



San Francisco Department of Public Health
HIV/AIDS Epidemiology Annual Report

2009

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Executive Summary

The widespread use of highly active antiretroviral therapy (HAART) beginning in 1996 in many industrialized countries has resulted in a large reduction in mortality rates among HIV infected persons. HIV/AIDS is now conceptualized as a chronic illness, to be managed in similar ways to diseases like diabetes, where a major goal of therapy is to prevent later complications and ensure quality of life. There has been a greater interest, then, in examining the role of non-AIDS-related illnesses among individuals with HIV/AIDS. Epidemiologic data have demonstrated that mortality rates due to non-AIDS-related causes of death have not decreased as dramatically as AIDS-related causes of death. In fact, the proportions of deaths due to many non-AIDS-related causes have increased since the introduction of HAART. Among these, non-AIDS-related cancers, liver-related illnesses, and heart disease have become more significant, especially as the population of persons with HIV/AIDS ages.

In San Francisco, our HIV/AIDS surveillance data have yielded similar trends in mortality. Although HIV/AIDS remains the leading cause of death among persons with HIV infection, the proportion of deaths in which HIV/AIDS was the underlying cause decreased from 74.4% in the period 1996-1999 to 61.9% in the period 2004-2007. Non-AIDS-related cancer and heart disease are emerging as important causes of death.

Advances in the treatment of HIV disease have had a dramatic effect on the trends in the age of death for infected persons. The median age at death, for example, has been increasing since the 1996-1999 period for HIV/AIDS and most non-AIDS-related causes of death. However, life expectancy for HIV-infected persons remains well below that of uninfected persons. Evidence of this is clear by examining the distribution of deaths by age group where persons in the 40-49 years carry the greatest mortality. Among persons aged 40 years and above, non-AIDS-related cancer and heart disease account for the greatest proportion of non-HIV/AIDS-related deaths.

Shifts in the causes of and the age at death among HIV-infected persons reflect more than just the survival benefit of HAART. Ongoing infection with HIV/AIDS may contribute to some non-AIDS-related illnesses through immunosuppression and inflammation. Emerging evidence suggests that HIV-infected persons age faster than uninfected persons and HIV/AIDS leads to the development of chronic age-related illness and death. Side effects of long-term treatment may contribute to the observed trends in causes of death.

Monitoring trends in mortality rates and the causes of death among HIV-infected persons provides important data that inform treatment policies and allow for the evaluation of the impact of such policies on mortality. San Francisco recently adopted recommendations to provide antiretroviral therapy for all HIV-infected persons regardless of their clinical stage of disease. The impact of these recommendations on mortality rates, causes, and age at death will be important outcomes to follow over the coming years.

1

Overview of HIV/AIDS in San Francisco

HIV/AIDS surveillance in San Francisco is conducted through various methods and evaluated on a regular basis (see Technical Notes, HIV/AIDS Surveillance Methods). There were a cumulative total of 28,409 San Francisco residents diagnosed with AIDS from the beginning of the epidemic to December 31, 2009 (Table 1.1). This comprises 18% of California AIDS cases and 3% of AIDS cases reported nationally. Compared to cases reported in California and the United States, AIDS cases in San Francisco are more likely to be male, white, and to occur among men who have sex with men (MSM), including MSM who also inject drugs intravenously (MSM IDU).

HIV/AIDS cases diagnosed in 2009 exhibit different distributions in demographic and exposure categories. Compared to cumulative San Francisco AIDS cases, there was a greater proportion of females, people of color, and people infected through heterosexual contact. Compared to HIV/AIDS cases diagnosed nationally in 2008, San Francisco's recently diagnosed HIV/AIDS cases were more likely to be male, white, and MSM.

Table 1.1 Characteristics of cumulative AIDS cases and newly diagnosed HIV/AIDS cases in San Francisco, California and the United States

	Cumulative AIDS Cases*			Newly Diagnosed HIV/AIDS Cases*	
	San Francisco ¹ (N = 28,409)	California ² (N = 155,208)	United States ³ (N = 1,045,457)	San Francisco ¹ , 2009 (N = 411)	United States ³ , 2008 (N = 34,188)
	Number	%	%	%	%
Gender					
Male	26,819	94%	90%	90%	75%
Female	1,191	4%	9%	7%	25%
Transgender [#]	399	1%	<1%	3%	--
Race/Ethnicity					
White	20,111	71%	55%	50%	29%
African American	3,586	13%	18%	16%	51%
Latino	3,459	12%	24%	23%	17%
Asian/Pacific Islander	890	3%	2%	8%	1%
Native American	126	<1%	<1%	1%	<1%
Other/Unknown	237	1%	<1%	2%	<1%
Exposure Category					
MSM	21,068	74%	67%	73%	40%
IDU	2,166	8%	10%	6%	5%
MSM IDU	4,280	15%	10%	11%	2%
Heterosexual	451	2%	6%	5%	16%
Other/Unidentified	444	2%	7%	6%	36%

* Percentages may not add to 100% due to rounding.

¹ San Francisco data are reported through February 26, 2010 for cases diagnosed through December 2009.

² California data are reported through September 2009. California data on newly diagnosed HIV/AIDS cases are not available.

³ U.S. data are reported through December 2008 and may be found in the CDC HIV Surveillance Report, 2008; Vol. 20. U.S. data reflect unadjusted numbers for 37 states with confidential name-based HIV reporting.

[#] Transgender data are not reported by the United States. See Technical Notes "Transgender Status."

For San Francisco AIDS cases, the distribution of HIV exposure categories differs by race/ethnicity and gender. Among men, MSM account for the majority of male AIDS cases within all racial/ethnic groups (Table 1.2). In African American men, injection drug use among heterosexuals is the second leading exposure category, but for men of all other racial/ethnic groups, MSM IDU represents the second most frequent exposure category. Cumulatively, less than 2% of men with AIDS acquired HIV infection through heterosexual contact, transfusion of blood or blood products, or other exposure categories.

Among women with AIDS, the most frequent exposure category for whites, African Americans, Latinas, and Native Americans is injection drug use (IDU) followed by heterosexual contact. For Asian/Pacific Islander women, 49% acquired their infection through heterosexual contact, 25% through injection drug use, and 16% through transfusion of blood or blood products.

Compared to men and women with AIDS, male to female transgender AIDS cases were more likely to be in a transmission category involving injection drug use. Among transgender AIDS cases, 57% of whites, 69% of African Americans, 44% of Latinos and 31% Asian/Pacific Islander were IDU.

Table 1.2 Cumulative AIDS cases by gender, exposure category, and race/ethnicity, diagnosed through December 2009, San Francisco

	White		African American		Latino		Asian/Pacific Islander		Native American	
	Number	(%)	Number	(%)	Number	(%)	Number	(%)	Number	(%)
Male										
MSM	16,037	(82)	1,517	(52)	2,483	(78)	662	(84)	53	(49)
IDU	511	(3)	672	(23)	172	(5)	24	(3)	8	(7)
MSM IDU	2,920	(15)	597	(20)	400	(13)	59	(7)	44	(40)
Heterosexual	34	(<1)	58	(2)	34	(1)	12	(2)	2	(2)
Transfusion/ Hemophilia	50	(<1)	17	(1)	23	(1)	12	(2)	0	(0)
Other/Unidentified	68	(<1)	59	(2)	56	(2)	23	(3)	2	(2)
Male Subtotal	19,620		2,920		3,168		792		109	
Female										
IDU	250	(65)	383	(71)	81	(48)	16	(25)	12	(86)
Heterosexual	82	(21)	123	(23)	67	(39)	31	(49)	2	(14)
Transfusion/ Hemophilia	29	(8)	10	(2)	10	(6)	10	(16)	0	(0)
Other/Unidentified	21	(5)	26	(5)	12	(7)	6	(10)	0	(0)
Female Subtotal	382		542		170		63		14	
Transgender (Male to Female Only*)										
IDU	62	(57)	86	(69)	53	(44)	11	(31)	#	
Non IDU	47	(43)	38	(31)	68	(56)	24	(69)	#	
Transgender Subtotal	109		124		121		35		#	

* See Technical Notes "Transgender Status."

Data are not released due to potential small population size.

The number of new AIDS cases diagnosed each year among San Francisco residents reached a peak of 2,327 cases in 1992 and has declined since then (Figure 1.1). Deaths among persons with AIDS reached a plateau between 1992 and 1995 and declined thereafter. The sharpest decline in AIDS deaths occurred between 1995 and 1997, reflecting the impact of combination antiretroviral therapies. Since 1999, slight declines have continued in both cases and deaths. Delays in reporting affect the number of cases and deaths for recent years. Therefore, the numbers of cases and deaths for 2008 and 2009 may be revised upward in future reports.

The number of San Franciscans living with AIDS has continued to rise every year since 1980. This is due to effective antiretroviral therapy and a lower number of AIDS deaths than new AIDS cases each year. There were 9,326 San Francisco residents living with AIDS by the end of 2009.

Figure 1.1 AIDS cases, deaths, and prevalence, 1980-2009, San Francisco

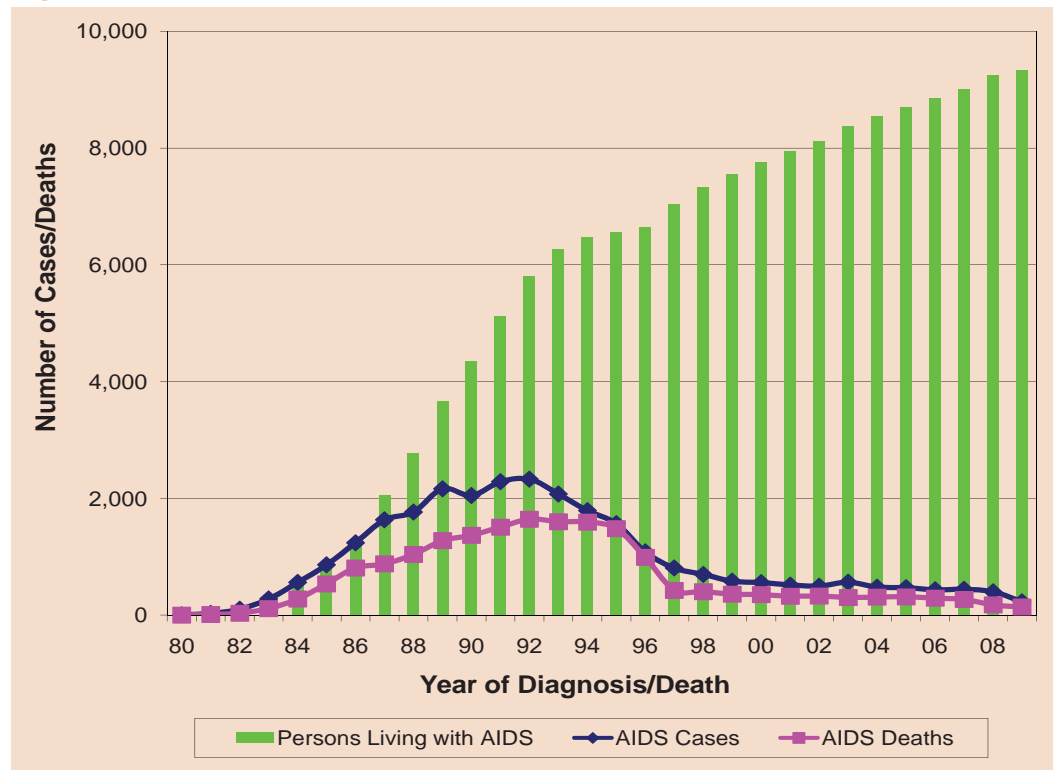
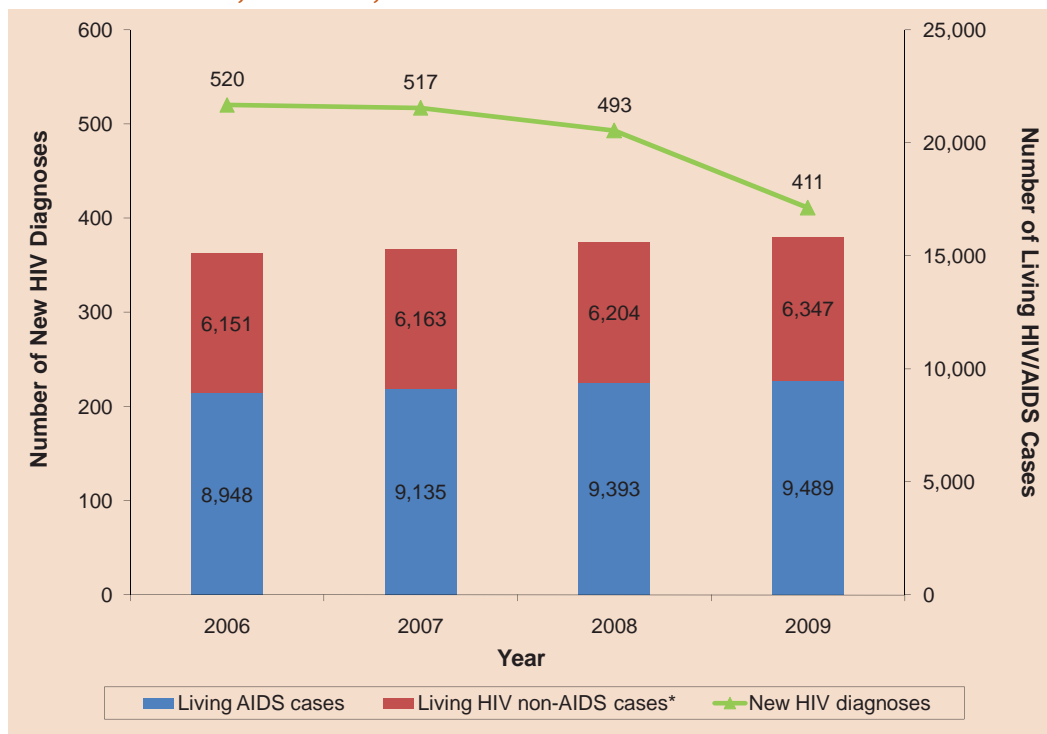


Figure 1.2 illustrates the number of persons newly diagnosed with HIV infection (line) and number of persons living with HIV/AIDS between 2006 and 2009 (stacked bars). The date of HIV diagnosis for newly diagnosed cases was determined based on the earliest date of any of the following: a) HIV antibody test, b) viral load or CD4 test, c) initiation of antiretroviral therapy, or d) patient self-report of a positive HIV test. The number of new HIV diagnoses shown by year includes persons who were diagnosed in that year with HIV non-AIDS, concurrent HIV and AIDS diagnosis, or initially diagnosed with HIV non-AIDS and developed AIDS in subsequent year.

The number of new HIV diagnoses remained relatively stable between 2006 and 2008 and declined in 2009. The numbers are lower for cases diagnosed in recent years due to reporting delay. The number of living cases by year includes persons who were diagnosed with HIV/AIDS during or prior to the year shown and known to be alive by the end of that year. The number of persons living with HIV/AIDS continued to increase from 15,099 in 2006 to 15,836 in 2009. The increasing number of living cases is a reflection of both a steady addition of newly diagnosed cases over time coupled with a decline in deaths in each year. These data only include persons who have been diagnosed and reported to the health department. HIV-infected persons who are unaware of their infection and persons diagnosed with an anonymous HIV test are not included. Thus, these figures may underestimate the true prevalence.

Figure 1.2 Number of cases diagnosed with HIV infection and HIV/AIDS prevalence, 2006-2009, San Francisco



* Includes persons reported both by name and by a non-name code prior to 2006.

Table 1.3 shows the characteristics of persons diagnosed with HIV between 2006 and 2009. The majority were male, white, aged 25-49 years, and MSM. There was a slight increase in the proportion of persons of color. There were no children (<13 years) diagnosed with HIV during this time period.

Table 1.3 Characteristics of persons newly diagnosed with HIV between 2006 and 2009, San Francisco

	Year of HIV Initial Diagnosis*			
	2006	2007	2008	2009
Total Number	520	517	493	411
Gender				
Male	91%	88%	90%	90%
Female	7%	8%	8%	7%
Transgender	2%	4%	2%	3%
Race/Ethnicity				
White	58%	54%	50%	50%
African American	15%	15%	16%	16%
Latino	20%	19%	23%	23%
Asian/Pacific Islander	6%	9%	9%	8%
Native American	1%	0%	1%	1%
Other/Unknown	1%	3%	2%	2%
Age at HIV Diagnosis (years)				
0 – 12	0%	0%	0%	0%
13 – 24	11%	10%	10%	13%
25 – 49	74%	79%	80%	71%
50+	15%	11%	10%	16%
Exposure Category				
MSM	71%	67%	71%	73%
IDU	8%	8%	6%	6%
MSM IDU	12%	12%	9%	11%
Heterosexual	4%	7%	6%	5%
Other/Unidentified	6%	6%	7%	6%

* Data include persons with a diagnosis of HIV (not AIDS), an initial diagnosis of HIV (not AIDS) and later diagnosed with AIDS, and concurrent diagnosis of HIV and AIDS, reported to the SFPDPH as of February 26, 2010. Percentages may not add to 100% due to rounding.

Characteristics of living HIV/AIDS cases in San Francisco are different compared to statewide and nationwide cases (Table 1.4). Compared to California and U.S. living HIV/AIDS cases, San Francisco living HIV/AIDS cases are more likely to be male, white, and MSM. There is a larger proportion of persons living with HIV/AIDS in California and the U.S. that are female, African Americans and Latinos. Heterosexual contact and IDU (non-MSM) are also more common among California and U.S. cases than San Francisco cases.

Table 1.4 Characteristics of persons living with HIV/AIDS in San Francisco, California and the United States, December 2009

	San Francisco ¹		California ²		United States ³
	Living HIV Non-AIDS Case	Living HIV/AIDS Cases	Living HIV Non-AIDS Cases	Living HIV/AIDS Cases	Living HIV/AIDS Cases
Total Number	6,347	15,836	37,302	105,701	561,886
Gender					
Male	92%	92%	86%	87%	73%
Female	6%	6%	13%	12%	27%
Transgender	2%	2%	1%	1%	--
Race/Ethnicity					
White	63%	63%	48%	47%	33%
African American	13%	14%	19%	19%	48%
Latino	15%	16%	29%	30%	17%
Asian/Pacific Islander	5%	5%	4%	3%	<1%
Native American	1%	1%	<1%	<1%	<1%
Other/Unknown	3%	1%	1%	1%	<1%
Exposure Category					
MSM	73%	73%	67%	65%	38%
IDU	6%	7%	7%	9%	14%
MSM IDU	12%	13%	6%	8%	4%
Heterosexual	3%	3%	9%	9%	19%
Other/Unidentified	6%	4%	11%	9%	24%

1. San Francisco cases are reported through February 26, 2010 for cases diagnosed through December 31, 2009 and include both the name-based and code-based HIV cases.

2. California cases are reported through September 30, 2009 and include only the name-based HIV cases.

3. U.S. data reflect unadjusted living cases, as of December 2007 for 37 states with confidential name-based HIV reporting.

HIV Incidence Estimates

Using a statistical methodology developed by the Centers for Disease Control and Prevention, we estimated the number of incident or new HIV infections in San Francisco by year. Blood from standard HIV tests from newly diagnosed HIV cases is retested using a laboratory assay (called BED) that classifies individuals as having either a recently acquired HIV infection (within the past six months) or a longer-standing infection. Results from this test are used with a statistical adjustment for HIV testing patterns to calculate HIV incidence.

Applying this methodology in San Francisco in 2006, 2007 and 2008, we find that the number of new HIV infections is declining (Table 1.5). While this decline is encouraging and corresponds with a similar drop in number of new HIV diagnoses, the confidence intervals overlap from year to year indicating that the declines are not statistically significant.

Table 1.5 Estimated incident HIV infections in San Francisco, 2006-2008

Year of HIV Infection	HIV Incidence Estimates	
	Number of New Infections	95% Confidence Interval
2006	975	[801 - 1,082]
2007	792	[552 - 1,033]
2008	621	[462 - 782]

2

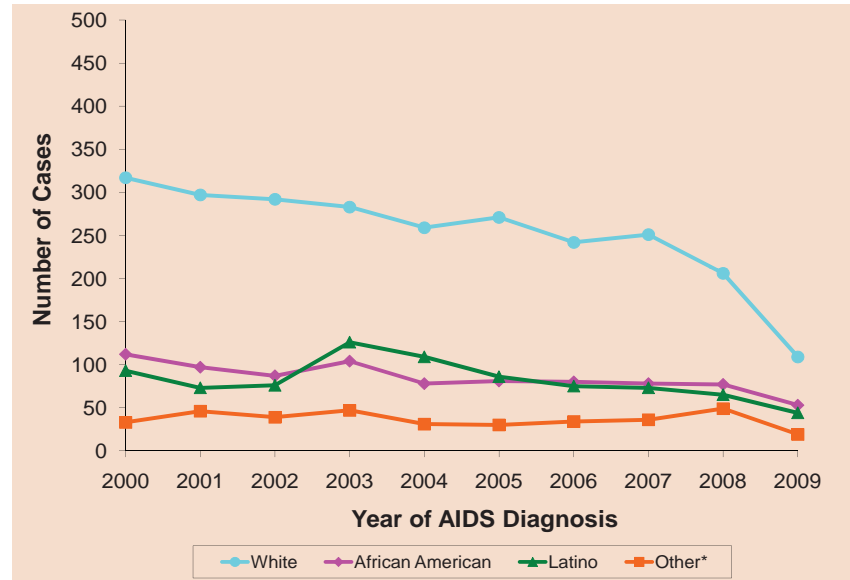
Trends in HIV/AIDS Diagnosis

Race/ethnicity

In absolute numbers, AIDS cases in San Francisco have occurred predominantly among whites (Figure 2.1). The number of white AIDS cases has declined over the last 10 years. The number of African American AIDS cases also declined from 2000, but has been level between 2004 and 2007. The trend for Latino AIDS cases shows a period of slight increase until 2003 and a decline thereafter. AIDS case counts for recent years are subject to delays in reporting, particularly for 2009.

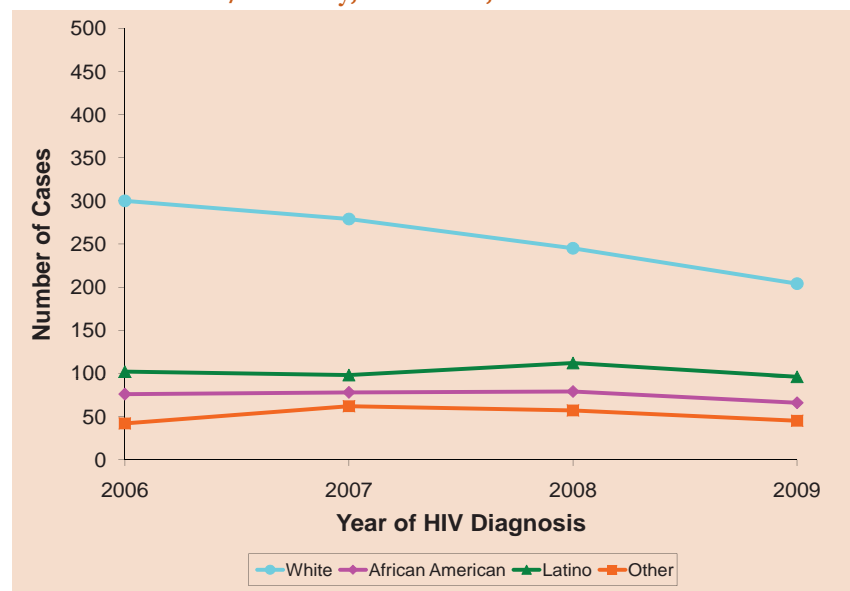
Trends by race/ethnicity category for cases diagnosed with HIV infection show that, from 2006 to 2009, whites accounted for the majority of diagnosed cases (Figure 2.2). The number of white HIV/AIDS cases declined in this time period, while the number of HIV/AIDS cases for other race/ethnicity groups remained level.

Figure 2.1 Number of AIDS cases by race/ethnicity, 2000-2009, San Francisco



* Cases in the "Other" race/ethnicity category include 74% Asian/Pacific Islanders and 9% Native Americans.

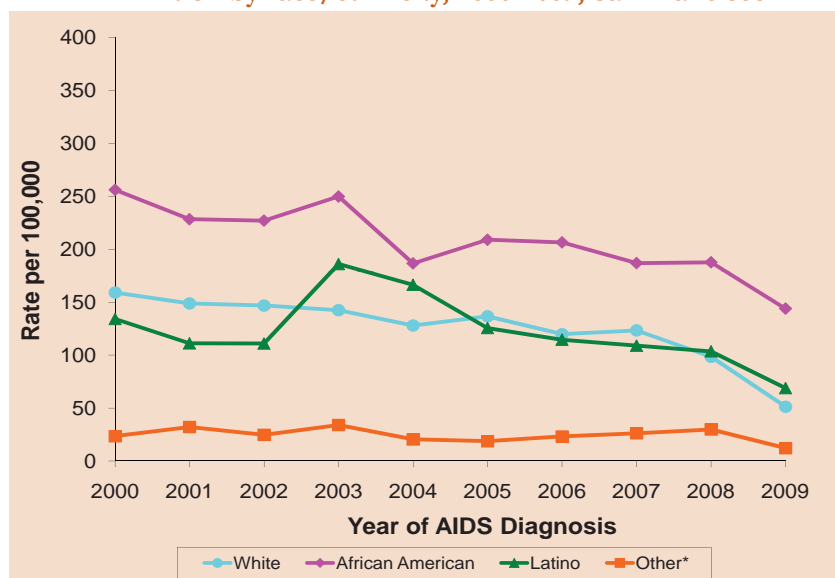
Figure 2.2 Number of cases diagnosed with HIV infection* by race/ethnicity, 2006-2009, San Francisco



* Includes persons with HIV/AIDS by year of their initial HIV diagnosis.

Since 2000, the AIDS incidence rates among African American men have been higher than for men of all other race/ethnicity groups (Figure 2.3). The AIDS incidence rates for white men and Latino men have been similar since 2005. In 2009, the incidence rate of AIDS per 100,000 population was 144 among African American men, 51 for white men, and 69 for Latino men. Delays in reporting result in under-estimation of rates for recent years, particularly for 2009.

Figure 2.3 Male annual AIDS incidence rates[#] per 100,000 population by race/ethnicity, 2000-2009, San Francisco

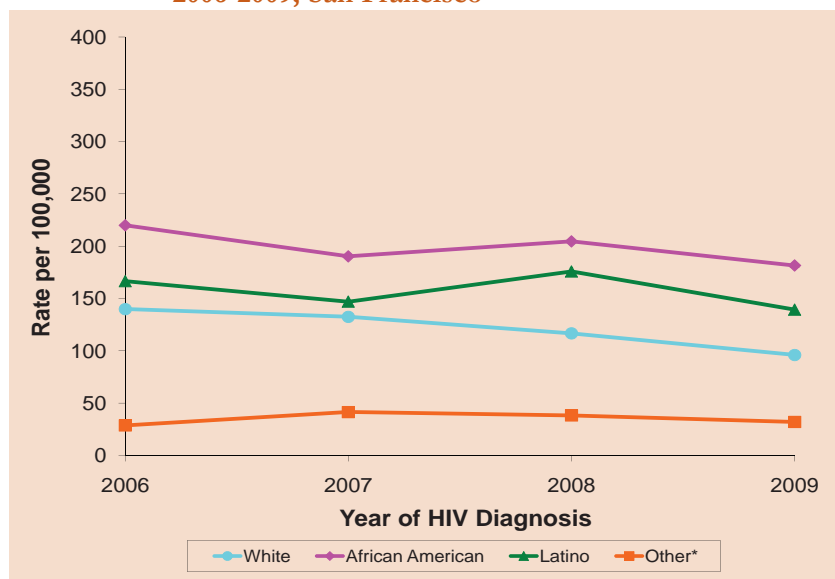


See Technical Notes "HIV/AIDS Incidence Rates."

* Cases in the "Other" race/ethnicity category include 74% Asian/Pacific Islanders and 9% Native Americans.

Among men, the incidence rates of cases diagnosed with HIV are highest in African Americans. There was a declining trend in HIV case incidence rates for white men during 2006 to 2009, while incidence rates for men of other race/ethnicity groups remained fairly level in this time period (Figure 2.4). In 2009, the incidence rate of cases diagnosed with HIV per 100,000 population was 181 among African American men, 139 among Latino men, and 96 among white men.

Figure 2.4 Annual incidence rates of male cases diagnosed with HIV infection[#] per 100,000 population by race/ethnicity, 2006-2009, San Francisco



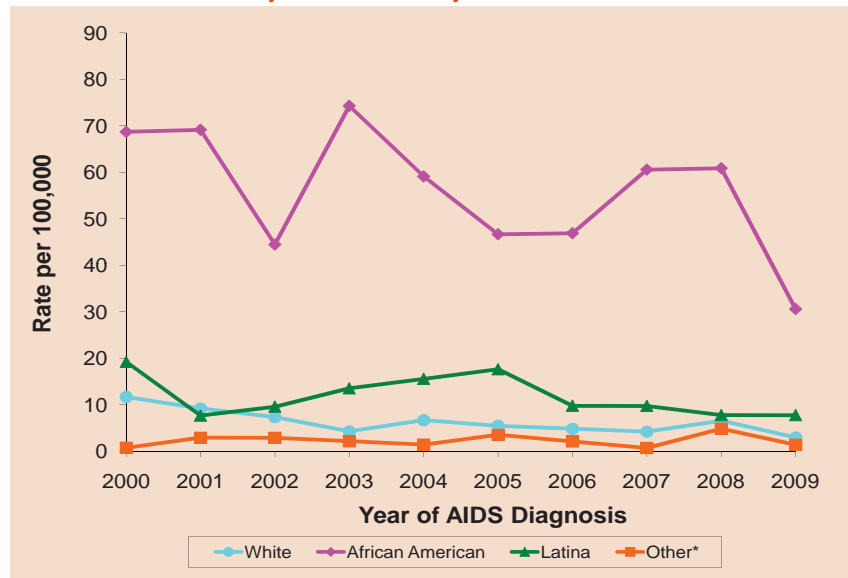
See Technical Notes "HIV/AIDS Incidence Rates." Includes persons with HIV/AIDS by year of their initial HIV diagnosis.

