PI (Figure 4.18). Among persons diagnosed with HIV in 2011-2013 in SPA 8, most were either MSM (81%) or MSM/IDU (3%), while 5% were other IDU and 11% were infected through heterosexual contact [2]. Similarly, 80% of PLWH at year-end 2014 were MSM or MSM/IDU combined, while 12% acquired the virus through heterosexual contact and 6% through other IDU (Figure 4.18). Figure 4.19 illustrates the geographic distribution of PLWH in the South Bay, where the highest rates are found in the City of Long Beach and unincorporated Athens-Westmont, followed by Inglewood, San Pedro, Hawthorne, Lawndale, and unincorporated Lennox.

Table 4.9 Number and Rate[1] of Reported Diagnoses of HIV Infection in 2011-2013[2] and Persons Living with Diagnosed HIV[3] at Year-End 2014 for Select Cities/Communities[4] within LAC SPA 8[5]

	New HIV diagnoses in 2011-2013 [1,2,4,6]		*PLWH at year-end 2014* [1,2,3,4,6]	
City/Community	**N**	**Avg. Rate/yr.**	**N**	**Rate**
Long Beach	488	35	4709	1000
Athens-Westmont, Uninc.	46	38	312	756
Inglewood	102	31	607	542
San Pedro	34	15	377	496
Hawthorne	56	22	344	396
Lawndale	12	12	119	358
Lennox, Uninc.[7]	10	-	82	353
SPA 8 Total	931	20	7848	505

[1]Average annual rates for new HIV diagnoses in 2011-2013 are based on population estimates for 2012 and rates for PLWH at year-end 2014 are based on population estimates for 2014 (see technical notes). Rates for areas based on observations fewer than 12 and/or <5,000 population are not displayed (see technical notes).

[2]Data are provisional due to reporting delay.

[3]PLWH include persons who were diagnosed with HIV regardless of current stage of the disease and living in LAC at year-end 2014 based on most current residential information. Thus the numbers and rates of PLWH in this table may differ from the reports of PLWH in other sections of this *Profile* and previous DHSP reports which were based on the residence at time of HIV diagnoses (see technical notes).

[4]The assignment of city or community boundaries for each person is based on the available geo-coordinates (X,Y) of the residence and the April 2015 version of LA County Board Approved Statistical Areas (BASA) shapefile. The residence at diagnosis is used to obtain the aggregated HIV diagnosis rates at the city or community level while the most current residential information is used for the rate of PLWH. Additionally, for PLWH only, when street address information is not available, city or ZIP Code of residence is used to approximate the city/community location.

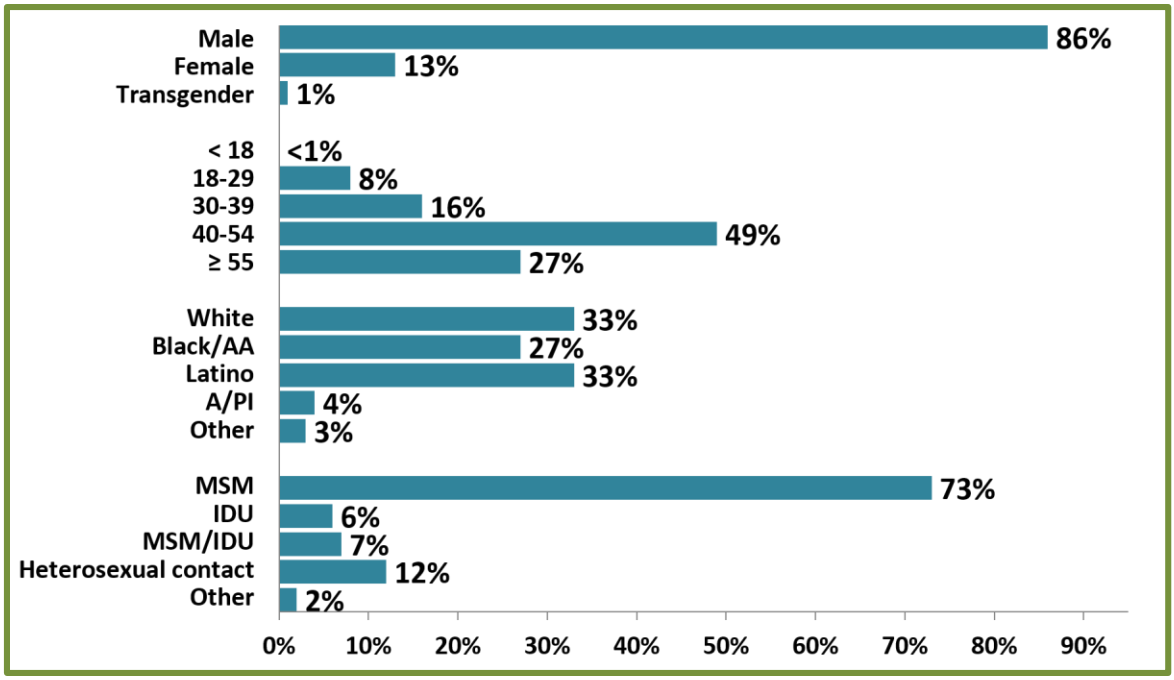
[5]Service Planning Area boundaries are based on the definition as of 2012.

[6]Data reported as of December 31, 2014.

[7]Rates are based on areas with <25,000 population and may not be reliable due to unstable estimates of the underlying population (see technical notes)

Uninc.=Unincorporated area.

Figure 4.18 Persons Living with Diagnosed HIV Infection[1] by Gender, Age Group[2], Race/Ethnicity[3], and Risk[4], Year-End 2014 – LAC SPA 8 (n=7,848)[5]



[1]PLWH include persons who were diagnosed with HIV regardless of current stage of the disease and living in LAC at year-end 2014 based on most current residential information. Thus the numbers and rates of PLWH in this chart may differ from the reports of PLWH in other sections of this *Profile* and previous DHSP reports which were based on the residence at time of HIV diagnoses (see technical notes).

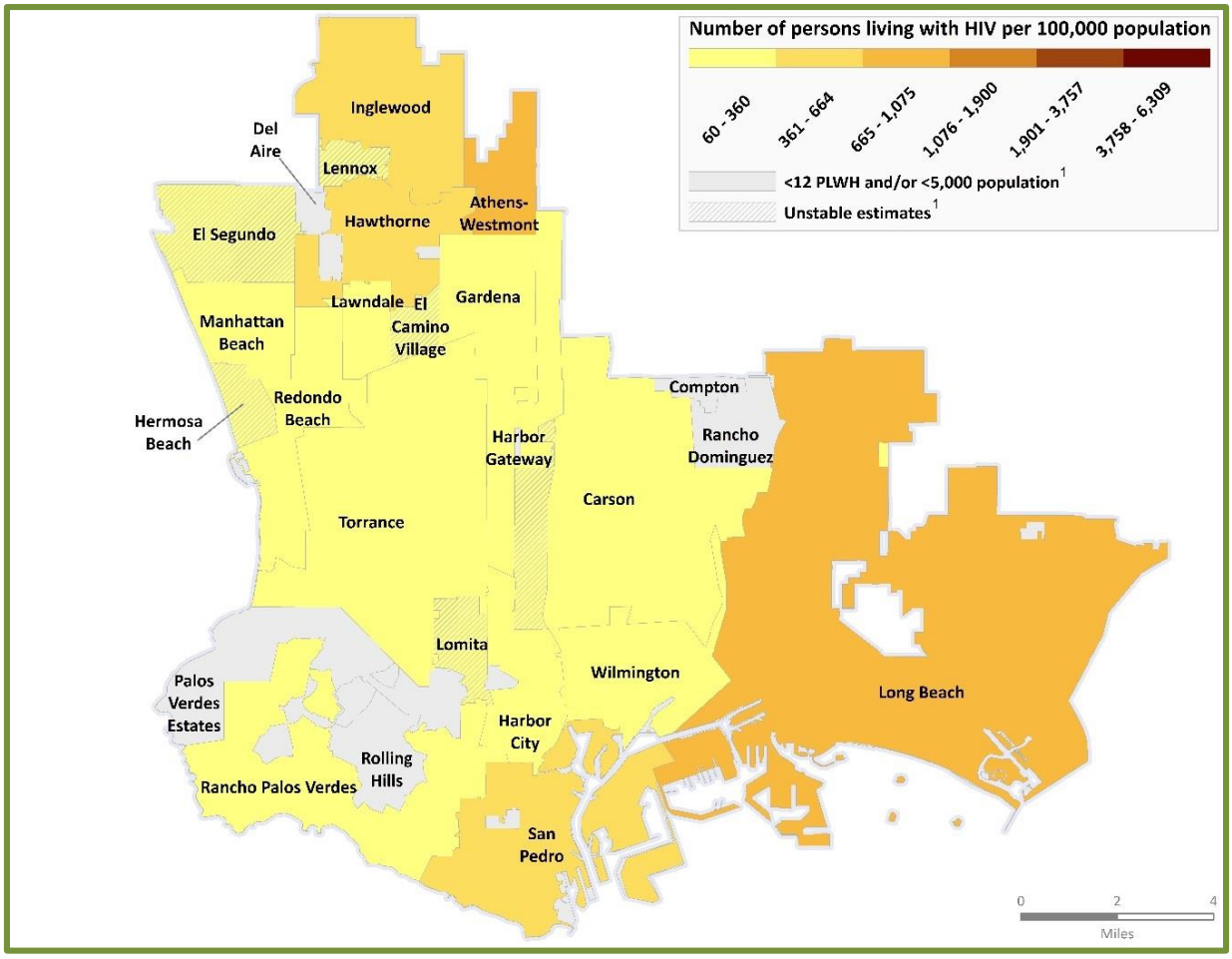
[2]Age at year-end 2014

[3]Other race/ethnicity includes American Indian/Alaska Native and Multiracial groups; AA=African American, A/PI=Asian/Pacific Islander

[4]Persons without an identified risk factor were assigned a risk factor using CDC-recommended multiple imputation (MI) methods (see technical notes). Other risks include hemophilia or coagulation disorder, transfusion recipient, perinatal exposure and confirmed other risk; MSM=Men who have sex with men, IDU=injection drug user

[5]Data reported as of December 31, 2014.

Figure 4.19 Rates[1] of Persons Living with Diagnosed HIV Infection (All Stages)[2] per 100,000 Population by City/Community[3] of Current Residence, Year-End 2014 – LAC SPA 8 (n=7,848)[4]



[1]Rates are based on population estimates for 2014 (see technical notes). Rates for areas with <12 PLWH or <5,000 population are not presented here due to unstable estimates and shaded in grey (see technical notes). Additionally, rates based on areas with <25,000 population are not reliable due to unstable estimates of the underlying population and filled with a diagonal hatch pattern (see technical notes).
[2]PLWH include persons who were diagnosed with HIV regardless of current stage of the disease and living in LAC at year-end 2014 based on most current residential information. Thus the numbers and rates of PLWH in this map may differ from the reports of PLWH in other sections of this *Profile* and previous DHSP reports which were based on the residence at time of HIV diagnoses (see technical notes).
[3]The city or community boundaries are based on the April 2015 version of the LA County Board Approved Statistical Areas (BASA) shapefile. For PLWH, the city/community is assigned based on projected geo-coordinates (X, Y) of the most current residential information. For PLWH who did not have a complete street address of residence, the city or ZIP Code of residence was used to approximate the city/community location.
[4]Service Planning Area boundaries are based on the definition as of 2012; data reported as of December 31, 2014.

References

1. CDC. HIV Incidence. Available at: http://www.cdc.gov/hiv/statistics/surveillance/incidence.html, accessed 11/13/2015.
2. Division of HIV and STD Programs. Los Angeles County Department of Public Health. Enhanced HIV/AIDS Reporting System (eHARS), Surveillance Data as of December 31, 2014.
3. July 1, 2012 Population Estimates, prepared by Hedderson Demographic Services for Los Angeles County Internal Services Department, released date (05/26/2014).
4. July 1, 2014 Population Estimates, prepared by Hedderson Demographic Services for Los Angeles County Internal Services Department, released date (03/12/2015).

V. KEY POPULATIONS, PRIORITY SUBPOPULATIONS AND POPULATIONS OF INTEREST

Prior to merging in 2013, the two HIV planning bodies in Los Angeles County (LAC), the Commission on HIV (Commission) and the HIV Prevention Planning Committee (PPC) created the Commission/PPC Comprehensive HIV Planning Task Force to collaboratively develop a Comprehensive HIV Plan for LAC. This plan identified (1) *Key Populations and their Priority Subpopulations, and (2) Populations of Interest,* to prioritize within LAC those individuals that have special HIV care and prevention service needs. The Key Populations and their priority subpopulations were identified using evidence-based data. Populations of Interest were populations identified by the task force as having unique characteristics and/or barriers to accessing HIV services. However, these populations of interest were identified based on experience and anecdotal evidence.[1] Throughout this section, evidence-based data is used to develop estimates specific to these populations.

A. Key Populations and Priority Subpopulations

Table 5.1 provides an overview of our estimates of (1) the size of the Key Populations and their priority sub-populations, (2) the number of HIV infections, (3) HIV prevalence, and (4) the percentage of people living with HIV in LAC. Note that these populations are not mutually exclusive. Therefore, some persons may be included in more than one category. Due to limitations in how the data are collected, some categories described here are similar but not identical to the populations identified by the Task Force.

1. HIV Positive Individuals

As noted in Table 5.1, it was estimated there were approximately 60,050 persons living with HIV (PLWH) in LAC in 2013, and 15.8% (9,500) of these persons were estimated to be *unaware* of their HIV status.[2] The number of persons unaware of their HIV infection is based on the CDC's estimate of the proportion unaware. CDC updates this estimate annually to reflect improvements in HIV testing practices. In this section, we use the 2013 estimate of persons unaware to be consistent with the 2013 population estimates presented within the section. (*For 2014 estimates of PLWH in LAC, see Section 3, Figure 3.3.*) At the end of 2013, 47,628 HIV infections had been reported to the enhanced HIV/AIDS Reporting System (eHARS). Of these reported HIV infections, approximately 39% were not engaged in HIV care (see Technical Notes).[3]

Tables 5.2 and 5.3 highlight data from individuals who received care and/or other services funded through the Ryan White HIV/AIDS program (RW). More than two-thirds (67%) reported income at or below the federal poverty level (FPL), 6% reported being homeless, and 46% reported having no health insurance. Mental health and substance abuse treatment were utilized by 4% and 1%, respectively, and 13% of individuals reported having been incarcerated in the past 2 years. Seventy-five percent of RW clients were virally suppressed at their most recent viral load test.

For more information on HIV-positive individuals and care, see Section VII Care Services Utilization.

Table 5.1. Estimated PLWH for Key Populations and Priority Subpopulations of the LAC Commission on HIV

Key Populations/Priority Subpopulations [1]	Estimated Size of Population [2]	Estimated Number of Persons Living with HIV in 2013 [3]	Estimated HIV Prevalence [4]	Estimated Percent Adult/Adolescent PLWH in LAC N=47,628
HIV Positive Individuals [5]	60,050	60,050	100.00%	100%
Diagnosed & Reported	47,628	47,628	100.00%	100.00
Undiagnosed/Unaware	9,500	9,500	100.00%	-
Not in care [6]	28,075	28,075	100.00%	39%
Sexual Partners [7]	-	-	-	-
Needle Sharing Partners [7]	-	-	-	-
MSM [8]	216,885	39,793	18.35%	83.55
Black/AA	17,226	6,973	40.48%	14.64
Latino	106,541	16,245	15.25%	34.11
Women	3,451,251	5,387	0.16%	11.31
Black/AA	305,870	1,905	0.62%	4.00
Latina	1,661,205	2,407	0.14%	5.05
Youth (13-24 years)	1,721,454	1,335	0.08%	2.80
MSM [8]	55,416	995	1.80%	2.09
Transgender Persons[9]	13,788	1,206	8.75%	2.53
Women	6,894	1,152	16.71%	2.42
Men	6,894	54	0.78%	0.11
AI/AN	207	53	25.60%	0.11
Black/AA	1,268	336	26.50%	0.71
Persons who Share Injection Paraphernalia [10]	70,990	5,357	7.55%	11.25

[1] Categories are not mutually exclusive
[2] 2013 Department of Finance data used to estimate the size of the populations (among persons who are 15-64 years of age). Accessed at http://www.dof.ca.gov/research/demographic/DRU/
[3] Based on 2013 HIV Surveillance data reported as of 03/31/2015. Estimates do not include persons unaware of their diagnosis except where noted.
[4] Estimated HIV prevalence=Estimated number of PLWH/Estimated size of the population.
[5] 2013 DHSP estimate of number of persons living with HIV used for comparison with 2013 HIV surveillance data. Includes unaware. Data reported as of 12/31/13.
[6] See Figure 7.1 HIV Care Continuum in Section VII. Not in care based on estimate of engagement in care. Engagement in care based on ≥1 CD4/VL/Genotype tests in 2013.
[7] Data not available.
[8] Based on estimate that MSM represent 6.3% of male population (calculated by averaging CDC's 2012 estimate (4.4%) and Lieb et al's. 2011 estimate (8.2%).
[9] Based on estimate that transgender persons represent 0.2% of the population. See Los Angeles County Transgender Population Estimates 2012 for methodology.
[10] Population estimate based on Tempalski et al. 2013

Table 5.2 Ryan White-Funded Services: Socio-Economic Data, 2013-2014 (N = 18,134)

	Overall		≤ Federal Poverty Level		Homeless		No Insurance		Incarcerated ≤ 24 mo.	
Characteristic	**n**	**%[1]**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Total	**18,134**		**12,178**	**67.2**	**1,115**	**6.1**	**8,343**	**46.0**	**2,305**	**12.7**
MSM [2]	9,419	*51.9*	6,065	64.4	569	6.0	4,085	43.4	1,252	13.3
Black/AA MSM	1,859	*19.7*	1,432	77.0	209	11.2	529	28.5	379	20.4
Latino MSM	4,727	*50.2*	3,134	66.3	187	4.0	2,763	58.5	502	10.6
Women	2,119	*11.7*	1,745	82.4	138	6.5	935	44.1	192	9.1
Black/AA	754	*35.6*	634	84.1	65	8.6	214	28.4	83	11.0
Latina	1,051	*49.6*	891	84.8	49	4.7	625	59.5	61	5.8
Youth (13-24 years)	763	*4.2*	612	80.2	90	11.8	335	43.9	132	17.3
MSM	426	*55.8*	333	78.2	54	12.7	192	45.1	80	18.8
Transgender Persons	305	*1.7*	256	83.9	23	7.5	172	56.4	56	18.4
Women	303	*99.3*	256	84.5	23	7.6	170	56.1	55	18.2
Men	<5	-	-	-	-	-	-	-	-	-
AI/AN	<5	-	-	-	-	-	-	-	-	-
Persons who Share Injection Paraphernalia [3]	907	*5.0*	749	82.6	123	13.6	295	32.5	316	34.8

Data Source: Casewatch as of 03/01/2015

[1]Column percentage

[2] Includes males who reported 'Male Sex with Male' as their primary mode of HIV exposure

[3] Includes persons who reported 'Injection Drug Use' as their primary mode of HIV exposure

Table 5.3 Ryan White-Funded Services: Treatment Data, 2013-2014 (N = 18,134)

	Overall		Mental Health Treatment		Substance Abuse Treatment		Viral Load ≤200 Copies [1]	
Characteristic	**n**	**%[2]**	**n**	**%**	**n**	**%**	**n**	**%**
Total	**18,134**		**653**	**3.6**	**211**	**1.2**	**13,636**	**75.2**
MSM [3]	9,419	*51.9*	355	3.8	103	1.1	7,028	74.6
Black/AA MSM	1,859	*19.7*	64	3.4	36	1.9	1,162	62.5
Latino MSM	4,727	*50.2*	167	3.5	24	0.5	3,712	78.5
Women	2,119	*11.7*	79	3.7	23	1.1	1,638	77.3
Black/AA	754	*35.6*	33	4.4	16	2.1	559	74.1
Latina	1,051	*49.6*	30	2.9	<5	-	840	79.9
Youth (13-24 years)	763	*4.2*	28	3.7	17	2.2	452	59.2
Youth MSM	426	*55.8*	21	4.9	9	2.1	260	61.0
Transgender Persons	305	*1.7*	17	5.6	<5	-	205	67.2
Women	303	*99.3*	17	5.6	<5	-	203	67.0
Men	<5	-	-	-	-	-	-	-
AI/AN	<5	-	-	-	-	-	-	-
Persons who Share Injection Paraphernalia[4]	907	*5.0*	20	2.2	35	3.9	580	63.9

Data Source: Casewatch as of 03/01/2015

[1]HIV viral load ≤200 copies/ml at the most recent viral load in the past 12 months. Denominator is 18,119.

[2]Column percentage

[3] Includes males who reported 'Male Sex with Male' as their primary mode of HIV exposure

[4] Includes persons who reported 'Injection Drug Use' as their primary mode of HIV exposure

2. Men who have Sex with Men (MSM)

In LAC, male-to-male sexual contact remains the primary route of HIV transmission for all racial and ethnic groups. MSM make up 84% of all reported HIV infections in LAC, and the absolute number of HIV-infected MSM continues to increase. Of the 1,830 new diagnoses in 2013, 83% were among MSM and 2% were among MSM/IDU. According to incidence estimates from the CDC-funded HIV Incidence Surveillance project, the number of new HIV infections among MSM in LAC increased 6% from 5,087 in 2008-2010 to 5,384 in 2011-2013. Almost two-thirds (64%) of the MSM HIV infections are among MSM of color with Latino MSM representing more than a third of all MSM HIV infections (41%) and known PLWH (34%). Black/African American (Black/AA) MSM are disproportionately impacted. Black/AA MSM account for less than 1% of all persons aged 15-64 years living in LAC, yet represent approximately 15% of all reported HIV infections and 18% of MSM HIV infections. Two out of every five Black/AA MSM in LAC are estimated to be infected with HIV, an estimated HIV prevalence of 40% which is the third highest estimated HIV prevalence in LAC (Table 5.1). HIV prevalence among Latino MSM is also relatively high (15%) with nearly one out of every five Latino MSM in LAC estimated to be infected with HIV. Overall, the estimated HIV prevalence among all MSM is 18%.