* Cases in the "Other" race/ethnicity category include 78% Asian/Pacific Islanders and 9% Native Americans.



AIDS incidence rates among women are much lower than among men. Throughout the epidemic, African American women have been more affected by AIDS than women of other racial/ethnic groups (Figure 2.5). In 2009, the incidence rate of AIDS per 100,000 population was 31 for African American women, 8 for Latina women, 3 for white women, and 1 for women of other race/ethnicity groups.

Figure 2.5 Female annual AIDS incidence rates[#] per 100,000 population by race/ethnicity, 2000-2009, San Francisco

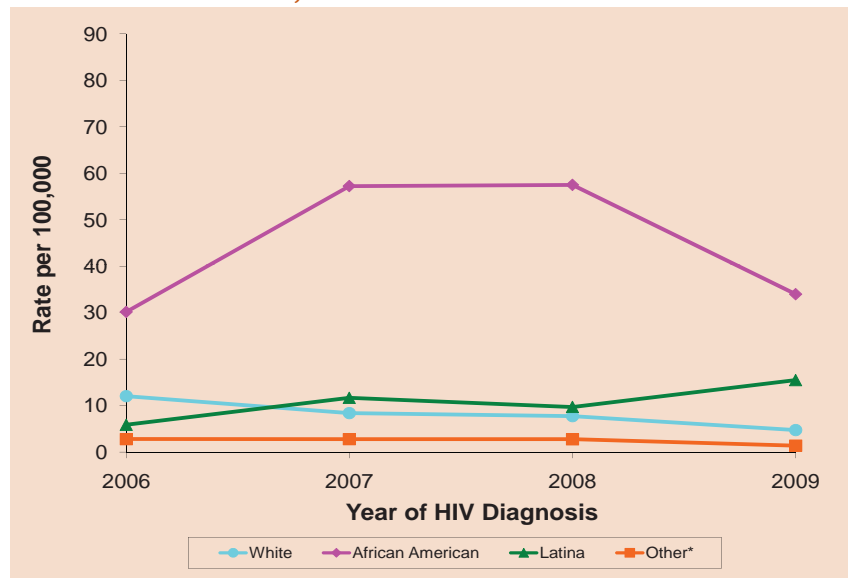


See Technical Notes "HIV/AIDS Incidence Rates."

* Cases in the "Other" race/ethnicity category include 74% Asian/Pacific Islanders and 13% Native Americans.

From 2006 to 2009, the incidence rates of cases diagnosed with HIV for African American and Latina women increased, while HIV case incidence rates for white women declined slightly (Figure 2.6). In 2009, the incidence rate of cases diagnosed with HIV per 100,000 population was 34 for African American women, 15 for Latina women, 5 for white women, and 1 for women of other race/ethnicity groups.

Figure 2.6 Annual incidence rates of female cases diagnosed with HIV infection[#] per 100,000 population by race/ethnicity, 2006-2009, San Francisco



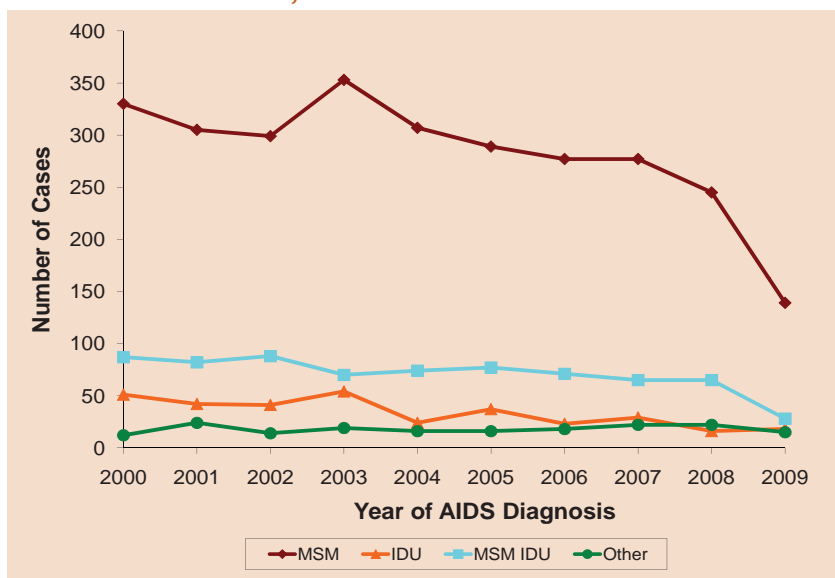
See Technical Notes "HIV/AIDS Incidence Rates." Includes persons with HIV/AIDS by year of their initial HIV diagnosis.

* Cases in the "Other" race/ethnicity category include 64% Asian/Pacific Islanders and 14% Native Americans.

Exposure category

Most of the male AIDS cases in San Francisco have occurred among MSM. The number of cases among MSM has decreased between 2000 and 2009 (Figure 2.7). For MSM IDU the number of AIDS cases was fairly stable between 2003 and 2008. In 2009, 70% of male AIDS cases were MSM, 14% were MSM IDU, and 9% were heterosexual IDU.

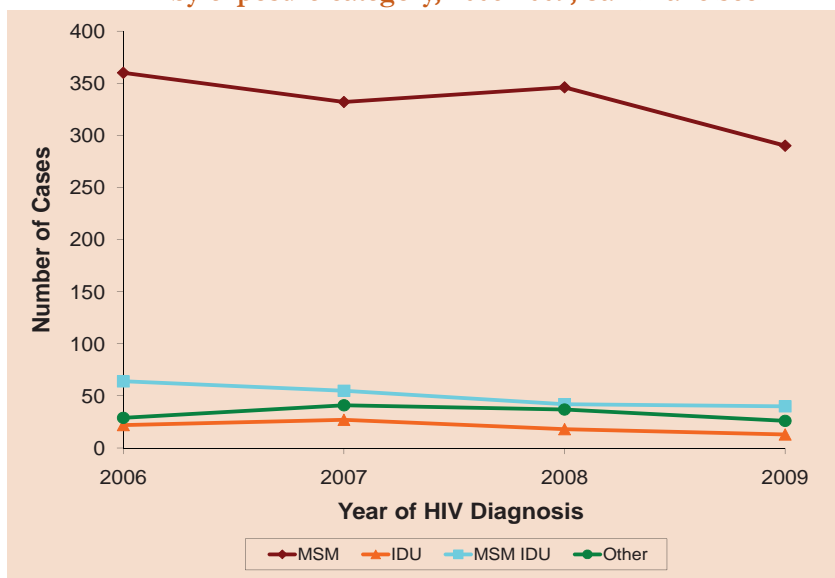
Figure 2.7 Number of male AIDS cases* by exposure category, 2000-2009, San Francisco



* Excludes male-to-female transgender AIDS cases.

In recent years, trends in the number of male HIV/AIDS cases diagnosed for most exposure categories were relatively stable (Figure 2.8). The number of MSM IDU HIV/AIDS cases declined each year from 2006 to 2009. In 2009, 79% of male HIV/AIDS cases were MSM, 11% were MSM IDU, and 4% were heterosexual IDU.

Figure 2.8 Number of male cases diagnosed with HIV infection* by exposure category, 2006-2009, San Francisco



* Excludes male-to-female transgender cases diagnosed with HIV infection. Includes persons with HIV/AIDS by year of their initial HIV diagnosis.

Injection drug use is the predominant exposure category for female AIDS cases, followed by heterosexual contact. The number of female IDU cases has declined since 2000, while female AIDS cases due to heterosexual contact and other exposure categories have remained stable. In 2009, 65% of female cases were due to injection drug use and 25% were attributed to heterosexual contact (Figure 2.9).

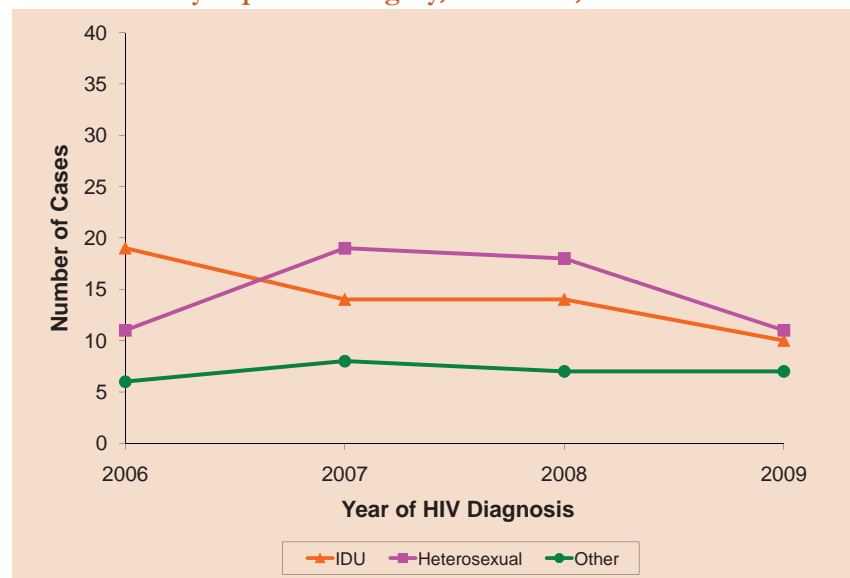
Figure 2.9 Number of female AIDS cases* by exposure category, 2000-2009, San Francisco



* Excludes female-to-male transgender AIDS cases.

When female cases diagnosed with HIV infection are examined, the number of female IDU cases and female cases due to heterosexual contact were similar (Figure 2.10). In 2007, the number of female cases diagnosed with HIV infection due to heterosexual contact overtook the number of female IDU cases. This is more similar to nationwide trends, where heterosexual contact is the leading exposure category for female HIV/AIDS cases.

Figure 2.10 Number of female cases diagnosed with HIV infection* by exposure category, 2006-2009, San Francisco



* Excludes female-to-male transgender cases diagnosed with HIV infection. Includes persons with HIV/AIDS by year of their initial HIV diagnosis.

Age

Cumulatively, the largest number of men, women, and transgender persons with AIDS were diagnosed between ages 30 and 39 years (Table 2.1). Younger persons (under the age of 30) made up a larger proportion of female and transgender AIDS cases than male AIDS cases.

For cases diagnosed in 2006-2009, there was an increase in the proportion of women diagnosed with AIDS in the 50+ year age group, as well as the proportion of men in the over 40 year age groups. The trend is different among transgender AIDS cases. In 2006-2009, the proportions of transgender persons diagnosed in the 40+ year age group and in the 13-29 year age group increased compared to the previous time period.

Table 2.1 AIDS cases by gender and age at diagnosis, diagnosed 1998-2009, San Francisco

	1998-2001		2002-2005		2006-2009		Cumulative Totals	
	Number	(%)	Number	(%)	Number	(%)	Number	(%)
Male (Age in Years)								
0 - 19	3	(<1)	6	(<1)	4	(<1)	49	(<1)
20 - 29	176	(8)	137	(8)	140	(11)	3,001	(11)
30 - 39	890	(43)	635	(36)	379	(28)	11,957	(45)
40 - 49	696	(34)	645	(36)	529	(40)	8,527	(32)
50+	307	(15)	355	(20)	278	(21)	3,285	(12)
Male Subtotal	2,072	(100)	1,778	(100)	1,330	(100)	26,819	(100)
Female (Age in Years)								
0 - 19	3	(2)	1	(1)	0	(0)	23	(2)
20 - 29	19	(10)	23	(15)	12	(10)	164	(14)
30 - 39	76	(39)	42	(28)	36	(30)	453	(38)
40 - 49	71	(36)	52	(34)	37	(31)	357	(30)
50+	27	(14)	33	(22)	36	(30)	194	(16)
Female Subtotal	196	(100)	151	(100)	121	(100)	1,191	(100)
Transgender (Age in Years)								
13 - 29	15	(20)	6	(9)	13	(33)	96	(24)
30 - 39	30	(41)	35	(50)	9	(23)	177	(44)
40+	29	(39)	29	(41)	18	(45)	126	(32)
Transgender Subtotal	74	(100)	70	(100)	40	(100)	399	(100)

Table 2.2 shows cases diagnosed with HIV infection by the age at HIV diagnosis and year of HIV diagnosis. The largest proportion of males was diagnosed with HIV between the ages of 30 and 39 years. The distribution of age at HIV diagnosis for male cases is similar from year to year. For female cases, the proportion diagnosed in younger age groups (less than 30 years) increased between 2006 and 2008. In 2009, most females were diagnosed in the 50+ year age group.

Although the number of transgender persons diagnosed each year is small, transgender cases diagnosed with HIV infection appear younger than male and female HIV and AIDS cases at the time of HIV diagnosis.

Table 2.2 Cases diagnosed with HIV infection* by gender and age at diagnosis, diagnosed 2006-2009, San Francisco

	2006		2007		2008		2009	
	Number	(%)	Number	(%)	Number	(%)	Number	(%)
Male (Age in Years)								
0 - 19	6	(1)	8	(2)	8	(2)	4	(1)
20 - 29	99	(21)	119	(26)	97	(22)	99	(27)
30 - 39	176	(37)	163	(36)	164	(37)	113	(31)
40 - 49	124	(26)	114	(25)	131	(30)	101	(27)
50+	70	(15)	51	(11)	43	(10)	52	(14)
Male Subtotal	475	(100)	455	(100)	443	(100)	369	(100)
Female (Age in Years)								
0 - 19	0	(0)	0	(0)	2	(5)	0	(0)
20 - 29	6	(17)	8	(20)	11	(28)	5	(18)
30 - 39	9	(25)	12	(29)	11	(28)	7	(25)
40 - 49	15	(42)	16	(39)	10	(26)	3	(11)
50+	6	(17)	5	(12)	5	(13)	13	(46)
Female Subtotal	36	(100)	41	(100)	39	(100)	28	(100)
Transgender (Age in Years)								
13 - 29	3	(33)	8	(38)	7	(64)	6	(43)
30+	6	(67)	13	(62)	4	(36)	8	(57)
Transgender Subtotal	9	(100)	21	(100)	11	(100)	14	(100)

* Includes persons with HIV/AIDS by year of their initial HIV diagnosis.

3

Persons Living with HIV/AIDS

The number of persons living with HIV/AIDS continues to increase due to ongoing incidence of HIV combined with an increase in survival after AIDS diagnosis. Persons were counted as living in a year if their HIV diagnosis date was in or before that year and they were known to be alive at the end of the year. As of December 31, 2009, 15,836 San Francisco residents were living with HIV/AIDS (Table 3.1). Demographic and risk characteristics of persons living with HIV/AIDS remained mostly stable between 2006 and 2009; the largest numbers are white, age 40-49 years, and MSM (including MSM IDU). Age 50+ was the fastest growing age category of persons living with HIV/AIDS, rising from 35% to 42% between 2006 and 2009. This increase most likely reflects improved survival from use of antiretroviral therapy.

Table 3.1 Trends in persons living with HIV/AIDS by demographic and risk characteristics, 2006-2009*, San Francisco

	2006		2007		2008		2009	
	Number	(%)	Number	(%)	Number	(%)	Number	(%)
Gender								
Male	13,896	(92)	14,076	(92)	14,360	(92)	14,575	(92)
Female	877	(6)	890	(6)	905	(6)	918	(6)
Transgender	326	(2)	332	(2)	332	(2)	343	(2)
Race/Ethnicity								
White	9,703	(64)	9,793	(64)	9,921	(64)	10,016	(63)
African American	2,117	(14)	2,123	(14)	2,158	(14)	2,186	(14)
Latino	2,279	(15)	2,339	(15)	2,426	(16)	2,504	(16)
Asian/Pacific Islander	692	(5)	732	(5)	772	(5)	802	(5)
Native American	97	(1)	95	(1)	98	(1)	100	(1)
Other/Unknown	211	(1)	216	(1)	222	(1)	228	(1)
Age in Years (at end of each year)								
0 - 19	36	(<1)	35	(<1)	32	(<1)	25	(<1)
20 - 29	629	(4)	636	(4)	631	(4)	622	(4)
30 - 39	2,944	(19)	2,760	(18)	2,606	(17)	2,384	(15)
40 - 49	6,253	(41)	6,211	(41)	6,163	(40)	6,084	(38)
50+	5,237	(35)	5,656	(37)	6,165	(40)	6,721	(42)
Exposure Category								
MSM	10,887	(72)	11,071	(72)	11,326	(73)	11,521	(73)
IDU	1,207	(8)	1,186	(8)	1,185	(8)	1,186	(7)
MSM IDU	2,135	(14)	2,116	(14)	2,111	(14)	2,125	(13)
Heterosexual	384	(3)	414	(3)	438	(3)	448	(3)
Transfusion/Hemophilia	36	(<1)	36	(<1)	36	(<1)	35	(<1)
Other/Unidentified	450	(3)	475	(3)	501	(3)	521	(3)
Total	15,099		15,298		15,597		15,836	

* Persons living with HIV/AIDS at the end of each year.

As of December 31, 2009, a total of 9,489 persons were living with AIDS in San Francisco (Table 3.2). This number includes persons diagnosed with HIV in geographic areas outside San Francisco who were diagnosed with AIDS in San Francisco. It also includes persons who were San Francisco residents at HIV diagnosis and progressed to AIDS while they were a resident in another jurisdiction. Ninety-two percent were male, 6% were female, and 2% were transgender. Among men, the majority of cases were white. MSM accounted for the largest proportion of living male AIDS cases within all racial/ethnic groups. Among living African American male AIDS cases, heterosexual IDU and MSM IDU accounted for equal proportions (21%). For white and African American men, half or more of living AIDS cases were 50 years of age or older. By comparison, Latino, Asian Pacific Islander, and Native American men living with AIDS were younger, with the majority between the ages of 25 and 49 years old.

Among women living with AIDS, African American was the largest racial/ethnic group (44%) followed by white (29%). The most frequent exposure categories for living female AIDS cases were injection drug use and heterosexual contact. Similar to living male AIDS cases, the majority of living female AIDS cases were 25-49 years of age.

Table 3.2 Persons living with AIDS by gender, exposure category, age and race/ethnicity, December 2009, San Francisco

	White		African American		Latino		Asian/Pacific Islander & Native American		Total Number*
	Number	(%)	Number	(%)	Number	(%)	Number	(%)	
Male									
<i>Exposure category</i>									
MSM	4,730	(81)	535	(52)	1,105	(81)	364	(80)	6,767
IDU	186	(3)	211	(21)	52	(4)	19	(4)	472
MSM IDU	868	(15)	212	(21)	155	(11)	48	(11)	1,299
Heterosexual	17	(<1)	36	(4)	26	(2)	8	(2)	89
Other	5	(<1)	4	(<1)	4	(<1)	6	(1)	20
No reported risk	35	(1)	28	(3)	23	(2)	12	(3)	98
<i>Age in Years (at end of 2009)</i>									
<13	0	(0)	0	(0)	1	(0)	0	(0)	2
13 - 24	6	(<1)	9	(1)	11	(1)	5	(1)	32
25 - 49	2,609	(45)	497	(48)	880	(64)	283	(62)	4,308
50+	3,226	(55)	520	(51)	473	(35)	169	(37)	4,403
Male Subtotal	5,841		1,026		1,365		457		8,745
Female									
<i>Exposure category</i>									
IDU	102	(64)	159	(65)	36	(39)	13	(27)	315
Heterosexual	42	(26)	67	(28)	46	(49)	27	(56)	182
Other	5	(3)	6	(2)	6	(6)	4	(8)	21
No reported risk	10	(6)	11	(5)	5	(5)	4	(8)	31
<i>Age in Years (at end of 2009)</i>									
13 - 24	0	(0)	5	(2)	4	(4)	1	(2)	10
25 - 49	98	(62)	108	(44)	51	(55)	32	(67)	293
50+	61	(38)	130	(53)	38	(41)	15	(31)	246
Female Subtotal	159		243		93		48		549
Transgender	44		61		63		27		195
Total	6,044		1,330		1,521		532		9,489

* Includes persons with multiple race or whose race/ethnicity information is not available.

As of December 31, 2009, 6,347 living HIV non-AIDS cases (persons living with HIV who had not developed AIDS) had been reported in San Francisco (Table 3.3). Demographic and risk characteristics for living HIV non-AIDS cases were similar to living AIDS cases. Ninety-two percent were male, 6% were female, and 2% were transgender. The majority of living male HIV non-AIDS cases were white and MSM. The majority of living female HIV non-AIDS cases were African American and IDU. Among both men and women, persons between 25-49 years old accounted for the largest number of living HIV cases.

Table 3.3 Persons living with HIV non-AIDS by gender, exposure category, age and race/ethnicity, December 2009, San Francisco

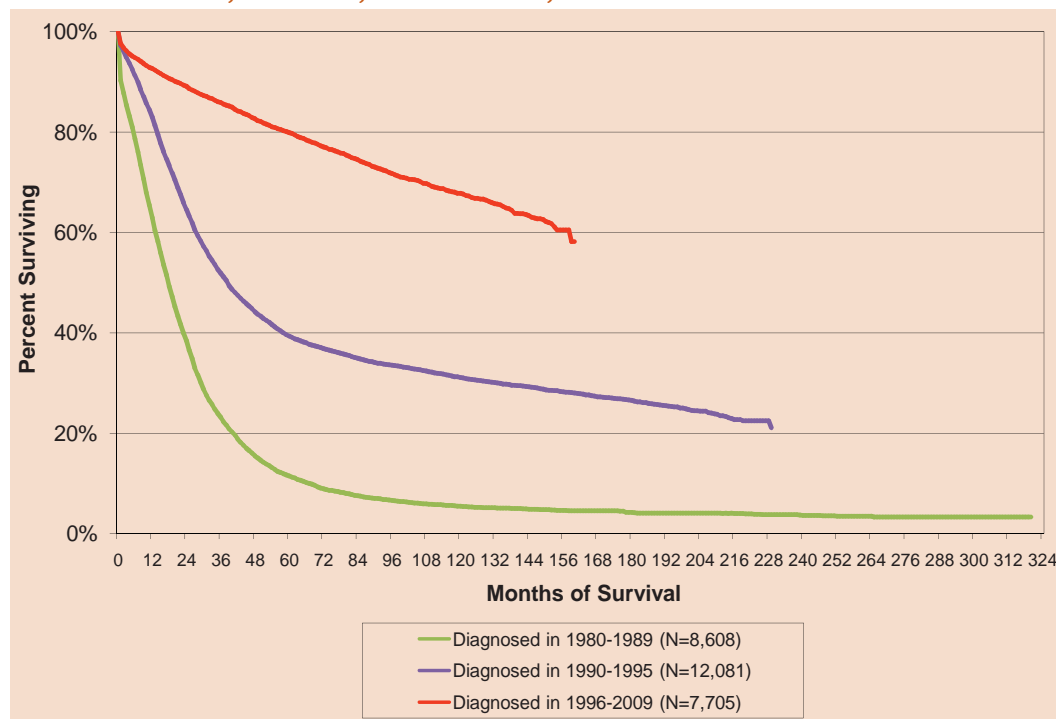
	White		African American		Latino		Asian/Pacific Islander & Native American		Total Number*
	Number	(%)	Number	(%)	Number	(%)	Number	(%)	
Male									
<i>Exposure Category</i>									
MSM	3,142	(82)	363	(56)	726	(82)	273	(85)	4,579
IDU	105	(3)	99	(15)	20	(2)	7	(2)	233
MSM IDU	458	(12)	94	(15)	75	(8)	28	(9)	668
Heterosexual	12	(<1)	24	(4)	16	(2)	2	(1)	55
Other	5	(<1)	2	(<1)	4	(<1)	1	(0)	12
No reported risk	112	(3)	62	(10)	44	(5)	10	(3)	283
<i>Age in Years (at end of 2009)</i>									
13 - 24	38	(1)	27	(4)	32	(4)	10	(3)	110
25 - 49	2,454	(64)	344	(53)	704	(80)	271	(84)	3,875
50+	1,342	(35)	273	(42)	149	(17)	40	(12)	1,845
Male Subtotal	3,834		644		885		321		5,830
Female									
<i>Exposure Category</i>									
IDU	59	(56)	68	(43)	22	(37)	8	(28)	162
Heterosexual	22	(21)	54	(34)	21	(35)	16	(55)	117
Other	3	(3)	2	(1)	3	(5)	0	(0)	10
No reported risk	21	(20)	34	(22)	14	(23)	5	(17)	80
<i>Age in Years (at end of 2009)</i>									
<13	0	(0)	1	(1)	2	(3)	0	(0)	3
13 - 24	3	(3)	4	(3)	7	(12)	0	(0)	16
25 - 49	78	(74)	82	(52)	38	(63)	18	(62)	224
50+	24	(23)	71	(45)	13	(22)	11	(38)	126
Female Subtotal	105		158		60		29		369
Transgender	33		54		38		20		148
Total	3,972		856		983		370		6,347

* Includes persons with multiple race or whose race/ethnicity information is not available.

4 Survival among Persons with AIDS

The Kaplan-Meier survival curves in Figure 4.1 demonstrate that survival improved for San Francisco AIDS cases between 1996 and 2009, compared to persons diagnosed in earlier time periods. Survival was poor for persons diagnosed in the first ten years of the AIDS epidemic (1980-1989) with 50% cases surviving 18 months (median survival time) after AIDS diagnosis. Between 1990 and 1995, survival improved; median survival time was 38 months. Approximately 58% of persons diagnosed with AIDS between 1996 and 2009 are still alive as of December 31, 2009. Improved survival among persons diagnosed with AIDS after 1995 is attributed to more effective antiretroviral therapies.

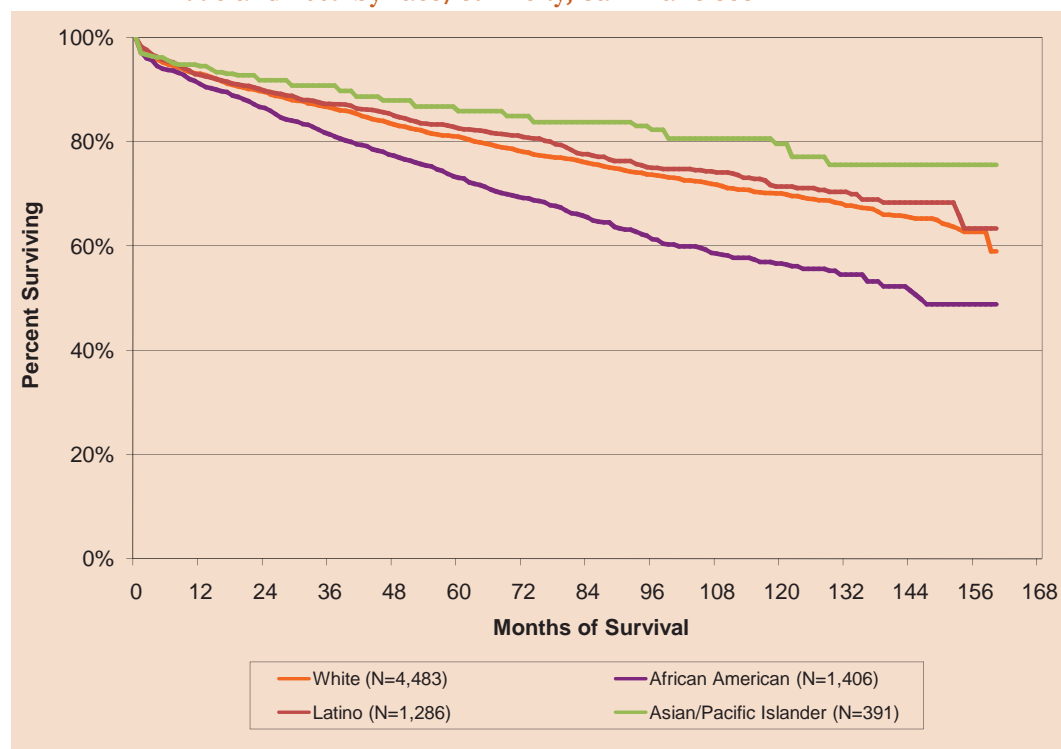
Figure 4.1 Kaplan-Meier survival* curves for persons diagnosed with AIDS in 1980-1989, 1990-1995, and 1996-2009, San Francisco



* See Technical Notes "AIDS Survival."

Survival after AIDS diagnosis is worse for African Americans than other race/ethnic groups (Figure 4.2). Among persons diagnosed between 1996 and 2009, the percent of African Americans surviving 60 months (5 years) after AIDS was 73%, compared to 81% for whites, 83% for Latinos, and 86% for Asians/Pacific Islanders.

Figure 4.2 Kaplan-Meier survival* curves for persons diagnosed with AIDS between 1996 and 2009 by race/ethnicity, San Francisco



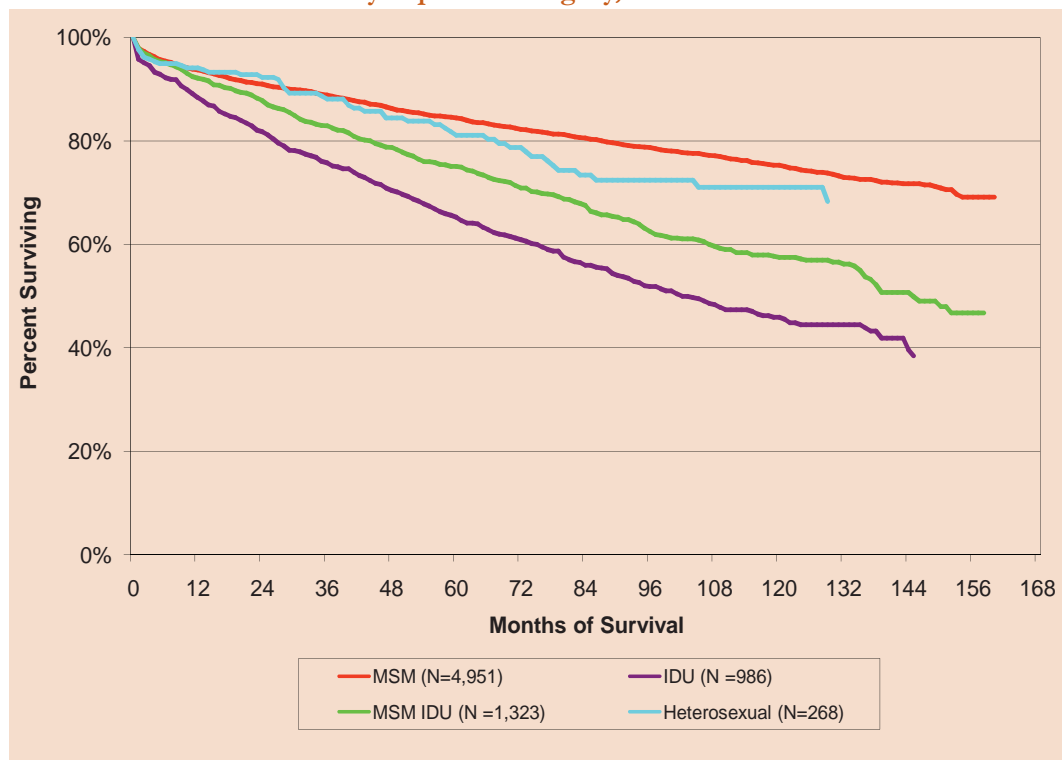
* See Technical Notes "AIDS Survival."

Survival among Persons with AIDS

Survival after AIDS diagnosis has been better for MSM and heterosexuals compared to MSM IDU and heterosexual IDU. For AIDS cases diagnosed in 1996 to 2009, the 5-year (60 months) survival was 84% for MSM, 81% for heterosexuals, 75% for MSM IDU, and 65% for heterosexual IDU (Figure 4.3).

Worse survival among IDU partly reflects higher death rates from causes associated with drug use such as overdose, liver disease, and other infections.

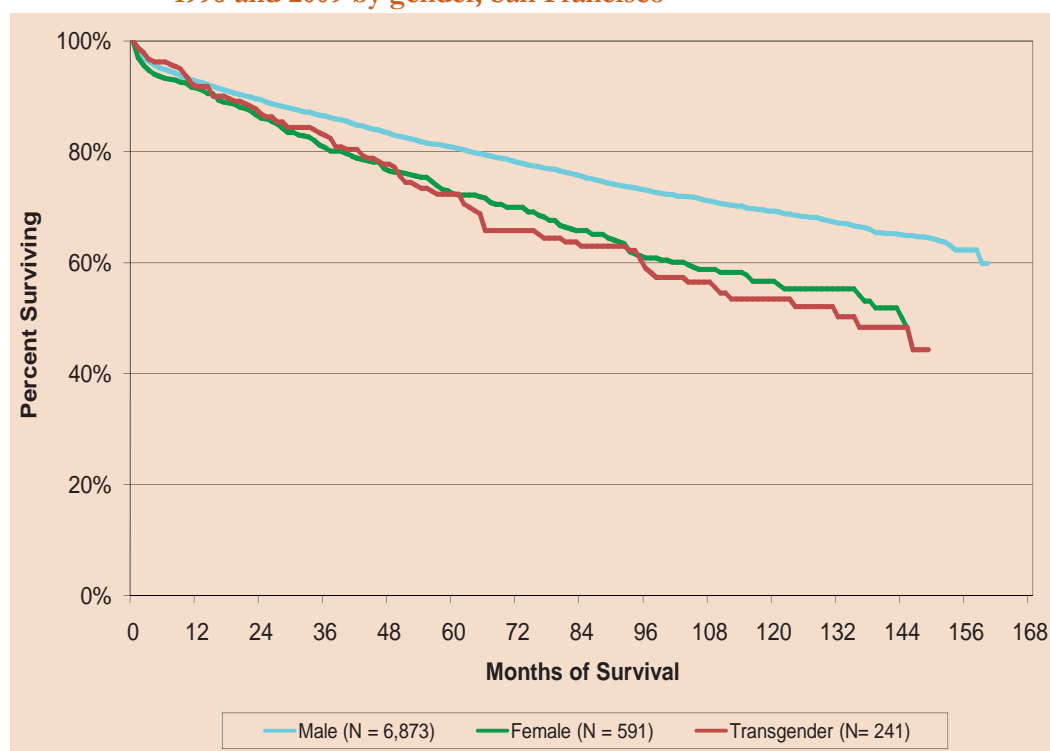
Figure 4.3 Kaplan-Meier survival* curves for persons diagnosed with AIDS between 1996 and 2009 by exposure category, San Francisco



* See Technical Notes "AIDS Survival."

By gender, male AIDS cases have better survival than female and transgender AIDS cases. The Kaplan-Meier curves show that female and transgender AIDS cases have similar survival (Figure 4.4). The 5-year (60 months) survival was 81% for men, 72% for women and 72% for transgender persons. The differences in survival by gender are consistent with lower use of highly active antiretroviral therapies among women and transgender AIDS cases.

Figure 4.4 Kaplan-Meier survival* curves for persons diagnosed with AIDS between 1996 and 2009 by gender, San Francisco

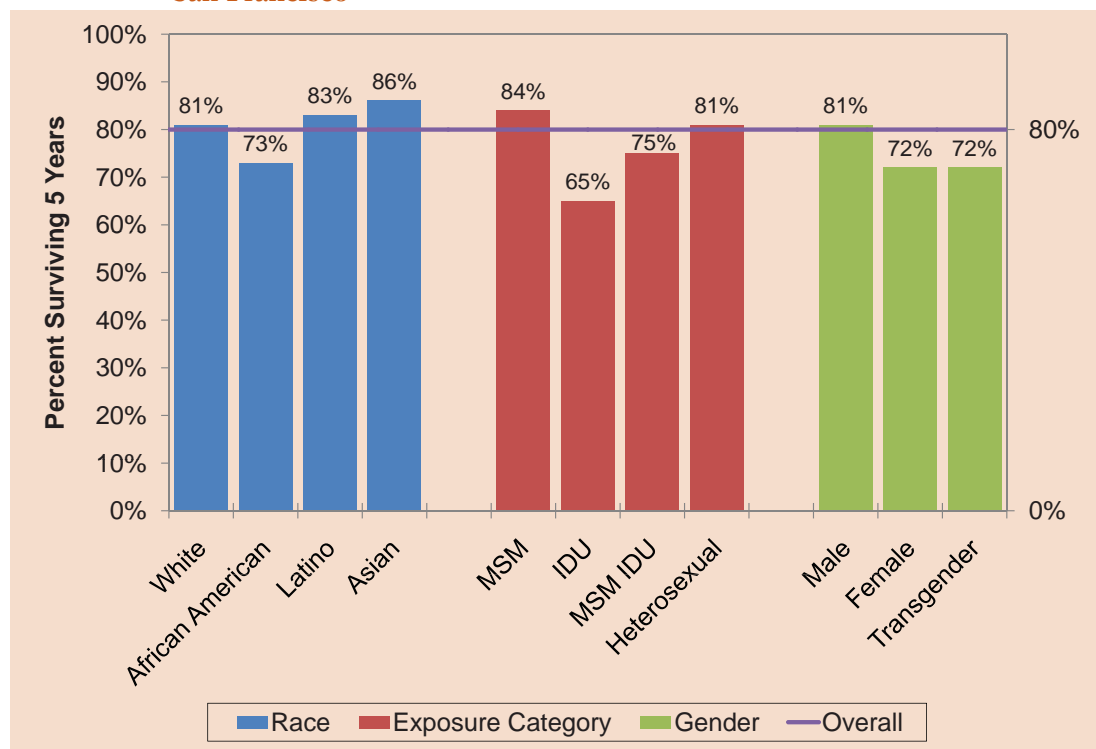


* See Technical Notes "AIDS Survival."

Survival among Persons with AIDS

The overall 5-year survival after AIDS for persons diagnosed with AIDS between 1996 and 2009 is 80% (Figure 4.5). Differences in survival occurred across race/ethnicity, exposure category, and gender groups. African Americans, IDU, MSM IDU, women, and transgender persons with AIDS have lower proportions surviving five years compared to other groups.

Figure 4.5 Proportion surviving five years after AIDS for persons diagnosed with AIDS between 1996 and 2009 by race/ethnicity, exposure category, and gender, San Francisco



5

Trends in HIV/AIDS Mortality

HIV/AIDS surveillance data

As of December 31, 2009, a total of 19,080 deaths have occurred among San Francisco AIDS cases since the beginning of the epidemic (Table 5.1). Reporting of deaths in recent years is not yet complete. The number of AIDS deaths was fairly stable across gender, race/ethnicity, and exposure categories between 2006 and 2007. Cumulatively, numbers of deaths in the 30-39 year old age group and 40-49 year old age group are similar. However, in recent years, the largest number of deaths has shifted to the 40-49 year old age group, followed closely by the 50-59 year old age group with the second largest number of deaths.

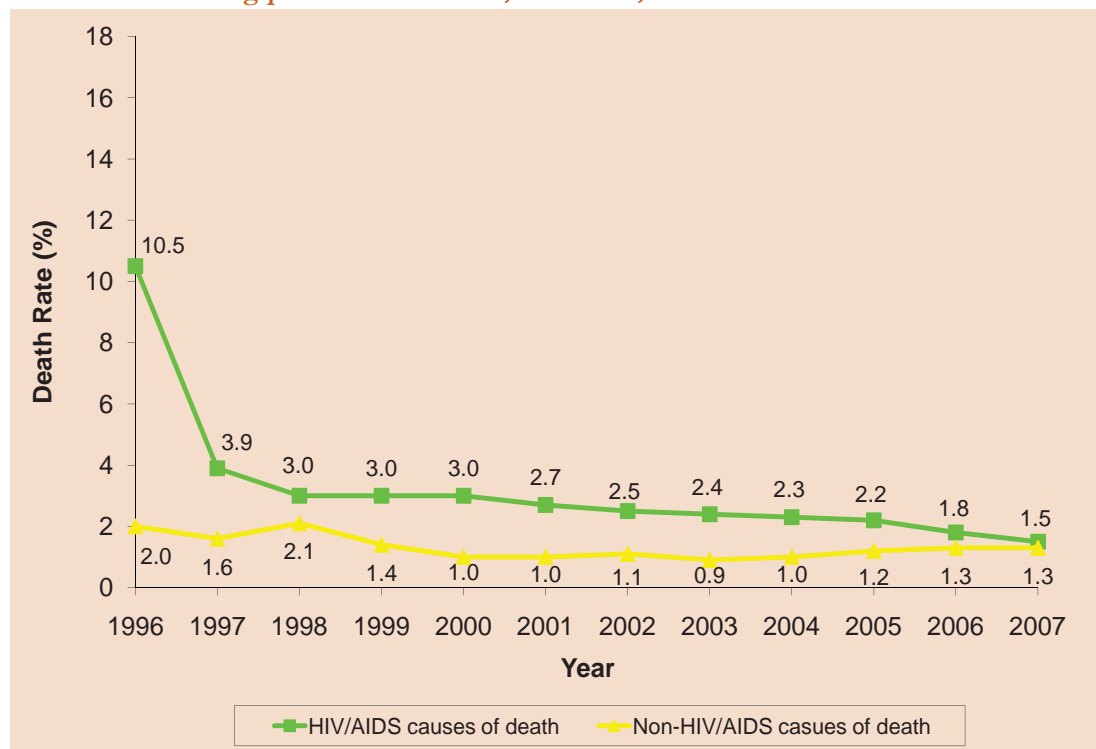
Table 5.1 Deaths in persons with AIDS, by demographic and risk characteristics, 2006-2009, San Francisco

	Year of Death				Cumulative Totals as of 12/31/2009
	2006	2007	2008*	2009*	
	Number (%)	Number (%)	Number (%)	Number (%)	
Gender					
Male	244 (85)	234 (88)	140 (81)	129 (93)	18,217
Female	32 (11)	19 (7)	22 (13)	6 (4)	657
Transgender	12 (4)	14 (5)	11 (6)	3 (2)	206
Race/Ethnicity					
White	173 (60)	161 (60)	107 (62)	90 (65)	14,171
African American	55 (19)	57 (21)	39 (23)	28 (20)	2,279
Latino	35 (12)	36 (13)	20 (12)	15 (11)	1,960
Other	25 (9)	13 (5)	7 (4)	5 (4)	670
Exposure Category					
MSM	160 (56)	142 (53)	89 (51)	87 (63)	14,303
IDU	48 (17)	47 (18)	28 (16)	16 (12)	1,391
MSM IDU	67 (23)	70 (26)	46 (27)	29 (21)	2,927
Heterosexual	6 (2)	7 (3)	4 (2)	2 (1)	182
Other/Unidentified	7 (2)	1 (0)	6 (3)	4 (3)	277
Age at Death (years)					
0 - 29	1 (0)	5 (2)	1 (1)	3 (2)	1,070
30 - 39	30 (10)	24 (9)	13 (8)	10 (7)	7,165
40 - 49	122 (42)	90 (34)	61 (35)	37 (27)	7,158
50 - 59	96 (33)	86 (32)	66 (38)	50 (36)	2,694
60+	39 (14)	62 (23)	32 (18)	38 (28)	993
Total	288 (100)	267 (100)	173 (100)	138 (100)	19,080

* Data are incomplete due to reporting delay. In addition, deaths that occurred outside of San Francisco are primarily identified through matching with the National Death Index (NDI) which is complete only through 2007.

The trend in death rates in persons with AIDS was examined by the single, underlying cause of death for each person. The death rate due to HIV/AIDS-related causes declined from 10.5 per 100 persons with AIDS in 1996 to 1.5 per 100 persons with AIDS in 2007 (Figure 5.1). The death rate due to HIV/AIDS-related causes was steady between 1998 and 2001 and slightly declined through 2007. For non-HIV/AIDS-related causes of death, the trend shows a slight increase beginning with 0.9 per 100 persons in 2003 to 1.3 per 100 persons in 2007. The dramatic drop in death rates beginning in 1996 and the increase in non-HIV/AIDS-related causes of death reflect the impact of highly active antiretroviral therapies.

Figure 5.1 Death rates* due to HIV/AIDS-related and non-HIV/AIDS-related causes among persons with AIDS, 1996-2007, San Francisco



* Death rates are calculated as the number of persons with AIDS who died each year divided by the number of total AIDS cases for that year. See Technical Notes for "Causes of Death."

The proportion of deaths in which HIV/AIDS was listed as the underlying cause of death decreased from 74% of AIDS deaths occurring in 1996-1999 to 62% in 2004-2007 (Table 5.2). Other frequently occurring underlying causes of death in 2004-2007 include non-AIDS cancer (9.6%), heart disease (6.1%) and suicide (3.1%). The proportion of deaths related to substance abuse (drug overdose and mental disorders due to substance use) also increased over the three time periods.

Table 5.2 Underlying causes of death among persons with AIDS*, 1996-2007, San Francisco

Underlying Cause of Death [#]	Year of Death					
	1996-1999		2000-2003		2004-2007	
	Number	(%)	Number	(%)	Number	(%)
	N=2,102		N= 1,236		N= 1,140	
HIV/AIDS	1,563	(74.4)	894	(72.3)	706	(61.9)
Non-AIDS cancer	87	(4.1)	83	(6.7)	110	(9.6)
Lung cancer	21	(1.0)	27	(2.2)	33	(2.9)
Liver cancer	16	(0.8)	13	(1.1)	24	(2.1)
Anal cancer	6	(0.3)	5	(0.4)	5	(0.4)
Heart disease	53	(2.5)	64	(5.2)	70	(6.1)
Coronary heart disease	21	(1.0)	44	(3.6)	34	(3.0)
Cardiomyopathy	11	(0.5)	5	(0.4)	10	(0.9)
Drug overdose	53	(2.5)	25	(2.0)	52	(4.6)
Suicide	29	(1.4)	19	(1.5)	35	(3.1)
Mental disorders due to substance use	16	(0.8)	17	(1.4)	27	(2.4)
Chronic obstructive lung disease	12	(0.6)	16	(1.3)	22	(1.9)
Liver disease	27	(1.3)	28	(2.3)	19	(1.7)
Liver cirrhosis	10	(0.5)	13	(1.1)	12	(1.1)
Alcoholic liver disease	14	(0.7)	12	(1.0)	6	(0.5)
Viral hepatitis	57	(2.7)	7	(0.6)	7	(0.6)
Cerebrovascular disease	12	(0.6)	16	(1.3)	5	(0.4)
Renal disease	6	(0.3)	3	(0.2)	4	(0.4)
Septicemia	6	(0.3)	3	(0.2)	4	(0.4)
Pancreatitis	8	(0.4)	2	(0.2)	2	(0.2)

* Deceased AIDS cases without cause of death information are not represented in this table.

See Technical Notes "Causes of Death."

Table 5.3 shows both underlying and contributory causes of death among persons with AIDS. Through the three time periods, the proportion of deaths with HIV/AIDS-related causes decreased, with the proportion falling below 80% of deaths in AIDS cases in 2004-2007. The relative contribution of several causes of death appeared level between time periods 2000-2003 and 2004-2007 (heart disease, cerebrovascular disease). Deaths due to non-AIDS cancer showed the largest percentage increase between time periods 2000-2003 and 2004-2007.

Table 5.3 Multiple causes of death among persons with AIDS*, 1996-2007, San Francisco

Multiple Causes of Death [#]	Year of Death					
	1996-1999		2000-2003		2004-2007	
	N = 2,102		N = 1,236		N = 1,140	
	No.	(%)	No.	(%)	No.	(%)
HIV/AIDS	1,877	(89.3)	1,071	(86.7)	889	(78.0)
Heart disease	334	(15.9)	253	(20.5)	233	(20.4)
Coronary heart disease	39	(1.9)	70	(5.7)	60	(5.3)
Cardiomyopathy	39	(1.9)	23	(1.9)	26	(2.3)
Viral hepatitis	124	(5.9)	164	(13.3)	158	(13.9)
Liver disease	189	(9.0)	193	(15.6)	156	(13.7)
Liver cirrhosis	67	(3.2)	79	(6.4)	72	(6.3)
Alcoholic liver disease	20	(1.0)	16	(1.3)	7	(0.6)
Non-AIDS cancer	167	(7.9)	117	(9.5)	156	(13.7)
Lung cancer	25	(1.2)	31	(2.5)	34	(3.0)
Liver cancer	20	(1.0)	16	(1.3)	27	(2.4)
Anal cancer	8	(0.4)	8	(0.6)	8	(0.7)
Pneumonia	300	(14.3)	187	(15.1)	153	(13.4)
Renal disease	112	(5.3)	106	(8.6)	132	(11.6)
Septicemia	149	(7.1)	134	(10.8)	132	(11.6)
Mental disorders due to substance use	63	(3.0)	70	(5.7)	100	(8.8)
Chronic obstructive lung disease	44	(2.1)	49	(4.0)	67	(5.9)
Drug overdose	65	(3.1)	35	(2.8)	58	(5.1)
Suicide	29	(1.4)	19	(1.5)	35	(3.1)
Cerebrovascular disease	43	(2.0)	35	(2.8)	32	(2.8)
Aspergillosis	52	(2.5)	14	(1.1)	4	(0.4)

* Deceased AIDS cases without cause of death information are not represented in this table.

Includes underlying and contributory causes of death. Individuals may have more than one cause of death. See Technical Notes "Causes of Death."

Since 1996, the median age at death among persons with AIDS has increased over time, from 43 years in 1996-1999 to 48 years in 2004-2007 (Table 5.4). Broken down by underlying cause of death, this holds true for HIV/AIDS and many non-HIV/AIDS-related causes, including heart disease, mental disorders due to substance use, and suicide. For other underlying causes (such as non-AIDS-related cancer, viral hepatitis, and drug overdose), the median age at death has had an overall increase between 1996-1999 and 2004-2007, but remained stable between 2000-2003 and 2004-2007. The median age at death actually decreased for liver disease between 2000-2003 and 2004-2007, and for pancreatitis between 1996-1999 and 2004-2007. In the time period 2004-2007, the median age at death was above 50 years for non-AIDS-related cancer, heart disease, chronic obstructive lung disease, cerebrovascular disease, and renal disease. The increase in survival, attributed to improved treatment for HIV disease, contributes to the increases in the median age at death for both HIV-related and non-HIV-related causes by virtue of persons living long enough to acquire other conditions. However, persons with HIV/AIDS continue to die at younger ages compared to uninfected persons.

Table 5.4 Median age at death among persons with AIDS by underlying cause of death, 1996-2007, San Francisco

Underlying Cause of Death*	Year of Death		
	1996-1999	2000-2003	2004-2007
	Median Age (Years)		
HIV/AIDS	42.0	45.0	48.0
Non-AIDS cancer	48.0	53.0	52.0
Heart disease	46.0	51.0	53.5
Liver disease	45.0	49.5	46.0
Viral hepatitis	44.0	47.0	47.0
Drug overdose	41.0	46.0	46.5
Mental disorders due to substance use	42.0	45.0	48.0
Suicide	41.0	44.0	47.0
Chronic obstructive lung disease	51.0	52.0	56.0
Cerebrovascular disease	44.5	50.5	56.0
Septicemia	42.5	46.0	48.5
Renal disease	41.5	59.0	62.5
Pancreatitis	52.0	44.0	49.0
Aspergillosis	41.5	N/A	N/A
All deaths	43.0	45.0	48.0

* See Technical Notes "Causes of Death."

HIV/AIDS remains the leading underlying cause of death among persons with HIV/AIDS in all age groups, although the absolute number and proportion of deaths due to HIV/AIDS have been declining over time. Table 5.5 shows that the underlying causes of death common for HIV/AIDS cases deceased between 1996 to 2007. The proportion of deaths due to HIV/AIDS has been higher among persons under 40 years of age. Among persons aged 40 and over, non-AIDS-related cancer continues to be the second leading cause of death. Non-AIDS cancer deaths increased between the periods 2000-2003 and 2004-2007 in persons aged 40-49 years and 60 years and above. Among persons aged 50-59 years, deaths due to non-AIDS-related cancer decreased while the proportion of HIV/AIDS-related deaths increased in this age group but none of the others. Heart disease has consistently been a leading cause of death among persons aged 40 and over, and the proportion of deaths due to heart disease has been relatively stable since 2000. For persons under 40 years old, drug overdose and suicide have contributed to a larger proportion of deaths over time.

Table 5.5 Leading underlying causes of death among persons with AIDS by age group, 1996-2007, San Francisco

Age at Death (Years)	Year of Death					
	1996-1999		2000-2003		2004-2007	
	Underlying Cause	Number (%)	Underlying Cause	Number (%)	Underlying Cause	Number (%)
Under 30	1. HIV/AIDS	53 (81.5)	1. HIV/AIDS	17 (94.4)	1. HIV/AIDS	10 (76.9)
	2. Aspergillosis	2 (3.1)	2. Suicide	1 (5.6)	2. Suicide	1 (7.7)
	2. Pneumonia	2 (3.1)				
30-39	1. HIV/AIDS	539 (78.1)	1. HIV/AIDS	208 (80.3)	1. HIV/AIDS	99 (67.8)
	2. Drug overdose	22 (3.2)	2. Heart disease	10 (3.9)	2. Drug overdose	11 (7.5)
	3. Non-AIDS cancer	15 (2.2)	3. Drug overdose	5 (1.9)	3. Suicide	8 (5.5)
	4. Aspergillosis	14 (2.0)	3. Non-AIDS cancer	5 (1.9)	4. Heart disease	4 (2.7)
	5. Viral hepatitis	13 (1.9)	5. Liver disease	4 (1.5)	4. Mental disorders*	4 (2.7)
			5. Suicide	4 (1.5)	4. Non-AIDS cancer	4 (2.7)
40-49	1. HIV/AIDS	669 (73.9)	1. HIV/AIDS	415 (78.2)	1. HIV/AIDS	282 (63.2)
	2. Non-AIDS cancer	33 (3.7)	2. Non-AIDS cancer	19 (3.6)	2. Non-AIDS cancer	39 (8.7)
	3. Viral hepatitis	32 (3.5)	3. Heart disease	17 (3.2)	3. Drug overdose	25 (5.6)
	4. Drug overdose	26 (2.9)	4. Drug overdose	14 (2.6)	4. Heart disease	21 (4.7)
	5. Heart disease	18 (2.0)	5. Liver disease	10 (1.9)	5. Mental disorders*	14 (3.1)
				5. Suicide	14 (3.1)	
50-59	1. HIV/AIDS	233 (70.6)	1. HIV/AIDS	190 (58.3)	1. HIV/AIDS	214 (62.4)
	2. Non-AIDS cancer	24 (7.3)	2. Non-AIDS cancer	45 (13.8)	2. Non-AIDS cancer	35 (10.2)
	3. Heart disease	15 (4.6)	3. Heart disease	25 (7.7)	3. Heart disease	23 (6.7)
	4. Viral hepatitis	11 (3.3)	4. Liver disease	13 (4.0)	4. Drug overdose	14 (4.1)
	5. Liver disease	5 (1.5)	5. COPD [#]	9 (2.8)	5. COPD [#]	11 (3.2)
60 and over	1. HIV/AIDS	69 (61.6)	1. HIV/AIDS	63 (61.8)	1. HIV/AIDS	100 (52.1)
	2. Non-AIDS cancer	14 (12.5)	2. Non-AIDS cancer	14 (13.7)	2. Non-AIDS cancer	32 (16.7)
	3. Heart disease	8 (7.1)	3. Heart disease	12 (11.8)	3. Heart disease	22 (11.5)
	4. COPD [#]	4 (3.6)	4. COPD [#]	4 (3.9)	4. COPD [#]	6 (3.1)
	5. Suicide	3 (2.7)	5. Cerebrovascular disease	3 (2.9)	5. Liver disease	4 (2.1)

* Mental disorders due to substance use.

COPD: Chronic obstructive pulmonary disease.

Figures 5.2 demonstrate the trends over time for specific causes of death by age group. From 1996-1999 to 2004-2007, HIV/AIDS has caused a decreasing proportion of deaths among all age groups. Conversely, deaths caused by non-AIDS-related cancer, heart disease, drug overdose, suicide, and mental disorders due to substance use have contributed to an overall increase in proportions of deaths among all age groups over time.