Table 5.4 highlights data collected on MSM in LAC through the CDC-funded National HIV Behavioral Surveillance project (NHBS-MSM 2014). Overall, HIV prevalence was 16% with HIV prevalence highest among Black/AA MSM (34%). Among those who tested HIV positive, 32% were unaware of their HIV infection. Latino MSM were least likely to be aware of their HIV infection (39%) followed by 31% of Black/AA MSM. Among those who self-reported their HIV-positive status, 86% reported being linked to care within 3 months of their diagnosis. Compared with MSM of other ethnicities, Black/AA MSM self-reported the lowest linkage to care within 3 months (78%). Current antiretroviral (ART) use was high overall (96%). Among those who were *unaware* of their HIV-positive status, 33% reported condomless anal sex with a partner of HIV-negative or unknown status at their last sexual encounter. Among those who were *aware* of their HIV-positive status, 21% reported condomless anal sex with a partner of HIV-negative or unknown status at last sexual encounter.

Table 5.4 National HIV Behavioral Surveillance – MSM in LAC 2014 (N=525)

	No. HIV+	HIV Prevalence	Unaware of HIV infection	Linkage to care within 3 months[1]	Currently on ART[1]
Total	**84**	**16%**	**32%**	**86%**	**96%**
Race/Ethnicity[2]					
White	14	9%	21%	100%	100%
Black/AA	35	34%	31%	78%	91%
Latino	31	15%	39%	85%	100%

[1]Among self-reported HIV positive MSM.
[2]Significant differences between Blacks and Whites, and Blacks and Latinos in HIV prevalence (P<.0001).

Among HIV-infected MSM receiving Ryan White-funded services, 64% reported an income at or below the federal poverty level (FPL), and 43% reported having no health insurance. In addition, viral suppression was 75% for all MSM who received RW services with 79% of Latino

MSM and only 63% of Black/AA MSM having achieved viral suppression (see Tables 5.2 and 5.3).

3. Women

Although the number of women living with HIV in LAC is relatively small compared to the number of men infected with HIV, it is important to note that a disproportionate number of female PLWH are women of color. Furthermore, many of these women did not perceive themselves to be at risk for HIV infection prior to their diagnosis.[4] Among the 5,387 women living with HIV in LAC, 85% are women of color - 45% Latina and 35% Black/AA. In LAC, the estimated HIV prevalence for women is low overall (0.16%), however, Black/AA women have an estimated HIV prevalence (0.62%), almost seven times that of White women (0.09%) and 4 times that of Latinas (0.14% - see Table 5.1). In 2013, 11% of the new diagnoses in LAC were among women.

Two hundred and three women living in high poverty areas in LAC were surveyed through the 2013 National HIV Behavioral Surveillance cycle among high-risk heterosexual persons.[5] Fifty-one percent of the sample identified as Black/AA and 40% identified as Latina. No women in this sample were HIV positive. Seventy-eight percent of the women were aware of their HIV status but only 48% were aware of their last sex partner's status. Reports of condomless vaginal or anal sex increased with age: 66% of 18-25 year olds, 73% of 26-49 year olds and 94% of women over 50 years of age reported condomless vaginal or anal sex in the past 12 months. Condomless anal sex with a male in the past 12 months was reported by 24% of participants, however, only 19% of women reported using a condom at last sexual encounter.

Among 2,119 women receiving Ryan White-funded services, 82% reported income at or below the FPL and 44% reported having no health insurance. Homelessness was reported by 7% of women overall with a higher proportion of Black/AA women who reported homelessness (9%) compared to Latinas (5%). Viral suppression was 80% among Latinas and 74% among Black/AA women who received RW services in 2013-2014 - see Tables 5.2 and 5.3.

4. Youth (13-24 years)

In LAC, youth ages 13-24 years represented approximately 3% of PLWH in 2013. Although the estimated HIV prevalence is relatively low (0.08%), there has been concern nationwide about increases in HIV infections among youth, specifically MSM youth.[6] Estimated HIV prevalence among young MSM (13-24 years) in LAC is 2.0%, however, HIV prevalence varies widely across this age group. HIV prevalence among MSM ages 13-17 years is 0.03% while among MSM ages 18-24 years, HIV prevalence is 3.7%. In 2013, there were 350 new diagnoses among 13-24 year olds, which represents 19% of the new diagnoses that year. Less than 1% of the new diagnoses were among youth 13-17 years of age and the bulk of the new diagnoses were among 18-24 year olds (18%).

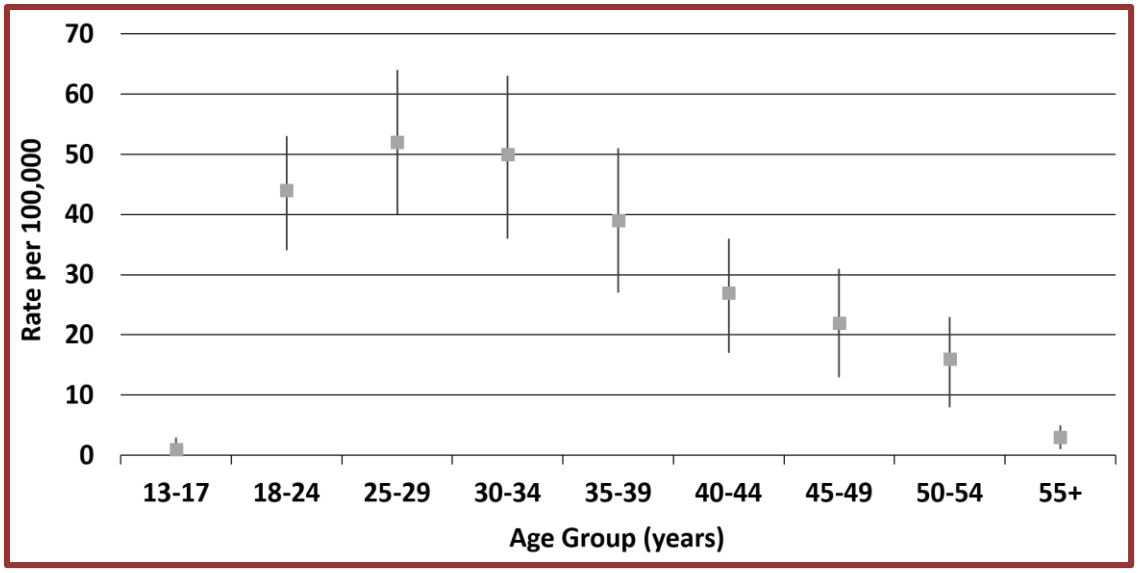
To better understand the risk of new HIV infection in youth, we rely upon HIV incidence estimates generated by HIV Incidence Surveillance. Due to the small numbers of youth diagnosed each year, we aggregated data to calculate a 3-year incidence estimate for 2011-

2013. The estimated rates of new HIV infections indicate that the risk of new infections is much higher for 18-24 year olds compared with youth 18 years of age and younger. As shown in Figure 5.1, the estimated rate of new HIV infections is 1/100,000 among 13-17 year olds and 44/100,000 among 18-24 year olds.

Of the 118 young MSM (YMSM) ages 18-24 years who participated in NHBS-MSM4 in 2014, 15% tested HIV positive and 39% of positives were unaware of their HIV infection. Of those who were aware of their HIV-positive status, 82% reported linkage to care within 3 months and 91% reported being currently on ART.

Among youth ages 13-24 years receiving RW-funded services, 56% were MSM. Overall, 80% of youth reported being at or below the FPL and 12% reported being homeless. Mental health services were utilized by 4% and 5% of youth and YMSM, respectively. Viral suppression among youth was markedly lower (59%) compared with the overall viral suppression among HIV-infected persons receiving RW-funded services (75%) (See Tables 5.2 and 5.3).

Figure 5.1 Rate and 95% Confidence Interval (CI) of Estimated New HIV Infection by Age Group, LAC HIV Incidence Surveillance, 2011-2013*



Source: LAC Division of HIV and STD Programs HIV Incidence Surveillance, reported as of June 18, 2015
*Estimates for 13-17 year olds should be interpreted with caution due to small sample.

5. Transgender Persons

Historically, transgender women (male-to-female) and transgender men (female-to-male) have been ignored in population records such as the U.S. Census. Gender reporting options to include transgender persons in the enhanced HIV/AIDS Reporting System (eHARS) have only been used in LAC since July 2002, and these data have yet to be evaluated for completeness and accuracy. For these reasons, the size of the transgender population and the prevalence of HIV in this population cannot be precisely estimated. In 2012, DHSP estimated the transgender population in LAC to be approximately 14,428.[7] Using the same methodology and more current population data, the new estimate for 2014 is 13,788 with a one-to-one ratio of transgender

men (6,894) to transgender women (6,894). This estimate will be updated as more current methodologies are identified.

Transgender persons represent approximately 3% of reported HIV infections with an estimated HIV prevalence of 9% - see Table 5.1. Most HIV infections, however, are among transgender women who represent 96% of the HIV infections among transgender persons. The estimated HIV prevalence for transgender women and men is 17% and <1%, respectively. In 2013, there were 27 new diagnoses among transgender persons which accounted for approximately 2% of all new diagnoses that year. Among transgender persons, American Indian/Alaska Natives (AI/AN) are disproportionately impacted by HIV. Though the number of estimated HIV infections in this population is relatively low (n=53), representing 0.1% of the reported HIV infections, AI/AN transgender persons only represent 0.003% of persons 15-64 years old living in LAC. The estimated HIV prevalence for AI/AN transgender persons is 26% with 1 in 4 estimated to be HIV infected. Among AI/AN transgender women the estimated HIV prevalence is even higher at 50% (Note: this estimate is based on small numbers). With an estimated HIV prevalence of 27%, Black/AA transgender persons are also disproportionately impacted by HIV. While only representing 0.02% of persons 15-64 years living in LAC, Black/AA transgender persons account for 0.7% of PLWH. HIV prevalence among Black transgender women is estimated to be higher than any other group at 51%.

In 2009, DHSP conducted a pilot study of Transgender HIV Behavioral Surveillance among Black and Latina transgender women. Of the 101 transgender women surveyed, 56% identified as Latina and 44% as Black. Nearly two-thirds (63%) of participants reported testing for HIV in the past 12 months and more than one in four (28%) self-reported as HIV positive. Among self-reported HIV-positives, 11% reported seeing a doctor within 3 months of diagnosis, however, 82% reported current use of ART. With respect to sexual behaviors, 64% of participants reported condomless anal sex, and 41% reported exchanging sex for money or drugs in the past 12 months. Forty-five percent of participants reported injecting hormones and 5% reported sharing hormones in the past 12 months. There were no reports of participants injecting silicone with another person.

Among transgender persons receiving RW-funded services (n=305), 99% were transgender women. Compared to the general RW-population, a higher percentage of transgender women had incomes at or below the FPL (85%), were homeless (8%), and were without health insurance (56%). Similarly, higher percentages of transgender women reported utilizing mental health services (6%), and were incarcerated in the past 2 years (18%) compared with the general RW-population. Viral suppression was 67%, somewhat lower than viral suppression among all persons receiving RW-funded services (75%).

6. Persons who Share Injection Paraphernalia (SIP)

Compared with other parts of the country, such as the East Coast, persons who share injection paraphernalia account for a relatively small proportion (11%:5% IDU; 6% MSM/IDU) of the PLWH in LAC. In 2013, IDU and MSM/IDU represented 5% and 2% of the new diagnoses, respectively. According to incidence estimates, the number of new HIV infections among

injection drug users remained relatively stable from 242 in 2008-2010 to 249 in 2011-2013. HIV prevalence for this population is 7.6% - see Table 5.1.

Among injection drug users surveyed during NHBS-IDU 2012 (n=529), HIV prevalence was 5% overall, and 8% in both Whites and Black/AA. Nine of 26 (35%) HIV positives were unaware of their HIV infection and Black/AA participants were the least likely to be aware of their HIV-positive status (56%). Of those participants who were aware of their HIV-positive status, 61% reported receiving care within 3 months and 63% were currently on ART. Overall, hepatitis C (HCV) prevalence was 77% with the highest HCV prevalence (88%) among Black/AA participants.

Among the 907 injection drug users receiving RW-funded services, there were high proportions of homelessness (14%), incarceration within past 2 years (35%) and poverty (83%). Mental health and substance abuse treatment were reported by 2% and 4%, respectively. Only 64% were virally suppressed at their most recent viral load test.

B. Populations of Interest

The following populations of interest were identified by the PPC and COH planning bodies (now the Commission) as populations with barriers to accessing HIV services. However, there were limited data available for these populations and therefore their inclusion is based on experiential and anecdotal rather than quantitative evidence. Table 5.5 provides an overview of the estimated size of each identified population, the number of HIV infections, HIV prevalence, and the percentage of people living with HIV in LAC for those populations of interest where data are available.

Given the limited data available on the Populations of Interest, additional data are provided in Table 5.6 from ongoing DHSP projects. Note that there are some differences in how each project defines condomless sex, treatment and viral suppression (see table footnotes for further information). Also, note that NHBS and THBS survey HIV-positive and HIV-negative individuals whereas MMP and LACHNA survey HIV-positive individuals. For a description of each data source, see Data Source Descriptions.

1. Homeless Persons

There are often challenges in collecting data on homeless individuals and as a result HIV prevalence among the homeless can only be estimated. We estimate that homeless individuals represent 8% of the reported HIV infections in LAC with an HIV prevalence estimate of 3%. Among HIV-infected individuals surveyed through the Medical Monitoring Project (MMP) and the Los Angeles Coordinated HIV Needs Assessment (LACHNA), 11% and 12% identified as homeless in the past 12 months and currently homeless, respectively. Among homeless HIV-infected persons in care surveyed through MMP, 91% had been prescribed antiretroviral therapy (ART) and 62% of MMP participants were virally suppressed. Among those surveyed through LACHNA, 82% reported taking ART in the past 12 months and 63% were virally suppressed.

Homelessness among at-risk populations surveyed by DHSP varied with IDU reporting the highest proportion of homelessness (64%) followed by transgender women (49%), heterosexuals in high-risk areas (26%), and MSM (7%). HIV prevalence among homeless individuals in these studies was highest among homeless MSM (32%) followed by homeless transgender women (29%), and homeless IDU (6%). Among those who self-reported as HIV positive, 10 of 11 (91%) MSM, 11 of 14 (79%) transgender women, and 7 of 13 (54%) IDU reported current use of ART medications.

Table 5.5 Populations of Interest

Populations of Interest[1]	Estimated Size of Population[2]	Estimated Number of Persons Living with HIV in 2013[3]	Estimated HIV Prevalence	Estimated % of Adult/Adolescent PLWH in LAC N=47,628
Homeless[4,5]	120,070	3,900	3.25%	8.19%
Incarcerated/Post-incarcerated[6]	-	-	-	-
History of Incarceration	-	5,195	-	10.91%
Incarceration in a given year	108,698	1,173	1.08%	2.46%
Undocumented[7]	762,000	-	-	-
Mentally ill[8]	1,171,959	8,097	0.69%	17.00%
Severely Mentally Ill	241,286	1,667	0.69%	3.50%
Sex Workers/Exchange Sex[9]	-	-	-	-
Persons with Sensory Impairments[10,11]	179,402	-	-	-
Partially Sighted/Blind	94,495	-	-	-
Hearing Impaired/Deaf	84,907	-	-	-
Asian/Pacific Islanders	977,500	1,604	0.16%	3.37%
Aging Persons (>=50 years)	3,005,245	19,779	0.66%	41.53%

[1] Categories are not mutually exclusive.
[2] Data Source: 2013 Department of Finance data used to estimate the size of the populations (among persons who are 15-64 years of age). Accessed at http://www.dof.ca.gov/research/demographic/DRU/.
[3] Data Source: 2013 HIV Surveillance data as of 03/31/2015. Estimates do not include unaware.
[4] Data Source: 2011 Greater Los Angeles Homeless Count Report to estimate size of homeless population. Accessed at: http://documents.lahsa.org/planning/homelesscount/2011/HC11-detailed-geography-report.PDF.
[5] Data Sources: Medical Monitoring Project 2009-2011 and 2012 HIV Surveillance data (reported as of 12/31/2014) to estimate HIV prevalence.
[6] Data Source: Personal communication with Garrett Cox, LAC Jail Data 2013, LAC Sheriff's Department.
[7] Data Source: Los Angeles Almanac 2010 Accessed at: http://laalmanac.com/immigration/im04a.htm on 6/19/15.
[8] Data Source: SAMHSA - Center for Behavioral Health Statistics and Quality. National Survey on Drug Use and Health, 2010, 2011, and 2012 (2010 Data - Revised March 2012 and October 2013, 2011 Data - Revised October 2013). Table 5.10 - Serious Mental Illness in the Past Year and Any Mental Illness in the Past Year in California among Persons Aged 18 or Older, by Substate Region: Percentages, Annual Averages Based on 2010, 2011, and 2012 NSDUHs - Region 11 (Los Angeles). Available from: http://www.samhsa.gov/data/sites/default/files/substate2k12-StateTabs/NSDUHsubstateStateTabsCA2012.htm.
[9] Not enough data was available to estimate population size or number of HIV infections.
[10] Data Source: US Census Bureau, 2013 American Community Survey Accessed at: http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_13_1YR_S1810&prodType=table.
[11] No data were available to calculate HIV prevalence estimates.

2. Incarcerated/Post-incarcerated Persons

It is estimated that approximately 11% of persons living with HIV have some history of incarceration. Based on the number of unduplicated inmates in the LAC jail system and the

number of HIV positive inmates in 2013, we estimate HIV prevalence among incarcerated individuals in LAC to be 1.1%. This value is likely to be an underestimate given that not everyone entering the jail system discloses their HIV-positive status or completes HIV testing while incarcerated. Individuals housed in the K6G unit, which houses gay, bisexual and transgender inmates, have regular access to HIV testing. However, HIV testing is not available to the general population unless requested through medical services.

Among persons receiving RW-funded services, persons who share injection paraphernalia (38%) and Black/AA MSM (20%) reported the highest percentages of incarceration in the past 2 years compared with 13% overall (see Table 5.2). Data collected through DHSP surveillance projects found high levels of incarceration among injection drug users (IDU - 37%) and transgender women (22% - see Table 5.6). HIV-positive individuals surveyed through MMP and LACHNA reported 11-12% incarceration in the past 12 months. Among self-reported HIV positives with a recent history of incarceration, 88%-92% had either a current ART prescription in their medical record or reported that they were currently on ART (see LACHNA and MMP data in Table 5.6). Among transgender women with a recent history of incarceration, 5 out of 6 (83%) who self-reported as HIV positive reported being currently on ART (see THBS data in Table 5.6).

3. Undocumented Persons

Unfortunately, not enough information was available to calculate HIV prevalence estimates for this population. According to data collected from LACHNA, 15% of HIV-infected individuals surveyed identified their residency status as undocumented. Of those, 89% reported taking ART in the past 12 months and 78% were virally suppressed. Condomless sex in the past 6 months was reported by 11%.

4. Mentally Ill Persons

It is estimated that approximately 17% of the total reported HIV infections in LAC, also suffer from some form of mental illness. An estimated 3.5% of reported HIV infections suffer from severe mental illness. HIV prevalence among those who suffer from mental illness in LAC is estimated to be approximately 0.7%. Unfortunately, data are limited on individuals who are both HIV-infected and who suffer from some form of mental illness. According to data collected through LACHNA, 38% of HIV-infected individuals surveyed reported having a current diagnosis of depression, anxiety disorder, schizophrenia or a bipolar disorder. Eighty-seven percent reported taking antiretroviral medications in the past 12 months and 70% were virally suppressed.

Approximately 8% of HIV-infected individuals surveyed through MMP reported having major depression which was defined as having at least 5 symptoms of depression. Medical records identified 87% as having a current prescription for ART and viral suppression was 63%.

5. Sex Workers/ Exchange Sex

While we are not able to estimate the size or HIV prevalence of this population, limited data on sex workers and exchange sex are available through 2 DHSP surveillance projects, namely NHBS (IDU 2012, HET 2013, MSM 2014) and THBS (2009). Exchange sex is defined by NHBS and THBS

as exchanging sex for money or drugs in the past 12 months. Reports of exchange sex were highest among transgender women (41%) surveyed through THBS and among injection drug users (20%) surveyed through NHBS. HIV prevalence ranged from 13% among injection drug users to 24% among transgender women. For those who self-reported their HIV status, 88% of IDU and all MSM and transgender women reported current ART use.

6. Persons with Sensory Impairment

Not enough information was available to calculate HIV prevalence estimates for persons with sensory impairment in LAC. Among participants surveyed through LACHNA, 3% reported having a sensory impairment but no additional data was found on this population.

7. Asian/Pacific Islanders

Asian/Pacific Islanders (A/PI) represent a small yet growing population in LAC. Approximately 14% of persons 15-64 years of age living in LAC identify as A/PI. Three percent of the total number of reported HIV infections in LAC are among A/PI and HIV prevalence is estimated at 0.16%. In 2013, A/PI represented 4% of the new diagnoses. While A/PI are a growing population, they are often underrepresented in the data, specifically HIV data. Among 21 HIV-infected A/PI surveyed through the MMP, 17 had been prescribed ART and 15 were virally suppressed. Of the 525 MSM surveyed through NHBS and 450 HIV-infected persons surveyed through LACHNA, 4% and 3% identified as A/PI, respectively. Among NHBS participants, condomless sex was reported by 45% of the A/PI surveyed and less than 5 were HIV infected.

8. Aging Persons (50 years and older)

Persons 50 years and older represent a substantial proportion of PLWH (42%) yet represent a small proportion of the new diagnoses (14%). This is also reflected in the rate of estimated new HIV infections which shows a reduction with age (see Section III, Table 3.3). Overall, the estimated HIV prevalence for this population is relatively low at 0.7%

Thirty-eight percent of the individuals surveyed through MMP were 50 years and older (see Table 5.6). Of those surveyed, 94% had been prescribed ART and 70% were virally suppressed. In this same MMP sample of HIV-infected individuals, reports of condomless sex were low (25%) compared to other populations. Across the subpopulations of persons 50 years and older, surveyed over various cycles of NHBS, condomless sex was lowest among MSM (52%) followed by transgender women (57%), injection drug users (63%) and heterosexuals (87%).