Figure 5.2 Trends in specific causes of death among persons with AIDS by age group, 1996-2007, San Francisco

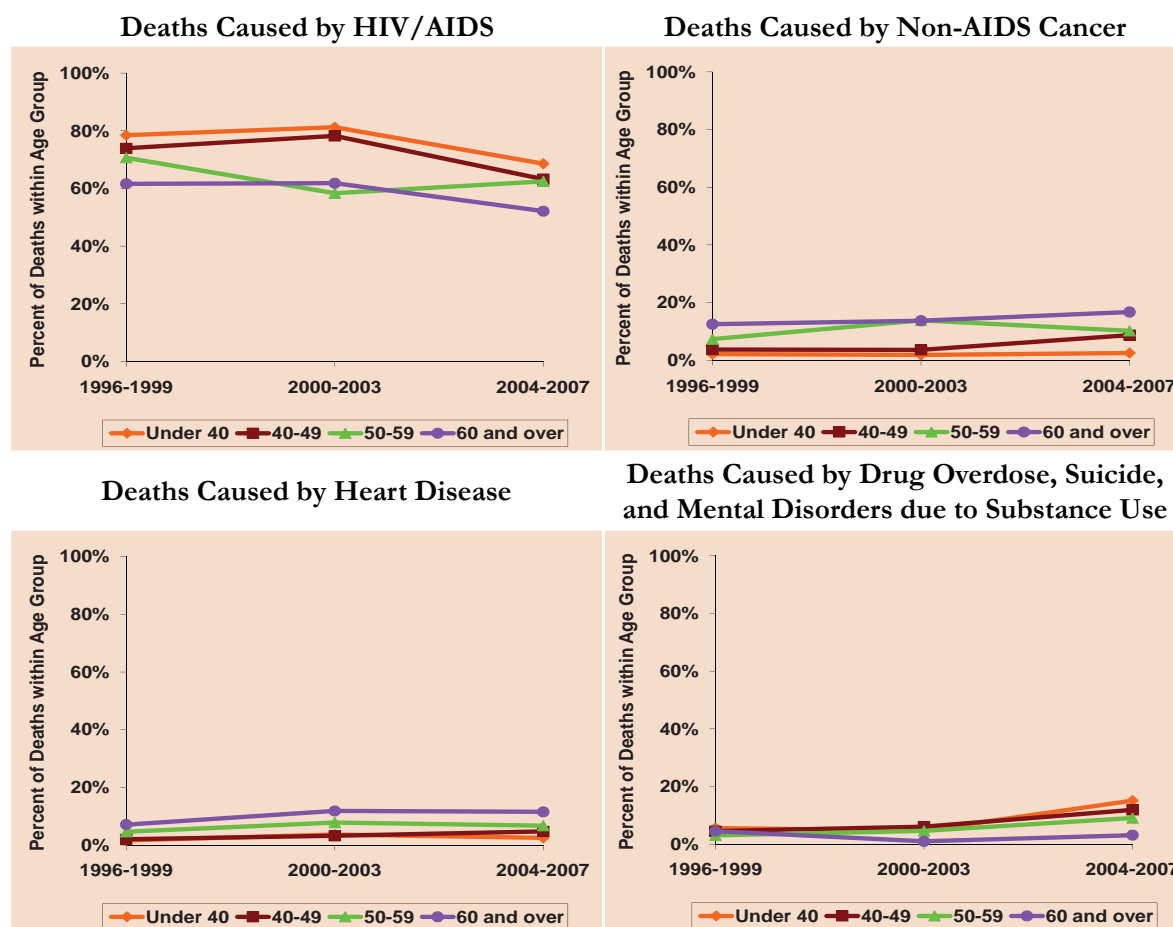
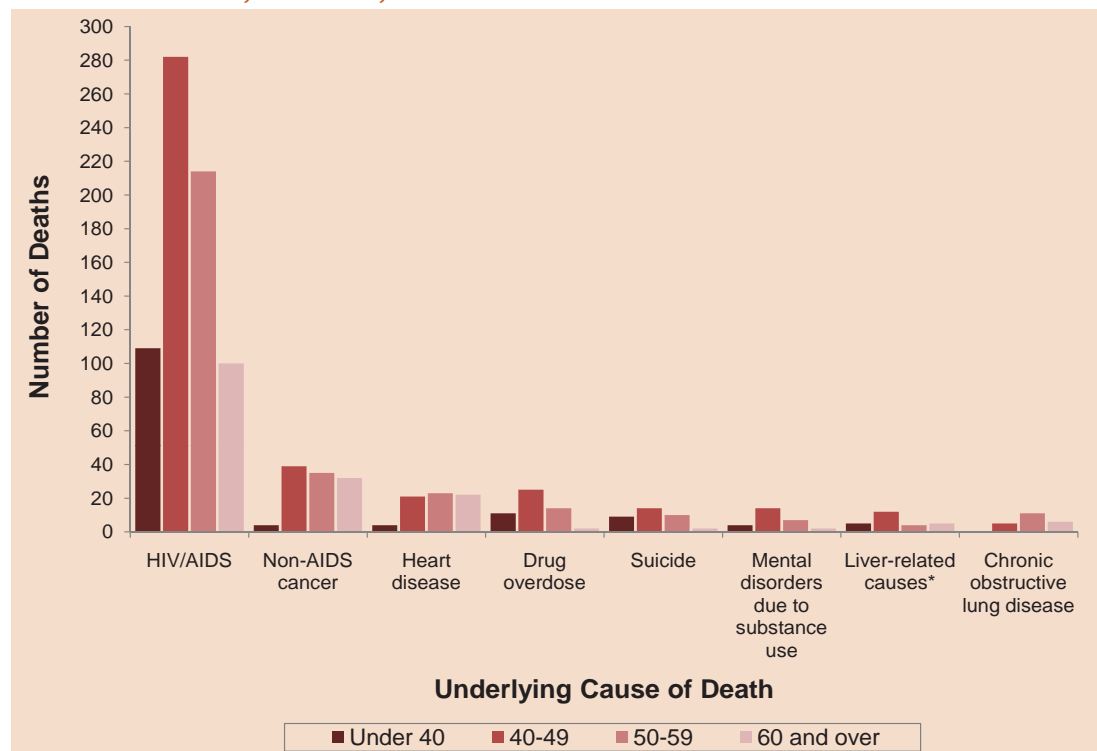


Figure 5.3 shows the age distribution for the leading underlying causes of death during the period 2004-2007. Persons aged 40-49 experienced the largest number of deaths for most causes of death, with the exception of heart disease and chronic obstructive lung disease. The vast majority of deaths due to non-AIDS-related cancer and heart disease occurred among those who were 40 years and older. The largest number of non-AIDS-related cancer deaths occurred among the 40-49 age group. Heart disease was the underlying cause of death for a similar number of persons within the 40-49, 50-59, and 60 and older age groups. Aside from HIV/AIDS, the largest number of deaths among persons under 40 years were due to drug overdose and suicide.

Figure 5.3 Age distribution for select underlying causes of death among persons with AIDS, 2004-2007, San Francisco

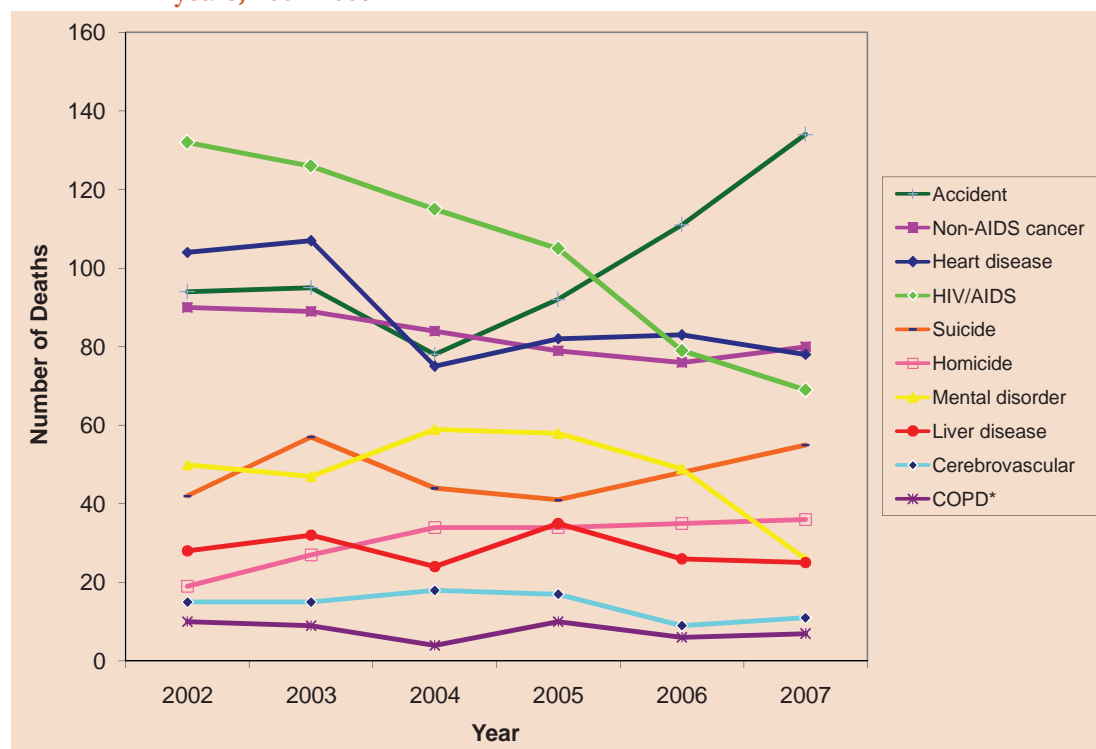


* Includes liver disease and viral hepatitis.

Vital statistics death data

We examined the data obtained from the California Vital Statistics Death Files for San Francisco residents who died from 2002 to 2007 to compare the number of deaths and death rates by gender, race/ethnicity and age. The leading cause of death was determined using ICD-10 codes representing the underlying cause of death, which is consistent with the National Vital Statistics Reports. Until 2005, HIV/AIDS had been the leading cause of death for men aged 25-54 years in San Francisco. However, accidents surpassed HIV/AIDS to become the leading cause of death in 2006 and 2007 (Figure 5.4). HIV/AIDS was the fourth leading cause of death in 2007 among male residents.

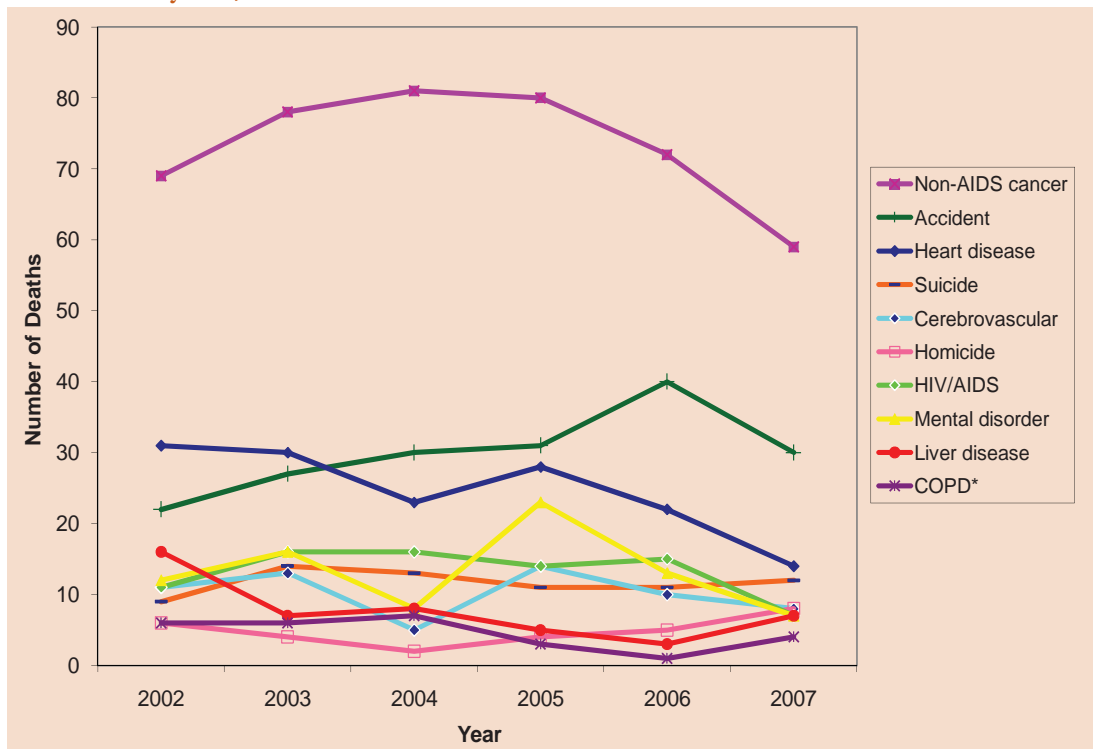
Figure 5.4 Leading causes of death among San Francisco male residents aged 25-54 years, 2002-2007



* COPD: chronic obstructive pulmonary disease.

Deaths due to HIV/AIDS among San Francisco women were significantly lower than among their male counterparts. Among those aged 25-54 years in 2007, the number of deaths among males due to HIV/AIDS (n=69) was approximately ten times higher than the number of deaths among females (n=7). HIV/AIDS-related deaths were steady from 2002 through 2006 but decreased in 2007; this decrease brings HIV/AIDS deaths into a tie with liver disease and mental disorder as the lowest number of deaths among female residents (Figure 5.5). Non-AIDS cancer remained the leading cause of death for female residents aged 25-54 years from 2002 through 2007, with most of these deaths due to breast cancer.

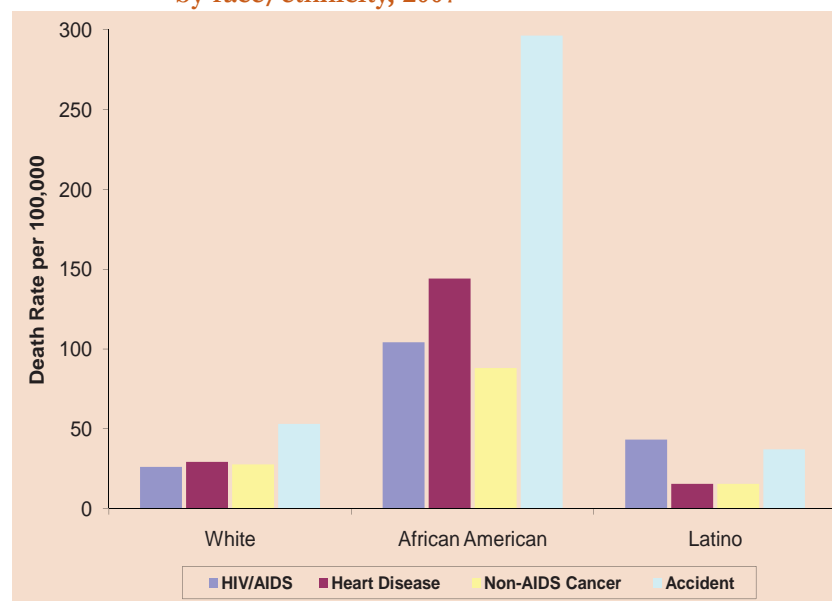
Figure 5.5 Leading causes of death among San Francisco female residents aged 25-54 years, 2002-2007



* COPD: chronic obstructive pulmonary disease.

In 2007, African American males aged 25-54 years had higher death rates from the top four leading causes of death than did Latino and white men aged 25-54 years (Figure 5.6). The greatest disparities were observed for deaths due to accidents and heart disease. The HIV/AIDS death rate for African American men (104 per 100,000) was about four times greater than the death rate among white men (26 per 100,000) and 2.5 times greater than the death rate among Latino men (43 per 100,000). HIV/AIDS was the first leading cause of death among Latino men in 2007.

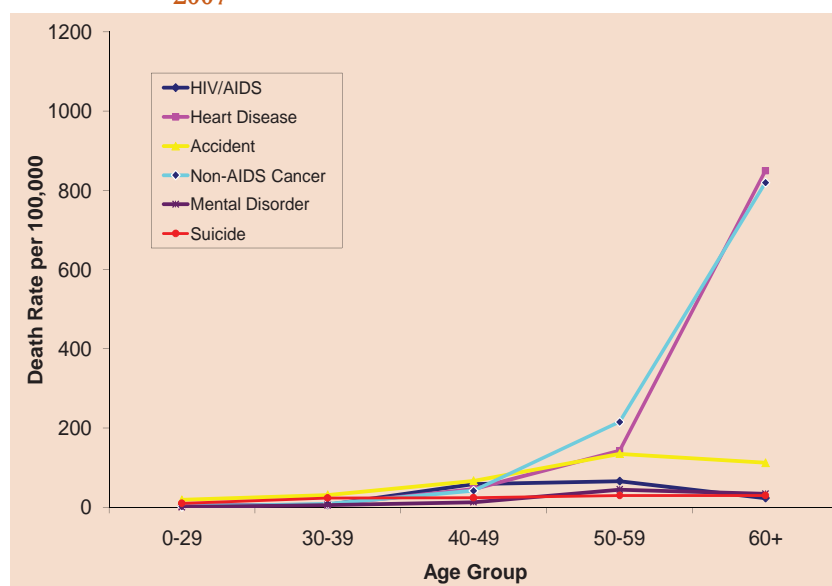
Figure 5.6 Leading causes of death rates per 100,000 population among San Francisco male residents* aged 25-54 years by race/ethnicity, 2007



* Population denominator obtained from State of California, Department of Finance, Race/Ethnic Population with Age and Sex detail 2000-2050 data file

Figure 5.7 illustrates the age-specific death rates among male San Francisco residents. Accidents were the leading cause of death among men under 50. The HIV/AIDS related death rate was the greatest among those aged 50-59 (65 per 100,000) followed by those aged 40-49 (58 per 100,000). Men over age 50 died at a higher rate due to chronic conditions such as heart disease and non-AIDS cancer.

Figure 5.7 Leading causes of death rates per 100,000 population among San Francisco male residents* by age group, 2007



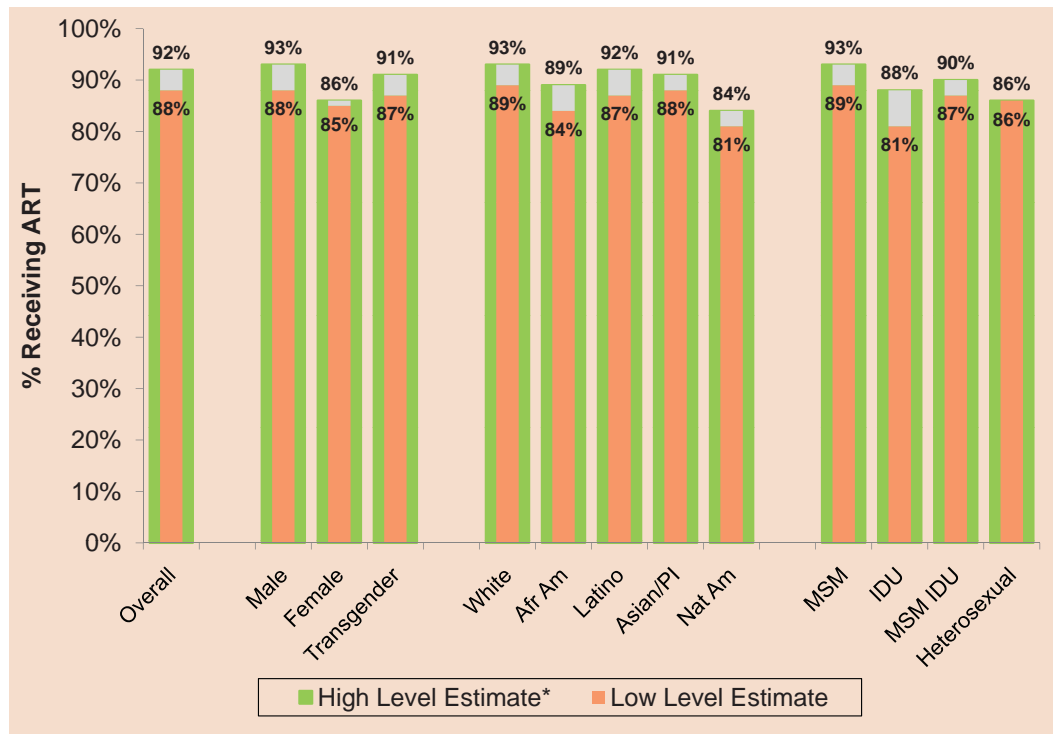
* Population denominator obtained from State of California, Department of Finance, Race/Ethnic Population with Age and Sex detail 2000-2050 data file.

6

Use of Antiretroviral Therapy among Persons with HIV/AIDS

Figure 6.1 shows an estimate of antiretroviral therapy (ART) use among persons living with AIDS as of December 31, 2009. Information on ART is obtained from medical chart review and persons who have been prescribed ART are assumed to have received it. The lower percentage shown in the figure provides the crude estimate of ART use among all persons living with AIDS. The higher percentage, including the grey area, was calculated among persons who have had follow-up information within the last two years and are not known to have moved out of San Francisco. Because this calculation excludes persons who moved or who have been lost-to-follow-up (whose treatment information may be incomplete), it provides an upper level estimate of ART use. Overall, 88%-92% of persons living with AIDS received ART. ART use was lower among females, African Americans, Native Americans, and injection drug users.

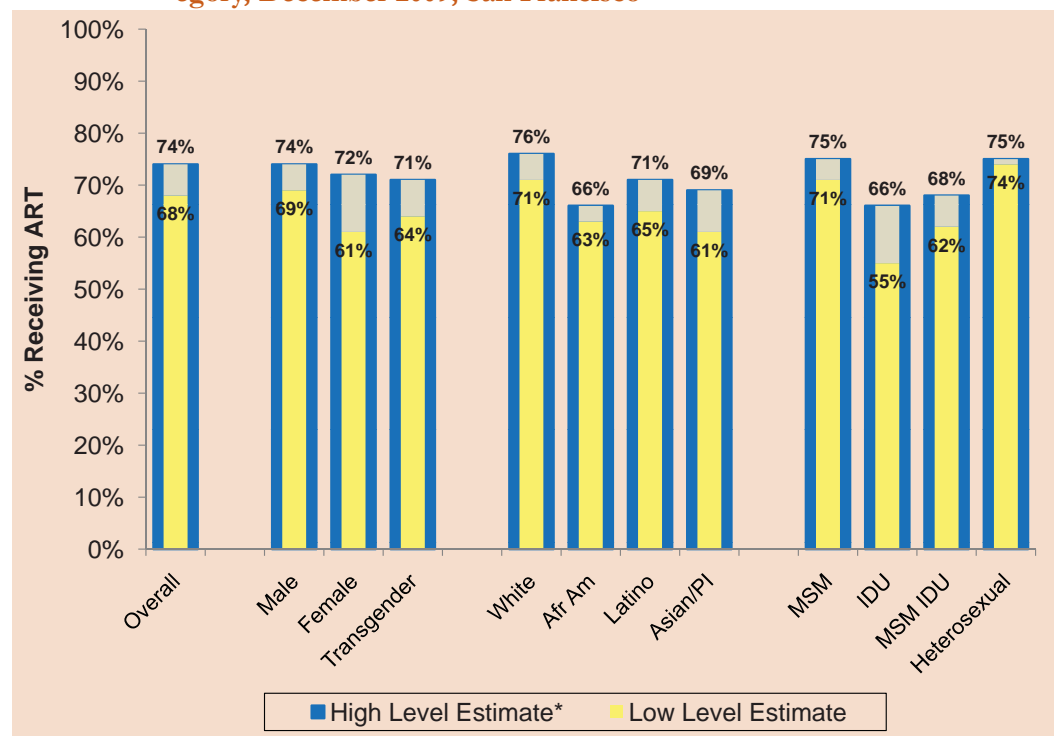
Figure 6.1 Estimate of antiretroviral therapy use among persons living with AIDS by gender, race/ethnicity, and exposure category, December 2009, San Francisco



* Top value of percentage (including the grey area) indicates the proportion of ART use after excluding persons who were lost-to-follow-up. See Technical Notes "Estimate of ART Use."

Figure 6.2 shows use of ART among persons living with HIV who have not progressed to AIDS and have a CD4 count between 200 and 350 cells/ μ L (the eligibility criteria for ART use until December 2009) at any point after their HIV diagnosis. In December 2009, the U.S. Department of Health and Human Services updated the guidelines for the use of ART to recommend that HIV infected persons start treatment when their CD4 count falls below 500 cells/ μ L. As of December 31, 2009, there were a total of 6,347 persons living with HIV non-AIDS and 90% of these had at least one CD4 count available. Among the HIV cases with a CD4 count between 200 and 350 cells/ μ L (N=2,422), 68% received ART. After excluding cases without follow-up information within the last two years, the proportion receiving ART rose to 74%. Females, transgender persons, people of color, and injection drug users were less likely to receive ART.

Figure 6.2 Estimate of antiretroviral therapy use among living HIV non-AIDS cases with a CD4 count 200-350 by gender, race/ethnicity[#], and exposure category, December 2009, San Francisco



* Top value of percentage (including the grey area) indicates the proportion of ART use after excluding persons who were lost-to-follow-up. See Technical Notes "Estimate of ART Use."

Information for Native Americans is not shown due to small numbers.

Recommendations regarding the optimal time point in the course of HIV infection to initiate ART have changed towards initiating sustained therapy at higher CD4 levels. We assessed ART use among persons living with HIV non-AIDS by CD4 level. HIV cases that were reported prior to April 2006 by a non-name code and without any follow-up information since then were excluded (N=721). Of the 5,625 living HIV non-AIDS cases included, 5,343 (95%) have at least one CD4 test result reported. The proportion receiving ART was greater among persons with lower CD4 counts: 68% of cases with a CD4 count between 200-350 cells/ μ L, 59% with a CD4 count between 351-500 cells/ μ L, and 46% with a CD4 count above 500 cells/ μ L received ART (Table 6.1).

We also assessed use of ART by CD4 level excluding persons who were lost-to-follow-up (i.e. without any test or follow-up information within the last two years) or those for whom the medical records were not available for review (Table 6.1, Living HIV non-AIDS cases with follow-up information). Among the 3,796 cases with follow-up information available, 74% of cases with a CD4 count between 200-350 cells/ μ L, 65% with a CD4 count between 351-500 cells/ μ L, and 53% with a CD4 count above 500 cells/ μ L received ART. Although the proportion of ART use was higher when we restricted the analysis to persons for whom follow-up data were available, the relative proportion of persons on treatment at the three levels of CD4 counts was the same; an inverse relationship between lower CD4 counts and higher proportion receiving ART was observed.

Table 6.1 Use of antiretroviral therapy* among persons living with HIV non-AIDS by CD4 level, December 2009, San Francisco

	CD4 count (cells/ μ L) ¹					
	200 - 350		351 - 500		> 500	
	Number	(%)	Number	(%)	Number	(%)
Living HIV non-AIDS cases²						
Received ART	1,599	(68)	985	(59)	603	(46)
Did not receive ART/Unknown	753	(32)	689	(41)	714	(54)
Total	2,352	(100)	1,674	(100)	1,317	(100)
Living HIV non-AIDS cases with follow-up information³						
Received ART	1,333	(74)	777	(65)	414	(53)
Did not receive ART/Unknown	478	(26)	420	(35)	374	(47)
Total	1,811	(100)	1,197	(100)	788	(100)

* See Technical Notes "Estimate of ART Use."

1. CD4 count reflects the lowest count the person ever had.

2. Excludes HIV cases reported by a non-name code prior to April 2006.

3. Excludes persons without follow-up information within last two years or for whom the medical record review was unavailable.

In order to understand the timing of treatment initiation among HIV-infected persons in relation to their CD4 level, we examined the CD4 counts for HIV patients who started ART between 2007 and 2009 (Table 6.2). We included persons for whom information regarding treatment start date and a CD4 count within six months prior to the ART initiation was available. If multiple CD4 counts prior to the treatment were available, the lowest CD4 count was selected. The mean CD4 count at ART initiation was 237, 236, and 254 cells/ μ L for persons who started ART in 2007, 2008, and 2009, respectively. The mean and median CD4 counts at time of ART initiation for persons with an AIDS diagnosis was relatively stable between 2007 and 2009. Among persons with HIV non-AIDS, the ART initiation was at a higher CD4 level and the mean and median CD4 counts increased over time. This suggests a trend towards initiating ART earlier in the course of disease.

Table 6.2 Mean and median CD4 level at time of treatment among persons with HIV/AIDS who started antiretroviral therapy in 2007-2009, San Francisco

Year of ART initiation	Persons with HIV/AIDS			Persons with AIDS			Persons with HIV non-AIDS		
	CD4 count at ART (cells/uL)			CD4 count at ART (cells/uL)			CD4 count at ART (cells/uL)		
	N	Mean	Median	N	Mean	Median	N	Mean	Median
2007	300	237	228	183	160	153	117	357	302
2008	240	236	207	170	169	163	70	399	350
2009	202	254	218	137	163	149	65	445	376

7 Insurance Status at Time of HIV/AIDS Diagnosis

The insurance status at time of AIDS diagnosis differs among men, women, and transgender persons. The proportion of men with private insurance was consistently higher than proportions of women and transgender persons with private insurance (Figure 7.1). In recent years, the proportions of male AIDS cases with private and public insurance has become more similar. For women, over 50% of AIDS cases had public insurance at diagnosis during 2004 to 2009. Compared to male and female AIDS cases, transgender AIDS cases had the highest proportion with no insurance coverage between 2004 and 2009.

For AIDS cases diagnosed between 2004 and 2009, 96% of transgenders and 87% of women were under-insured (i.e. having no insurance or public insurance), compared to 54% of men (Figure 7.2).