Table 5.6 Populations of Interest: DHSP Surveillance Projects and Needs Assessment Data

Population/ Characteristics	NHBS MSM 2014 N=525	NHBS IDU 2012 N=529	NHBS HET 2013 N=534	THBS 2009 N=102	MMP 2009-2011 N=692	LACHNA 2010-2011 N=450
	n (%)	**n (%)**	**n (%)**	**n (%)**	**n (%)**	**n (%)**
Homeless[1]	**38 (7)**	**339 (64)**	**139 (26)**	**49 (49)**	**76 (11)**	**54 (12)**
Condomless Sex[2]	27 (71)	245 (72)	129 (93)	32 (65)	28 (41)	5 (9)
HIV-infected	12 (32)	21 (6)	0 (-)	14 (29)	76 (100)	54 (100)
ART[3]	10 (91)	7 (54)	0 (-)	11 (79)	69 (91)	44 (82)
Virally-suppressed[4]	-	-	-	-	49 (62)	31 (63)
Post/ Incarcerated[5]	**18 (3)**	**195 (37)**	**72 (13)**	**22 (22)**	**27 (4)**	**41 (9)**
Condomless Sex[2]	13 (72)	142 (73)	67 (93)	18 (82)	-	11 (27)
HIV-infected	<5 (-)	7 (4)	0 (-)	6 (27)	27 (100)	41 (100)
ART[3]	<5 (-)	<5 (-)	0 (-)	5 (83)	25 (92)	36 (88)
Virally-suppressed[4]	-	-	-	-	13 (45)	19 (58)
Undocumented	**-**	**-**	**-**	**-**	**-**	**66 (15)**
Condomless Sex[2]	-	-	-	-	-	7 (11)
HIV-infected	-	-	-	-	-	66 (100)
ART[3]	-	-	-	-	-	59 (89)
Virally-suppressed[4]	-	-	-	-	-	43 (78)
Mentally Ill[6]	**-**	**-**	**-**	**-**	**57 (8)**	**173 (38)**
Condomless Sex[2]	-	-	-	-	16 (30)	26 (15)
HIV-infected	-	-	-	-	57 (100)	173 (100)
ART[3]	-	-	-	-	49 (87)	151 (87)
Virally-suppressed[4]	-	-	-	-	36 (63)	104 (70)
Sex Workers/ Exchange Sex[7]	**41 (8)**	**104 (20)**	**64 (12)**	**41 (41)**	**-**	**6 (1)**
Condomless Sex[2]	28 (68)	76 (73)	61 (95)	32 (78)	-	5 (83)
HIV-infected	8 (20)	13 (13)	0 (-)	10 (24)	-	6 (100)
ART[3]	7 (100)	7 (88)	0 (-)	10 (100)	-	5 (83)
Virally-suppressed[4]	-	-	-		-	<5 (-)

[1]Homeless: **NHBS:** living on the street, in a shelter, Single Room Occupancy hotel (SRO), or car in the past 12-months. **THBS:** living on the street, in a shelter, a SRO, temporarily staying with friends or relatives, or living in a car in the past 12-months. **MMP**: having lived on the street, in a shelter, SRO hotel or car at any time during the 12-months before the interview. **LACHNA:** (current living situation) living in a car, abandoned or vacant building, outside (ex: streets/park/beach/underpass).

[2]Condomless Sex: **NHBS:** Condomless sex in the past 12 months. **THBS:** Any condomless sex in the past 12 months. **MMP:** Respondent engaged in any condomless sex in the past 12 months. **LACHNA:** Reported condomless sex in past six months.

[3]Antiretroviral Therapy (ART): **NHBS/THBS:** Currently on ART medications (among self-reported HIV positive individuals). **MMP:** Current prescription for ART medication in medical record. **LACHNA:** Currently (past 12 months) taking ART medications.

[4]Virally-suppressed: **NHBS/THBS:** Data not available. **MMP:** HIV viral load undetectable or ≤200 copies/ml at the most recent viral load in the medical record in the 12 months before the interview. **LACHNA (Casewatch data):** HIV viral load undetectable or ≤200 copies/ml at the most recent viral load.

[5]Incarcerated/Post-Incarcerated: **NHBS:** Held in a detention center, jail, or prison, for more than 24 hours in the past 12months. **THBS:** Arrested by the police and booked in the past 12 months. **MMP:** Arrested and put in jail, detention or prison at some point in the 12 months before their interview. **LACHNA:** In jail or prison in the past 12 months.

[6]Mentally Ill: **MMP:** Major depression defined as having at least 5 symptoms of depression. Based on Patient Health Questionnaire (PHQ-8) and Diagnostic and Statistical Manual of Mental Disorders, 4th ed. (DSM-IV-TR) **LACHNA:** Reported current (active/relevant in the past 12 months) diagnosis of depression, anxiety disorder, schizophrenia or a bipolar disorder.

[7]Sex Workers/Sex Exchange: **NHBS/ THBS:** Sex in exchange for money, drugs, food, shelter, transportation, or other items in the past 12 months. **MMP:** Data too unstable to present. **LACHNA:** Reported exchanging sex for food, money, drugs, shelter or transportation in the past 6 months.

Table 5.6 Populations of Interest: DHSP Surveillance Projects and Needs Assessment Data (cont'd)

Population/ Characteristics	NHBS MSM 2014 N=525	NHBS IDU 2012 N=529	NHBS HET 2013 N=534	THBS 2009 N=102	MMP 2009-2011 N=692	LACHNA 2010-2011 N=450
Asian/Pacific Islanders	**22 (4)**	**6 (1)**	**<5 (-)**	**-**	**21 (3)**	**14 (3)**
Condomless Sex[1]	10 (45)	6 (100)	-	-	-	-
HIV-infected	<5 (-)	0 (-)	-	-	21 (100)	-
ART[2]	<5 (-)	0 (-)	-	-	18 (84)	-
Virally-suppressed[3]	-	-	-	-	15 (70)	-
Aging Persons (≥50 years)	**48 (9)**	**247 (47)**	**85 (16)**	**14 (14)**	**257 (38)**	**135 (30)**
Condomless Sex[1]	25 (52)	155 (63)	74 (87)	8 (57)	64 (25)	11 (8)
HIV-infected	14 (29)	12 (5)	<5 (-)	5 (36)	257 (100)	135 (100)
ART[2]	9 (90)	6 (75)	-	5 (100)	242 (95)	130 (96)
Virally-suppressed[3]	-	-	-	-	201 (80)	100 (74)[4]

[1]Condomless Sex: **NHBS:** Condomless sex in the past 12 months. **THBS:** Any condomless sex in the past 12 months. **MMP:** Respondent engaged in any condomless sex in the past 12 months. **LACHNA:** Reported condomless sex in past six months.

[2]Antiretroviral Therapy (ART): **NHBS/THBS:** Currently on ART medications (among self-reported HIV positive individuals). **MMP:** Current prescription for ART medication in medical record. **LACHNA:** Currently (past 12 months) taking ART medications.

[3]Virally-suppressed: **NHBS/THBS:** Data not available. **MMP:** HIV viral load undetectable or ≤200 copies/ml at the most recent viral load in the medical record in the 12 months before the interview. **LACHNA (Casewatch data):** HIV viral load undetectable or ≤200 copies/ml at the most recent viral load.

[4]Missing=10.

References

1. Division of HIV and STD Programs - Los Angeles County Department of Public Health; the Los Angeles County Commission on HIV; and the Los Angeles County HIV Prevention Planning Committee, *Los Angeles County Five-Year Comprehensive HIV Plan (2013-2017).* March 2013:1-165.
2. CDC. *HIV in the United States: At a Glance*. November 2013; Available from: http://www.cdc.gov/hiv/pdf/statistics_basics_factsheet.pdf.
3. Division of HIV and STD Programs - Los Angeles County Department of Public Health, *enhanced HIV/AIDS Reporting System* Diagnosed through 2012; data as of 12/31/2013.
4. Wohl AR, G., W.G., Cheng, S., Lash, B., Johnson, D.F., Frye, D., *Low Risk Sexual and Drug-Using Behaviors among Latina Women with AIDS in Los Angeles County. Journal of Immigrant and Minority Health*, 2010. **12**(6): p. 882-93.
5. Yingbo Ma. Los Angeles County Department of Public Health - Division of HIV and STD Programs., *National HIV Behavioral Surveillance among Heterosexuals. Straight 2 LA Survey. Preliminary Results*. 2013.
6. CDC. *Fast Facts: HIV and young men who have sex with men*. July 2014; Available from: http://www.cdc.gov/healthyyouth/sexualbehaviors/pdf/hiv_factsheet_ymsm.pdf.
7. Los Angeles County Department of Public Health - Division of HIV and STD Programs. *Los Angeles County Transgender Population Estimates 2012*. Available from: http://publichealth.lacounty.gov/wwwfiles/ph/hae/hiv/Transgender%20Population%20Estimates%202-12-13%20pub.pdf.

Section VI: CO-MORBID COMMUNICABLE DISEASES

A. Tuberculosis

Tuberculosis (TB) is caused by a bacterium called *Mycobacterium tuberculosis* and is one of the conditions that the Centers for Disease Control and Prevention (CDC) uses to define a stage 3 (AIDS) diagnosis among people living with HIV (PLWH) [1]. While approximately 10% of individuals infected with *M. tuberculosis* will develop active TB in their lifetime [2], those co-infected with HIV are 26 to 31 times more likely to develop active TB disease than individuals without HIV [3]. TB also has detrimental effects on the progression of HIV disease. The risk of death in an HIV-infected person with TB is twice that of an HIV-infected person without TB, even among those with similar CD4 cell counts [4]. According to CDC, TB is the leading killer of HIV-infected persons worldwide [5].

Statistics from the Los Angeles County (LAC) Department of Public Health (DPH) Tuberculosis Control Program show a decrease in the number of annual TB cases from 702 in 2009 to 662 in 2013. In LAC in 2013, the TB incidence rate was 7.0 per 100,000, which was more than double the U.S. incidence rate (3.0 per 100,000). TB is not evenly distributed by race/ethnicity and in LAC in 2013 the TB incidence rates (per 100,000) were highest among Asians/Pacific Islanders (A/PI; 20.1), followed by Blacks/African Americans (Black/AA; 7.7), Latinos (6.4) and Whites (1.4) [6].

HIV Co-Infection in the Tuberculosis Control Database

In LAC from 2009-2013, 5.4% (n=147) of confirmed TB cases tested positive for HIV. Over this time period, the highest percentages of all HIV/TB co-infections were found among males (86%) and individuals who were either Latino (65%) or Black/AA (22%). Adults aged 15-54 years accounted for 83% of HIV/TB co-infections reported between 2009 and 2013 [7].

Table 6.1: Number and Percent of HIV/TB Co-Infections among Confirmed Tuberculosis Cases, by Demographic Variables, LAC, 2009-2013

		Confirmed TB Cases: 2009 - 2013[1]		HIV+ Confirmed TB Cases: 2009-2013[1]	
		N	%	N	%
SEX	Male	1,615	60.2	126	85.7
	Female	1,067	39.8	21	14.3
RACE/ETHNICITY	Latino	1,226	45.7	96	65.3
	A/PI	1,052	39.2	10	6.8
	Black/AA	228	8.5	32	21.8
	White	174	6.5	9	6.1
	Other/Unknown	2	0.1	0	0.0
AGE GROUP	0-4	67	2.5	0	0.0
	5-14	42	1.6	0	0.0
	15-34	571	21.3	37	25.2
	35-44	364	13.6	42	28.6
	45-54	453	16.9	43	29.3
	55-64	557	16.7	18	12.2
	65+	738	27.5	7	4.8
	Total	**2,682**	**100.0**	**147**	**100.0**

[1]Numbers and percentages may not sum to 100% due to missing, rounding, and data suppression.
[2]Asian/Pacific Islander (A/PI); Black/African American (Black/AA).

TB Co-Infection in the HIV/AIDS Reporting System (eHARS)

Table 6.2, presented below, shows the number and percent of TB co-infection among PLWH in LAC as of December 31, 2014. Unadjusted odds ratios are also presented for purposes of comparison across subgroups. Approximately 2.3% of PLWH at year-end 2014 were co-infected with TB. Transgender PLWH had the highest prevalence of TB (4.4%), compared to females (2.7%) and males (2.2%). White PLWH had the lowest prevalence of TB co-infection (0.7%), followed by Other/Multi/Unknown race (1.7%), Black/AA (2.2%), A/PI (3.0%), and Latino (3.6%). The odds of TB co-infection among foreign born PLWH was 3.6 times higher than US born PLWH. Injection drug users (IDUs) had an odds of TB co-infection that was 2.8 times greater than MSM.

Table 6.2. Number, Percent, and Unadjusted Odds Ratios of TB Co-Infection among People Living with HIV (PLWH) as of December 31, 2014[1], by Demographic Characteristics, LAC

		PLWH	PLWH with TB		Odds Ratio
		N	*N*	*%*	*OR (95%CI)*
GENDER	Male	42,792	944	2.2	Reference
	Female	5,501	148	2.7	1.2 (1.0-1.5)
	Transgender	615	27	4.4	2.0 (1.4-3.0)
RACE/ETHNICITY[2]	Latino	20,454	731	3.6	5.7 (4.6-7.0)
	White	15,891	103	0.7	Reference
	Black/AA	9,875	219	2.2	3.5 (2.7-4.4)
	A/PI	1,687	50	3.0	4.7 (3.3-6.6)
	AI/AN	239	<5	---	---
	Other/Multi/Unknown	762	13	1.7	2.7 (1.5-4.8)
AGE IN YEARS[3]	<13	34	<5	---	---
	13-19	140	<5	---	---
	20-29	3,954	8	0.2	Reference
	30-39	8,671	80	0.9	4.6 (2.2-9.5)
	40-49	14,307	342	2.4	12.1 (6.0-24.4)
	50-59	15,062	435	2.9	14.7 (7.4-29.5)
	60+	6,740	249	3.7	18.9 (9.3-38.3)
TRANSMISSION CATEGORY[4]	MSM	38,008	714	1.9	Reference
	Heterosexual Contact	5,071	153	3.0	1.6 (1.4-1.9)
	MSM/IDU	2,935	109	3.7	2.0 (1.6-2.5)
	IDU	2,470	127	5.1	2.8 (2.3-3.4)
	Transfusion	85	5	5.9	3.3 (1.3-8.1)
	Hemophilia	48	<5	---	1.1 (0.2-8.1)
	Other/Undetermined	289	8	2.8	1.5 (0.7-3.0)
BIRTH PLACE	US Born	25,066	354	1.4	Reference
	Foreign Born	13,965	684	4.9	3.6 (3.2-4.1)
	Unknown	9,877	81	0.8	0.6 (0.5-0.7)
	Total	**48,908**	**1,119**	**2.3**	

[1]People living with HIV (PLWH) includes individuals diagnosed with HIV who were living as of December 31, 2014.
[2] Black/African American (Black/AA), Asian/Pacific Islander (A/PI), American Indian/Alaska Native (AI/AN).
[3] Based on current age as of December 31, 2014.
[4] Multiple imputation used to adjust for missing data (see technical notes).

B. Sexually Transmitted Diseases

Many Sexually transmitted diseases (STDs) including syphilis, herpes, gonorrhea, chlamydia, and trichomoniasis have been shown to facilitate the transmission of HIV. These STDs can impair the body's first defenses against infection either by causing ulcers on the skin or decreasing protective integrity of mucosal barrier secretions [8]. STDs can also increase HIV viral shedding, leading to increased amounts of virus present in the secretions of an HIV-infected sexual partner. The presence of a STD is thought to increase the odds of HIV transmission 3 to 5 fold [9]. STDs reportable to the LAC DPH Division of HIV and STD Programs (DHSP) include chlamydia, gonorrhea, and syphilis.

Chlamydia

After decreasing from 48,507 (522 per 100,000) in 2012 to 48,096 (511 per 100,000) in 2013, the number of chlamydia cases reported in LAC rose to 52,098 (551 per 100,000) in 2014. In 2013, the most recent year for which national data is available [10], the rate of chlamydia in LAC was 16% higher than the rate in California (440 per 100,000) and 15% higher than the rate in the United States (444 per 100,000). As shown in Table 6.3, the groups most heavily impacted by chlamydia in LAC in 2014 were females (674 per 100,000), individuals aged 15-34 years of age, and Black/AA (1,174 per 100,000). Compared to gonorrhea and early syphilis, chlamydia morbidity is more evenly distributed by geography throughout LAC.

Gonorrhea

A total of 14,555 cases of gonorrhea were reported in LAC in 2014. The number of reported cases has risen in each of the past 4 years, which has resulted in a 51% increase from 2010 to 2014. The overall rate of gonorrhea in LAC in 2014 was 154 per 100,000. In 2013, the most recent year for which national data is available [10], the rate of gonorrhea in LAC (133 per 100,000) was 33% higher than the rate in California (100 per 100,000) and 25% higher than the rate in the United States (106 per 100,000). As shown in Table 6.3, the groups most heavily impacted by gonorrhea in LAC in 2014 were males (221 per 100,000), individuals aged 15-34 years of age and Black/AA (568 per 100,000). The geographic regions with the highest gonorrhea rates in LAC in 2014 were the Metro (363 per 100,000) and South (305 per 100,000) service planning areas (SPAs).

Syphilis

A total of 3,841 cases of syphilis were reported in LAC in 2014. Twenty-nine percent (n=1,097; 12 per 100,000) of these cases were staged as primary or secondary (P&S), 35% (n=1,365; 14 per 100,000) as Early Latent (EL) and 36% (n=1,379; 15 per 100,000) as Late Latent or Late (LL/L). Syphilis has been increasing in both males and females and, since 2010, the total number of P&S, EL and LL/L cases reported in LAC has risen by 74%, 50% and 31%, respectively. There has also been an increase in congenital syphilis which has risen from 7 cases in 2010 to 31 cases in 2014. In 2013, the most recent year for which national data is available [10], the rate of P&S syphilis in LAC (10.8 per 100,000) was 16% higher than the rate in California (9.3 per 100,000) and 96% higher than the rate in the United States (5.5 per 100,000).

Table 6.3: Number, Percent and Rates (per 100,000) of Persons Reported with Chlamydia, Gonorrhea and Early Syphilis by Selected Characteristics, LAC, 2014[1,2]

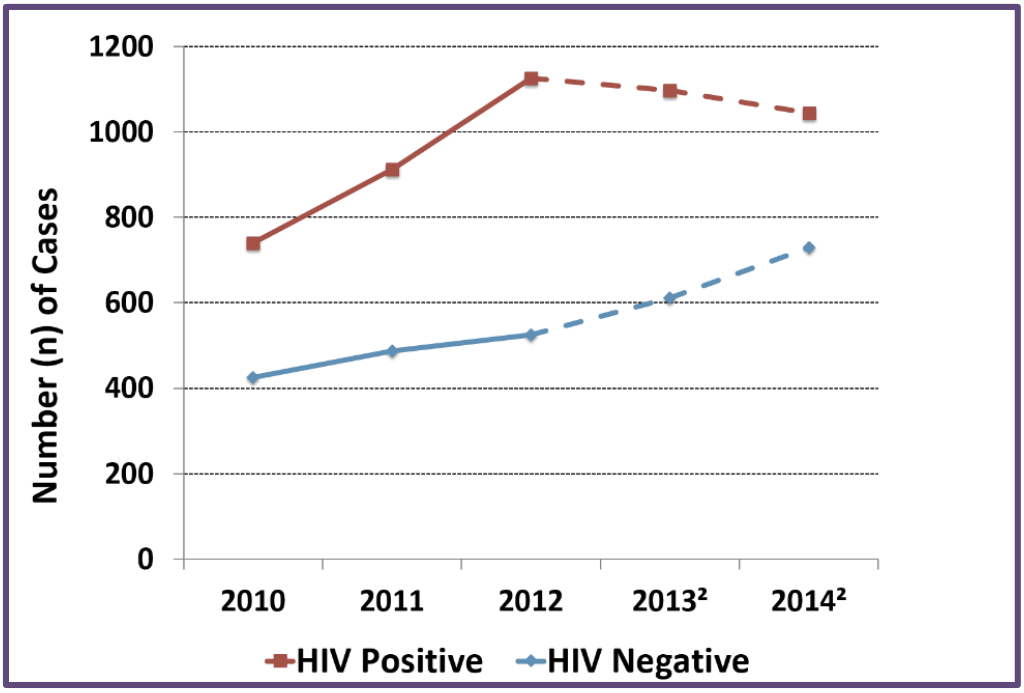
		Chlamydia			*Gonorrhea*			*Early Syphilis*		
		N	**%**	**Rate**	**N**	**%**	**Rate**	**N**	**%**	**Rate**
GENDER	Male	19,690	38	422	10,315	71	221	2,218	92	9
	Female	32,289	62	674	4,187	29	87	154	6	3
	Transgender	41	<1	-	39	<1	-	39	2	-
RACE/ETHNICITY[2]	Black/AA	9,229	18	1,174	4,461	31	568	496	20	63
	Latino	23,423	45	508	5,220	36	113	1,149	47	25
	White	6,705	13	252	3,276	23	123	648	26	24
	Asian	2,001	4	147	444	3	33	95	4	7
	Pacific Islander	*137*	*<1*	-	*719*	*33*	*<1*	*173*	*9*	*<1*
	AI/AN	98	<1	719	36	<1	195	5	<1	27
	Other/Multi	787	2	–	214	1	-	15	1	-
AGE GROUP (YEARS)	0-14	238	<1	13	45	<1	2	<5	-	-
	15-19	9,656	19	1,435	1,697	12	252	75	3	11
	20-24	18,647	36	2,529	3,822	26	518	324	13	44
	25-29	10,850	21	1,526	3,254	22	458	421	17	59
	30-34	5,552	11	794	2,160	15	309	392	16	56
	35-39	2,967	6	456	1,262	9	194	313	13	48
	40-44	1,716	3	255	793	5	118	282	11	42
	45-54	1,856	4	143	1,177	8	91	491	20	38
	55-64	486	1	46	288	2	27	146	6	14
	65+	92	<1	8	43	<1	4	16	1	1
SERVICE PLANNING AREA (SPA)	Antelope Valley [1]	2,423	5	617	510	4	130	45	2	11
	San Fernando [2]	8,260	16	377	1,885	13	86	393	16	18
	San Gabriel [3]	6,458	12	394	1,192	8	73	191	8	12
	Metro [4]	8,961	17	779	4,175	29	363	938	38	82
	West [5]	2,482	5	381	758	5	116	130	5	20
	South [6]	10,261	20	993	3,154	22	305	352	14	34
	East [7]	6,952	13	530	1,215	8	93	216	9	16
	South Bay [8]	5,391	10	498	1,373	9	127	160	6	15
	LAC Total	**52,098**	**100**	**551**	**14,555**	**100**	**154**	**2,462**	**100**	**26**

[1]Data excludes cases in Long Beach and Pasadena; 2014 data is provisional due to reporting delay.
[2]Numbers and percentages may not sum to column total due to missing; American Indian/Alaska Native (AI/AN).

Early Syphilis (ES), which represents infections that are most infectious and occurred within the past year, is comprised of cases staged as primary, secondary, and early latent. As shown in Table 6.3, the groups most heavily impacted by ES in LAC in 2014 were males (49 per 100,000), Black/AA (63 per 100,000) and individuals living in the Metro SPA (82 per 100,000). Compared to chlamydia and gonorrhea, ES morbidity is more evenly distributed across age groups.

Among males, after excluding cases with missing data on gender of sex partners, 83% of ES cases in 2014 occurred among men who have sex with men (MSM). While HIV reporting among these cases is incomplete, based on self-report and available laboratory data, it is estimated that 59% of MSM with ES in 2014 were co-infected with HIV. Although the number of ES cases among MSM who are co-infected with HIV has decreased from 1,126 cases in 2012 to 1,044 cases in 2014, the number of MSM with ES who are not co-infected with HIV has increased from 529 to 729 over that same time period (Figure 6.1).

Figure 6.1: Number of Cases of Early Syphilis[1] among Men Who Have Sex with Men (MSM)[2] by HIV Status[3], LAC, 2010-2014[4]



[1]Early syphilis (ES) includes cases stages as primary, secondary, and early latent.
[2]Sexual orientation is based on self-report
[3]HIV positive status includes cases that were either self-reported and/or laboratory confirmed
[4]Data excludes cases in Long Beach and Pasadena; data are provisional due to reporting delay (2013-2014)

C. Hepatitis C Virus

Hepatitis C virus (HCV) is one of the most common blood-borne infections in the United States. There were an estimated 29,718 new acute cases in 2013, and an estimated 2.7 million Americans are chronically infected [11]. In LAC, 8,900 cases of chronic Hepatitis C were reported in 2011 [12]. Based on the 2010-2015 County of Los Angeles Adult Viral Hepatitis

Prevention Plan, there were an estimated 134,000 people who were chronically infected with HCV in LAC with an overall prevalence of 1.3% in 2008 [13].

HCV is predominantly transmitted through contact with contaminated blood and blood products. Persons at increased risk for contracting HCV include injection drug users, healthcare workers via needle-stick injury, recipients of clotting factors before 1987, recipients of a blood transfusion or solid organ prior to 1992, hemodialysis patients, HIV-infected persons, and infants born to HCV-positive mothers [11].

One-third of all people with HIV in the U.S. are also infected with hepatitis C virus (HCV) [13]. Over half (50-90%) of HIV-positive injection drug users are co-infected with HCV [14]. HCV infection progresses more rapidly to liver damage in HIV-infected persons compared to HIV-negative persons. Additionally, co-infection with HCV may have deleterious effects on the course and management of HIV infections.

References

1. CDC. Revised Surveillance Case Definition for HIV Infection – United States, 2014. MMWR 2014;63:1-10.
2. Raviglione, M. (2004). Tuberculosis. In D. Heymann (Ed.), Control of Communicable Diseases Manual 18th Edition (pp.560-572). Baltimore MD: United Book Press, Inc.
3. WHO (2015, March). Media Centre: Tuberculosis. Retrieved from http://www.who.int/mediacentre/factsheets/fs104/en/. Accessed 8/3/2015.
9. 4.Whalen C, Horsburgh CR, Hom D, Lahart C, Simberkoff M, Ellner J., *Accelerated course of human immunodeficiency virus infection after tuberculosis*. Am J Respir Crit Care Med 1995;151:129-35.
4. CDC (2014, April). Tuberculosis: Data and Statistics. Retrieved from http://www.cdc.gov/tb/statistics/. Accessed 8/3/2015.
5. TB Fact Sheet 2013, Tuberculosis in Los Angeles County: A Snapshot. Los Angeles County Department of Public Health Tuberculosis Control Program, Los Angeles, CA. Revised January 2015.
6. Los Angeles County Department of Public Health Tuberculosis Control Program (2015). Data request for the number and percent of HIV/TB co-infections among confirmed tuberculosis cases, by demographic variables, 2009-2013. Unpublished raw data.
7. Rottingen, J.-A., M.D., PhD., William Cameron, D. M.D., Garnett, Geoffrey P. PhD., *A Systematic Review of the Epidemiologic Interactions Between Classic Sexually Transmitted Diseases and HIV: How Much Really Is Known?* Sexually Transmitted Disease, 2001. **28**(10): p. 579-597.
8. Wasserheit, J., *Epidemiological synergy. Interrelationships between human immunodeficiency virus infection and other sexually transmitted diseases.* Sexually Transmitted Disease, 1999. 19(2): p. 61-77.
9. CDC (2014, December). Sexually Transmitted Disease Surveillance 2013. http://www.cdc.gov/std/stats13/. Accessed 6/11/2015.
10. CDC (2015, May). *Hepatitis C FAQs for the Public*. Retrieved from http://www.cdc.gov/hepatitis/hcv/cfaq.htm. Accessed 6/11/2015.
11. CA Department of Public Health (2015, May). Local Health Jurisdiction Specific Data Tables: Chronic Hepatitis C, Los Angeles, 2011. Retrieved from https://www.cdph.ca.gov/programs/Pages/viralhepatitisdata.aspx. Accessed 8/3/2015.
12. Los Angeles Adult Viral Hepatitis Coalition and Los Angeles County Department of Public Health (2015, September). County of Los Angeles Adult Viral Hepatitis Prevention Plan 2010-2015. Retrieved from http://naccho.org/toolbox/_toolbox/County_of_LA_Adult_Viral_Hepatitis_Prevention_Plan_2010_-_2015_1.pdf
13. CDC (2015, May). *HIV/AIDS and Viral Hepatitis.* Retrieved from http://www.cdc.gov/hepatitis/Populations/hiv.htm. Accessed 6/11/2015.

VII: CARE SERVICES UTILIZATION

Introduction

Regular clinical care is important for both the effective management of HIV in individuals and in controlling the epidemic [1, 2]. Antiretroviral therapy (ART) use successfully reduces HIV transmission, disease progression, and mortality [3-6]. Additionally, studies indicate that preventative health screening, treatment of comorbidities (e.g. sexually transmitted infections and opportunistic infections) and immunizations in HIV–infected patients can address: severity and duration of influenza among HIV–infected persons [7], higher rates of cervical cancer in women infected with HIV compared to women in the general population [8], risk of opportunistic infections [8], and increased transmission risk of HIV associated with other sexually transmitted diseases (STDs) [9].

Efforts to curb the HIV epidemic have increasingly focused on the "test and treat" and "HIV treatment as prevention" strategies (HIV prevention methods focusing on universal testing and ART use for all HIV-infected individuals to decrease HIV transmission risk by reducing the viral load in the individual's bodily fluids to very low levels) [10, 11]. The Centers for Disease Control and Prevention (CDC) estimates that being retained in medical care reduces the HIV transmission rate by 51.8%. Furthermore, patients who are prescribed ART, and those on ART and virally suppressed, are 72.8% and 94.0%, respectively, less likely to transmit HIV compared to HIV–infected persons who are undiagnosed [12]. Additionally, prevention counseling in the medical care setting can encourage patients to decrease the risk of transmitting HIV to others through sexual and substance use behavior modification [13-15].

Annual recommended clinical care for persons living with HIV (PLWH), as recommended by national and federal agencies [1, 8, 15-18], includes receipt of:

- At least one CD4 test (more frequently for patients within 2 years of initiation of ART, unsuppressed viral load, or CD4 count less than 300/mL)
- Viral load (VL) tests at least every 6 months (more frequently for patients with suboptimal clinical outcomes)
- Gonorrhea, chlamydia and syphilis screening among sexually active persons
- Cervical cancer screening among women
- Influenza immunizations among all patients
- Pneumocystis pneumonia (PCP) prophylactic therapy among persons with CD4 count less than 200 mL
- ART prescription by all patients
- HIV prevention counseling by all patients

For individual and public health reasons, improving each step in the HIV care continuum has become a priority for controlling the epidemic in the United States (U.S.). [1, 2, 19] However, in order to support the ability of PLWH to access and receive quality care, it is critical to address the barriers that impact access to services, including everyday challenges that many

PLWH face, such as financial difficulties, transportation, food/meals, housing issues, mental health services, substance use, and homelessness [1].

Released in July 2010, the National HIV/AIDS Strategy (NHAS) is the nation's comprehensive plan for policymakers to coordinate efforts in addressing the HIV epidemic [1]. Its goals are to: 1) reduce the number of people who become infected with HIV; 2) increase access to care and improve health outcomes for people living with HIV; 3) reduce HIV-related health disparities, and 4) achieve a more coordinated national response to the HIV epidemic.
The indicators to assess progress towards these goals by 2015 (and revised/new indicators for 2020) are presented in Table 7.1 [1, 20]. Data in this *Epidemiologic Profile* can be used to assess LAC's progress to meeting some of these objectives.

Table 7.1. National HIV/AIDS Strategy Performance Indicators

1) *Reduce the number of people who become infected with HIV*	
By 2015:	**By 2020:**
• Increase from 79 percent to 90 percent the percentage of people living with HIV who know their serostatus	• Increase the percentage of people living with HIV who know their serostatus to at least 90 percent
• Lower the annual number of new infections by 25 percent	• Reduce the number of new diagnoses by at least 25 percent
	• Reduce the percentage of young gay and bisexual men who have engaged in HIV-risk behaviors by at least 10 percent (New indicator added for 2020)
• Reduce the HIV transmission rate, which is a measure of annual transmissions in relation to the number of people living with HIV, by 30 percent	(No longer an indicator for 2020)
2) *Increase access to care and improve health outcomes*	
By 2015:	**By 2020:**
• Increase the proportion of newly diagnosed patients linked to clinical care within three months of their HIV diagnosis to 85 percent	• Increase the percentage of newly diagnosed persons linked to HIV medical care within one month of their HIV diagnosis to at least 85 percent
• Increase the proportion of Ryan White HIV/AIDS Program clients who are in continuous care (at least 2 visits for routine HIV medical care in 12 months at least 3 months apart) from 73 percent to 80 percent	• Increase the percentage of persons with diagnosed HIV infection who are retained in HIV medical care to at least 90 percent
	• Increase the percentage of persons with diagnosed HIV infection who are virally suppressed to at least 80 percent (New indicator added for 2020)
• Increase the percentage of Ryan White HIV/AIDS Program clients with permanent housing from 82 percent to 86 percent	• Reduce the percentage of persons in HIV medical care who are homeless to no more than 5 percent
	• Reduce the death rate among persons with diagnosed HIV infection by at least 33 percent (New indicator added for 2020)

Table 7.1. National HIV/AIDS Strategy Performance Indicators (cont'd)

3) *Reduce health disparities*	
By 2015:	**By 2020:**
• Increase the proportion of HIV diagnosed gay and bisexual men with undetectable viral load by 20 percent	(No longer an indicator for 2020)
• Increase the proportion of HIV diagnosed Latinos with undetectable viral load by 20 percent	(No longer an indicator for 2020)
• Increase the proportion of HIV diagnosed Blacks with undetectable viral load by 20 percent	(No longer an indicator for 2020)
	• Reduce disparities in the rate of new diagnoses by at least 15 percent in the following groups: gay and bisexual men, young Black gay and bisexual men, Black females, and persons living in the Southern United States (New indicator added for 2020)
	• Increase the percentage of youth and persons who inject drugs with diagnosed HIV infection who are virally suppressed to at least 80 percent (New indicator added for 2020)

Sources: National HIV/AIDS Strategy for the United States. 2010. http://www.whitehouse.gov/sites/default/files/uploads/NHAS.pdf; National HIV/AIDS Strategy for the United States: Updated to 2020. https://www.aids.gov/federal-resources/national-hiv-aids-strategy/nhas-update.pdf

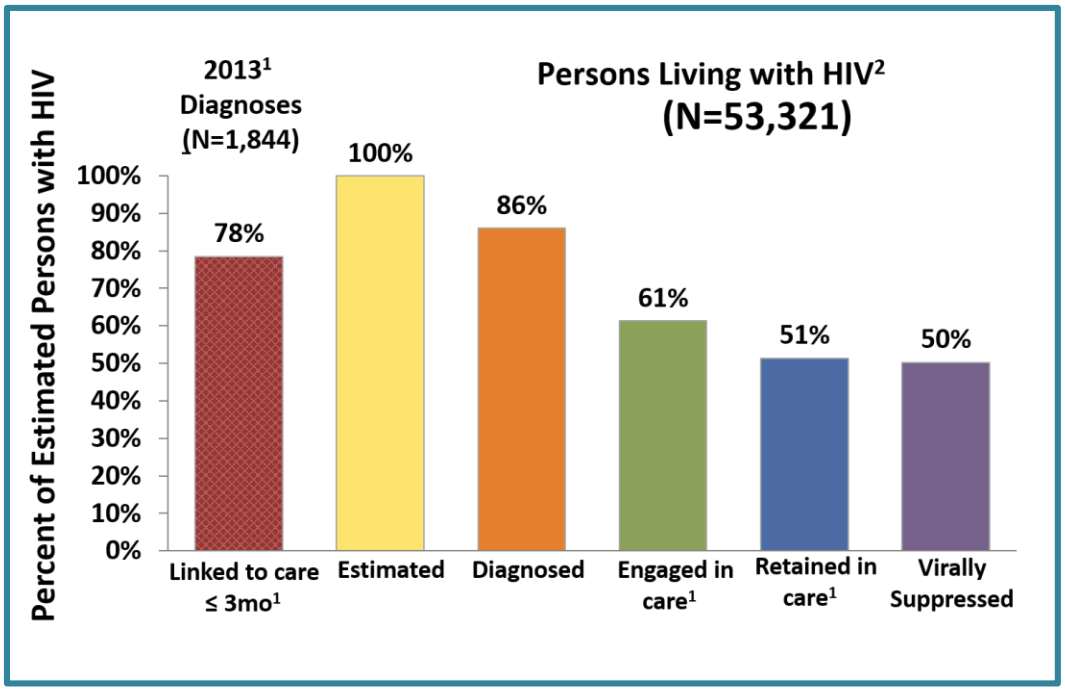
In order to characterize access to and retention in HIV care, service utilization, and unmet supportive service needs among PLWH in Los Angeles County (LAC) (and assess progress in LAC towards NHAS goals), data are presented from the following sources: surveillance data from LAC's electronic HIV/AIDS reporting system (eHARS), service data from the Ryan White HIV/AIDS program (RW), and survey data from the Los Angeles Coordinated HIV Needs Assessment (LACHNA) and the Medical Monitoring Project (MMP). Additionally, preliminary data are presented from DHSP's intervention projects and programs funded to improve access to and retention in HIV care (Project Engage, Navigation Program and the Medical Care Coordination program).

A. HIV Care Continuum

LAC's HIV Care Continuum and the proportion of PLWH who are engaged at each stage of HIV care from diagnosed, linked to care, engaged in care, retained in care, and virally suppressed are described below and depicted in Figure 7.1.

Diagnosed: This measure is defined as the number of persons diagnosed with HIV through the end of 2012 and living in LAC as of 12/31/2013 (N = 45,856) divided by the estimated number of HIV-infected persons in LAC (N = 53,231) (86%). The estimated number of infected individuals excludes 4,511 persons who no longer live in LAC and includes 5,677 persons who moved to LAC after their initial HIV diagnosis, and 14% whom CDC estimates are unaware of their HIV status.

Figure 7.1: HIV Care Continuum, LAC 2013



[1]Data for 2013 are provisional due to reporting delay. Linked to care within 3 months of HIV diagnosis denominator includes persons who were reported with a new HIV diagnosis in 2013 and were living in LAC as of 12/31/2013;
[2]Persons diagnosed through 2012 and living in LAC as of 12/31/2013 based on most recent residence plus an additional 14% that CDC estimates are unaware of HIV status. Excludes 4,511 persons who no longer live in LAC and includes 5,677 persons who moved to LAC after their initial HIV diagnosis;
[3]Engaged in care: ≥1 CD4/VL/Genotype tests in 2013;
[4]Retained in care: ≥2 CD4/VL/Genotype tests at least 3 months apart in 2013;
[5]Viral suppression defined as <=200 copies/ml;
Source: DHSP, LAC-DPH; data as of 12/31/2013

Linked to Care: Persons are considered linked to care if they had an HIV medical care visit within 3 months of diagnosis (evidenced by a viral load or CD4 test reported in eHARS). This measure is defined as the number of PLWH who met this criterion in 2013 (N = 1,438) divided by the total number of newly diagnosed individuals in LAC (N = 1,844) (78%). This measure represents HIV incidence and is limited only to those persons who were reported with a new HIV diagnosis in 2013 and who were living in LAC as of December 31, 2014.

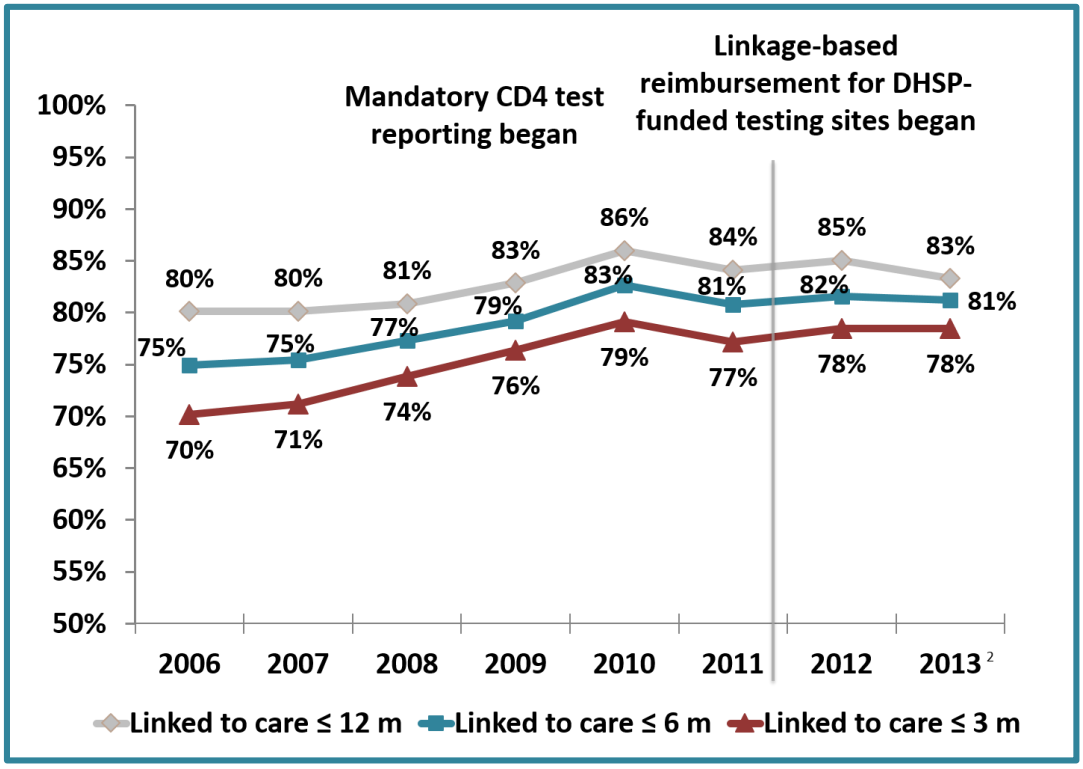
Engaged in Care: Persons are considered engaged in care if they receive one CD4 or viral load test in a calendar year. This measure is defined as the number of PLWH who met this criterion in 2013 (N = 32,526) divided by the estimated number of HIV-infected persons in LAC (N = 53,231) (61%).

Retained in Care: Persons are considered retained in care if they receive two or more CD4 or viral load tests at least 90 days apart in a calendar year. This measure is defined as the number of PLWH who met this criterion in 2013 (N=27,194) divided by the estimated number of HIV-infected persons in LAC (N = 53,231) (51%).

Virally Suppressed: Persons are considered virally suppressed if their most recent viral load was less than or equal to 200 copies/mL. This measure is defined as the number of PLWH who met this criterion in 2013 based on lab surveillance reports (N=26,661) divided by the estimated number of HIV-infected persons in LAC (N = 53,231) (50%).

Figures 7.2 and 7.3 detail the proportions of PLWH in LAC who are linked to care, engaged in care, retained in care, and virally suppressed over time. In LAC, mandatory CD4 test reporting began in September 2008, and linkage-based reimbursement for DHSP-funded HIV testing sites was implemented in August 2011. Figure 7.2 illustrates that over time, and since mandatory reporting and linkage-based reimbursement were implemented, the percentages of PLWH in LAC who linked to care within 3 months, 6 months and 12 months of diagnosis have increased. As of 2013, 78% of PLWH in LAC linked to care within 3 months of diagnosis, compared to 70% in 2006. These outcomes demonstrate progress towards reaching the NHAS goal of 85% linkage to care within three months for newly diagnosed persons by 2015 [21].