Figure 7.1 Trends in insurance status among persons with AIDS by gender, 2004-2009, San Francisco

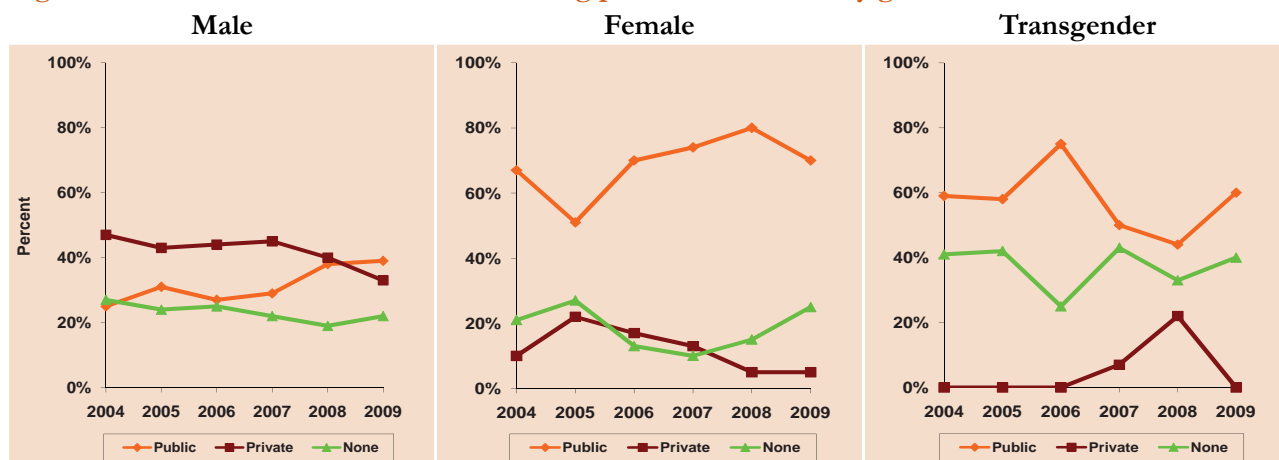
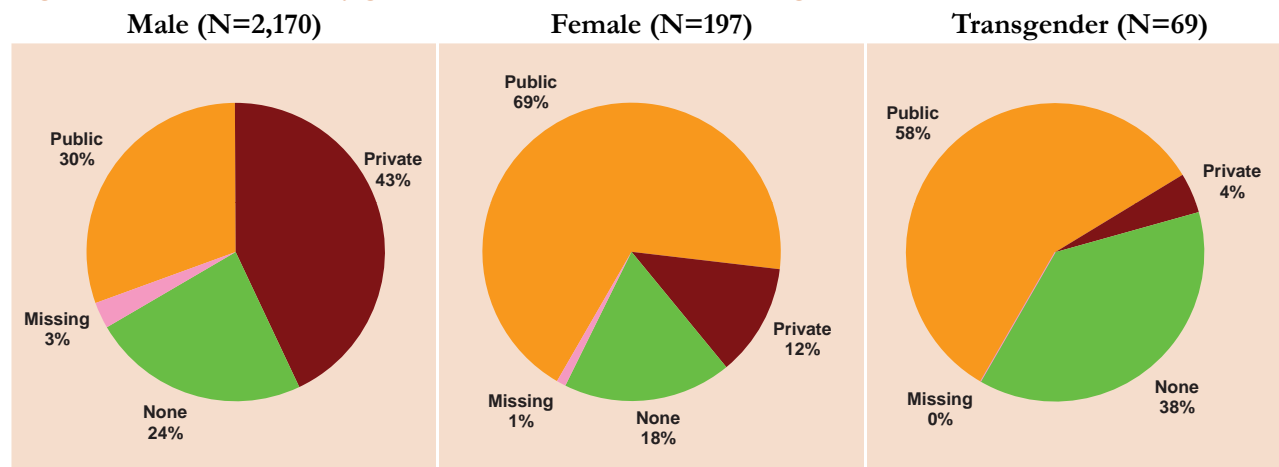


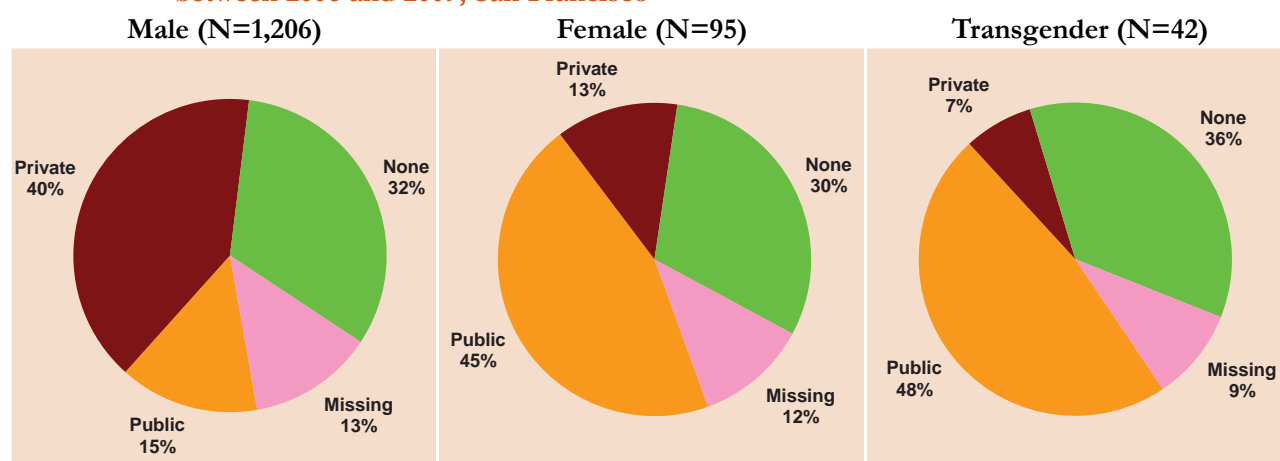
Figure 7.2 AIDS cases by gender and insurance status at diagnosis, 2004-2009, San Francisco



We examined the insurance status for persons with HIV infection who had not progressed to AIDS (HIV non-AIDS) reported between 2006 and 2009, which includes cases diagnosed before and during this time period. Compared to AIDS cases (Figure 7.2), a higher proportion of HIV non-AIDS cases had private insurance at the time of HIV diagnosis (Figure 7.3). In addition, a greater percentage of HIV non-AIDS cases did not have insurance status available. HIV non-AIDS cases whose follow-up information could not be obtained from the health care providers are recorded as missing insurance status.

Similar to AIDS cases, there were differences in insurance status by gender for HIV non-AIDS cases. Forty-seven percent of male HIV non-AIDS cases were under-insured, compared to 75% of female and 84% of transgender HIV non-AIDS cases (Figure 7.3).

Figure 7.3 HIV non-AIDS cases by gender and insurance status at diagnosis, diagnosed with HIV between 2006 and 2009, San Francisco



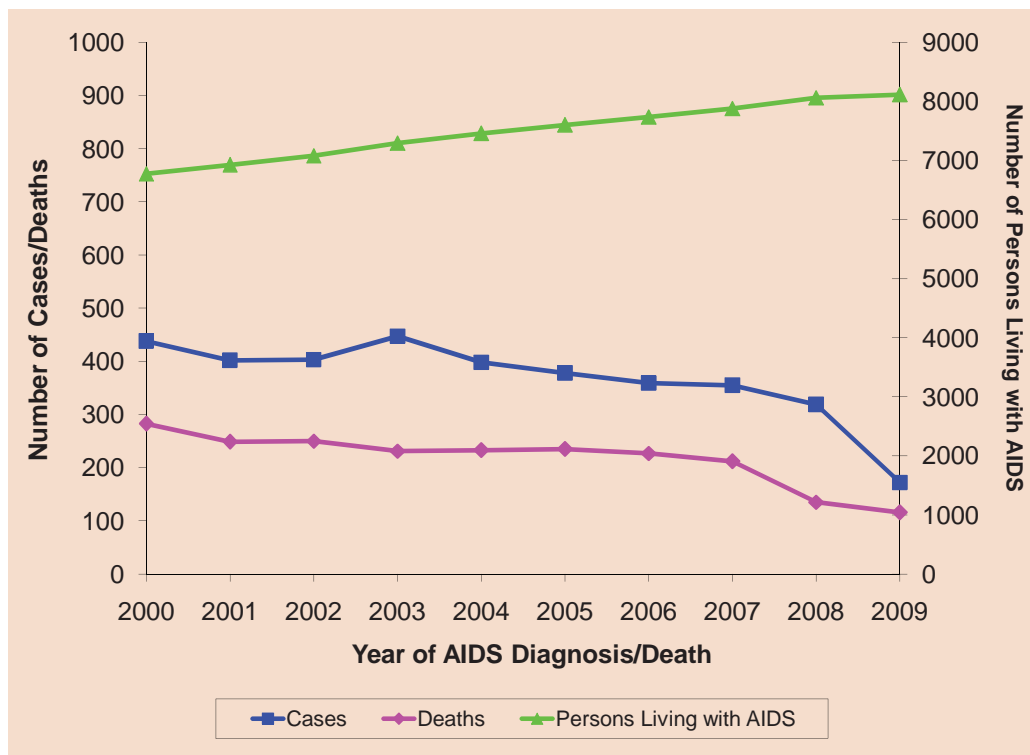


HIV/AIDS among Men Who Have Sex with Men

HIV/AIDS surveillance data

Over the last decade, the number of new AIDS cases and AIDS deaths declined among MSM while the number of MSM living with AIDS increased. Between 2003 and 2005, deaths among MSM were stable (Figure 8.1). In 2009, there were 8,118 MSM living with AIDS in San Francisco.

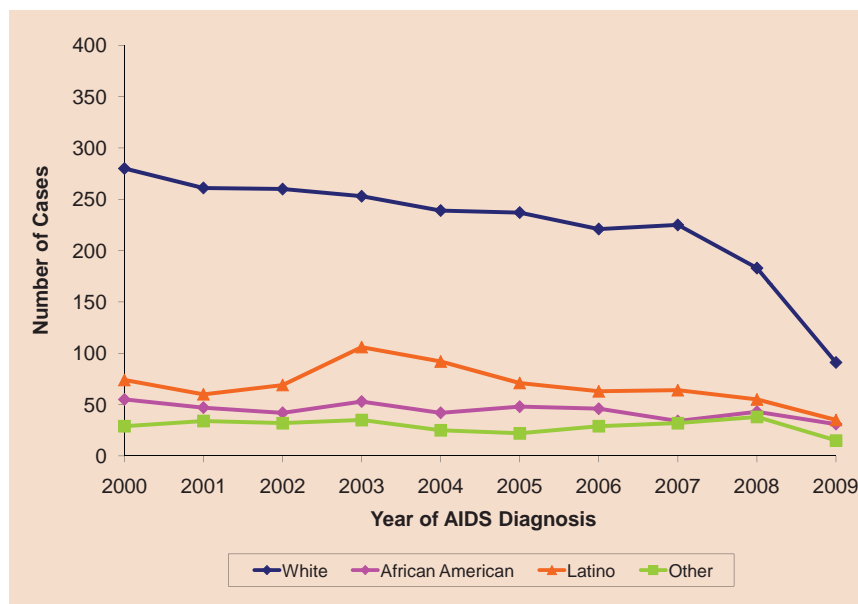
Figure 8.1 AIDS cases, deaths, and prevalence among MSM*, 2000-2009, San Francisco



* Includes MSM and MSM IDU.

The majority of San Francisco's MSM AIDS cases are white (Figure 8.2). Latinos are the second highest affected race/ethnicity group among MSM AIDS cases. In 2009 there were 91 white MSM, 35 Latino MSM, and 31 African American MSM diagnosed with AIDS in San Francisco.

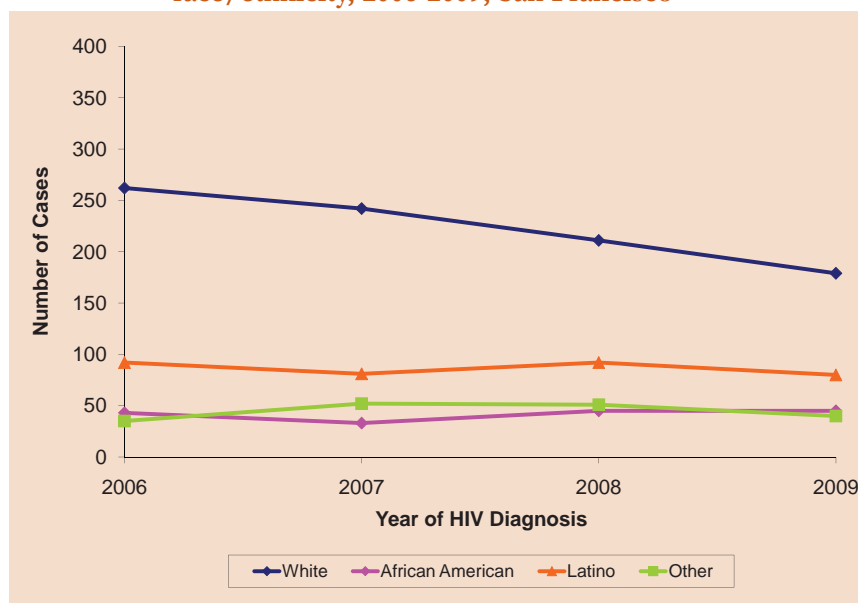
Figure 8.2 AIDS cases among MSM* by race/ethnicity, 2000-2009, San Francisco



* Includes MSM and MSM IDU.

Persons who are white make up the largest race/ethnicity group of San Francisco's MSM cases diagnosed with HIV infection (Figure 8.3). Trends of cases diagnosed with HIV infection between 2006 and 2009 indicate that there is a decline among white MSM, while the number of cases for other race/ethnicity groups was fairly stable.

Figure 8.3 Cases diagnosed with HIV infection* among MSM by race/ethnicity, 2006-2009, San Francisco



* Includes MSM and MSM IDU with HIV/AIDS by year of their initial HIV diagnosis.

HIV sexual behavior data

The STOP AIDS Project collects information on sexual behaviors and self-reported HIV status of men who have sex with men who participate in their outreach prevention activities in San Francisco. These data are collected anonymously and shared with the San Francisco Department of Public Health to track trends in HIV-related risk behavior. Such data may not be representative of all MSM in San Francisco. In this section, trends in unprotected anal intercourse (UAI) in the past six months is assessed for men 18 years and older who reside in San Francisco.

Figure 8.4 shows trends in reported UAI (either insertive or receptive) by self-reported HIV serostatus. Between 2006 to 2009, the percent among HIV-negative MSM who reported UAI declined slightly from 42% to 33%. Among HIV-positive men, the percent UAI fluctuated between 45% to 60%.

Figure 8.5 shows the percent of MSM who reported UAI with potentially HIV discordant partners, a measure that gauges the potential for HIV transmission by excluding sex between men known to be the same HIV status. A potentially discordant partnership is defined as partner whose HIV status is different than the respondent or is unknown. Since 2006, insertive UAI between HIV-positive men and their discordant partners appears to be stable, ranging from 15% in 2006 to 12% in 2009. Similarly, the percent of HIV-negative men who reported receptive UAI with a potentially discordant partner appears to be stable at just under 5%.

Figure 8.4 Percent of MSM reporting unprotected anal intercourse in the last six months by self-reported HIV status, the STOP AIDS Project, 2006-2009, San Francisco

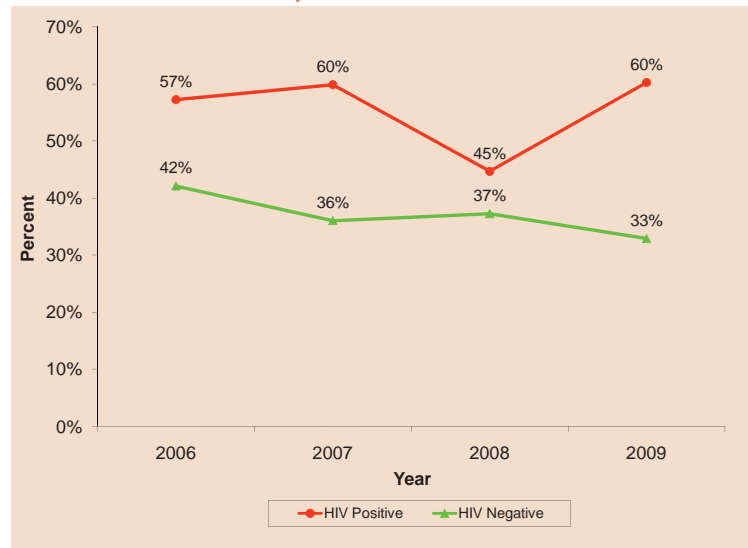
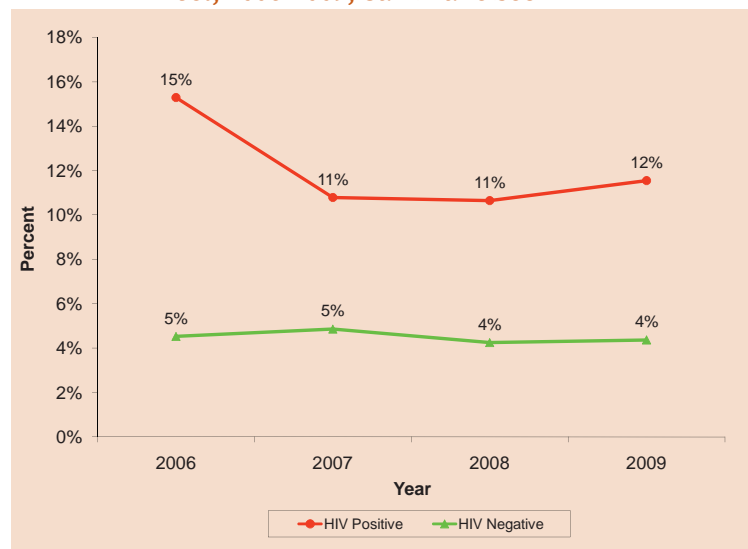


Figure 8.5 Percent of San Francisco MSM reporting unprotected anal intercourse in the last six months with potentially HIV discordant partners by self-reported HIV status, the STOP AIDS Project, 2006-2009, San Francisco



Sexually transmitted diseases among MSM

Figure 8.6 shows trends in male rectal gonorrhea and male gonococcal proctitis in San Francisco from 2000 through 2009. Data on male rectal gonorrhea originate from case reporting from laboratories and health providers throughout the city. Data on male gonococcal proctitis originate from the municipal STD clinic only. Infection with gonorrhea is a biological marker for high risk sexual behavior. Among men, rectal gonorrhea is a marker for unprotected receptive anal sex.

The last decade has seen a steady increase in reported cases of male rectal gonorrhea followed by a decrease after 2006. Male gonococcal proctitis are cases with symptomatic infection. Data on male gonococcal proctitis suggest that some of the increase in reported male rectal gonorrhea may be due to increased screening or reporting.

Data may underestimate true levels of infections due to several factors, including lack of rectal screening by many health providers, under reporting, delayed reporting, and a large proportion of cases that do not manifest symptoms.

Figure 8.6 Male rectal gonorrhea and male gonococcal proctitis among MSM, 2000-2009, San Francisco

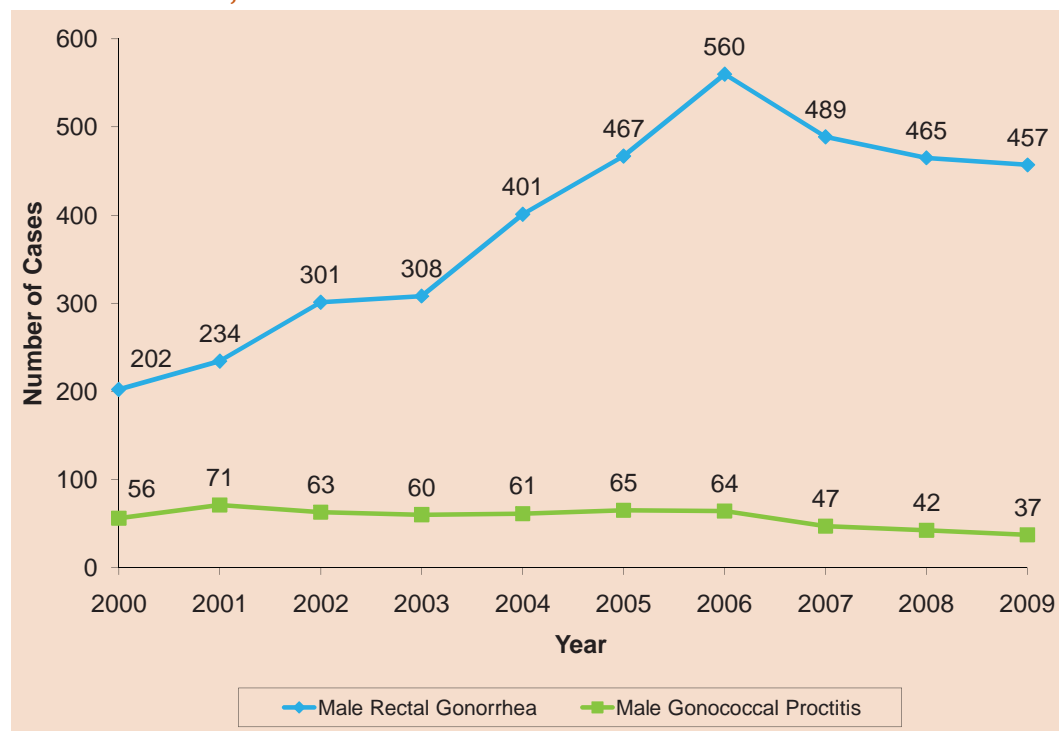
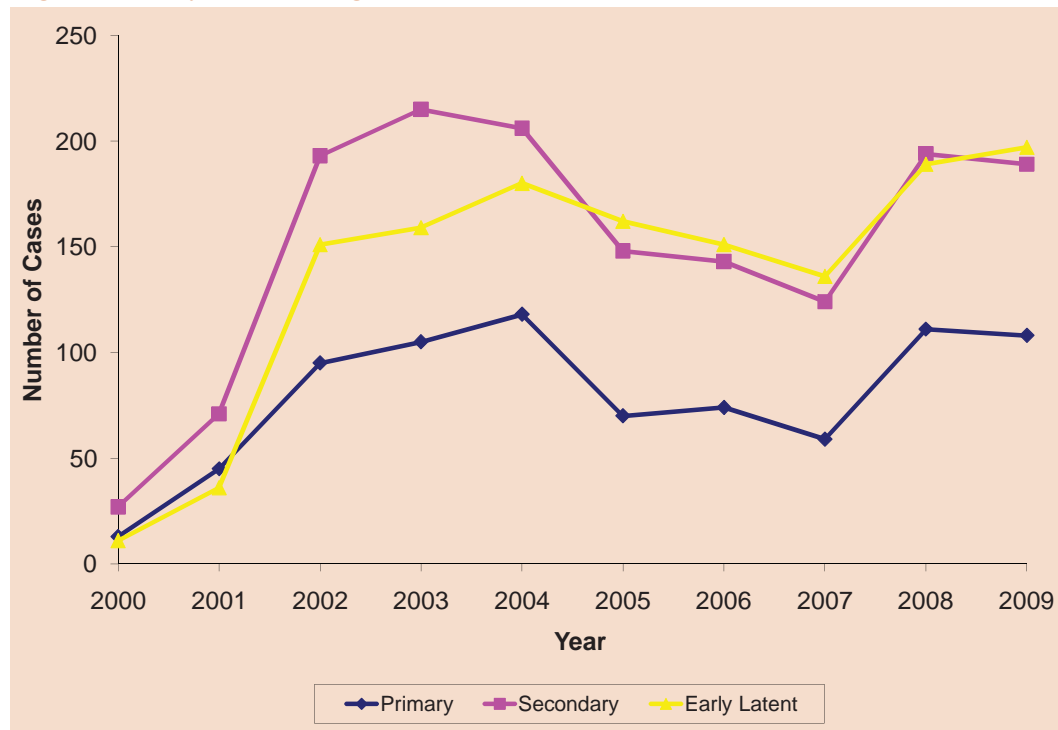


Figure 8.7 shows trends in primary, secondary, and early latent cases of syphilis among MSM in San Francisco from 2000 through 2009. Data originate from case reporting from laboratories and health providers throughout the city although the majority are patients seen at the municipal STD clinic. Like gonorrhea, syphilis is a biological marker for high risk sexual behavior. The increase in early syphilis among MSM in San Francisco since 2000 is dramatic. In 2005, for the first time since this rapid rise, early syphilis among MSM declined. However, in 2008, primary, secondary and early syphilis among MSM began to rise again.

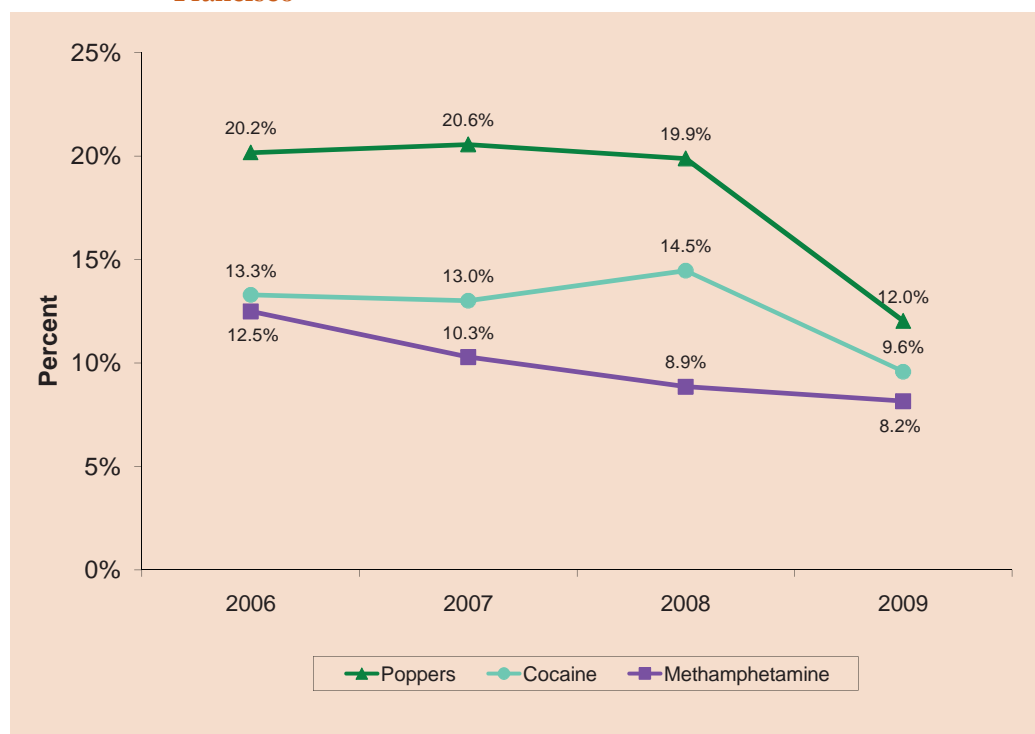
Figure 8.7 Syphilis among MSM, 2000-2009, San Francisco



Substance use

The STOP AIDS Project also records substance use among San Francisco MSM. Figure 8.8 shows the percent that used methamphetamines, “poppers,” or cocaine in the past six months. The percent reporting popper use dropped significantly from 20% in 2008 to just over 12% in 2009. Cocaine use also dropped sharply in 2009. Methamphetamine use is declining.

Figure 8.8 Substance use among MSM, the STOP AIDS Project, 2006-2009, San Francisco



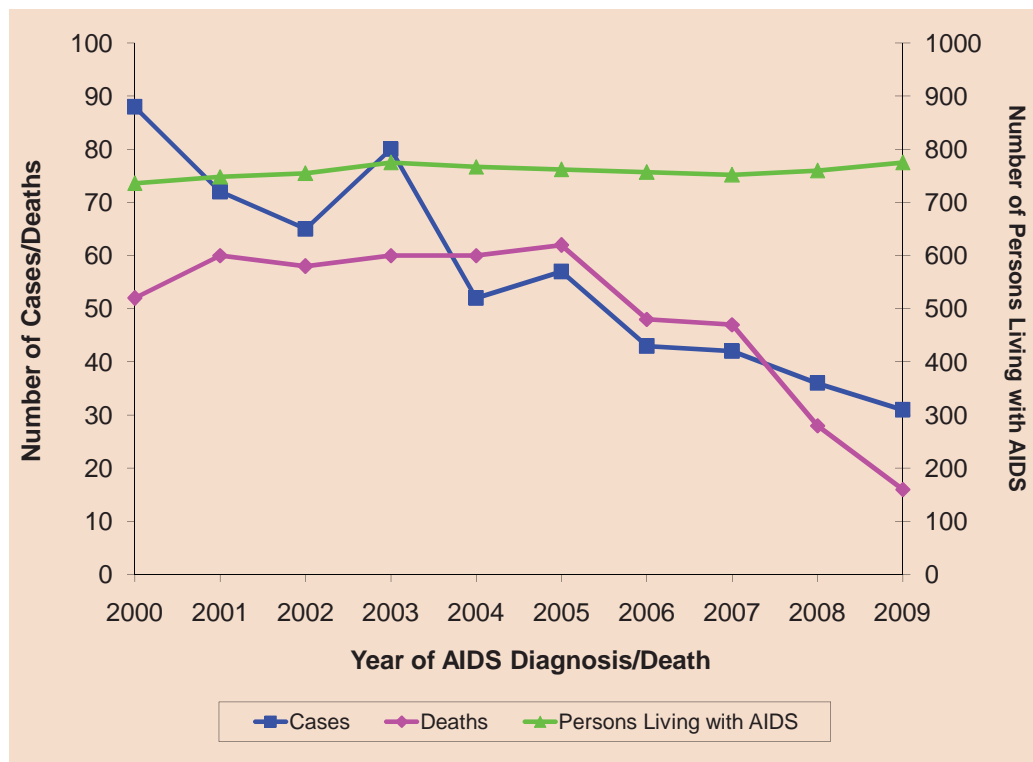
9

HIV/AIDS among Injection Drug Users

HIV/AIDS surveillance data

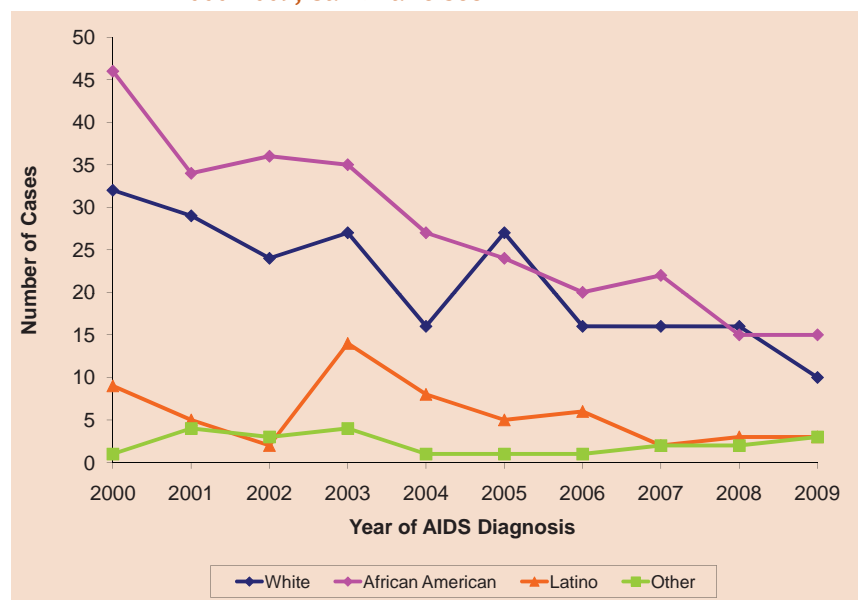
Injection drug use by non-MSM is the third most frequent exposure group among cumulative AIDS cases in San Francisco. This differs from national AIDS data where non-MSM IDU is the second most frequent exposure group among all cases. The number of living non-MSM IDU in San Francisco has been fairly level from 2003 to 2009 (Figure 9.1). This is the likely result of similar numbers of deaths and new AIDS cases in recent years. As of December 31, 2009, there were 775 non-MSM IDU living with AIDS in San Francisco.

Figure 9.1 AIDS cases, deaths, and prevalence among non-MSM IDU, 2000-2009, San Francisco



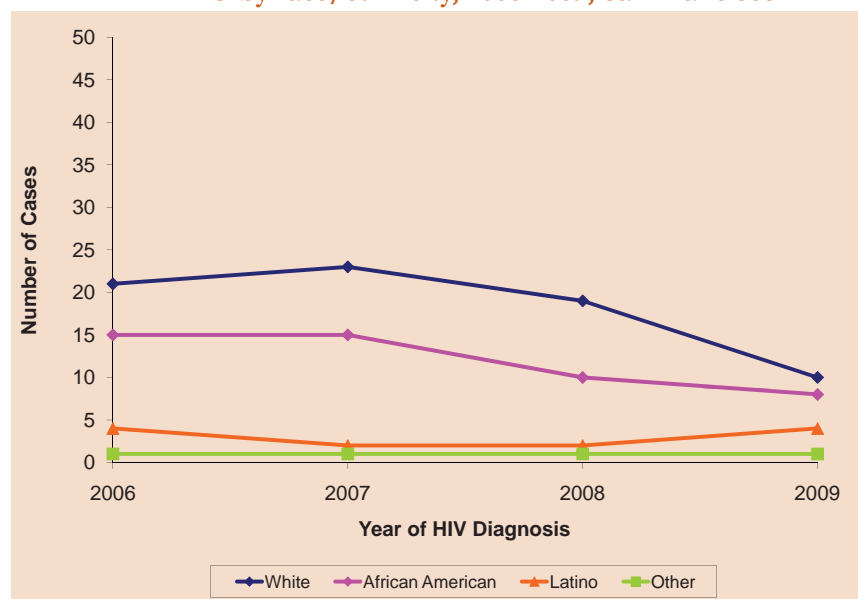
From 2000 to 2004, African Americans accounted for the greatest number of AIDS cases among non-MSM IDU (Figure 9.2). Since 2005, the number of white non-MSM IDU AIDS cases has been similar to the number of African American non-MSM IDU. Non-MSM IDU who were Latino or of other race/ethnicity groups accounted for few AIDS cases between 2000 and 2009.

Figure 9.2 AIDS cases among non-MSM IDU by race/ethnicity, 2000-2009, San Francisco



Examined by year of HIV diagnosis, among non-MSM IDU, whites accounted for the greatest number of cases diagnosed with HIV infection (Figure 9.3). Since 2006, the numbers of white and African American non-MSM IDU cases diagnosed with HIV infection have declined while the numbers for other race/ethnicity groups remained stable.

Figure 9.3 Cases diagnosed with HIV infection* among non-MSM IDU by race/ethnicity, 2006-2009, San Francisco



* Includes persons with HIV/AIDS by year of their initial HIV diagnosis.

Table 9.1 shows the risk and race/ethnicity distributions of AIDS cases that were directly or indirectly associated with injection drug use. MSM IDU account for 65% of all IDU-associated AIDS cases, followed by male heterosexual IDU who account for 21%. Whites make up the largest proportion of MSM IDU and Lesbian IDU, while African Americans account for the largest proportion of IDU-associated AIDS cases in all other exposure categories.

Table 9.1 Injection drug use-associated AIDS cases by exposure category and race/ethnicity, diagnosed through December 2009, San Francisco

Exposure Category	Race/Ethnicity Distribution by Percent				
	Total Number	White	African American	Latino	Other
Male heterosexual IDU	1,406	36%	48%	12%	3%
Female heterosexual IDU	696	32%	52%	11%	5%
MSM IDU	4,272	70%	16%	11%	4%
Lesbian IDU	60	45%	37%	10%	8%
Heterosexual contact with IDU	153	32%	44%	16%	8%
Children whose mothers are IDUs or mother's sex partners are IDUs	23	22%	43%	17%	17%

National HIV Behavioral Surveillance data

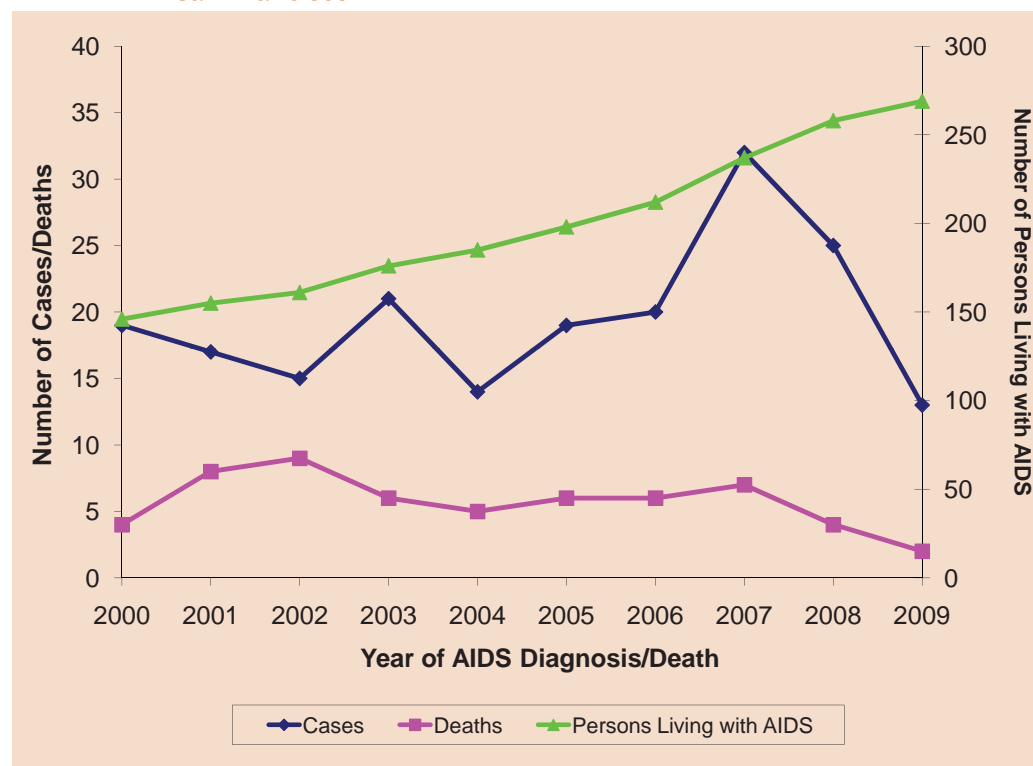
As part of the National HIV Behavioral Surveillance (NHBS), we conducted a survey of IDU using respondent driven sampling (RDS). Eligible IDU were referred by their peers, were over 18 years old and had injected in the past 12 months. In addition to a behavioral survey, participating IDU were tested for HIV antibodies. After adjusting for the sampling method, HIV prevalence among IDU in San Francisco was 12.2% (95% Confidence Interval 8.2-16.5).

10 HIV/AIDS among Heterosexuals

HIV/AIDS surveillance data

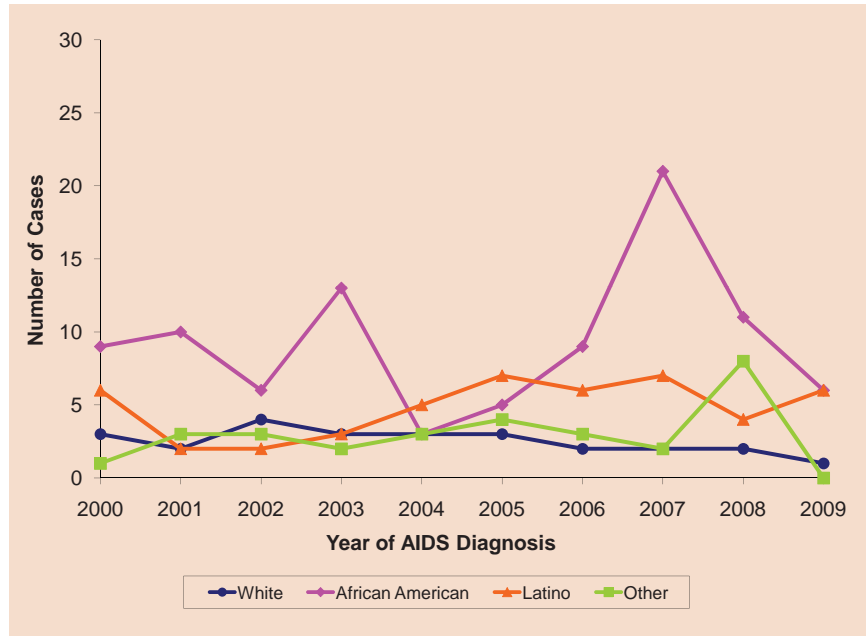
Between 2000 and 2006 the number of AIDS cases among persons who were infected with HIV through heterosexual contact was fairly level (Figure 10.1). The number of AIDS cases in non-IDU heterosexuals peaked in 2007 at 32 cases and declined to 13 in 2009. However, cases in 2008 and 2009 may be underestimated due to the delay in reporting new AIDS cases. Deaths among non-IDU heterosexuals have been stable during the last decade. The number of non-IDU heterosexuals living with AIDS increased to 269 by December 31, 2009.

Figure 10.1 AIDS cases, deaths, and prevalence among heterosexuals, 2000-2009, San Francisco



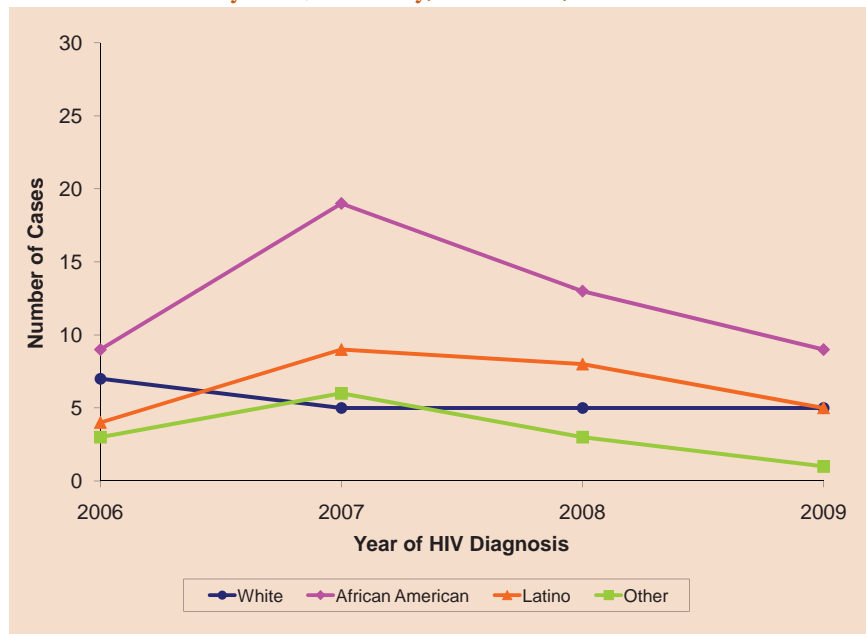
Trends in heterosexual AIDS cases by race/ethnicity are difficult to characterize due to the small number of cases (Figure 10.2). Overall, African Americans accounted for the greatest number of heterosexual AIDS cases since 2000. The number of African American heterosexual AIDS cases diagnosed per year increased steadily from 2004 to 2007, accounting for two-thirds of heterosexual AIDS cases diagnosed in 2007.

Figure 10.2 AIDS cases among heterosexuals by race/ethnicity, 2000-2009, San Francisco



Similar to the trend for heterosexual AIDS cases by race/ethnicity, African American is the most prevalent race/ethnicity among heterosexual cases diagnosed with HIV infection (Figure 10.3). During the time period of 2006 to 2009, African Americans made up 45% of diagnosed heterosexual cases.

Figure 10.3 Cases diagnosed with HIV infection* among heterosexuals by race/ethnicity, 2006-2009, San Francisco



* Includes persons with HIV/AIDS by year of their initial HIV diagnosis.

The majority of heterosexually-acquired AIDS cases occurred in women (Table 10.1). Sex with an HIV-infected partner of unknown risk factor was the most frequent exposure category for both men and women, accounting for 72% of men exposed heterosexually and 46% of women exposed heterosexually.

Table 10.1 AIDS cases among heterosexuals by exposure category and gender, diagnosed through December 2009, San Francisco

Exposure Category	Men		Women	
	Number	%	Number	%
Sex with injection drug user	37	26%	116	38%
Sex with bisexual men	N/A	N/A	47	15%
Sex with HIV+ transfusion recipient	<5	-	<5	-
Sex with HIV+ persons of unknown risk	101	72%	140	46%



Sexually transmitted diseases among heterosexuals

Figure 10.4 shows the annual number of primary, secondary, and early latent cases of syphilis among heterosexual men in San Francisco from 2000 through 2009. Data originate from case reporting from laboratories and health providers throughout the city, although the majority are patients seen at the municipal STD clinic. Compared to MSM, syphilis among heterosexual men remains relatively low in recent years but with an increase in 2008.

Figure 10.4 Syphilis among heterosexual men, 2000-2009, San Francisco

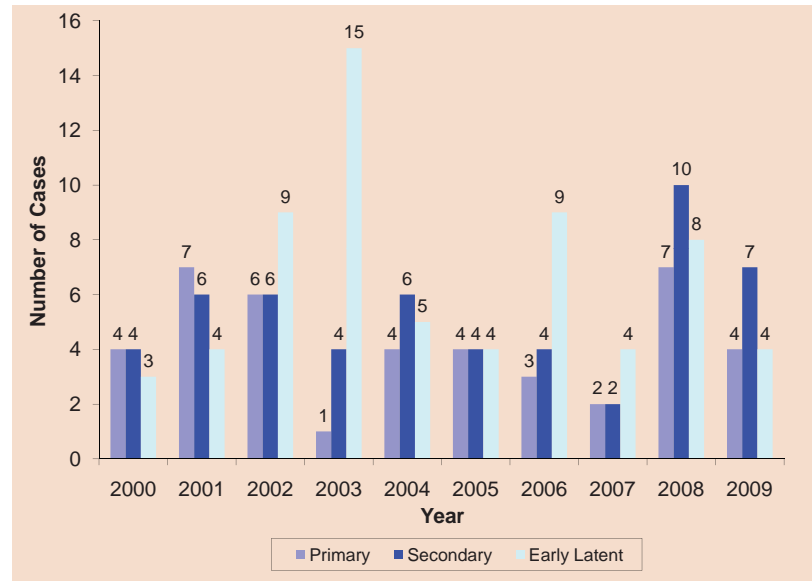
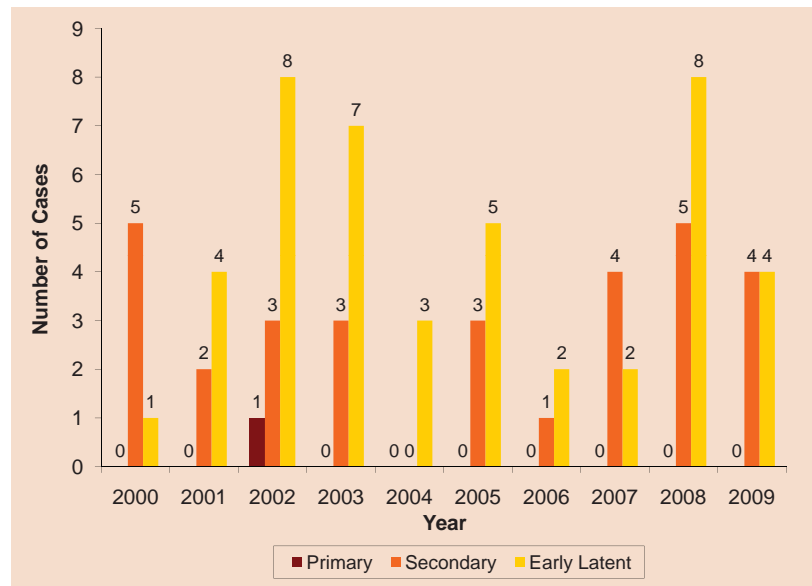


Figure 10.5 shows the annual number of primary, secondary, and early latent cases of syphilis among women in San Francisco from 2000 through 2009. Data originate from case reporting from laboratories and health providers throughout the city, although the majority are patients seen at the municipal STD clinic. Among women, syphilis cases have been low and stable in recent years, with an increase in 2008 in secondary and early latent syphilis cases.

Figure 10.5 Syphilis among women, 2000-2009, San Francisco

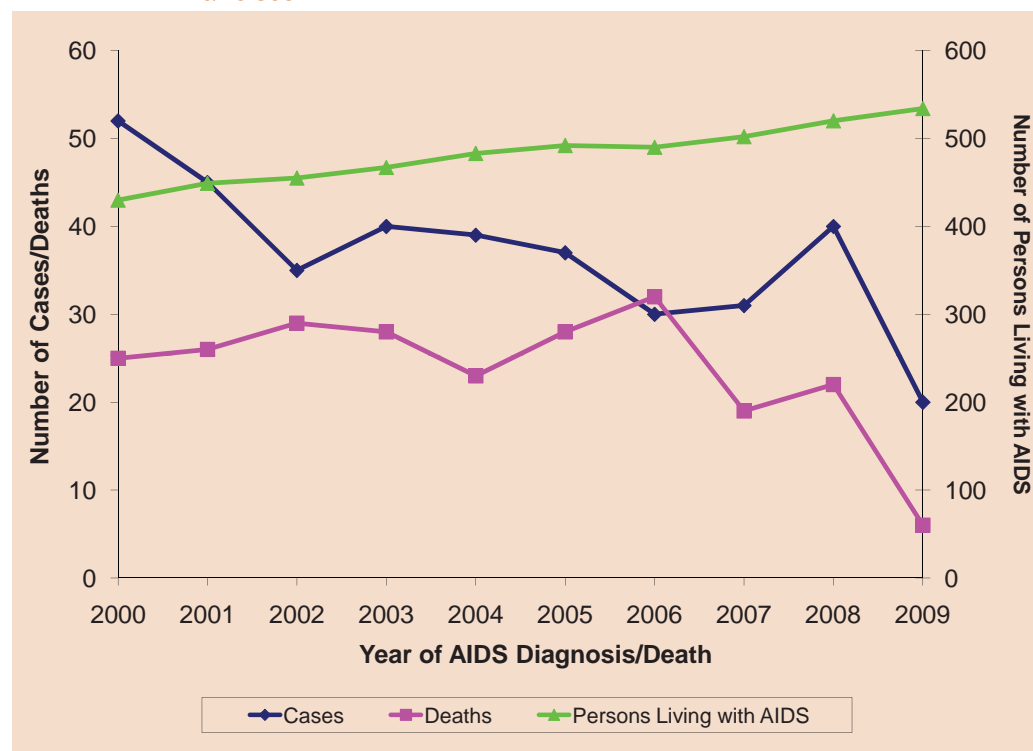


11

HIV/AIDS among Women

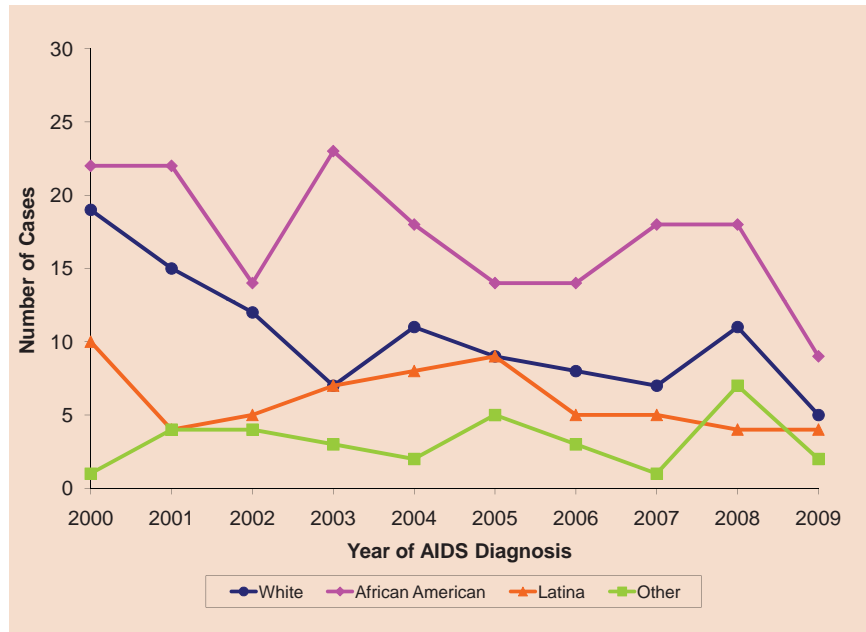
AIDS cases among women in San Francisco declined from 2000 to 2006 and increased from 2006 to 2008 (Figure 11.1). The number of AIDS cases in recent years may be underestimated due to a delay in case reporting. The number of deaths remained fairly stable from 2000 to 2004. As of December 31, 2009 there were 534 women living with AIDS.

Figure 11.1 AIDS cases, deaths, and prevalence among women, 2000-2009, San Francisco



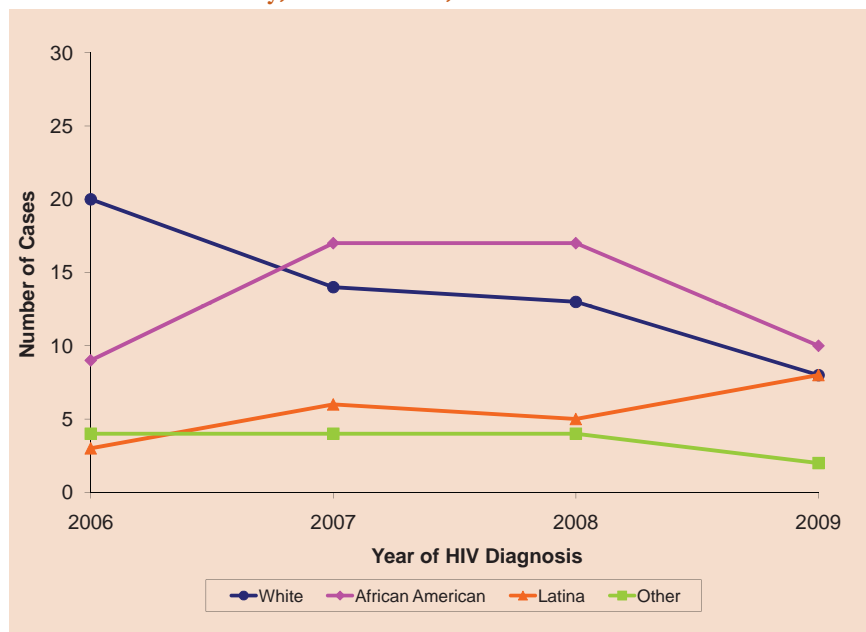
During 2000 to 2009, African American women represented the highest number of newly diagnosed female AIDS cases, and white women represented the second highest number of female AIDS cases (Figure 11.2).

Figure 11.2 Female AIDS cases by race/ethnicity, 2000 to 2009, San Francisco



African American and white are the two largest race/ethnicity groups among women diagnosed with HIV infection (Figure 11.3). From 2006 to 2009, African Americans and whites accounted for 37% and 38% of female cases diagnosed with HIV infection, respectively. Numbers of Latina and women of other race/ethnicity groups were low in that time period, however, Latina cases diagnosed with HIV infection show an increase beginning in 2009.

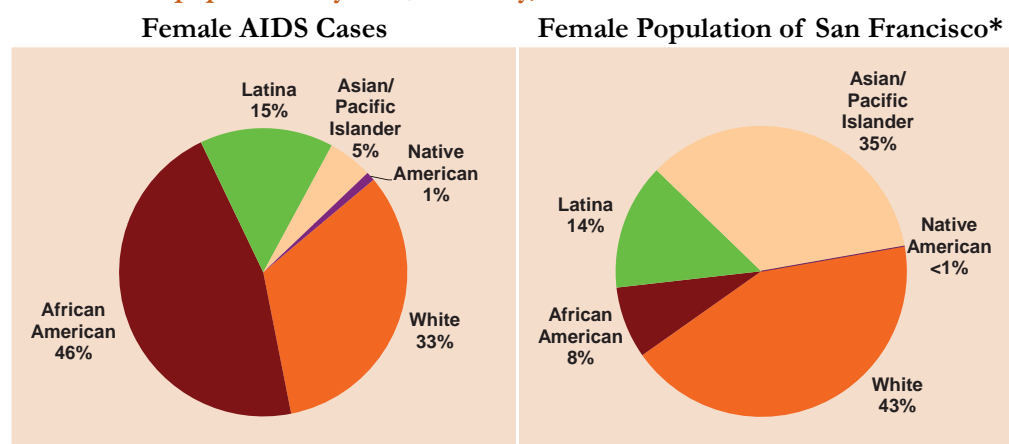
Figure 11.3 Female cases diagnosed with HIV infection* by race/ethnicity, 2006 to 2009, San Francisco



* Includes persons with HIV/AIDS by year of their initial HIV diagnosis.

Compared to the female population of San Francisco, African Americans are disproportionately affected among women diagnosed with AIDS (Figure 11.4). Although African American women represent 8% of the female population, they account for 46% of the female AIDS cases in San Francisco.

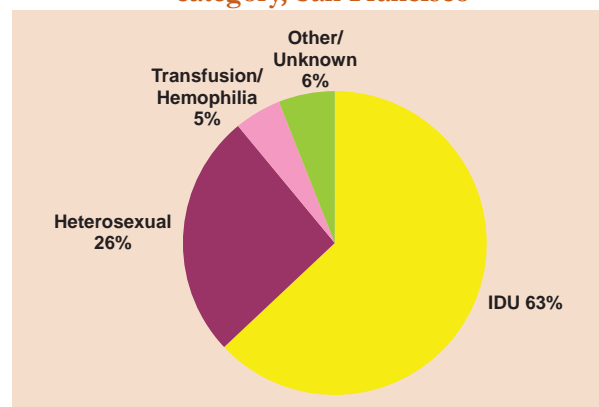
Figure 11.4 Female AIDS cases diagnosed through December 2009 and female population by race/ethnicity, San Francisco



* United States 2000 Census data.

Almost two-thirds of all female AIDS cases diagnosed in San Francisco acquired HIV infection through injection drug use (Figure 11.5). More than a quarter of all female AIDS cases in San Francisco acquired HIV infection through heterosexual contact.

Figure 11.5 Female AIDS cases diagnosed through December 2009 by exposure category, San Francisco



12 HIV/AIDS among Adolescents and Young Adults

Table 12.1 shows living HIV/AIDS cases diagnosed in San Francisco that were adolescents (age 13-19) and young adults (age 20-24) as of December 31, 2009. There were 25 adolescents and 165 young adults living with HIV/AIDS. Among living adolescent HIV/AIDS cases, the majority were infected with HIV perinatally. Latinos accounted for the highest proportion of living adolescent cases, while the proportions of white and African American living adolescent cases were the same. Among living young adult HIV/AIDS cases, the majority were MSM, and African Americans and Latinos made up the similar proportions of living young adult cases, at 30% and 31% respectively.

Table 12.1 Living adolescent and young adult HIV/AIDS cases by exposure category, gender, and race/ethnicity, December 2009, San Francisco

	13-19 Years Old (N=25)	20-24 Years Old (N=165)
Exposure Category		
MSM	16%	65%
IDU	0%	3%
MSM IDU	8%	8%
Heterosexual	0%	7%
Perinatal	72%	10%
Other/Unidentified	4%	7%
Gender		
Male	48%	83%
Female	52%	12%
Transgender	0%	5%
Race/Ethnicity		
White	20%	27%
African American	20%	30%
Latino	44%	31%
Asian/Pacific Islander	8%	8%
Other/Unknown	8%	4%

Table 12.2 compares cases diagnosed with HIV infection among San Francisco adolescents and young adults with adolescents and young adults diagnosed nationally. Numbers of cases for the U.S. were reported using HIV/AIDS surveillance data from the 37 states with confidential name-based HIV reporting. Compared with national adolescent and young adult HIV/AIDS cases, San Francisco had a lower percentage of adolescent (13-19 years) cases.