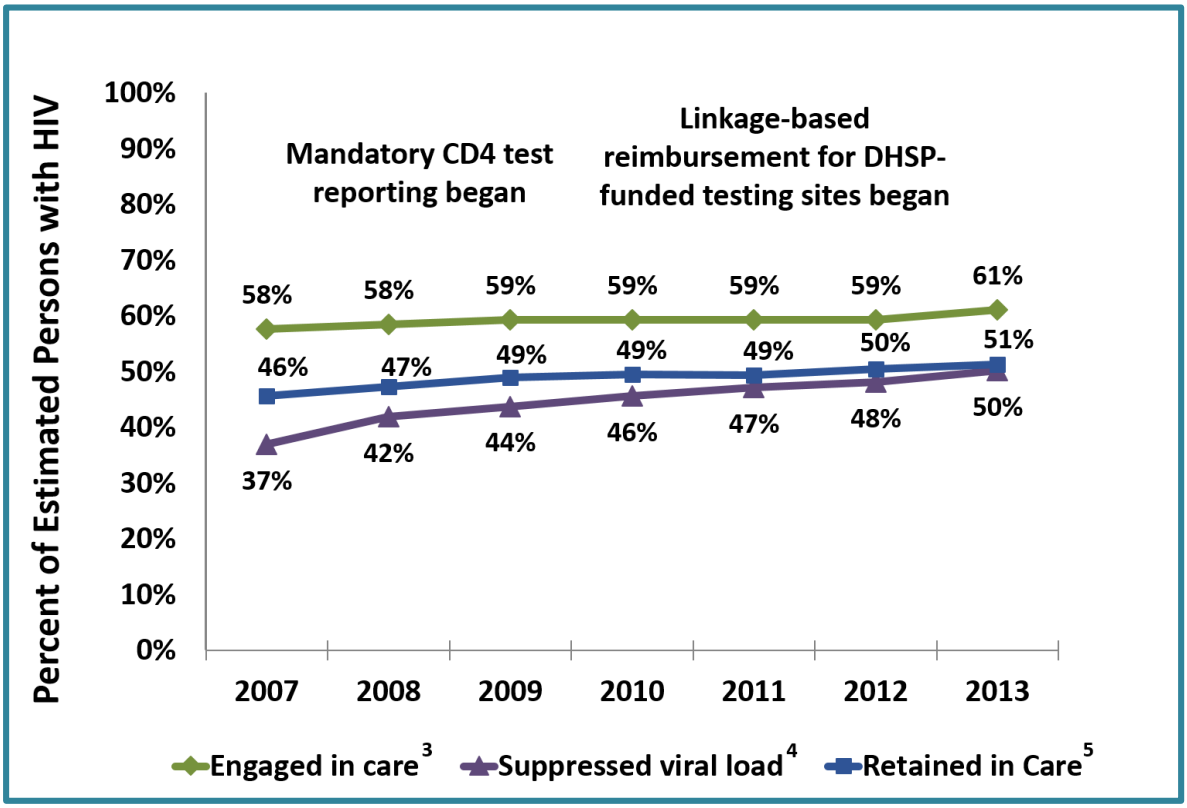
Figure 7.2: Linkage to Care for Persons Reported with HIV[1] in LAC, 2006-2013



[1]Persons diagnosed with HIV infection in each calendar year and living through the following 12 months; Persons are considered linked to care if they attended an HIV medical care visit (evidenced by a viral load or CD4 test reported in eHARS) within the described time period after diagnosis (within 3 months, within 6 months or within 12 months).
[2]2013 data are provisional due to reporting delay.
Source: DHSP, LAC-DPH; data as of 12/31/2013

Figure 7.3 illustrates the percentages of PLWH who were engaged in care, retained in care and who attained viral suppression from 2007 through 2013. While engagement in care and retention in care have moderately improved over time, the proportion of PLWH who were virally suppressed increased from just 37% in 2007 to 50% in 2013. These data suggest that while there have been improvements in retention and viral suppression, improved efforts are needed to meet the 2020 NHAS targets of 90% retained in care and 80% virally suppressed [20].

Figure 7.3: Engagement, Retention and Viral Load Suppression for PLWH[1], LAC 2007-2013

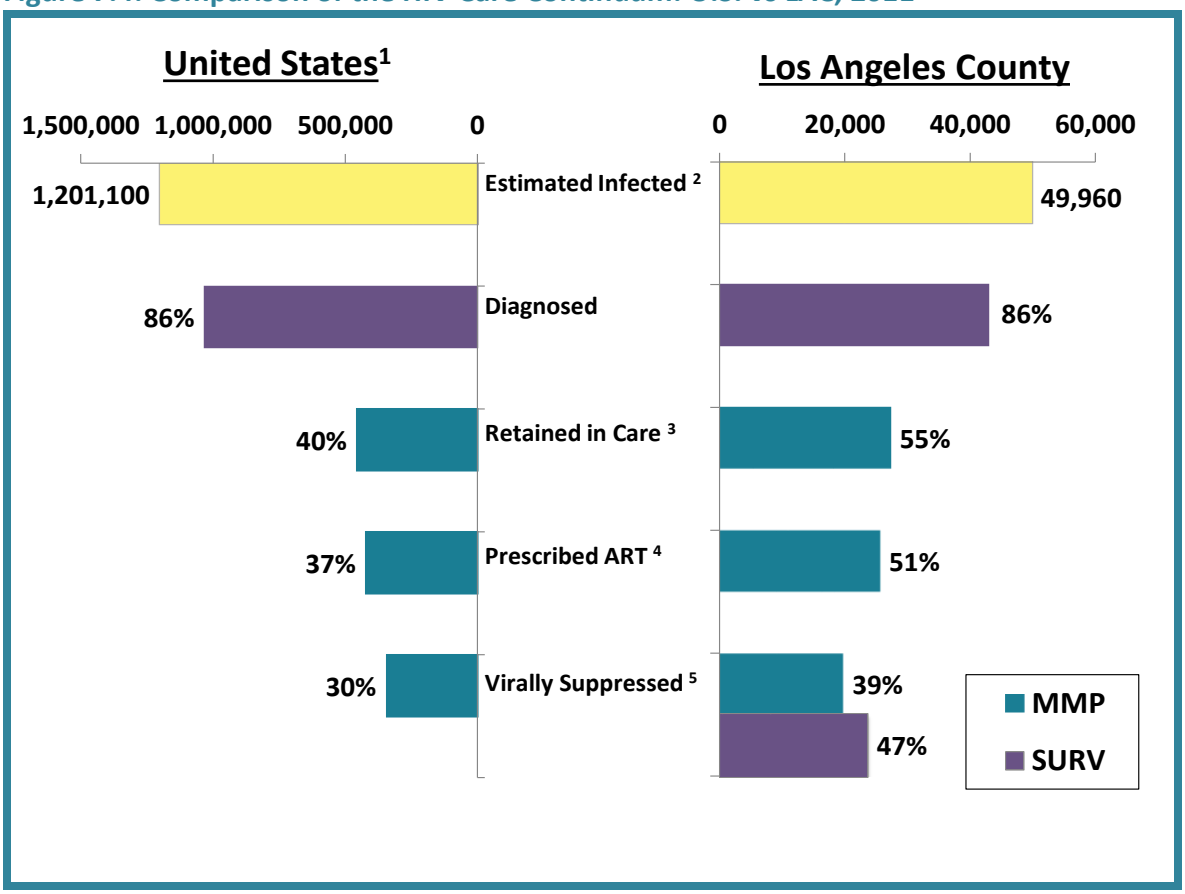


[1]Persons diagnosed with HIV through 2012 and living in LAC as of 12/31/2013 based on most recent residence and an additional 14% that CDC estimates are unaware of HIV status. Excludes 4,511 persons who no longer live in LAC and includes 5,677 persons who moved to LAC after their initial HIV diagnosis;
[2]2013 data are provisional due to reporting delay
[3]Engaged in care defined as receiving one CD4 or viral load test in a calendar year;
[4]Retained in care defined as receiving two or more CD4 or viral load tests at least 90 days apart in a calendar year;
[5]Suppressed viral load defined as most recent viral load less than or equal to 200 copies/mL.
Source: DHSP, LAC-DPH; data as of 12/31/2013

HIV Care Continuum Comparison: LAC and U.S.

LAC's HIV Care Continuum outcomes are compared to the overall U.S. outcomes using 2011 data in Figure 7.4. This figure uses a hybrid of HIV surveillance and Medical Monitoring Project (MMP) data based on CDC's methodology [22] in contrast to the care continuum figures above which are based solely on surveillance data. The inclusion of MMP data allows estimates for prescription of ART, which is not an outcome currently tracked by surveillance data (see *Data Sources* for more detailed information on MMP). Across all HIV care continuum outcomes, LAC had higher percentages of PLWH who were retained in care, prescribed ART and virally suppressed compared to the population of U.S. PLWH as a whole.

Figure 7.4: Comparison of the HIV Care Continuum: U.S. vs LAC, 2011



[1]Data for the United States obtained from CDC;
[2]The total number of persons infected with HIV shown in the beige bars is based on the number of persons living with HIV plus an estimated 14% of total HIV-infected persons that CDC estimates are unaware of their HIV infection. The measures that are based on MMP data are shown in the blue bars. Viral load from LAC HIV surveillance data (shown in purple) are included as a comparison.
[3]Retained in care is defined as at least 1 visit to an HIV medical care provider between January to April 2011, per CDC MMWR November 2014
[4]Prescribed ART is defined as an ART prescription in the 12 months before an MMP interview (between July 2011 through May 2012)
[5]The MMP–based virally suppressed percent is based on the most recent viral load test <200 copies/ml prior to MMP interview (between July 2011 through May 2012); surveillance-based virally suppressed percent is based on most recent viral load test ≤200 copies/ml among all persons diagnosed and living with HIV as of December 31, 2011 in LAC.
Source: CDC HIV Surveillance data, as of 12/31/2013 (MMWR, Vital Signs: HIV Diagnosis, Care, and Treatment Among Persons Living with HIV — United States, 2011; Vol 63, No 47, Nov 2014); DHSP, LAC-DPH, surveillance data as of 12/31/2013; Medical Monitoring Project (MMP), data as of 05/31/2012

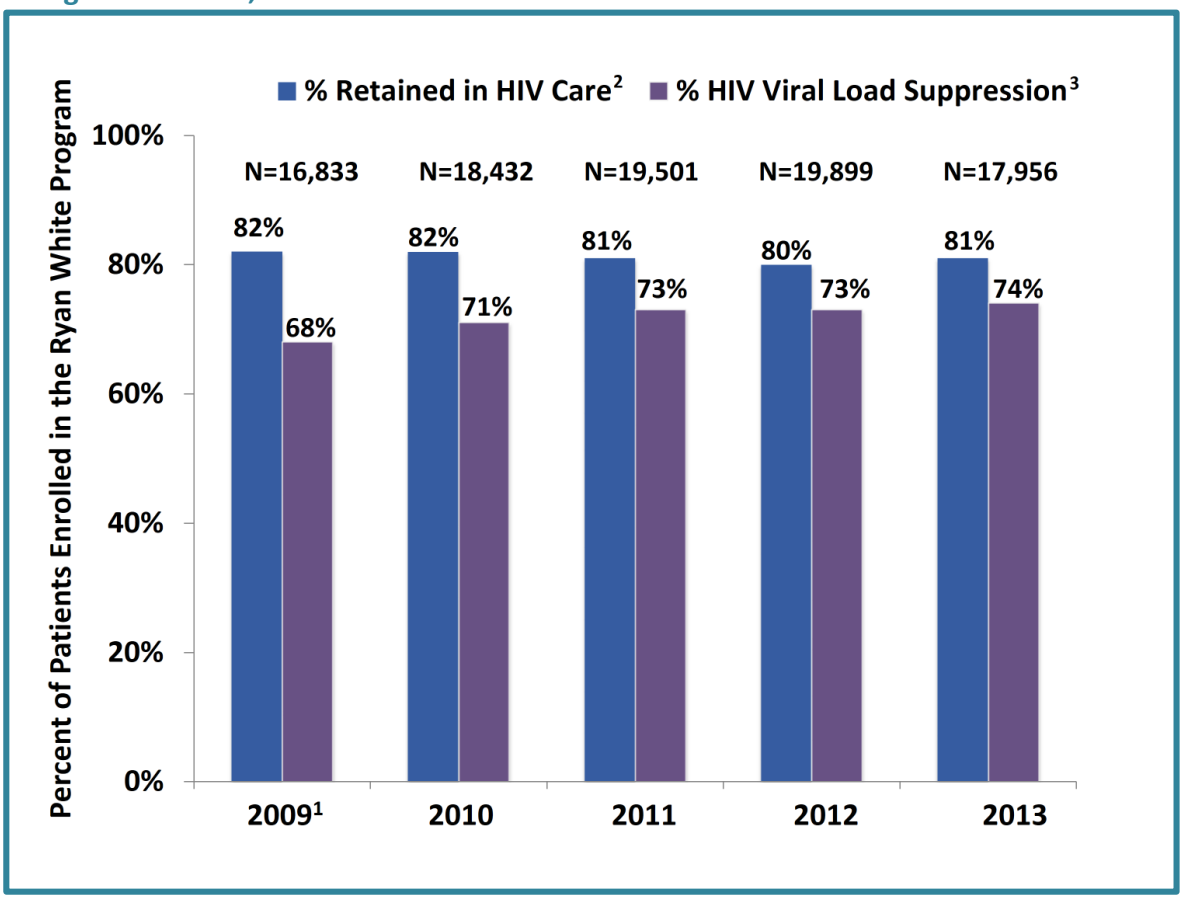
Retention in Care and Viral Load Suppression in the Ryan White HIV/AIDS Program

Figure 7.5 presents HIV care continuum outcomes for patients who have been diagnosed and were receiving care through the Ryan White HIV/AIDS Program (RW Program) in LAC between 2009-2013. The percent of patients retained in care was relatively steady during this time at about 81%, while the percent attaining viral suppression increased from 68% in 2009 to 74% in 2013. Among patients who received HIV medical outpatient care through the RW Program, these percentages increased to 85% retained in care and 82% virally suppressed [23].

Retention in care and viral suppression among RW Program clients in 2013 are presented by demographic characteristics in Figures 7.6 through 7.8. There were no significant differences in retention in care by gender. African American (Black/AA) clients were less likely to be retained

in care (75%) compared to Whites, Latinos and Asians/Pacific Islanders. Although rates for retention in care are lower for American Indian/Alaska Natives (AI/AN) and RW clients with other and unknown race/ethnicity, the numbers in these two groups were too small to draw conclusions. Among adults, there is a gradient by age – older patients had increasingly better rates of retention compared to younger patients. Clients age 50+ years had the best outcomes (85%) compared to those age 19-24 (65%).

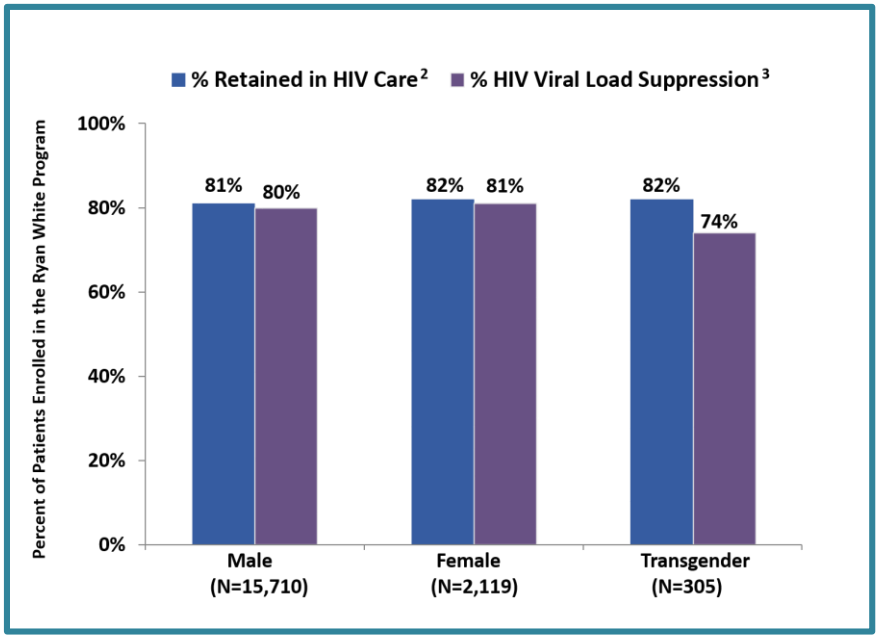
Figure 7.5: Retention in HIV Care and Viral Load Suppression among Ryan White HIV/AIDS Program Patients, 2009-2013



[1]2009 time frame: 3/1/2009-12/31/2009
[2]Retained in Care: ≥2 CD4/VL/genotype tests or medical visits at least 3 months apart during the report year
[3]Viral Load Suppression defined as most recent result <=200 copies/ml in the report year.
Source: DHSP, LAC-DPH; Casewatch data as of 5/1/2015, surveillance data as of 6/3/2015.

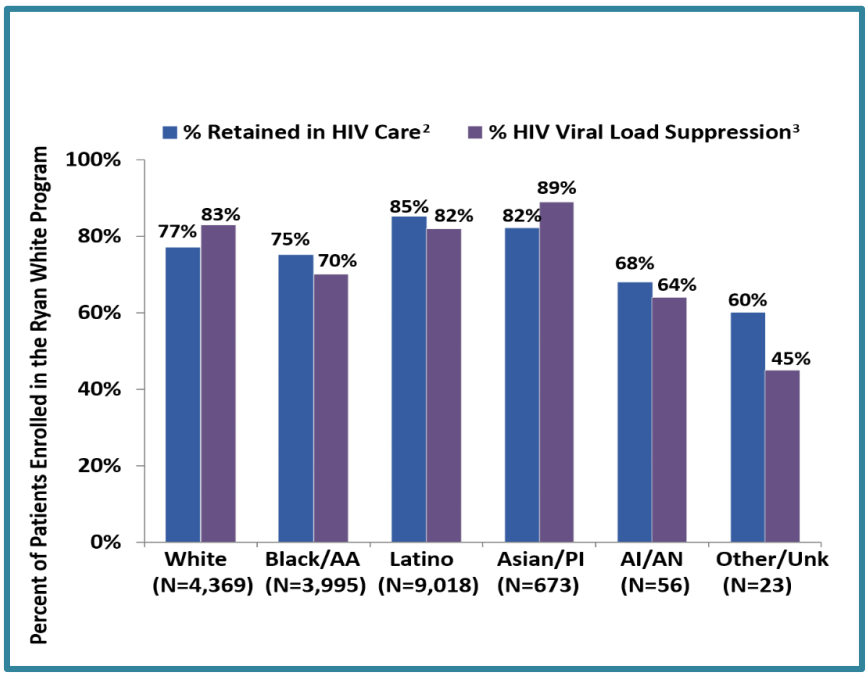
In terms of viral suppression, transgender clients had lower rates (74%) compared to males (80%) and females (81%). Black/AA clients were also less likely to be virally suppressed (70%) compared to Whites, Latinos and Asians/Pacific Islanders. Although rates for retention in care are lower for AI/AN and RW clients with other and unknown race/ethnicity, the numbers in these two groups were too small to draw conclusions. There is also a clear gradient by age for viral suppression – older patients had increasingly better rates of viral suppression. Clients age 50+ year had the highest proportion who were virally suppressed (85%) compared to young adults age 19-24 years (65%) and clients age 18 and under (62%).

Figure 7.6: Retention in HIV Care and Viral Load Suppression among Ryan White HIV/AIDS Program Patients by Gender, FY 2013[1]



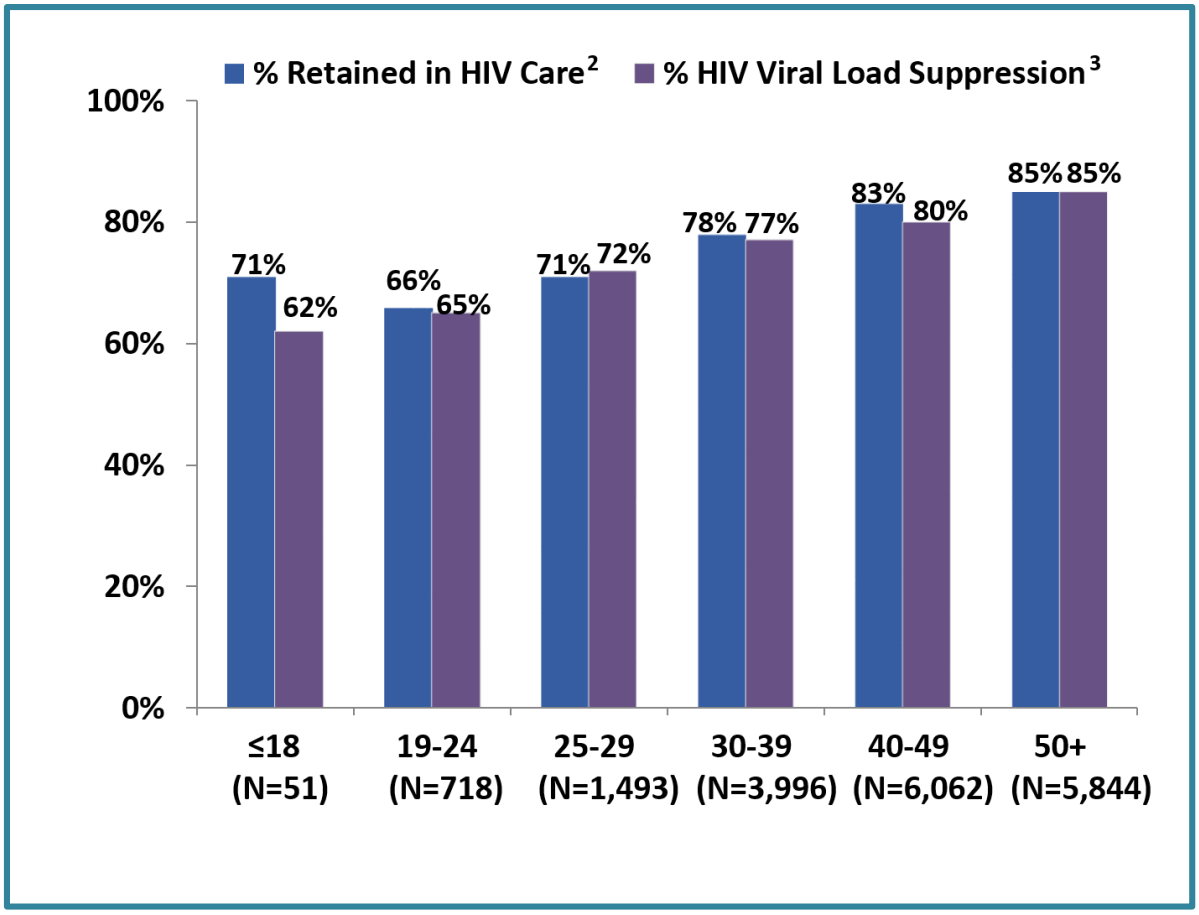
[1] RW Fiscal Year (FY) = 3/1/2013-2/28/2014; [2]Retained in Care defined as ≥2 CD4/VL/genotype tests in surveillance or medical visits paid by RW Ambulatory Outpatient Medical Care at least 3 months apart during FY 2013; [3]Viral Load Suppression defined as most recent result <=200 copies/ml during FY 2013. Source: DHSP, LAC-DPH; Casewatch and surveillance (iHARS) data (March 1, 2013 – February 28, 2014) as of 1/1/2015.

Figure 7.7: Retention in HIV Care and Viral Load Suppression among Ryan White HIV/AIDS Program Patients by Race/Ethnicity, 2009-2013



[1] RW Fiscal Year (FY) = 3/1/2013-2/28/2014; [2]Retained in Care defined as ≥2 CD4/VL/genotype tests in surveillance or medical visits paid by RW Ambulatory Outpatient Medical Care at least 3 months apart during FY 2013; [3]Viral Load Suppression defined as most recent result ≤200 copies/ml during FY 2013. Source: DHSP, LAC-DPH; Casewatch and surveillance (iHARS) data (March 1, 2013 – February 28, 2014) as of 1/1/2015.

Figure 7.8: Retention in HIV Care and Viral Load Suppression among Ryan White HIV/AIDS Program Patients by Age, 2009-2013



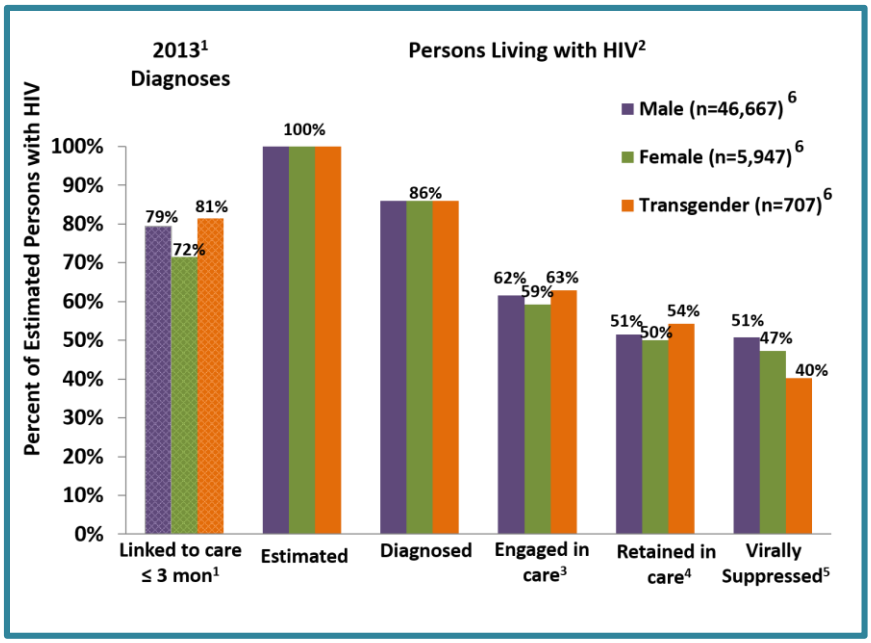
[1] RW Fiscal Year (FY) = 3/1/2013-2/28/2014
[2]Retained in Care defined as ≥2 CD4/VL/genotype tests in surveillance or medical visits paid by RW Ambulatory Outpatient Medical Care at least 3 months apart during FY 2013
[3]Viral Load Suppression defined as most recent result <=200 copies/ml during FY 2013
Source: DHSP, LAC-DPH; Casewatch and surveillance (iHARS) data (March 1, 2013 – February 28, 2014) as of 1/1/2015.

In summary, LAC met the NHAS target of 80% of RW program patients retained in care by 2015 overall [1, 20]. However, retention in care rates among specific demographic groups still need improvement (clients age 39 and younger, Black/AA, Whites, AI/AN, and other or unknown race/ethnicity).

Health Disparities within the HIV Care Continuum

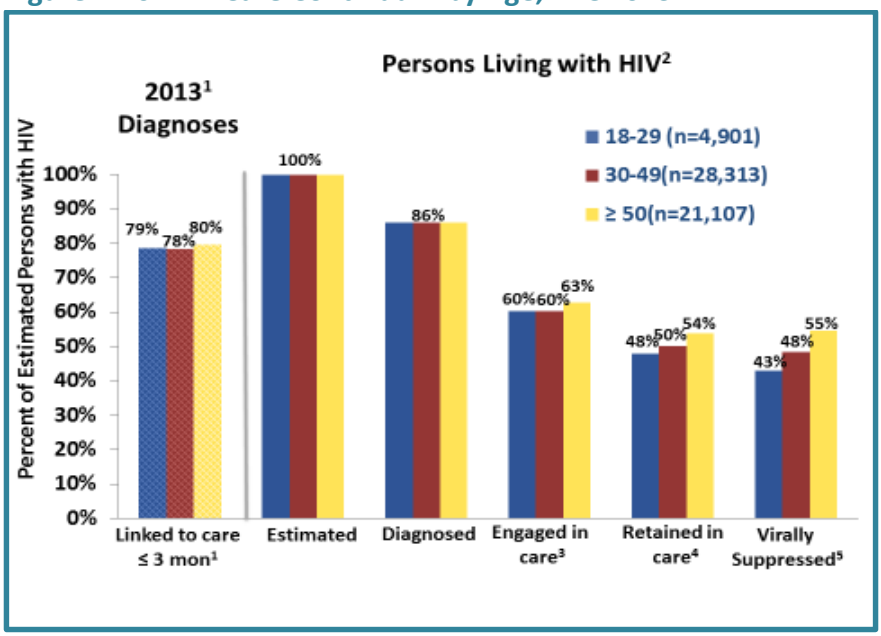
LAC's HIV Care Continuum is presented by gender, age group and race/ethnicity in **Figures 7.9** to **7.11**.

Figure 7.9: HIV Care Continuum by Gender, LAC 2013



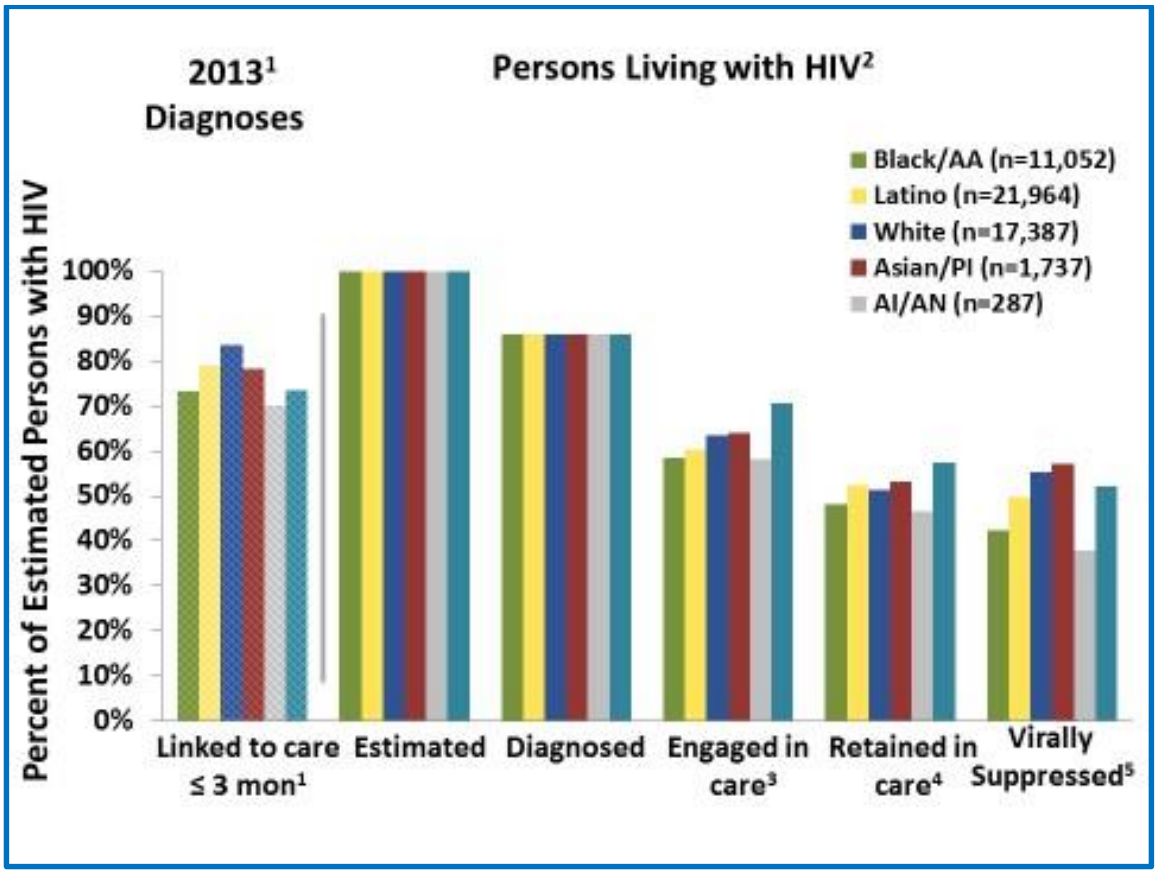
[1]Data for 2013 are provisional due to reporting delay. Linked to care denominator includes 1,617 men, 200 women, and 27 transgender persons who were reported with a new HIV diagnosis in 2013 and were living in LAC as of 12/31/2013; [2]Persons diagnosed through 2012 and living in LAC as of 12/31/2013 based on most recent residence plus an additional 14% that CDC estimates are unaware of HIV status. Excludes 4,511 persons who no longer live in LAC and includes 5,677 persons who moved to LAC after their initial HIV diagnosis; [3]Engaged in care: ≥1 CD4/VL/Genotype tests in 2013; [4]Retained in care: ≥2 CD4/VL/Geno tests at least 3 months apart in 2013; [5]Viral suppression defined as <=200 copies/ml. Source: DHSP, LAC-DPH; surveillance data as of 12/31/2013

Figure 7.10: HIV Care Continuum by Age, LAC 2013



[1]Data for 2013 are provisional due to reporting delay. Linked to care denominator includes 679 persons ages 18-29, 916 ages 30-49, and 259 50+ who were reported with a new HIV diagnosis in 2013 and were living in LAC as of 12/31/2013; [2]Persons diagnosed through 2012 and living in LAC as of 12/31/2013 based on most recent residence plus an additional 14% that CDC estimates are unaware of HIV status. Excludes 4,511 persons who no longer live in LAC and includes 5,677 persons who moved to LAC after their initial HIV diagnosis; [3]Engaged in care: ≥1 CD4/VL/Genotype tests in 2013; [4]Retained in care: ≥2 CD4/VL/Geno tests at least 3 months apart in 2013; [5]Viral suppression defined as <=200 copies/ml. Source: DHSP, LAC-DPH; surveillance data as of 12/31/2013

Figure 7.11: HIV Care Continuum by Race/Ethnicity, LAC 2013



[1]Data for 2013 are provisional due to reporting delay. Linked to care denominator includes 324 Black/AA, 658 Latinos, 378 Whites, 61 Asians/PIs, 7 AI/ANs, and 25 multi-racial persons who were reported with a new HIV diagnosis in 2013 and were living in LAC as of 12/31/2013; [2]Persons diagnosed through 2012 and living in LAC as of 12/31/2013 based on most recent residence plus an additional 14% that CDC estimates are unaware of HIV status. Excludes 4,511 persons who no longer live in LAC and includes 5,677 persons who moved to LAC after their initial HIV diagnosis; [3]Engaged in care: ≥1 CD4/VL/Genotype tests in 2013; [4]Retained in care: ≥2 CD4/VL/Geno tests at least 3 months apart in 2013; [5]Viral suppression defined as <=200 copies/ml. Source: DHSP, LAC-DPH; surveillance data as of 12/31/2013

To identify socio-demographic characteristics of PLWH significantly associated with key components of the HIV care continuum, a series of regression analyses were performed using 2013 LAC HIV Surveillance data. The results of generalized linear regression analyses (adjusted for age, race, gender, HIV transmission category, country of birth, type of diagnostic facility, lifetime homelessness and number of years living with HIV) indicate significant differences ($p<0.05$) in linkage to care, engagement in care, retention in care and viral suppression by socio-demographic characteristics and are described in Table 7.2.

Among persons who were diagnosed with HIV in 2013, Black/AA were significantly less likely to be linked to HIV care compared to Whites. There are no other significant differences in linkage to care by race/ethnicity, age or gender.

Among persons diagnosed with HIV through 2012, there were significant differences in engagement in care and retention in care by gender, age and race/ethnicity. Females were more likely to be engaged and retained in care compared to males. Younger PLWH (age 18-29

and age 30-49) were less likely to be engaged or retained in care compared to persons 50 years and older. Compared to Whites, Latinos, Asian/Pacific Islanders, and mixed/other race individuals were more likely to be engaged and retained in care. Black/AA were less likely to be engaged in care compared to Whites, but there was no difference in retention in care between these two groups.

There were significant differences in viral suppression by gender, age, and race/ethnicity as well. Transgender persons were less likely to be virally suppressed compared to males. Younger PWLH (age 18-29 and age 30-49) were less likely to be virally suppressed compared to persons 50 years and older. Compared to Whites, Asians were more likely to be virally suppressed; however, Black/AA and AI/AN were both less likely to be virally suppressed.

Table 7.2. Factors Associated with Linkage to Care, Engagement in Care, Retention in Care and Viral Suppression among Persons Living with HIV in Los Angeles County, 2013

Characteristics	Linkage to Care[1,5,8] PR (95% CI)	Engagement in Care[2,6,7] PR (95% CI)	Retention in Care[3,6,8] PR (95% CI)	Viral Suppression[4,6,8] PR (95% CI)
Gender				
Male	Referent	Referent	Referent	Referent
Female	1.08 (0.97–1.20)	**1.05 (1.03–1.08) ***	**1.08 (1.04–1.12) ***	1.04 (1.00–1.08)
Transgender	1.04 (0.87–1.23)	1.00 (0.96–1.05)	1.04 (0.98–1.10)	**0.85 (0.78–0.92) ***
Race/Ethnicity				
White	Referent	Referent	Referent	Referent
Black/AA	**0.90 (0.84–0.96) ***	**0.97 (0.95–0.99) ***	0.99 (0.97–1.01)	**0.85 (0.83–0.87) ***
Latino	0.96 (0.90–1.01)	**1.04 (1.03–1.06) ***	**1.10 (1.08–1.12) ***	1.00 (0.98–1.02)
Asian/PI	0.95 (0.85–1.07)	**1.08 (1.05–1.11) ***	**1.09 (1.05–1.14) ***	**1.10 (1.06–1.15) ***
AI/AN	0.90 (0.63–1.30)	0.94 (0.87–1.03)	0.93 (0.83–1.04)	**0.77 (0.67–0.88) ***
Mixed/Other/Ink	0.94 (0.78–1.15)	**1.12 (0.96–1.05) ***	**1.14 (1.09–1.20) ***	1.01 (0.96–1.07)
Age				
18-29 years	0.96 (0.90–1.03)	**0.92 (0.90–0.94) ***	**0.85 (0.82–0.88) ***	**0.77 (0.75–0.80) ***
30-49 years	0.96 (0.90–1.03)	**0.94 (0.93–0.96) ***	**0.90 (0.89–0.92) ***	**0.87 (0.86–0.89) ***
50+ years	Referent	Referent	Referent	Referent

[1] Linkage to care: ≥1 CD4/VL/genotype test within 3 months of HIV diagnosis; [2] Engagement in care: ≥1 CD4, viral load or genotype test in 2013; [3]Retention in care: ≥2 CD4, viral load or genotype test at least 3 months apart in 2013; [4] Viral suppression: last viral load ≤200 copies/ml in 2013 [5] Denominator is the total number of persons who were reported with a new HIV diagnosis in 2013 and were living in LAC as of 12/31/2013 (N=1,844). Data for 2013 are provisional due to reporting delay; [6] Denominator is the total number of persons diagnosed through 2012 and living in LAC as of 12/31/2013 based on most recent residence. Excludes 4,511 persons who no longer live in LAC and includes 5,677 persons who moved to LAC after their initial HIV diagnosis, plus 14% who are unaware of their status. (N=53,321); [7] Model adjusted for age, race, gender, HIV transmission category, county of birth, type of diagnostic facility (public, federal or private) and number of years living with HIV; [8] Model adjusted for age, race, gender, HIV transmission category, county of birth, type of diagnostic facility (public, federal or private), lifetime homelessness and number of years living with HIV; *p<0.05

Abbreviations: PR=Prevalence Ratio; CI=Confidence Interval. Source: DHSP, LAC-DPH; eHARS data as of 12/31/2013.

B. Receipt of Recommended Medical Care for HIV-Infected Persons

Population prevalence estimates in LAC for receipt of recommended HIV clinical care are presented in Table 7.3. Most patients received the recommended annual testing for CD4

counts (96.7%), viral loads (71.4%), gonorrhea (65.9%), chlamydia (66.8%), syphilis (87.2%) and influenza immunization (71.9%), PCP prophylactic therapy among persons with CD4 counts <200 (73.5%) and ART prescription (91.5%). The majority of women received cervical cancer screening (75.5%). However, only 35% of patients reported receiving HIV prevention counseling from a medical care provider compared to the recommendation of 100% of patients.

Table 7.3 Estimated Prevalence of Receipt of Recommended HIV Clinical Care in the Past 12-Months for HIV-Infected Adults in Care in LAC, MMP 2009-2011

Care Measure	Weighted % (95% CI)
CD4 and viral load screening	
Viral load test every 6 months	71.4 (66.1–76.8)
1 or more CD4 tests	96.7 (94.2–99.2)
STD screening[1]	
Gonorrhea screening	65.9 (55.1–76.6)
Chlamydia screening	66.8 (56.1–77.6)
Syphilis screening	87.2 (82.1–92.3)
Cervical cancer screening (women)	75.5 (54.9–96.2)
Influenza immunization	71.9 (68.0–75.7)
PCP prophylactic therapy[2]	73.5 (60.2–86.8)
ART prescription	91.5 (88.5–94.6)
HIV prevention counseling	35.0 (29.2–40.9)

[1] Among those reporting sex in the last 12 months; [2] Among persons with CD4 counts <200 cells/μL. Source: Medical Monitoring Project, 2009-2011 (N=692) data as of May 31, 2012

Receipt of recommended HIV care in LAC was similar to national estimates in 2009–2011 for CD4 testing (96.7% in LAC vs. 95.1–96.8% in the U.S.) and prescription of ART (91.5% in LAC vs. 88.7–92.3% in the U.S.). Percentages were somewhat lower in LAC compared to national estimates for viral load testing (71.4% in LAC vs. 74.6–76.5% in the U.S.), cervical cancer screening (75.5% in LAC vs. 77.0–79.0% in the U.S.), influenza immunization (71.9% in LAC vs. 78.5–84.0% in the U.S.), PCP prophylactic therapy (73.5% in LAC vs. 77.6–78.8% in the U.S.), and HIV prevention counseling (35.0% in LAC vs. 43.0–44.9% in the U.S.). However, percentages for STD screening among sexually active patients were much higher in LAC compared to national estimates: gonorrhea screening was 65.9% in LAC vs. 23.2–32.0% in the U.S.; chlamydia screening was 66.8% in LAC vs. 23.9–32.7% in the U.S.; and syphilis screening was 87.2% in LAC vs. 55.0–58.0% in the U.S.). [24-26]

Need, Utilization and Gaps in Supportive Services

The 10 most common services utilized by PLWH are presented in Table 7.4 (general population of HIV-infected patients in care from MMP) and Table 7.5 (HIV-infected clients enrolled in the RW Program). The most frequently utilized services among the general population of HIV-infected patients were the AIDS Drug Assistance Program (ADAP), dental care, HIV case

management, transportation assistance, and mental health services. Among PLWH in the RW Program, outpatient medical care, medical care coordination, oral health care, benefits specialty and nutrition support were the most frequently utilized services [27].

Table 7.4. Top 10 Services Utilized by HIV-Infected Patients in Care in LAC, MMP 2009–2012

Service[1]	Weighted % (95% CI)
Medicine through the AIDS Drug Assistance Program (ADAP)	64.5 (56.5–72.5)
Dental care	57.7 (52.8–62.5)
HIV case management services	41.5 (35.2–47.8)
Transportation assistance	36.0 (30.2–41.8)
Mental health services	30.6 (27.2–33.9)
Public benefits (including Supplemental Security Income (SSI) or Social Security Disability Insurance (SSDI))	28.6 (24.2–33.0)
Counseling about how to prevent the spread of HIV	27.1 (21.0–33.2)
Meal or food services	22.4 (18.3–26.5)
Adherence support services	19.9 (15.1–24.7)
HIV peer group support	18.7 (15.6–21.8)

[1] Service received in the past year as of the date of the patient's interview. Source: Medical Monitoring Project, 2009-2011 (N=692) data as of May 31, 2012

Table 7.5. Top 10 Services Utilized by HIV-Infected Patients Enrolled in the RW Program in Los Angeles, FY 2013

Service	%
Ambulatory outpatient medical[1]	51.7
Medical care coordination (MCC)[2]	40.8
Oral health care	28.2
Benefits specialty	16.4
Nutrition support	12.0
Mental health psychotherapy	7.8
Transitional case management	6.7
Non-medical case management	6.3
Mental health psychiatry	4.9
Substance abuse services	2.3

[1] Received at least one medical visit within the year; [2]Clients screened for MCC. Source: Casewatch data, FY 2013 (3/1/2013-2/28/2014) (N=18,134)

The most common unmet supportive service needs are presented in Table 7.6 (general population of HIV-infected patients in care from MMP) and Table 7.7 (HIV-infected patients receiving care through the RW Program). The greatest unmet needs for the general population of HIV-infected patients were: dental care, public benefits, shelter/housing, meal/food, and HIV peer group support.