Table 12.2 Cases diagnosed with HIV infection* among adolescents and young adults, 2006-2009, San Francisco and the United States

	Year of HIV Diagnosis			
	2006	2007	2008	2009
	Number (%)	Number (%)	Number (%)	Number (%)
San Francisco HIV/AIDS Cases				
Age 13-19 years at HIV diagnosis	6 (11)	9 (17)	9 (19)	4 (7)
Age 20-24 years at HIV diagnosis	49 (89)	44 (83)	38 (81)	50 (93)
Total	55 (100)	53 (100)	47 (100)	54 (100)
U.S. HIV/AIDS Cases				
Age 13-19 years at HIV diagnosis	1,364 (26)	1,553 (27)	1,585 (26)	N/A
Age 20-24 years at HIV diagnosis	3,937 (74)	4,241 (73)	4,499 (74)	N/A
Total	5,301 (100)	5,794 (100)	6,084 (100)	N/A

* Includes persons with HIV/AIDS by year of their initial HIV diagnosis. U.S. data are based on reported case counts from the 37 states with confidential name-based HIV reporting in CDC HIV Surveillance Report, 2008.

13 HIV/AIDS among Children

HIV/AIDS surveillance data

As of December 31, 2009, a cumulative total of 38 pediatric AIDS cases (less than 13 years old and resided in San Francisco at time of diagnosis) had been reported. There were 15 pediatric HIV non-AIDS cases reported between 2002 and 2009. Of these pediatric HIV/AIDS cases, 29 were known to be alive as of December 2009, with many surviving beyond childhood. The majority of living pediatric HIV/AIDS cases acquired infection from a high-risk or AIDS-diagnosed mother (Table 13.1). Sixty-two percent are female and 93% are children of color.

Table 13.1 Living pediatric HIV/AIDS cases by exposure category, gender, and race/ethnicity, December 2009, San Francisco

	<u>N= 29</u>
Exposure Category	
Perinatal	90%
Other/Unidentified	10%
Gender	
Male	38%
Female	62%
Race/Ethnicity	
White	7%
African American	31%
Latino	34%
Asian/Pacific Islander	14%
Other/Multirace	14%

Perinatal HIV data

Data on children with HIV in San Francisco are gathered through the Pediatric Spectrum of Disease (PSD) project. The PSD project was established in 1989 by the Centers for Disease Control and Prevention and collects data from eight areas throughout the United States. In North California, hospital surveillance for children under 13 years old infected with HIV or infants born to infected mothers has occurred at eight pediatric hospitals (including University of California at San Francisco and San Francisco General Hospital). Records from HIV-positive pediatric patients cared for through the California Children's Services program, a state agency providing funding and case management for HIV-positive children, are also included in the PSD project. Data presented here include infants who were San Francisco residents and born to mothers documented to have HIV before delivery without a history of blood or blood product transfusion before 1985.

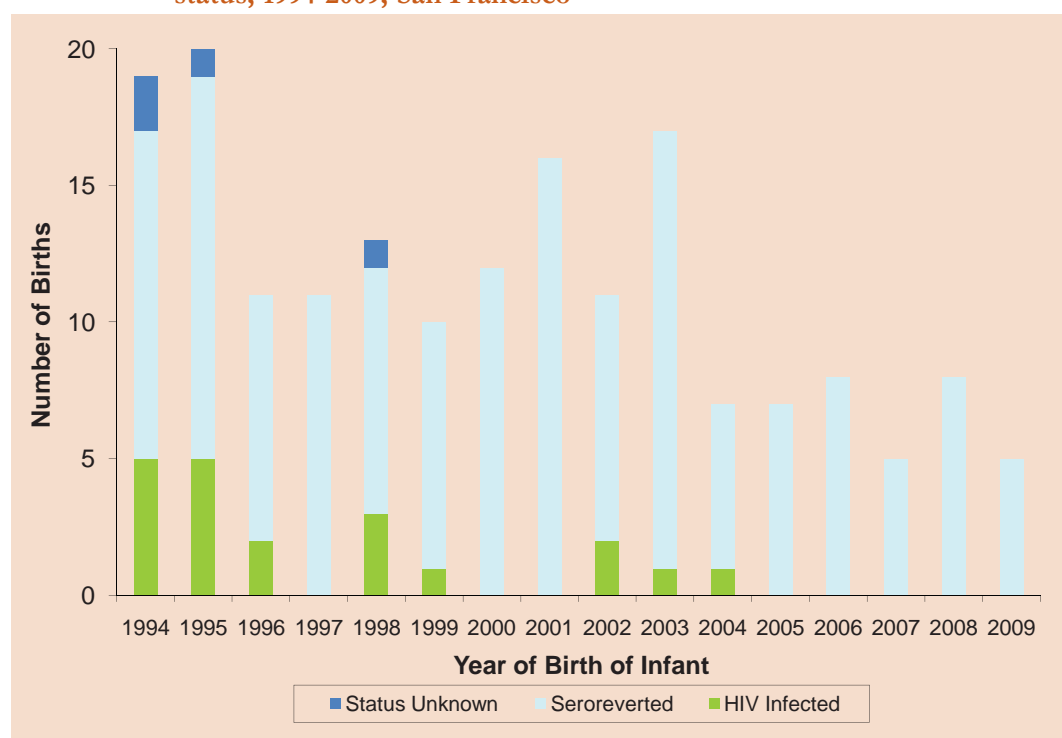
Through December 31, 2009, 337 infants were born to HIV-infected mothers who were residents of San Francisco (Table 13.2). Sixty-three (19%) of these infants were confirmed to be HIV-infected, 264 (78%) seroreverted (were determined to be uninfected after maternal antibodies disappeared), and 10 (3%) were of unknown serostatus. Forty-eight percent of perinatally exposed infants were African American, while whites and Latinos each accounted for 20% of these infants.

Table 13.2 Infants born to HIV-infected mothers by infant HIV status and race/ethnicity, December 2009, San Francisco

	<u>N (%)</u>
Total	337
Infant HIV Status	
HIV-infected	63 (19)
Seroreverted (HIV-negative)	264 (78)
Unknown	10 (3)
Race/Ethnicity	
White	68 (20)
African American	163 (48)
Latino	67 (20)
Asian/Pacific Islander	26 (8)
Other/Unknown	13 (4)

The number of perinatally exposed infants who were confirmed as HIV-infected has remained low since 1996 (Figure 13.1). Declines in perinatal transmission of HIV are due to the improved therapies for mothers throughout pregnancy, at delivery, and for infants to prevent perinatal transmission. In 2009, five infants born to HIV-infected mothers have been reported so far; all have seroreverted (i.e. were uninfected).

Figure 13.1 Infants born to HIV-infected mothers by year of birth and infant HIV status, 1994-2009, San Francisco

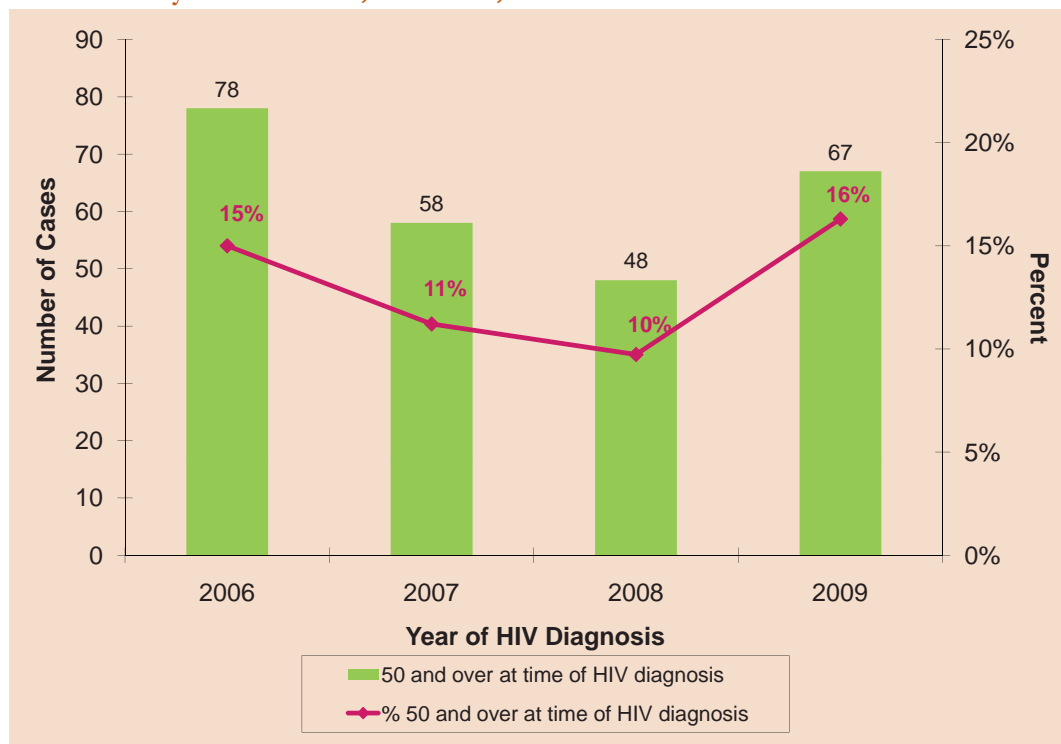


14 HIV/AIDS among the Aging Population

With the advent of highly active antiretroviral therapy (HAART), persons with HIV/AIDS are living longer; in particular, those aged 50 and older comprise an increasingly larger proportion of living cases. Between 2005 and 2009, the number of persons living with HIV/AIDS who are 50 years and older has increased from 4,323 to 6,721, and the proportion increased from 29% in 2005 to 42% in 2009. Understanding the trends and characteristics of this emerging population can assist with prevention planning and care resource allocation.

Between 2006 and 2008, the number and percent of newly diagnosed HIV cases (including persons diagnosed with HIV and AIDS concurrently) among persons aged 50 years and older decreased (Figure 14.1). In 2009, the number of cases diagnosed among those aged 50 years and older shows a noticeable increase despite the decrease in the total number of HIV cases diagnosed in that year.

Figure 14.1 Number and percent of persons diagnosed with HIV infection* at age 50 years and older, 2006-2009, San Francisco



* Includes persons with HIV/AIDS by year of their initial HIV diagnosis.

Persons diagnosed with HIV/AIDS at the age of 50 years and older differ across various demographics when compared to persons diagnosed under the age of 50. A larger proportion of persons diagnosed with HIV at age 50 years and older are women, white, African Americans, heterosexuals and injection drug users (Table 14.1).

Table 14.1 Characteristics of persons diagnosed with HIV infection in 2006-2009 by age at diagnosis, San Francisco

	Age ≥ 50 years (N=251)		Age < 50 years (N=1,690)	
	Number	(%)	Number	(%)
Gender				
Male	216	(86)	1,526	(90)
Female	29	(12)	115	(7)
Transgender	6	(2)	49	(3)
Race/Ethnicity				
White	148	(59)	880	(52)
African American	58	(23)	241	(14)
Latino	33	(13)	375	(22)
Other/Unknown	12	(5)	194	(12)
Exposure Category				
MSM	142	(57)	1,223	(72)
IDU	39	(16)	90	(6)
MSM IDU	27	(11)	191	(11)
Heterosexual	24	(10)	87	(5)
Other/Unidentified	19	(8)	99	(6)

The majority of persons aged 50 years and older living with HIV/AIDS are male (93%), white (70%), and MSM (75%) (Table 14.2). In general, the characteristics of persons aged 50 years and older are similar to those under 50 years old. The 50 years and older population appears more likely to be white whereas those aged under 50 have a higher proportion of Latinos.

Table 14.2 Characteristics of living HIV/AIDS cases by age group, December 31, 2009, San Francisco

	Age ≥ 50 years (N=6,721)		Age < 50 years (N=9,115)	
	Number	(%)	Number	(%)
Gender				
Male	6,248	(93)	8,327	(91)
Female	372	(6)	546	(6)
Transgender	101	(2)	242	(3)
Race/Ethnicity				
White	4,679	(70)	5,337	(59)
African American	1,037	(15)	1,149	(13)
Latino	699	(10)	1,805	(20)
Asian/Pacific Islander	212	(3)	555	(6)
Native American	25	(0)	75	(1)
Other/Unknown	69	(1)	194	(2)
Exposure Category				
MSM	5,018	(75)	6,505	(71)
IDU	598	(9)	588	(6)
MSM IDU	762	(11)	1,363	(15)
Heterosexual	152	(2)	295	(3)
Other/Unidentified	191	(3)	364	(4)

15 HIV/AIDS among Transgender Persons

Transgender status is determined through review of information in medical records. Information on transgender status has been collected since 1996. During 2006-2009, there were a total of 55 transgender persons diagnosed with HIV in San Francisco (Table 15.1). Transgender cases comprised approximately 3% of all HIV cases diagnosed in this time period. Compared to all HIV cases diagnosed in the same time period, transgender cases were more likely to be non-white, injection drug users, and younger.

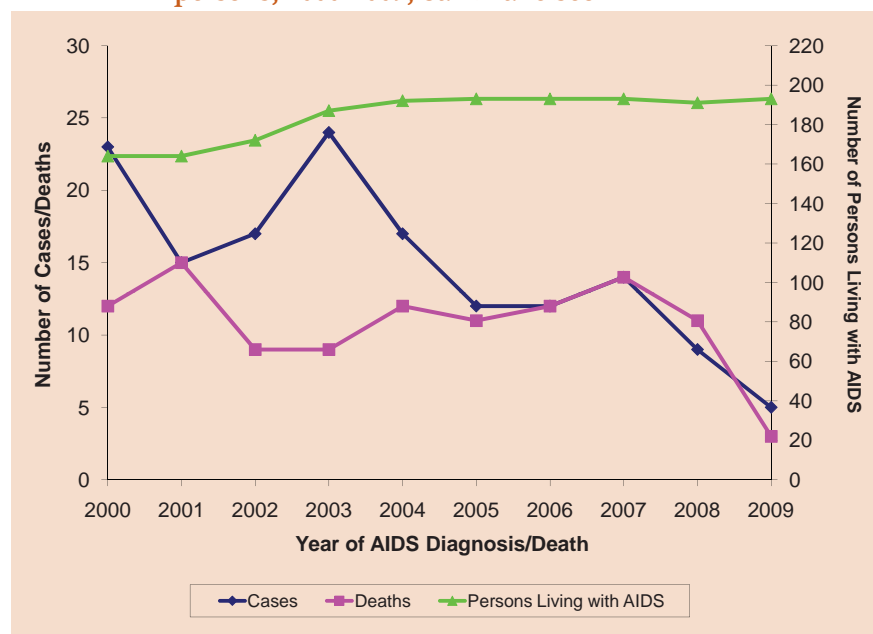
The numbers of transgender AIDS cases and deaths are small and fluctuate by year (Figure 15.1). The number of living transgender AIDS cases has leveled off since 2005. As of December 31, 2009 there were 193 living transgender AIDS cases.

Table 15.1 Characteristics of transgender* HIV cases compared to all HIV cases diagnosed in 2006-2009, San Francisco

	Transgender HIV Cases Diagnosed 2006-2009 (N=55)	HIV Cases Diagnosed 2006-2009 (N=1,941)
Race/Ethnicity		
White	25%	53%
African American	20%	15%
Latino	38%	21%
Other/Unknown	16%	11%
Injection Drug Use		
Yes	31%	18%
No	69%	82%
Age at Diagnosis (Years)		
13 - 29	44%	25%
30 - 39	29%	35%
40 - 49	16%	27%
50+	11%	13%

* See Technical Notes "Transgender Status."

Figure 15.1 AIDS cases, deaths, and prevalence among transgender persons, 2000-2009, San Francisco



16 HIV/AIDS among Homeless Persons

A case is classified as homeless if, at the time of HIV or AIDS diagnosis, the medical record states that the patient is homeless or the patient's address is one of the following: (1) a known homeless shelter, (2) a health care clinic, or (3) a free postal address not connected to a residence ('general delivery'). Cases with missing information on residence are not classified as homeless.

Figure 16.1 shows a decline in number of homeless AIDS cases diagnosed between 2000 and 2005. Since 2000, the proportion of homeless cases among all AIDS cases diagnosed per year ranged between 6% and 14%. For 2009, 11% of AIDS cases were homeless at the time of diagnosis.

Among all cases diagnosed with HIV infection, the number of homeless cases was fairly stable between 2006 to 2009, with a slight increase in 2007 (Figure 16.2). Homeless persons accounted for 8% to 10% of all cases diagnosed with HIV infection each year. For persons diagnosed with HIV infection in 2009, 10% of cases diagnosed with HIV infection were homeless at the time of HIV diagnosis.

Figure 16.1 Number and percent of homeless AIDS cases by year of diagnosis, 2000-2009, San Francisco

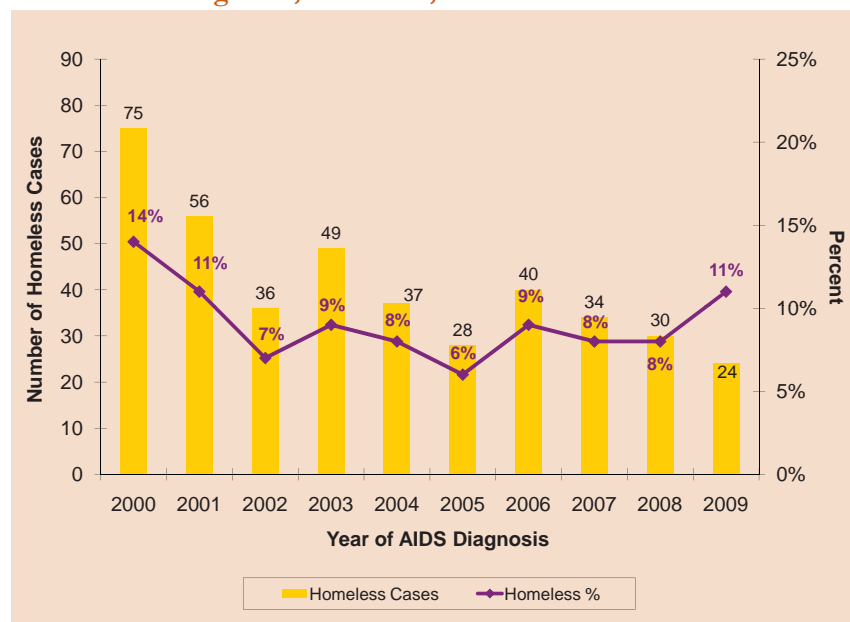
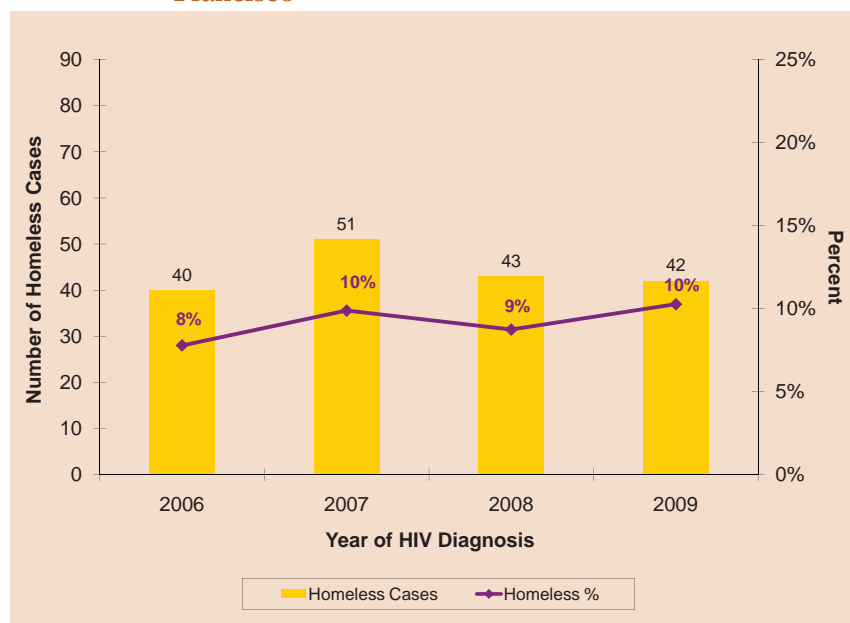


Figure 16.2 Number and percent of homeless cases diagnosed with HIV infection* by year of diagnosis, 2006-2009, San Francisco



* Includes persons with HIV/AIDS by year of their initial HIV diagnosis.

Compared to all HIV/AIDS cases diagnosed in 2006 to 2009, persons who were homeless at their HIV/AIDS diagnosis (diagnosed in 2006 to 2009) were more likely to be women, transgender, African American, and injection drug users. (Table 16.1).

Table 16.1 Characteristics of homeless HIV/AIDS cases compared to all HIV/AIDS cases diagnosed in 2006-2009, San Francisco

	Homeless AIDS 2006-2009 (N=128)	AIDS Cases 2006-2009 (N=1,498)	Homeless HIV non-AIDS Cases 2006-2009 (N=116)	HIV non- AIDS Cases 2006-2009 (N=1,343)
Gender				
Male	83%	89%	79%	90%
Female	10%	8%	15%	7%
Transgender	7%	3%	6%	3%
Race/Ethnicity				
White	48%	54%	50%	55%
African American	30%	19%	28%	14%
Latino	14%	17%	16%	21%
Other/Unknown	8%	9%	6%	11%
Exposure Category				
MSM	32%	65%	41%	71%
IDU	23%	10%	28%	7%
MSM IDU	34%	16%	24%	12%
Heterosexual	5%	6%	4%	4%
Other/Unidentified	5%	3%	2%	6%
Age at Diagnosis (years)				
0 - 19	5%	3%	3%	2%
20 - 29	30%	24%	31%	27%
30 - 39	30%	37%	25%	36%
40 - 49	23%	26%	29%	24%
50+	12%	10%	12%	10%

The San Francisco Department of Public Health (SFDPH) provides supportive housing for homeless persons with serious chronic medical illnesses through its Direct Access to Housing (DAH) program. DAH residents receive permanent housing that includes on-site health care services and/or direct linkage to medical care located near to the DAH units as well as case management and mental health care.

We conducted a computerized match between the DAH database and the AIDS case registry to identify homeless persons with AIDS who subsequently entered DAH. To assess the impact of housing on health care utilization patterns and costs we compared the change in the mean number of healthcare visits (by type of encounter) or lengths of stay within public hospitals, clinics, and skilled nursing facilities in San Francisco for these individuals in the 24 months before and after receipt of housing. The costs of care were estimated by applying the Medi-Cal reimbursement rate for the type of visit or duration of stay.

A total of 70 homeless persons with AIDS entered DAH between 1996 and 2006 of whom 62 were found to have received care within SFDPH. There were substantial reductions in medical hospital days (71%), skilled nursing facility days (65%), and overall cost of care (57%) after entering DAH (Table 16.2). With these declines was a concomitant increase (55%) in medical outpatient visits, mostly primary care. Given that the annual cost per DAH resident is approximately \$10,000-15,000, this shows that permanent supportive housing programs may be effective, cost-effective and even and cost-saving.

Table 16.2 Health care utilization and cost among homeless persons with AIDS who received housing through the Direct Access to Housing program, 1996-2006, San Francisco

Encounter Type	Mean number of encounters		Mean difference	Change (%)
	24 months prior to receipt of housing	24 months after receipt of housing		
Medical Outpatient (Visits)	18.3	28.3	-10*	-55
Medical Emergency Department (Visits)	1.8	1.6	0.2 [#]	13
Skilled Nursing Facility (Days)	34.2	11.9	22.4 [‡]	65
Medical Inpatient (Days)	16.4	4.8	11.6 [‡]	71
Psychiatric Inpatient (Days)	2.3	0.8	1.4 [#]	63
Cost (Dollars)	50,044	21,364	28,680*	57

* P Value <0.01

[#] Not statistically significant

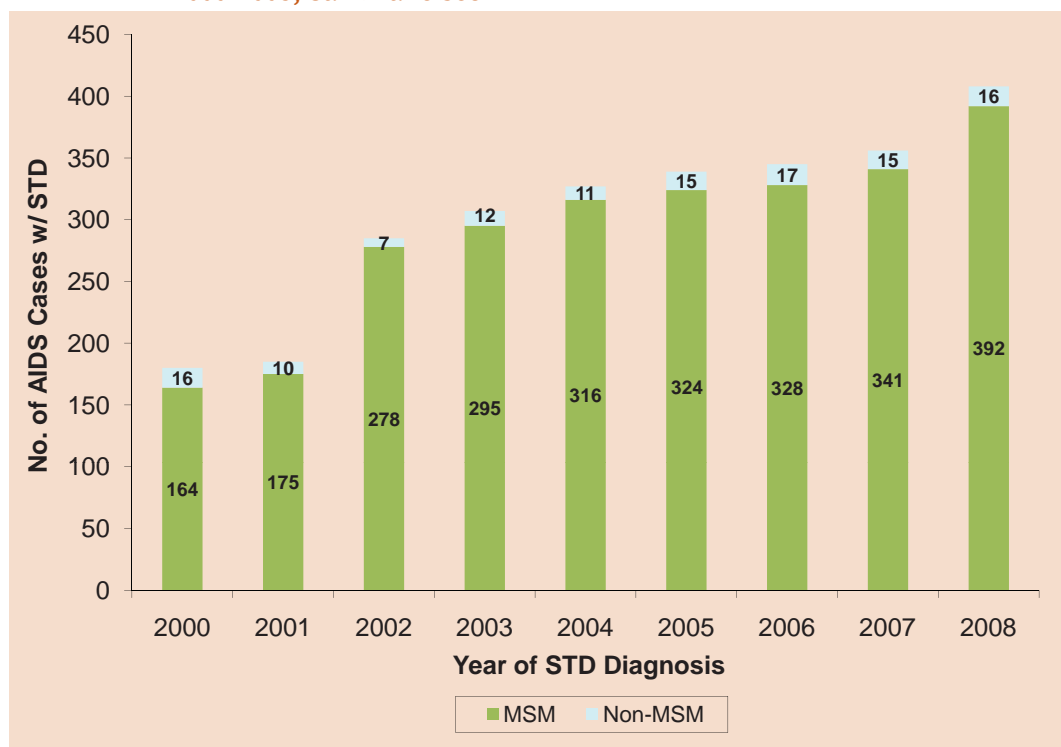
[‡] P Value <0.05

17 Sexually Transmitted Diseases among Persons with HIV/AIDS

The occurrence of STD diagnosis among persons living with HIV/AIDS is an important marker for sexual risk behavior and potential HIV transmission. Diagnosis of sexually transmitted disease (STD) occurring among persons with HIV/AIDS was determined through a computerized match of the HIV/AIDS and STD case registries through 2008. The STD registry included persons reported with gonorrhea, chlamydia, non-gonococcal urethritis, or infectious syphilis. Cases of STDs among persons with AIDS have steadily risen since 2000 with a pronounced increase in 2002, and a moderate increase in 2008 (Figure 17.1). These jumps in STDs among persons with AIDS could be expected due to steep increases in male rectal gonorrhea (Figure 8.6) and syphilis (Figure 8.7), particularly among MSM, reported in 2002. Additionally, in 2008, primary, secondary, and early syphilis among MSM were again on the rise (Figure 8.7).

HIV non-AIDS cases were included in the match to identify STD diagnosis among persons with HIV infection who had not developed AIDS. In 2008, STD diagnoses occurred among 467 MSM HIV cases and 17 non-MSM HIV cases. All STDs occurred after the HIV/AIDS diagnosis, indicating unprotected sex among persons with known HIV infection.

Figure 17.1 Number of AIDS cases diagnosed with an STD by year of STD diagnosis, 2000-2008, San Francisco



18 Access to Care among Persons with HIV/AIDS

Estimate of unmet need for HIV medical care

We conducted an analysis to estimate unmet need for primary care for San Francisco residents diagnosed with HIV/AIDS. Persons with HIV/AIDS were considered to have a met need for care if they had at least one CD4 or viral load test or received antiretroviral therapy during the 12-month period from July 1, 2007 through June 30, 2008. Care information was obtained from viral load and CD4 test results and from medical record reviews, and supplemented by data provided from the California State Office of AIDS (see Technical Notes, Estimate of Unmet Need). The total number of persons living with AIDS (PLWA), the total number of persons living with HIV non-AIDS (PLWH), the proportion of PLWA who did not receive care from a sample of chart reviews, and the number of PLWH who did not receive care were determined. The unmet need estimates did not include undiagnosed cases of HIV infection or infected individuals who are not aware of their infection.

We estimated that there were 9,740 PLWA and 10,698 PLWH in San Francisco during this time. A total of 860 (9%) PLWA and 4,061 (38%) PLWH did not receive primary medical care during that time period (Table 18.1). The unmet need for PLWA was similar across all categories examined. For PLWH, those aged less than 40 years old, IDU, and persons with unidentified risk were identified to have the greatest unmet need for medical care.