Among HIV-infected patients in the RW Program, the 10 most common unmet supportive service needs were oral health care, rental assistance, medical nutrition therapy, short term rent/mortgage/utility assistance, medical transport (bus passes), nutrition support/food bank, pharmacy drug reimbursement, medical transport (taxi vouchers), housing case management, and benefits specialty. Those HIV-infected patients receiving RW Program assistance were in general more socioeconomically disadvantaged than the overall population of PLWH in LAC, which is reflected by the higher percentages reporting unmet need for a multitude of service categories. Overall, a majority of the RW patients (81%) reported at least one unmet supportive service need over the previous year. Not surprisingly, currently homeless individuals were 3.7 times more likely to have an unmet need (OR=3.7, 95% CI: 1.1-12.4). The most common type of barrier to obtaining needed services was at the individual-level, e.g. lack of awareness about service availability, location and how to access. Although it is important to note that structural and organizational barriers also impact patient ability to receive needed services, especially for oral health care. [27]

TABLE 7.6. Top 10 Unmet Supportive Service Needs among HIV-Infected Patients in Care in LAC, MMP 2009–2012

	Needed service but not received[1]
Service	Weighted % (95% CI)
Dental care	21.6 (17.3–26.0)
Public benefits (e.g. SSI, SSDI)	8.7 (6.2–11.1)
Shelter or housing services	6.0 (3.8–8.1)
HIV peer group support	5.7 (3.8–7.6)
Meal or food services	5.7 (3.8–7.6)
HIV case management services	5.5 (3.6–7.4)
Transportation assistance	3.7 (1.8–5.7)
Mental health services	3.5 (1.9–5.1)
Adherence support services	3.4 (2.1–4.7)
Home health services	2.3 (1.2–3.5)

[1] Service not received as of the date of the patient's interview.
Source: Medical Monitoring Project, 2009-2011 (N=692) data as of May 31, 2012

Although the data are from two different surveys, and therefore the service categories are not identical (the RW program patients were part of the LACHNA-Care survey which focuses specifically on assessing need and use of care and support services, whereas the general HIV-

infected patients were part of the MMP survey which has a broader focus), dental/oral health remained a top unmet need among HIV-infected patients (22% among the general HIV patient population and 36% among the RW patient population) (see *Data Sources* for more detailed information on LACHNA and MMP).

Table 7.7. Top 10 Unmet Supportive Service Needs and Barriers among HIV-Infected Patients Receiving Care through the RW Program in Los Angeles, 2011

Service	Unmet Need[1]	Types of Barriers[2]		
		Structural[3]	Organizational[4]	Individual[5]
	weighted % (95% CI)	weighted % (95% CI)	weighted % (95% CI)	weighted % (95% CI)
Oral Health Care	36 (30–42)	26 (16-36)	21 (13-30)	47 (37-57)
Rental Assistance	28 (23–33)	16 (10-23)	31 (21-41)	45 (35-55)
Medical Nutrition Therapy	20 (15–25)	11 (<1-21)	21 (8-34)	63 (47-80)
Short Term Rent, Mortgage, Utility	20 (15–25)	15 (4-27)	12 (3-20)	62 (49-76)
Medical Transport – Bus Passes	18 (14–24)	11 (2-20)	12 (1-23)	72 (58-87)
Nutrition Support – Food Bank	18 (13–23)	NR	22 (11-32)	72 (59-85)
Pharmacy Drug Reimbursement	16 (11–20)	11 (3-20)	19 (4-33)	58 (44-73)
Medical Transport – Taxi Vouchers	16 (12–21)	12 (1-23)	11 (1-20)	72 (58-86)
Housing Case Management	15 (11–19)	19 (5-31)	9 (<1-19)	59 (41-76)
Benefits Specialty	15 (11–20)	23 (10-37)	12 (1-24)	64 (48-80)

[1] Proportion of patients who needed but did not receive a particular service
[2] May not add up to 100% due to small proportion of barriers that do not fit into categories or respondents identify type of barrier
[3] Too much paperwork or red tape or too many rules and regulations
[4] Service provider insensitivity to patient concerns; lengthy wait time for appointment or for receipt of service; organization provided wrong referrals
[5] Unaware of service/treatment availability, location, or who to ask for help
NR= not reported (estimates may not be stable due to cell size<5)
Source: LACHNA-Care, 2011 (N=400) data as of June 2011.

C. Strategies to Improve the HIV Care Continuum in LAC

LAC has implemented several new programs and projects to address linkage and retention in care for PLWH. A new Ryan White-funded service program (Medical Care Coordination), demonstration projects (the Navigation Program and Project Engage), and evidence-based intervention projects (LINK LA), are currently targeting populations in need of expanded services to ensure they are receiving the full range of benefits they require (see *Data Sources* for more detailed information on these projects).

Medical Care Coordination

The Medical Care Coordination (MCC) program was implemented in 2012 to improve the LAC HIV care continuum and incorporate principles of the patient centered medical home into HIV care delivery. CDC has recognized the MCC program as one of four "success stories" of health departments' progress toward achieving NHAS goals. The key elements of the MCC program are: 1) to monitor the overall health status of all patients at the 35 HIV clinics; and 2) to identify patients with poor health status so as to deliver integrated medical and support services to them. MCC is based on an integrated service model: multidisciplinary teams co-located at the HIV medical home (consisting of a nurse, social worker and case worker) assess patients' medical and psychosocial needs, and deliver targeted brief interventions to improve engagement in care and adherence to antiretroviral therapy (ART), as well as reduce risk behaviors. This program was implemented at 35 RW HIV clinics in LAC that serve predominantly low-income, minority patient populations, and effectively integrates medical and non-medical support services that historically have been offered by different providers across different locations.

Among the 1,204 patients enrolled in MCC between January through December 2013, the proportion of virally suppressed patients increased from 31% at pre-enrollment to 60% at 12-months post-enrollment ($p<0.01$) and the proportion retained in care increased from 52% at pre-enrollment to 84% at 12-months post-enrollment ($p<0.01$). Patients received an average of 17.3 hours of MCC services (standard deviation=17.9 hours).

These results from the first year of MCC suggest that through effective coordination of services to address medical and psychosocial needs, this model has the potential to improve retention in HIV care and viral suppression among PLWH in LAC. The patient-centered, targeted approach of the MCC model is feasible in clinical HIV settings. Further, this program meets the NHAS goals of improving the lives of PLWH.

Demonstration Projects

For the purposes of the two demonstration projects (Navigation Program and Project Engage), PLWH who met one of the following criteria were considered out of care (OOC) and eligible for the projects:

1) had no HIV care visits in 6-12 months and had last viral load test result greater than 200 copies/ml;
2) had no HIV care visits in more than 12 months;
3) were newly-diagnosed and had not yet received HIV care within 3 months; or
4) were recently released from jail/prison/other institution and had no regular HIV medical provider.

<u>Navigation Program</u>

The Navigation Program (NAV) is a clinic-based, demonstration project being conducted as part of the DHSP's Testing, Linkage, Care and Treatment (TLC+) evidence-based interventions to link and re-engage out of care (OOC) PLWH into HIV care. Patients were recruited at seven publicly-funded HIV clinics in LAC. Trained navigators contacted the selected patients using clinic, LAC

HIV/STD surveillance, Casewatch and people-finder locator information and offered them enrollment in a modified-ARTAS intervention.

Among the 1,139 patients identified as meeting the OOC definition, 36% were found to be in care elsewhere, 29% could not be located, 8% returned to the clinic independently, 4% declined enrollment and 7% (n=78) were located and enrolled. These participants had significant service needs: 57% had no health insurance, 25% had a history of injection drug use (IDU), 24% were incarcerated in the past year, and 9% had a history of homelessness in the past 6 months. The top unmet needs reported were: HIV medical care, dental services, mental health services, psychiatric services and social services. The main barriers to receiving HIV care were other life priorities, including child care and work (32%), lack of money (11%), and lack of transportation (6%).

Among those enrolled, 94% linked to HIV care (defined as attending two HIV medical visits or 1 clinic case management visit and 1 medical visit), and 82% of linked patients were retained in care (defined as receiving two confirmed viral loads at least 90 days apart in a 12-month period after enrollment). On average, it took 23 days and 1.5 staff hours to link a participant to care. Pre-tests indicated that 51% of patients were virally suppressed compared to 62% at retention (chi-square=11.8; p-value<0.01).

This model of re-engagement was shown to be effective for this marginalized population, and demonstrated the advantages of a public health department-based program that facilitates access to HIV care using locator information derived from confidential HIV/STD surveillance and other public health databases. The use of a strengths-based intervention proved successful at engaging this high need population.

Project Engage

Project Engage (PE) is another LAC TLC+ project. PE is a community-based intervention designed to locate hard-to-reach, OOC PLWH and link or re-engage them into HIV care. This project investigates whether a social network recruitment method (snowball sampling) using trained recruiters from local HIV clinics, or a direct recruitment approach using community outreach workers and flyers, is more effective for recruiting OOC PLWH into the program and linking them back into care. Once identified, local HIV surveillance records were used to confirm eligibility. Participants received assistance from outreach workers to negotiate barriers to care.

PE was successful in reaching a vulnerable population with high levels of need. Among the 98 OOC participants, most were recently released from jail or prison with no HIV medical provider (49%) and/or they had not received HIV medical care for more than a year (34%). Patients were OOC an average of 15.5 months (standard deviation of 21.5) and had an average of 9 unmet needs (standard deviation of 3.4). Additionally, 44% had no health insurance, 76% had a history of homelessness in the past 6 months, 60% were recently incarcerated in the past 12 months, and 47% had a history of IDU.

The top 5 unmet needs in this OOC population were medical care, dental care, case management, mental health counseling and social services. Barriers included: individual level (didn't know where to go/who to call; substance abuse; too sick; homeless; depressed; incarcerated; perceived lack of need), organizational (incomplete application/paperwork; financial difficulties; language barriers; disrespect/mistreatment by staff), and structural (system is confusing; long wait times; lack of availability of services in participant's residential area, transportation problems, ineligibility/denial of service, immigration concerns).

A high proportion of participants (80%) indicated that they would not have been able to enter care without assistance through this project. Recruitment was most effective in non-medical settings (community-based organizations or public spaces, such as parks), and preliminary results suggest a combined recruitment strategy using direct recruitment *and* a social network strategy is most beneficial in enrolling OOC PLWH into medical care. Locating these vulnerable OOC patients was a substantially resource intensive intervention, both in terms of staff and hours: on average, it took 45.4 days and 8.3 staff hours to locate and link a patient into care.

A summary of the linkage to care, retention in care and viral suppression results for NAV, PE and MCC are presented in Table 7.8. Results from these three projects are promising and indicate that support in accessing care and addressing unmet needs are key to improving linkage to care, retention in care and viral suppression among PLWH in LAC. A county-based Linkage and Retention Program (LRP) that incorporates both NAV and PE elements has been developed and will be implemented at the end of 2015 or early 2016.

Table 7.8. Linkage to Care, Retention in Care and Viral Load Suppression among HIV-Infected Adults Participating in Testing, Linkage, Care and Treatment (TLC+) Programs, Los Angeles County, 2012-2014[1]

Project	% Linked to Care[2]	% Retained in Care	% Virally Suppressed	
			Baseline	Follow-up[3]
Project Navigation (NAV)	94%	82%	52%	63%
Project Engage (PE)	72%	82%	27%	42%
Medical Care Coordination (MCC)	---	84%	31%	60%

[1] NAV data was from April to November, 2014; PE data was from August 2012 to November 2014; MCC data was from January to December 2013. See *Data Sources* section for more details on each respective project. Some NAV and PE participants may also have been enrolled in MCC concurrently.
[2] Linked to care was not measured in MCC as participants were existing patients at the selected clinics who were not receiving regular care
[3] Follow-up in NAV and MCC was 12-months post-enrollment; follow-up in PE was 6-months post-enrollment

Effectiveness of Peer Health Navigation to Link HIV-Positive Jail Inmates to HIV Care (LINK LA)

LINK LA was a randomized control trial designed to test whether providing health navigation services to HIV+ inmates released from jail improves individuals' linkage to and retention in community-based HIV care. Specifically, LINK LA evaluated whether a health navigation intervention designed for HIV+ males and transgender females improves the following HIV linkage and retention outcomes at 12-months post-release: 1) linkage to community-based HIV care; 2) retention in community-based HIV care; 3) self-reported HIV treatment medication

adherence; and 4) HIV viral load suppression. Viral loads are collected at baseline, 2 months and 12 months.

Upon release, participants in this program were given a cell phone to facilitate communication and contact with the LINK LA program. If they were matched with a health navigator, the health navigator worked closely with them for 6 months to help link them to HIV care as well as assist them with other needs including housing, transportation, substance abuse treatment, mental health treatment, job placement, social support and general relief. The program sought to improve overall health outcomes with this population while also reducing recidivism. The study began recruitment in December 2012 and data is being analyzed.

References

1. White House. **National HIV/AIDS Strategy for the United States.** 2010. http://www.whitehouse.gov/sites/default/files/uploads/NHAS.pdf. Accessed 6/5/ 2013.
2. CDC. **Vital Signs: HIV Prevention through Care and Treatment - United States.** *MMWR* 2011, 60: 1618-1623.
3. Attia S, Egger M, Muller M, Zwahlen M, Low N. **Sexual transmission of HIV according to viral load and antiretroviral therapy: Systematic review and meta-analysis.** *AIDS* 2009, 23: 1397-1404.
4. Fang CT, Hsu HM, Twu SJ, Chen MY, Chang YY, et al. **Decreased HIV transmission after a policy of providing free access to highly active antiretroviral therapy in Taiwan.** *Journal of Infectious Disease* 2004, 190: 879-885.
5. Montaner JS, Lima VD, Harrigan PR, Lourenco L, Yip B, Nosyk B, et al. **Expansion of HAART Coverage Is Associated with Sustained Decreases in HIV/AIDS Morbidity, Mortality and HIV Transmission: The "HIV Treatment as Prevention" Experience in a Canadian Setting.** *PLOS One* 2014, 9: e87872.
6. Das M, Chu PL, Santos GM, et al. **Decreases in community viral load are accompanied by reductions in new HIV infections in San Francisco.** *PLoS One* 2010: e11068.
7. Couch RB. Influenza, influenza virus vaccine, and human immunodeficiency virus infection. *Clinical Infectious Diseases* 1999, 28: 548-551.
8. CDC. **Guidelines for prevention and treatment of opportunistic infections in HIV-infected adults and adolescents: recommendations from CDC, the National Institutes of Health, and the HIV Medicine Association of the Infectious Diseases Society of America.** *MMWR* 2009, 58: RR–4.
9. Fleming DT, Wasserheit JN. **From epidemiological synergy to public health policy and practice: the contribution of other sexually transmitted diseases to sexual transmission of HIV infection.** *Sexually Transmitted Infections* 1999, 75: 3-17.
10. Cohen MS, Gay CL. **Treatment to prevent transmission of HIV-1.** *Clinical Infectious Diseases* 2010, 50: S85-S95.
11. Smith K, Powers KA, Kashuba AD, Cohen MS. **HIV-1 treatment as prevention: the good, the bad, and the challenges.** *Current Opinions in HIV AIDS* 2011, 6: 315-325.
12. Skarbinski J, Rosenberg E, Paz-Bailey G, Hall HI, Rose CE, Viall AH, et al. **Human immunodeficiency virus transmission at each step of the care continuum in the United States.** *JAMA Internal Medicine* 2015: E1-E9. http://archinte.jamanetwork.com. Accessed 2/23/2015.
13. Myers JJ, Shade SB, Rose CD, Koester K, Maiorana A, Malitz FE, et al**. Interventions delivered in clinical settings are effective in reducing risk of HIV transmission among people living with HIV: results from the Health Resources and Services Administration (HRSA)'s Special Projects of National Significance initiative.** *AIDS Behavior* 2010, 13: 483-492.
14. Richardson JL, Milam J, McCutchan A, Stoyanoff S, Bolan R, Weiss J, et al. **Effect of brief safer-sex counseling by medical providers to HIV-1 seropositive patients: a multi-clinic assessment.** *AIDS* 2004, 18: 1179-1186.

15. CDC. **Incorporating HIV prevention into the medical care of persons living with HIV. Recommendations of CDC, the Health Resources and Services Administration, the National Institutes of Health, and the HIV Medicine Association of the Infectious Diseases Society of America.** *MMWR* 2003, 52: RR–12.
16. Horberg MA, Aberg JA, Cheever LW, Renner P, Kaleba EO, Asch SM. **Development of National and Multiagency HIV Care Quality Measures.** *Clinical Infectious Diseases* 2010, 51: 732-738.
17. Panel on Antiretroviral Guidelines for Adults and Adolescents. **Guidelines for the use of antiretroviral agents in HIV-1-infected adults and adolescents.** 2013. http://aidsinfo.nih.gov/ContentFiles/AdultandAdolescentGL.pdf. Accessed 6/5/2013
18. Skarbinski J, Furlow-Parmely C, et al. **Nationally Representative Estimates of Quality of HIV Care in the United States: Data from the Medical Monitoring Project, 2009.** *Conference on Retroviruses and Opportunistic Infections,* Atlanta, GA; 2013.
19. Thompson MA, Mugavero MJ, Amico KR, et al. **Guidelines for improving entry into and retention in care and antiretroviral adherence for persons with HIV: evidence-based recommendations from an international association of physicians in AIDS Care Panel.** *Ann Intern Med* 2012; I56: 817-833.
20. White House. **National HIV/AIDS Strategy for the United States: Updated to 2020**. 2015; https://www.aids.gov/federal-resources/national-hiv-aids-strategy/nhas-update.pdf. Accessed 09/22/2015.
21. White House. **National HIV/AIDS Strategy. Update of 2014 Federal Actions to Achieve National Goals and Improve Outcomes along the HIV Care Continuum.** 2014, https://www.whitehouse.gov/sites/default/files/docs/nhas_2014_progress_report_final_2.pdf. Accessed 2/6/2015.
22. CDC. **Vital Signs: HIV Diagnosis, Care, and Treatment Among Persons Living with HIV — United States, 2011.** *MMWR* 2014, 63 (47): 1113-1117.
23. Division of HIV and STD Programs, Los Angeles County Department of Public Health. **HIV Care and Treatment Service Utilization: 2013 Year End Report**, May 2015
24. Blair JM, Fagan JL, Frazier EL, Do A, et al. **Behavioral and Clinical Characteristics of Persons Receiving Medical Care for HIV Infection — Medical Monitoring Project, United States, 2009.** *MMWR* 2014, 63: 1-28.
25. CDC. **Behavioral and Clinical Characteristics of Persons Receiving Medical Care for HIV Infection-Medical Monitoring Project, United States, 2010.** HIV Surveillance Special Report 9. Atlanta, GA; 2014. http://www.cdc.gov/hiv/library/reports/surveillance/#special. Accessed 2/6/2015.
26. CDC. **Behavioral and Clinical Characteristics of Persons Receiving Medical Care for HIV Infection-Medical Monitoring Project, United States, 2011.** HIV Surveillance Special Report 10. Atlanta, GA; 2015. http://www.cdc.gov/hiv/library/reports/surveillance/#special. Accessed 2/6/2015.
27. Division of HIV and STD Programs, Los Angeles County Department of Public Health and the Los Angeles County Commission on HIV. **Los Angeles Coordinated HIV Needs Assessment-Care (LACHNA-Care): 2011 Final Report.** December 2011: 1-153. http://hivcommission-la.info/cms1_173837.pdf.

APPENDIX A: Glossary of Terms

95% Confidence Limits/ 95% Confidence Interval (CI)	A range of values for a variable that indicates the likely location of the true value of a measure.
Active Surveillance	Health department staff regularly contact reporting facilities (hospitals, clinics, physician offices, laboratories) to identify potential/suspected HIV cases (or to confirm non case). Health department staff review medical records at provider sites to receive information over the phone or US mail to establish an HIV case and to elicit information for the HIV case report form.
ADAP	AIDS Drug Assistance Program.
AIDS	Acquired Immunodeficiency Syndrome. Stage of HIV infection that occurs when the immune system is badly damaged (CD4 cell count <200 cells/μL) and/or when the individual develops an opportunistic infection.
Antiretroviral therapy	Drugs used specifically for the treatment of HIV disease (see HAART).
Any Mental Illness (AMI)	An individual having any mental, behavioral, or emotional disorder in the past year that met DSM-IV criteria (excluding developmental and substance use disorders). Also see Severe Mental Illness.
BASA	Board Approved Statistical Areas
Black/AA	Black/African American
CD4 ("helper T") cell	Type of white blood cell that oversees the action of the human immune system and is the main target of HIV.
Case	Occurrence of the disease or event of interest in a person.
CDC	The National Centers for Disease Control and Prevention in Atlanta, GA
Chlamydia	Common sexually transmitted infection caused by the bacteria *Chlamydia trachomatis*. Curable when treated with appropriate antibiotics.

COH	Commission on HIV. A federally-mandated Ryan White Part A planning council and County-established community advisory mechanism for the Board of Supervisors.
Confidence interval (CI)	Range of values for an estimate, such as a proportion or rate that is believed to contain the true value within a specified level of certainty. For example, "95%CI=2-5" suggests that we have 95% confidence that the true rate lies between 2 and 5. Similar to Confidence Limit.
Cumulative	Pertaining to the total number; made up of accumulated parts.
Death rate	The average annual number of deaths during a year per 1,000 population at midyear. Also known as the crude death rate.
Decennial census	The census of population and housing, taken by the Census Bureau in years ending in 0 (zero). Article I of the Constitution requires that a census be taken every ten years for the purpose of reapportioning the U.S. House of Representatives. Title 13 of the U. S. Code provides the authorization for conducting the census in Puerto Rico and the Island Areas.
Demographic	Pertaining to characteristics of a population—such as age, race/ethnicity and gender.
DHSP	Division of HIV and STD Programs in the Los Angeles County Department of Public Health.
eHARS	Enhanced HIV/AIDS Reporting System; surveillance database containing HIV and AIDS reports.
Epidemiology	Study of the distribution and determinants of disease in a specified population in order to promote, protect and restore health in that population.
Exposure	Contact with a factor that is suspected to influence the risk for a person developing a particular disease.
FPL	Federal Poverty Level. Equal to or below the Federal Poverty Level. Based on household income.

Gender	Term or variable to classify persons as male or female; recent gender categories may now include both male-to-female and female-to-male transgender.
Geographic coordinates	A measurement of a location on the earth's surface expressed in degrees of latitude and longitude.
GIS	Acronym for geographic information system. An integrated collection of computer software and data used to view and manage information about geographic places, analyze spatial relationships, and model spatial processes. A GIS provides a framework for gathering and organizing spatial data and related information so that it can be displayed and analyzed.
Gonorrhea	Common sexually transmitted infection caused by the organism *Neisseria gonorrhoeae* (often abbreviated "GC"). Often used as a surrogate to identify persons at sexual risk for HIV transmission. Curable when treated with appropriate antibiotics.
HAART	Highly Active Antiretroviral Therapy; The combination of several antiretroviral medicines used to slow the rate at which HIV multiplies in the body.
HIV	Human Immunodeficiency Virus. Infection with HIV is the cause of AIDS (see *AIDS*).
HIV incidence	HIV incidence is generally expressed as the estimated number of persons newly infected with HIV during a specified time period (e.g., a year), or as a rate calculated by dividing the estimated number of persons newly infected with HIV during a specified time period by the number of persons at risk for HIV infection. It is important to understand the difference between HIV incidence and new diagnoses of HIV infection. HIV incidence refers to persons newly infected with HIV, whereas individuals newly diagnosed with HIV may have been infected years before being diagnosed. Incidence estimates are useful for planning and for allocating of funds, as well as evaluating the impact of prevention programs.
IDU	Injection drug user. Person who injects illicit drugs into their body, usually to get high.

Incidence	Number or proportion of persons in a population who have developed or acquired a particular disease or condition within a specific period of time.
Incidence rate	Rate at which new events, such as cases of a particular disease, arise in a given population—for instance, the number of new cases diagnosed in 1 year divided by the population at risk in that same year.
LAC	Los Angeles County.
Linked/Linkage to care	Persons are considered linked to care if they attended an HIV medical care visit within 3 months of diagnosis.
Mean	Equal to the average of the data. Add all data together and divide by the number of observations.
Median	That value which divides a set of measurable values into 2 equal halves, such that half of all values are above the median, and half are below. For example, the median age of study participants was 35 years.
Mode of Exposure	Refers to how HIV is transmitted (through sexual contact, injecting drugs using an HIV-contaminated needle or syringe (IDU), transmission from mother to child, or by receiving HIV-contaminated blood or blood products).
MSM	Men who have sex with men, no matter how they identify themselves; by definition, includes MSM/W, unless MSM/W are counted separately. (See *Behavior Risk Groups*).
MSM/IDU	Men who have sex with men and who also inject drugs into their body.
NHAS	National HIV/AIDS Strategy. Released in 2010 and updated in 2015, it was the nation's the first comprehensive plan for federal and local policymakers to coordinate efforts in response to the HIV epidemic
Odds Ratio	A measure of association that quantifies the relationship between an exposure and health outcome from a comparative study. Also known as the cross-product ratio.

Opportunistic Infection	Diseases caused by organisms commonly present in our bodies or environment but only cause illness when the individual's immune system becomes damaged, as in AIDS.
PCP	Pneumocystis carinii pneumonia. PCP prophylactic therapy is recommended for among persons with CD4 counts <200.
PLWH	Persons living with HIV, including those who are undiagnosed or unaware of their status.
Population estimates	The calculated number of people living in an area as of a specified point in time, usually July 1st. The estimated population is calculated using a component of change model that incorporates information on natural increase (births, deaths) and net migration (net domestic migration, net international migration) that has occurred in an area since the latest decennial census.
P-value	Measure of statistical significance (usually set at a level of <0.05).
Prevalence	Number or proportion of persons in a population who are living with acquired a particular disease or condition within a specific period of time.
Prevalence ratio	Measure of comparison of the prevalence of a particular disease or condition in one group of persons relative to another group of persons.
Projected coordinates	A measurement of locations on the earth's surface expressed in a two-dimensional system that locates features based on their distance from an origin (0,0) along two axes, a horizontal x-axis representing east–west and a vertical y-axis representing north–south. Projected coordinates are transformed from latitude and longitude to x,y coordinates using a map projection.
Proportion	An amount that is part of a whole. For example, the percentage of individuals in LAC diagnosed with HIV out of the total population in LAC.
Rate	Measure of the frequency of a disease in a specified population during a specified period of time; used to compare the impact of a disease on one subpopulation compared with others; also to monitor the impact on groups across time. (See *Incidence rate*)

Report delay	Period between the date a reportable disease is diagnosed by a physician and the date that the diagnosis is reported to public health officials; reason reliable and accurate data only available after a period of months to years after diagnosis.
Retained in care	Persons are considered retained in care if they attend two or more HIV medical care visits at least 90 days apart in a calendar year.
Service Planning Area (SPA)	One of eight geographic subdivisions of Los Angeles County established to decentralize public health service administration into regional areas more responsive to local needs.
Severe Mental Illness (SMI)	An adult having any mental, behavioral, or emotional disorder that substantially interfered with or limited one or more major life activities. Also see Any Mental Illness.
Sexual risk	Person is said to be at sexual risk for HIV when engaging in sexual intercourse—penile-vaginal, penile-anal, or penile-oral—with a partner who is either HIV-infected or at high risk for being HIV-infected, and without the use of a protective barrier, such as a condom.
Sexually exposed	Exposure to an infectious agent as a result of sexual intercourse with an infected partner.
Shapefile	A vector data storage format for storing the location, shape, and attributes of geographic features. A shapefile is stored in a set of related files and contains one feature class.
SIP	Persons who share injection paraphernalia.
Standard Deviation	A statistical summary of how dispersed the values of a variable are around its mean. The average of all distances of each data point from the mean.
Statistical power	Relative frequency with which a true difference of specified size between populations would be detected by the proposed experiment or test.
Statistically significant	The finding of an observed difference between two or more samples is described as statistically significant when it can be demonstrated that the probability of obtaining such a difference by chance alone, is low. It is customary to describe one's finding

	as statistically significant, when the observed result would occur by chance no more than 5 times out of 100.
STD	Sexually transmitted disease. Diseases that spread from individual to another as a result of sexual activity.
Surveillance	Systematic and ongoing collection and analysis of information about a disease within a population, followed by the timely distribution of that information to those who need to know so that action can be taken.
Syphilis	Sexually transmitted infection, caused by the bacterial organism *Treponema pallidum,* that is spread either sexually or from an infected mother to her newborn. Curable when treated with appropriate antibiotics.
Transgender person	Someone who has a different sex, gender identity, and/or gender expression than the one assigned to them at birth, regardless of their sexual orientation (Cabral, 2007; Sausa, Keatley, & Operario, 2007).
Viral load	Amount of HIV virus particles in a milliliter of blood (usually measured in copies/mL). High viral loads are correlated with poorer immune response and higher risk of transmitting the virus.
Viral suppression/ Virally suppressed	Viral load of ≤200 copies/mL as defined by the U.S. Department of Health and Human Services Panel on Antiretroviral Guidelines for Adults and Adolescents.
x,y coordinates	A pair of values that represents the distance from an origin (0,0) along two axes, a horizontal axis (x), and a vertical axis (y). On a map, x,y coordinates are used to represent features at the location they are found on the earth's spherical surface.

APPENDIX B: Technical Notes

SECTION II

Ten leading causes of death categorization

Cause of death categories for Los Angeles County differ from those used for California and the United States and are therefore not always comparable. Please see the tables below for ICD-10 codes used

Leading causes of death categories for LAC 2011	*ICD-10 Codes*
Coronary heart Disease	I20-I25
Alzheimer's disease	G30
Cerebrovascular diseases/Stroke	I60-I69
Lung Cancer	C34
Chronic Obstructive Pulmonary Disease (COPD)	J40-J44
Diabetes mellitus	E10-E14
Colorectal Cancer	C18-C21, C26.0
Chronic liver disease and cirrhosis	K70, K73-K74
Influenza and pneumonia	J09-J18
Breast Cancer	C50
Essential Hypertension and hypertensive renal disease	*I10, I12, I15*

Source: Los Angeles County Department of Public Health, Mortality in Los Angeles County 2012, Leading Causes of Death and Premature Death with Trends for 2003-2012, http://publichealth.lacounty.gov/dca/data/documents/mortalityrpt12.pdf

Leading causes of death categories for CA 2011 and US 2011	*ICD-10 Codes*
Accidents (unintentional injuries)	V01-X59,Y85-Y86
Alzheimer's disease	G30
Cerebrovascular diseases/Stroke	I60-I69
Chronic liver disease and cirrhosis	K70,K73-K74
Chronic lower respiratory diseases	J40-J47
Diabetes mellitus	E10-E14
Diseases of heart	I00-I09,I11,I13,I20-I51
Essential hypertension and hypertensive renal disease	I10,I12,I15
Influenza and pneumonia	J09-J18
Intentional self-harm (suicide)	*U03,X60-X84,Y87.0
Malignant neoplasms	C00-C97
Nephritis, nephrotic syndrome and nephrosis	N00-N07,N17-N19,N25-N27

*Beginning with data for 2001, NCHS introduced categories *U01-*U03 for classifying and coding deaths due to acts of terrorism. The asterisks before the category codes indicate that they are not part of the International Classification of Diseases, Tenth Revision (ICD-10).

Explanation of Race and Ethnicity categories

Unless otherwise stated we used “non-Hispanic race alone” for the categories of White, Black/African American (Black/AA), Asian (A), Native Hawaiian and other Pacific Islander (PI), two or more races (Other) while we used “non-Hispanic race alone or in combination” for American Indian/Alaska Native (AI/AN) categories.

SECTION III

Mode of Exposure and the redistribution of AIDS cases with “no identified risk”

Exposure categories are assigned in a hierarchical fashion, so that cases for which more than one exposure category have been identified are assigned to the category listed highest in the hierarchy. For example, a man who reports having sexual contact with another man and also reports having “heterosexual” contact with an HIV-positive woman would be classified as "male-male sexual contact", because that is the highest risk exposure category. The only exposure category that includes two risk exposures is the MSM-IDU category—that is, men who report both sexual contact with another man (MSM) as well as engaging in injection-drug use (IDU). The "Undetermined" exposure category includes persons with no history of exposure to HIV through one of the defined exposure categories. If subsequent case investigation identifies a mode of exposure, the case is reclassified into the corresponding exposure category. For analysis, the number of cases with no identified risk (NIR) is distributed into one of the defined exposure categories proportionately, based upon the past pattern of reclassification of undetermined exposure cases.

HIV Incidence Estimates

Estimates of HIV incidence were calculated using the Stratified Extrapolation Approach (SEA) developed by the CDC. SEA combines results from the Serologic Testing Algorithm for Recent HIV Seroconversion (STARHS) with demographic characteristics, risk factors, diagnosis dates, HIV testing history and exposure to antiretroviral medications. Missing data (for HIV testing history, STARHS results, and risk factors) were imputed using the Multiple Imputation procedure in SAS v9.3. Available STARHS results and testing history data is used to impute missing information first for newly diagnosed individuals (testers). The complete imputed data from the testers is extrapolated to the entire population including testers and non-testers to calculate a population level incidence estimate. Limitations of HIS include the assumption that testers and non-testers have equivalent HIV risk and the limited access to and availability of remnant sera for STARHS testing.

HIV Staging

To remain consistent with the new staging of HIV, *HIV* refers to diagnosis of HIV infection regardless of the stage of disease (acute, 1, 2, 3, or unknown) and refers to all persons with a diagnosis of HIV infection. Discussion of *stage 3 (AIDS)* refers specifically to persons with diagnosed HIV whose infection was classified as stage 3 (AIDS) during a given year (for diagnoses) or whose infection has ever been classified as stage 3 (AIDS) (for prevalence and deaths).

SECTION IV

Population estimates Population estimates for 2012 and 2014 were prepared by Henderson Demographic Services for LA County. Population estimates below 25,000 are more unstable and should be used with caution.

SPA maps

The City of Los Angeles is divided into "communities" or geographical units. For Service Planning Area (SPA) maps, each SPA was divided by city, unincorporated area and community boundaries using the April 2015 version of the LA County Board Approved Statistical Areas (BASA) boundary shapefile, which represents board approved geographies comprised of Census-designated block groups. Therefore, the boundaries illustrated on the SPA maps do not reflect community or jurisdictional boundaries perfectly. For PLWH at year-end 2014 the city/community was assigned based on projected geo-coordinates (X, Y) of the most current residential information, and when a detailed street address was not available, the city or ZIP Code of the most current residence was used to approximate the city/community location. Within each city/community of the SPA, the number of PLWH at year-end 2014 were calculated. Rates per 100,000 population of PLWH were calculated by dividing the number of PLWH within each BASA by the 2014 population estimate within each BASA, multiplied by 100,000. Each city/community within each SPA was color shaded according to the rates of PLWH. Cities/communities with the darkest shade of color correspond to the highest rates of PLWH. Cities and communities with fewer than 12 PLWH or a population of less than 5,000 were excluded from rate calculation for PLWH and shaded in grey.

Population denominator for rates of persons diagnosed with HIV and PLWH

Population estimates for 2012 and 2014, prepared by Hedderson Demographic Services, are only available at the Census Tract level and do not align with BASA boundaries perfectly. Therefore, the weighted centroid method, using the LAC modified Census Block 2010 shapefile merged with the U.S. Census 2010 population by Census Block, was used to approximate the distribution of the 2012 and 2014 estimated population by Census Tract within each BASA.

SECTION V

Not in Care is defined as all diagnosed and reported HIV cases minus those engaged in care. The HIV Continuum of Care includes an estimate of engagement in care (61%) and is defined as $\geq$1 CD4/VL/genotype tests in 2013. See Section VII for more information on the HIV Continuum of Care.

APPENDIX C: Data Sources

Los Angeles Coordinated Needs Assessment-Care (LACHNA-Care)

Los Angeles Coordinated HIV Needs Assessment-Care (LACHNA-Care), conducted by the LAC Commission on HIV (Commission) and LAC DHSP, is a needs assessment of PWLH in LAC who receive services funded by RW. The survey utilized a cross-sectional study design with a two-stage proportional-to-size sampling design to obtain a statistically representative sample of agencies and clients in LAC's RW service delivery system[i]. Eligible participants were HIV-positive LAC residents age 18 years or older who received RW-funded services from one of the sampled agencies between January to June 2011. Participants (N=450) were recruited using real-time sampling at the agencies, and data was collected via audio computer-assisted self-interview (ACASI). Individual-level analysis weights were generated based on known sampling probabilities at both the facility and patient stages.

This is the fifth quantitative needs assessment conducted by the Commission since 2002. This current needs assessment focuses on care and support services needed and utilized by PLWH, highlights service gaps and barriers to needed services, and assesses patient satisfaction with services received.

Medical Care Coordination (MCC) Program

The *Medical Care Coordination* (MCC) program was implemented in 2012 to improve the LAC HIV care continuum and incorporate principles of the patient centered medical home into HIV care delivery. In 2015, CDC recognized the MCC program as one of four "success stories" of health departments' progress toward achieving NHAS goals[ii2]. In addition, the LAC Quality and Productivity Committee recognized the MCC program the "Changemaker" award for its impact on service effectiveness and efficiency.

MCC is based on an integrated service model: multidisciplinary teams co-located at the HIV medical home (consisting of a nurse, social worker and case worker) assess patients' medical and non-medical support needs, and deliver targeted brief interventions to improve engagement in care and adherence to antiretroviral therapy (ART), as well as reduce risk behaviors. DHSP contracts with 20 agencies representing 35 RW HIV clinics in LAC that serve predominantly low-income, minority patient populations to provide MCC services. Participating clinics are required to: 1) screen their patient population every 6 months to identify those at risk for poor health outcomes; 2) enroll identified patients in the MCC program; 3) assess medical and psychosocial needs (including health status, social support, mental health, substance use, adherence to ART, access to housing, transportation, medical care, and financial support) and determine patient acuity; 4) develop and implement a care plan; 5) deliver targeted interventions and counseling based on identified need; 6) re-assess and deliver services until patient can manage own care. This model effectively integrates a variety of HIV-related services that historically have been offered by different providers.

Baseline assessment, laboratory and MCC service data on participating patients are obtained through routine data reporting by agencies to DHSP. A prospective longitudinal design is used to evaluate differences in main outcomes 12 months before and after enrollment in MCC: viral suppression (VL<200 copies/mL) and retention in care (≥2 HIV test dates >90 days apart in past 12m). Data presented in this report is from the first year of the program and includes 1,204 patients enrolled from January through December 2013 [iii,iv].

Medical Monitoring Project (MMP)

The *Medical Monitoring Project* (MMP) is a CDC-funded HIV surveillance system designed to produce nationally and locally representative estimates of behavioral and clinical characteristics of HIV-infected adults receiving medical care in the U.S.[v,vi,vii]. MMP employs a cross-sectional design that samples: 1) U.S. states and territories; 2) HIV medical care facilities; and 3) HIV-infected adults aged 18 years or older who had at least one medical visit at a participating facility between January and April of each year. Data used in this report were collected in LAC via face-to-face interviews and medical record abstractions at the patients' usual source of HIV care between June 2009 to May 2012 (N=692). Data were weighted based on known probabilities of selection at state or territory, facility, and patient levels. Additionally, data were weighted to adjust for non-response using predictors of patient-level response (facility size, race/ethnicity, time since HIV diagnosis, and age). Finally, weights were post-stratified to the HIV-diagnosed population in LAC by race/ethnicity, age and sex.

The objectives of MMP are to collect information from HIV-infected persons in care on healthcare utilization, disease outcomes, and risk behaviors; monitor and calculate rates of opportunistic infections among HIV-infected persons; determine the prevalence of adverse events to medical therapy; determine the prevalence of resistant strains of HIV; assess the impact of behavioral determinants in access to care and in adherence to medical regimens for HIV-positive persons; improve prevention programs to prevent further HIV transmission; and improve services for those already infected.

Navigation Program (NAV)

The *Navigation Program* (NAV) is a clinic-based, demonstration project being conducted by LAC DHSP as part of the Division's Testing, Linkage, Care and Treatment (TLC+) evidence-based interventions to link and re-engage out of care (OOC) PLWH into HIV care. NAV utilizes best practices from HIV/STD disease investigation service practices, locator techniques for hard-to-reach populations, and a modified version of CDC's Antiretroviral Treatment Access Study (ARTAS) linkage to care intervention[viii] to re-engage OOC HIV patients at seven publicly-funded HIV clinics in LAC. OOC patients (N=388) were identified using clinic databases and include those who: 1) had no HIV care visits in 6-12 months and last viral load test result greater than 200 copies/ml; 2) had no HIV care visits in more than 12 months; 3) were newly-diagnosed but have not yet received HIV care within 3 months; or 4) were recently released from jail/prison/other institution and no regular HIV medical provider. Trained navigators contacted the selected patients using clinic, LAC HIV/STD surveillance, HIV Casewatch, and people-finder locator information and offered them enrollment in the intervention. The intervention consisted of an average of 4.5 meetings between the patient and the Navigator and an average

of 11.6 hours per patient. NAV uses a longitudinal, observational design; interview data is collected at baseline, 6-months and 12-months. Data used in this report was collected between April 2014 through November 2014 (N=42).

Project Engage (PE)

Project Engage (PE) is another of LAC DHSP's TLC+ projects that attempts to locate hard-to-reach OOC PLWH and link or re-engage them into HIV care. This community-based, demonstration project selects OOC PLWH from LAC's electronic HIV/AIDS Surveillance database (eHARS) who: 1) have had no HIV care in more than 12 months; 2) have had no HIV care in 7-12 months with a most recent viral load test greater than 200 copies/mL; 3) were recently diagnosed and have not been linked to care within 3 months of diagnosis; or, 4) were recently released from jail with no identified primary HIV care provider. The goal of PE is to test whether a chain-referral method (snowball sampling) using trained recruiters from local HIV clinics, or a direct recruitment approach using community outreach workers and flyers, is more effective for recruiting OOC PLWH. A quasi-experimental design is used to determine the program's impact (i.e., re-engagement rate and reducing viral load) and cost effectiveness using HIV-surveillance data to construct a comparison group. Participants complete a baseline survey and receive assistance from outreach workers to link to care and negotiate barriers to care. Outcome variables (viral loads and medical appointment visits) were collected from eHARS at three time points (at the participant's last medical appointment prior to enrollment, at enrollment (re-engagement) and at 6-months post-re-engagement. Additionally, participants complete a survey to assess acceptability and satisfaction with the project. Data used in this report was collected between August 2012 through November 2014 (N=132).

Ryan White HIV/AIDS Program (Casewatch)

The *Ryan White HIV/AIDS Program* (RW) is the largest funding source for HIV/AIDS care and treatment services in the United States and is the "funder of last resort" for all low-income PLWH and their families. Information about the utilization of medical, nutritional, mental health, housing and substance use services by RW clients is collected through DHSP's "*HIV CaseWatch*" system, a client-level data collection system used by DHSP and RW-funded agencies in LAC to manage eligibility, demographic and service utilization data, medical and support service outcomes, and to track linkages and referrals to other service providers or systems of care for persons with HIV. *CaseWatch* data presented in this report covers the timeframe of 2009-2013.

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[1]Division of HIV and STD Programs, Los Angeles County Department of Public Health and the Los Angeles County Commission on HIV. **Los Angeles Coordinated HIV Needs Assessment-Care (LACHNA-Care): 2011 Final Report**. December 2011: 1-153. http://hivcommission-la.info/cms1_173837.pdf

[2] Holly Fisher, Steve Flores, Tamika Hoyte, and Amanda Jones (2015). **Progress Towards National HIV/AIDS Strategy Goals: Success Stories from the Enhanced Comprehensive Planning Project**. Centers for Disease Control and Prevention, Atlanta, GA. Retrieved from: *www.cahisc.org/LiteratureRetrieve.aspx?ID=139126*

[3]Garland WH, Dierst-Davies R, Kulkarni SP. **Six-Month Outcomes from a Medical Care Coordination Program at Safety Net HIV Clinics in Los Angeles County (LAC)** [abstract #430]. The 9th International Conference on HIV Treatment and Prevention Adherence, 2014, Miami, FL.

[4]Garland WH, Kulkarni SP. **Improvements in Retention in Care and Viral Suppression: Results from the First Year of the Medical Care Coordination Program in Los Angeles County** [abstract #282]. The 10th International Conference on HIV Treatment and Prevention Adherence, 2015, Miami, FL.

[5]Blair JM, Fagan JL, Frazier EL, Do A, *et al.* **Behavioral and Clinical Characteristics of Persons Receiving Medical Care for HIV Infection — Medical Monitoring Project, United States, 2009**. *Morbidity and Mortality Weekly Report (MMWR)* 2014, 63: 1-28.

[6]McNaghten AD, Wolfe MI, Onorato I, Nakashima AK, Valdiserri RO, Mokotoff E*, et al.* **Improving the representativeness of behavioral and clinical surveillance for persons with HIV in the United States: the rationale for developing a population-based approach**. *PLoS One* 2007,2: e550.

[7]Frankel MR, McNaghten AD, Shapiro MF, Sullivan PS, Berry SH, Johnson CH*, et al.* **A Probability Sample for Monitoring the HIV-infected Population in Care in the U.S. and in Selected States**. *Open AIDS Journal* 2012, 6: 67-76.

[8]Gardner, L. I., Metsch, L. R., Anderson-Mahoney, P., Loughlin, A. M., del Rio, C., Strathdee, S., *et al.* **Efficacy of a brief case management intervention to link recently diagnosed HIV-infected persons to care.** *AIDS* 2005; 19: 423-31.