Table 18.1 Unmet need* by demographic and risk characteristics among persons living with HIV/AIDS, July 2007-June 2008, San Francisco

	Persons with AIDS N=9,740		Persons with HIV/non-AIDS N=10,698		All HIV/AIDS N=20,438	
	with unmet need		with unmet need		with unmet need	
	Number	%	Number	%	Number	%
Total	860	9%	4,061	38%	4,921	24%
Gender						
Male	796	9%	3,769	38%	4,565	24%
Female	64	11%	292	37%	356	26%
Age in Years (as of June 2008)[#]						
20 - 29	21	11%	331	43%	352	36%
30 - 39	106	9%	1,034	42%	1,140	31%
40 - 49	337	9%	1,561	37%	1,898	23%
50 - 59	323	10%	881	37%	1,204	21%
60+	73	6%	224	31%	297	15%
Exposure Category						
MSM	592	8%	2,820	36%	3,412	23%
IDU	91	11%	309	46%	400	27%
MSM IDU	112	8%	401	34%	513	20%
Heterosexual	38	13%	116	38%	154	26%
Other/Unidentified	27	12%	415	63%	442	50%

* See Technical Notes "Estimate of Unmet Need."

The age category 0-19 years was omitted due to the small sample size.

Assessing access to medical care using CD4 tests as a marker for care

Despite widespread efforts to promote HIV testing, prevention and care, a significant percentage of HIV infected individuals are not receiving or accessing care early in their infection. We assessed receipt of medical care after HIV diagnosis using initial CD4 test as a marker for entry into medical care. The majority (83%) of persons diagnosed with HIV during 2006-2008 received medical care within 12 months of their HIV diagnosis (Table 18.2). The median value of the initial CD4 counts within 12 months of diagnosis was 403 cells/ μ L.

Certain subgroups were less likely to access care within 12 months after diagnosis than others, including persons with HIV non-AIDS, African Americans, Latinos, persons reported without a risk, and those between 13 and 29 years of age. Lower initial CD4 count may indicate diagnosis late in the course of HIV disease or delayed entry into care. People diagnosed with AIDS, non whites, heterosexuals, and persons over 50 years of age had a lower initial CD4 count.

Table 18.2 Percent of HIV/AIDS cases diagnosed between 2006 and 2008 receiving at least one CD4 test within 12 months of HIV diagnosis and the median of initial CD4 counts, San Francisco

	Number*	Percent received at least one CD4 test within 12 months following HIV diagnosis	Median of initial CD4 counts [#] (cells/ μ L)
Total	1,661	86%	403
HIV Status			
HIV infection (not AIDS)	1,260	83%	473
Concurrent HIV and AIDS diagnosis [‡]	164	100%	139
AIDS diagnosed \geq 1 months after HIV diagnosis	237	94%	293
Gender			
Male	1,537	86%	402
Female	124	90%	435
Race/Ethnicity			
White	902	89%	433
African American	250	84%	384
Latino	345	82%	334
Asian/Pacific Islander	122	89%	318
Other/Unknown	42	74%	512
Exposure Category			
MSM	1,165	87%	398
IDU	124	90%	426
MSM IDU	194	88%	456
Heterosexual	92	95%	305
Other/Unidentified	86	64%	360
Age at HIV Diagnosis (years)			
13 – 29	398	83%	421
30 – 39	598	87%	422
40 – 49	465	88%	370
50+	200	87%	362

* Excludes 20 cases that were diagnosed at a facility outside of San Francisco and 29 cases who died within six months of diagnosis.

[#] Median of initial CD4 counts measured within 12 months following HIV diagnosis.

[‡] AIDS was diagnosed in the same month and year of HIV infection diagnosis.

19 Special Report: Misclassification of HIV Late Testers

There are clear medical, economic, and prevention benefits to early diagnosis of HIV. In San Francisco, as well as nationally, HIV/AIDS surveillance data have been used as a method to estimate the prevalence and monitor trends in late diagnosis of HIV. At a national level, the Centers for Disease Control and Prevention (CDC) present the number, proportion, and characteristics of persons who developed AIDS within 12 months of their HIV diagnosis in their annual surveillance report. In the most recent report (CDC. *HIV Surveillance Report, 2008*; vol. 20. Published June 2010) an estimated total of 13,078 persons met this criterion. This constitutes 32% of persons reported with HIV from 37 states in the US with well-established HIV case reporting in 2007.

In San Francisco we have also monitored late diagnosis of HIV. The last time we presented data on the late testing was in our 2007 HIV/AIDS Epidemiology Annual Report where we reported that from 2003 through 2006 a total of 674 persons (24% of all HIV/AIDS cases reported in that time period) developed AIDS within 12 months of their HIV diagnosis. In San Francisco we define the date of HIV diagnosis as the earliest date of any of the following: the date of the first positive HIV test (either from a laboratory report or self-report as noted in the medical record), the date of the first CD4 or viral load test, or the date antiretroviral therapy was first prescribed. The date of AIDS diagnosis was the earliest date the person met any of the CDC AIDS surveillance case definition criteria.

It is assumed that a short time between HIV and AIDS diagnosis represents a delay in HIV testing because the average time from HIV infection to AIDS has been reported to be around 10 years. However, there are other factors such as rapid disease progression or factors that cause a transient drop in CD4 cells that can result in a short time between HIV and the surveillance case definition of AIDS (which includes a single CD4 count <200 cells or percentage <14).

We conducted a study to measure the accuracy of the definition of delayed testing by collecting information on prior negative tests among persons who were diagnosed with AIDS in 2007-2008 and reported to the health department through March 9, 2009 and whose initial HIV diagnosis was within 12 months of AIDS. We collected dates of negative HIV tests through patient and provider interviews and reviews of medical records. Persons who reported a negative HIV test less than five years from HIV diagnosis were re-classified as non late-testers. Persons who had never tested prior to diagnosis and those who reported a negative test five or more years before HIV diagnosis were classified as true late-testers. Persons who could not be located were considered to have an unverified late tester status.

There were 945 persons diagnosed with HIV/AIDS in 2007 and 2008. Of these, 249 (26%) developed AIDS within 12 months of HIV diagnosis. We found that 47% of persons whose AIDS diagnosis occurred within 12 months of HIV diagnosis had a negative HIV within five years of HIV diagnosis (Table 19.1). Although we do not know the circumstances surrounding their progression to AIDS, our findings draw into question the assumption that persons who develop AIDS within 12 months of HIV diagnosis represent many years of not testing. Once we considered the prior negative HIV tests, the proportion of persons with HIV/AIDS who were late testers decreased from 26% to 9% (Table 19.2). If we assume that all of the persons for whom we could not obtain information on previous HIV tests are also late testers, then the proportion of late testers is 14%, still markedly lower than our previous estimate.

Given these findings, we have concluded that accurate measurement of late testing requires information on previous negative tests. Without this information delays in HIV diagnoses are likely to be overestimated.

Table 19.1 Reclassification of late testing after consideration of most recent negative HIV test among persons diagnosed with AIDS in 2007-2008, San Francisco

Reclassification of late testing	Number (%)
Persons who developed AIDS within 12 months of HIV diagnosis	249 (100)
No prior negative HIV tests or most recent negative test five or more years before HIV diagnosis (true late-tester)	85 (34)
Unable to obtain information on prior negative HIV tests	48 (19)
Documented negative HIV test within five years of HIV diagnosis (non late-tester)	116 (47)

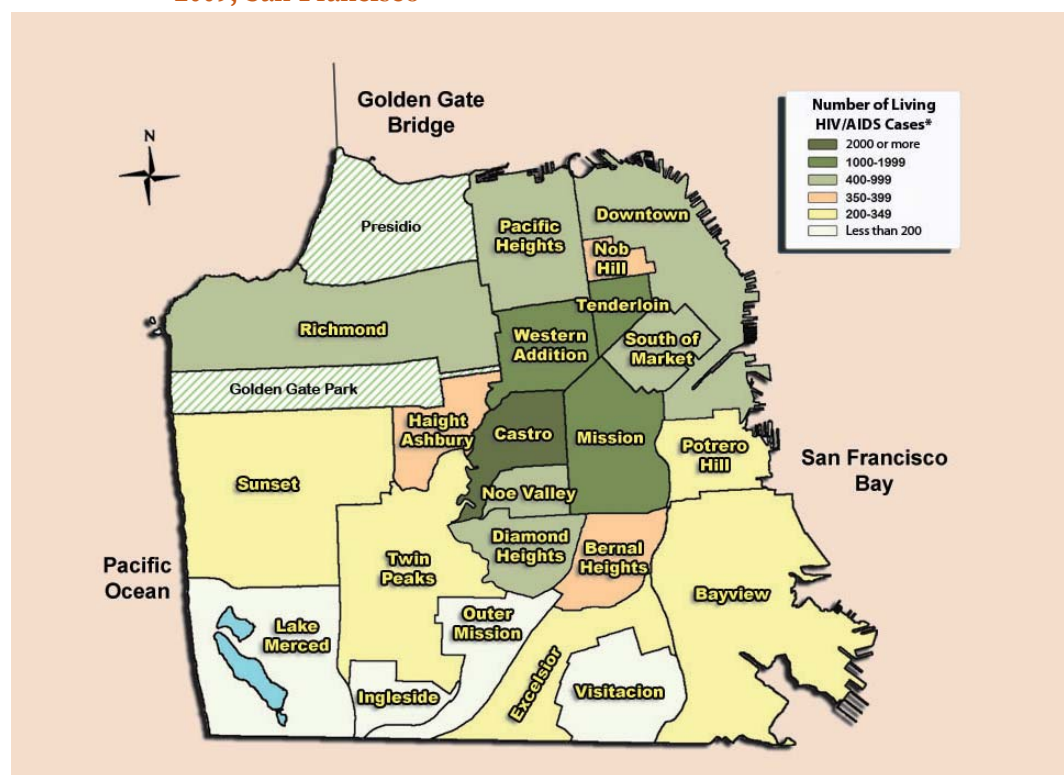
Table 19.2 Late testing among persons diagnosed with HIV/AIDS in 2007-2008, San Francisco

	Number (%)
Total HIV/AIDS cases diagnosed in 2007-2008	945 (100)
Developed AIDS within 12 months of HIV diagnosis	249 (26)
Developed AIDS within 12 months of HIV diagnosis, no prior negative HIV tests or had a negative test \geq 5 years before HIV diagnosis	85 (9)
Developed AIDS within 12 months of HIV diagnosis, no prior negative HIV tests or had a negative test \geq 5 years before HIV diagnosis or whose HIV testing history was not available	133 (14)

20 Geographic Distribution of HIV/AIDS

Map 20.1 illustrates the geographic distribution of living HIV/AIDS cases in San Francisco as of December 31, 2009. The data capture the neighborhood at time of HIV/AIDS diagnosis for San Francisco residents and do not necessarily reflect their current residence. The neighborhoods with the highest numbers are the Castro, Mission, Western Addition, and Tenderloin.

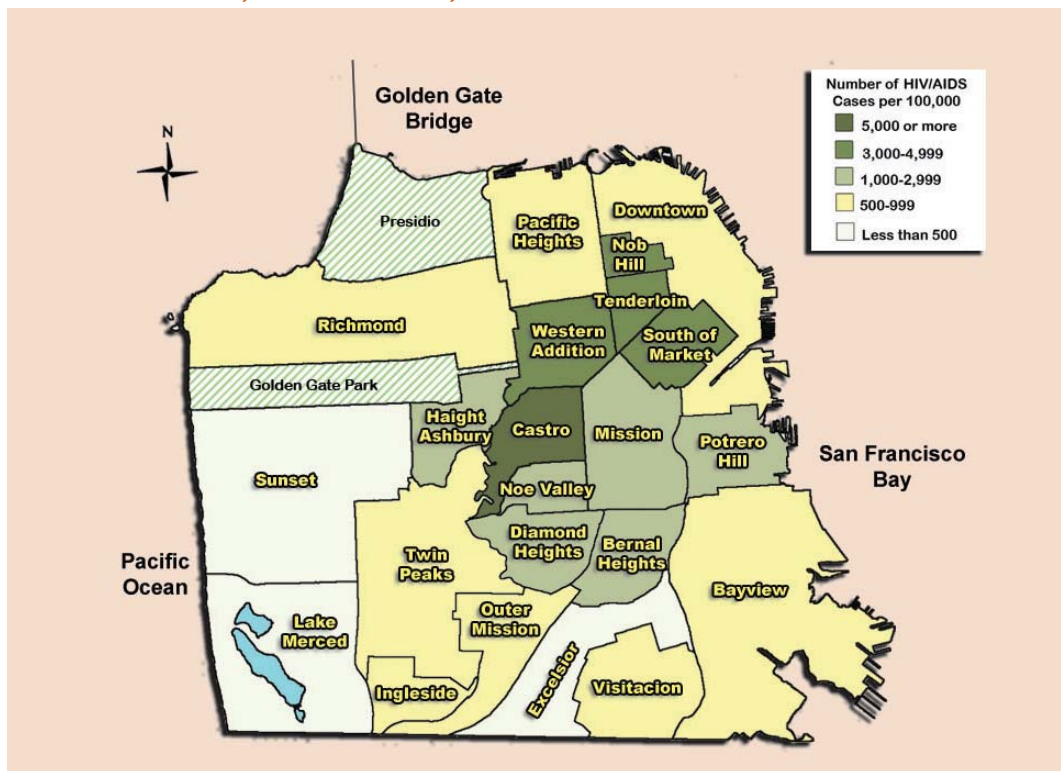
Map 20.1 Geographic distribution of persons living with HIV/AIDS, December 2009, San Francisco



* Living homeless HIV/AIDS cases (N=912) are not displayed on the map.

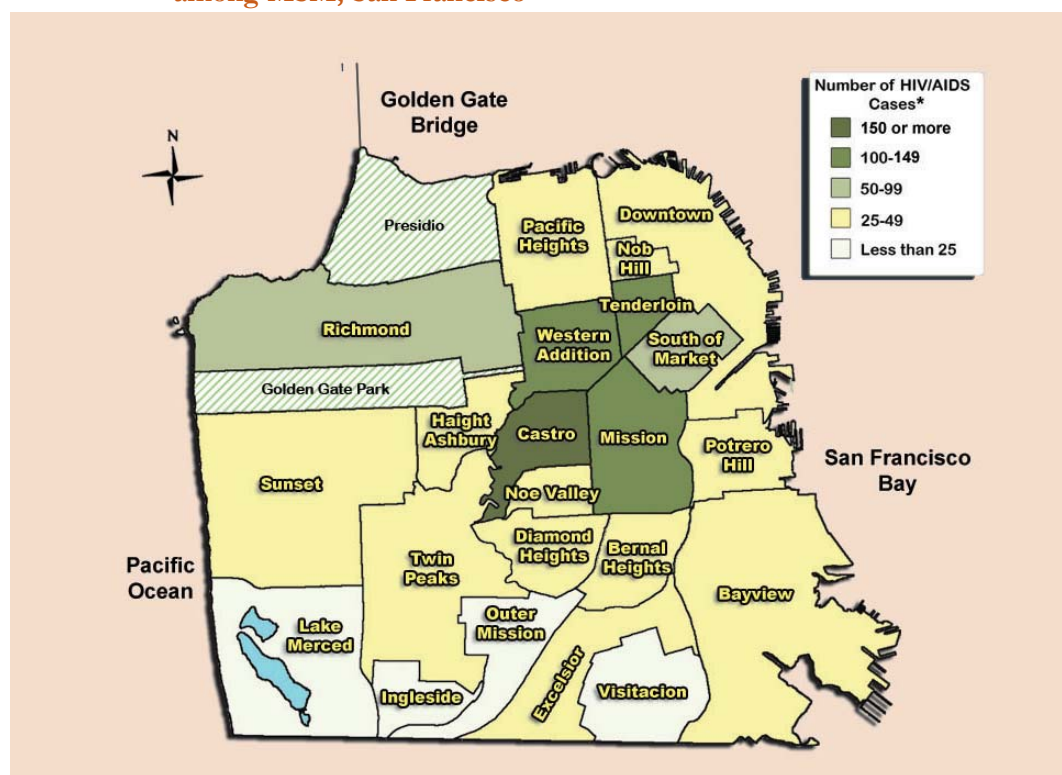
Map 20.2 illustrates the estimated prevalence rates among San Francisco residents using 2000 Census data to establish population size in each neighborhood. The prevalence rate was calculated using the total number of living HIV/AIDS cases divided by the population for each neighborhood. The Castro remains the most affected neighborhood with a prevalence rate of 11,320 cases per 100,000 (11.3%).

Map 20.2 Geographic distribution of HIV/AIDS prevalence rates per 100,000 population, December 2009, San Francisco



The geographic distribution of the total number of HIV/AIDS cases newly diagnosed from 2006 to 2009 was also examined and mapped by exposure category. Map 20.3 shows the Castro with the highest number of MSM cases, followed by the adjacent neighborhoods of Mission, Western Addition, and the Tenderloin.

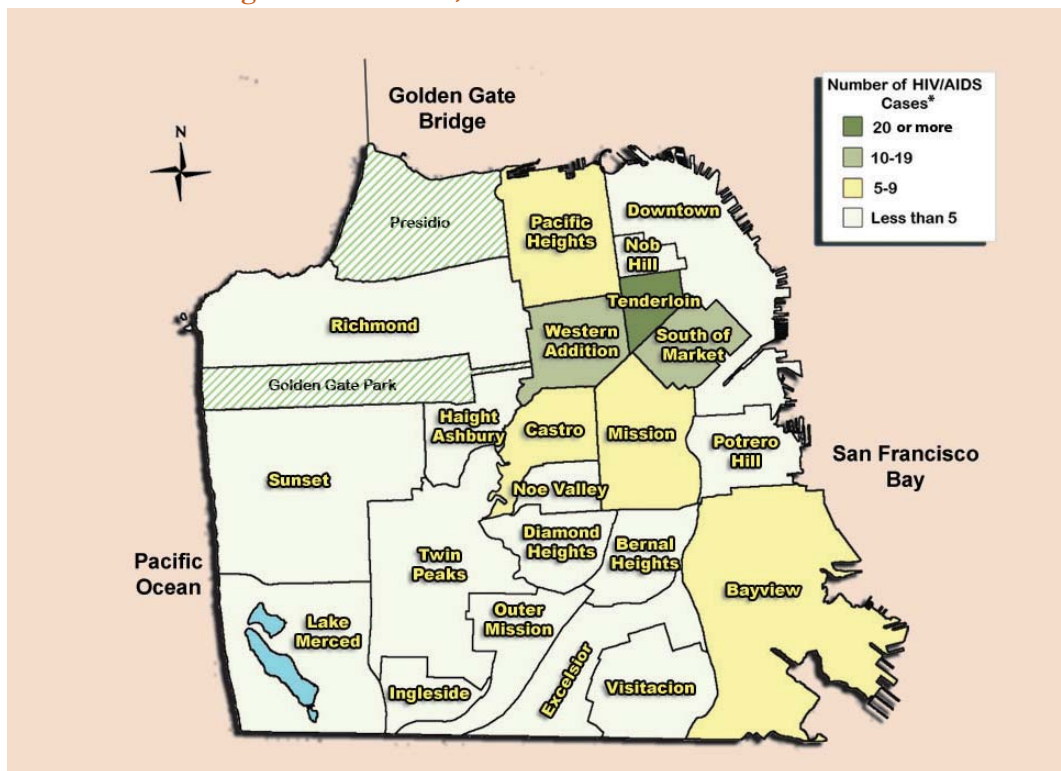
Map 20.3 Geographic distribution of HIV/AIDS cases diagnosed in 2006-2009 among MSM, San Francisco



* Newly diagnosed homeless MSM cases in this time period (N=68) are not displayed on the map.

There was a higher number of HIV-infected injection drug users resided in the Tenderloin and its adjacent neighborhoods (Western Addition and South of Market) at the time of their HIV/AIDS diagnosis (Map 20.4) in 2006 to 2009. However, the homeless population represents the largest population among non-MSM IDUs with 45 cases; this number is a threefold the number of Tenderloin cases.

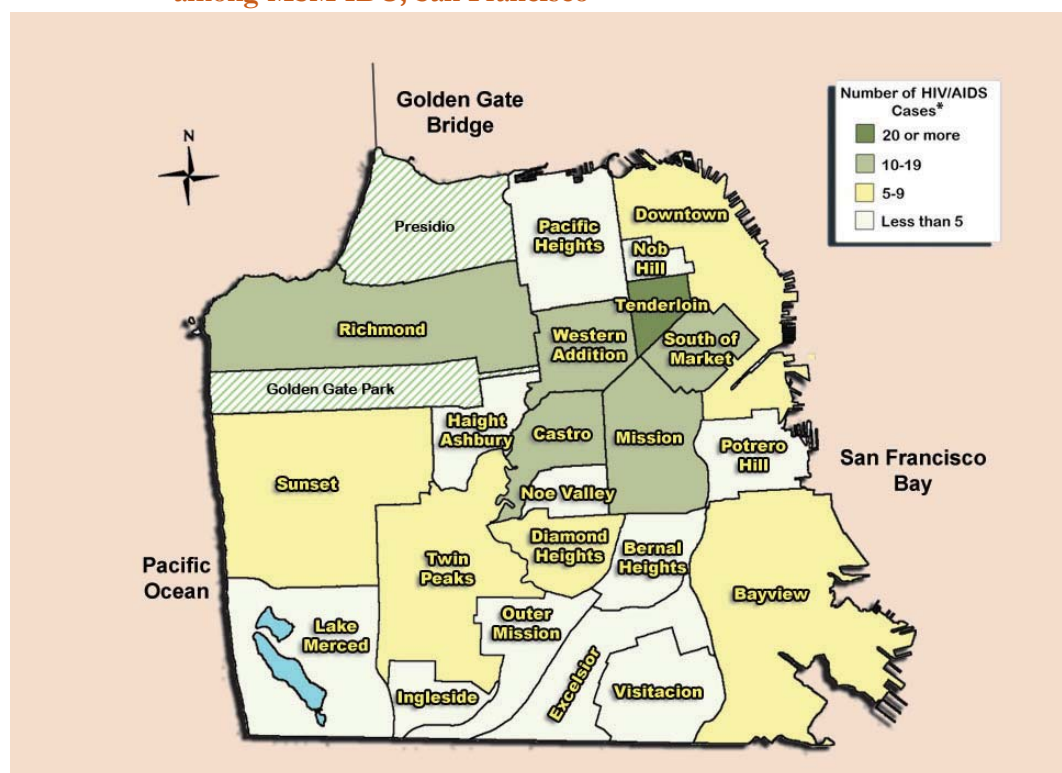
Map 20.4 Geographic distribution of HIV/AIDS cases diagnosed in 2006-2009 among non-MSM IDU, San Francisco



* Newly diagnosed homeless non-MSM IDU cases in this time period (N=45) are not displayed on the map.

Map 20.5 depicts the neighborhood-level distribution of newly diagnosed HIV/AIDS cases among MSM IDU. The homeless population (not displayed) comprised the highest number of MSM IDU cases diagnosed in 2006-2009 (N=40), followed by the Tenderloin (N=27). Similar to the distribution of MSM cases, the bordering neighborhoods of South of Market, Mission, Western Addition, and Castro also exhibited higher numbers of cases.

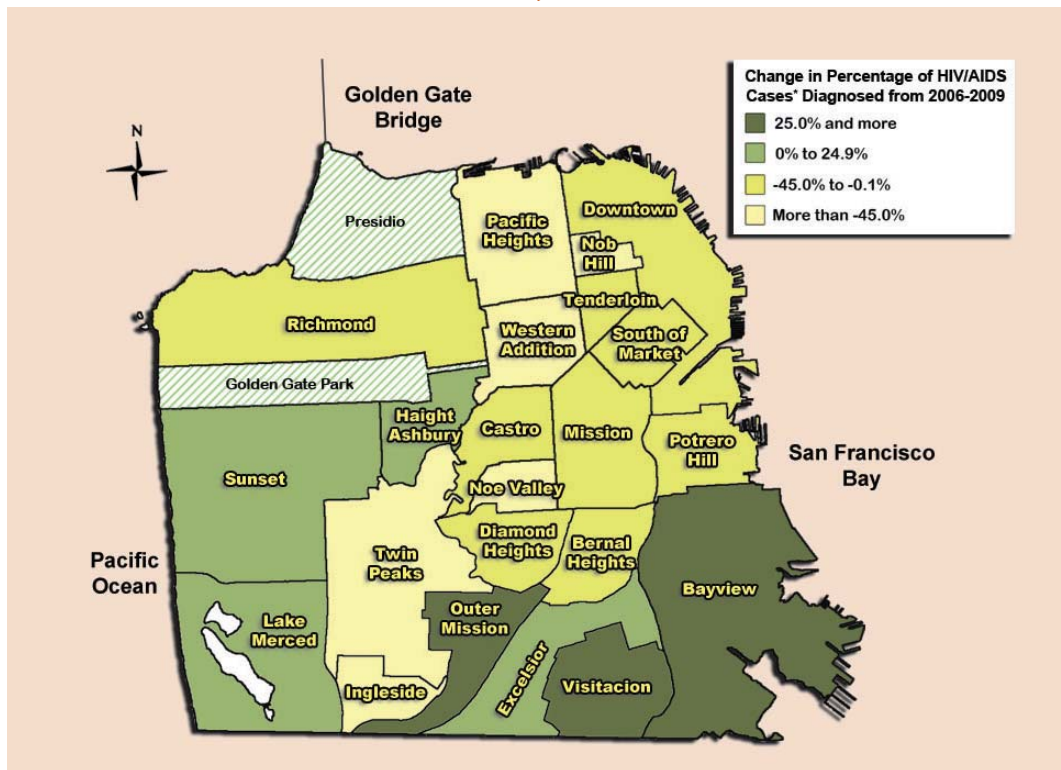
Map 20.5 Geographic distribution of HIV/AIDS cases diagnosed in 2006-2009 among MSM IDU, San Francisco



* Newly diagnosed homeless MSM IDU cases in this time period (n=40) are not displayed on the map.

We examined the change in the number of newly diagnosed HIV/AIDS cases from 2006 through 2009 by neighborhood. The percentage change was calculated for each neighborhood as the difference in the number of cases diagnosed between 2006 and 2009 divided by the number of cases in 2006. Map 20.6 shows that most parts of the city demonstrate a decrease in number of cases from 2006 to 2009. Despite the overall decrease in newly diagnosed cases in San Francisco, some neighborhoods in the southern parts of the city report leveling (Excelsior, Lake Merced, and Haight Ashbury) or increasing numbers of cases from 2006 to 2009 (Bayview, Visitacion Valley, Outer Mission, and Sunset). In addition, newly diagnosed homeless HIV/AIDS cases increased 13.5% during this time period (not displayed).

Map 20.6 Geographic distribution of changes in number of HIV/AIDS cases diagnosed between 2006 and 2009, San Francisco

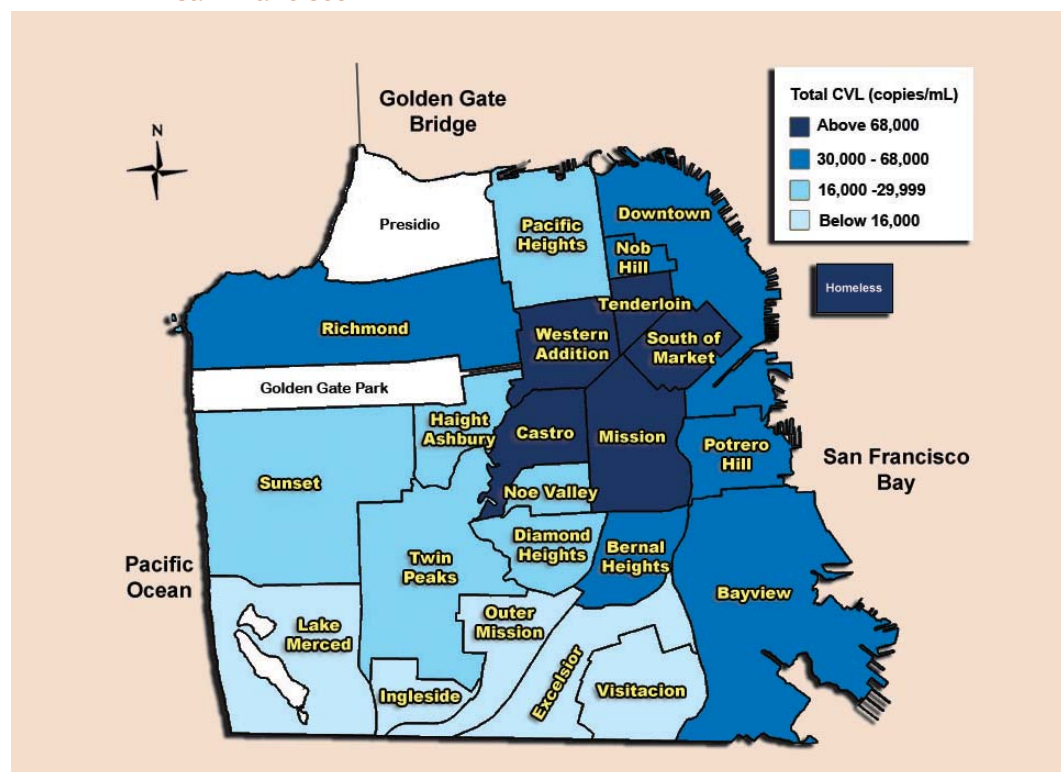


* Newly diagnosed homeless HIV/AIDS cases in this time period are not displayed on the map.

Community viral load (CVL) is a new population-based biomarker of community-level viral burden or overall level of infectiousness. Total CVL, defined as the sum of the most recent viral loads of all HIV-infected individuals in a community, reflects the total burden of HIV disease. Mean CVL is the mean of the most recent viral load divided by the number of HIV-infected individuals in the community. These two measures of CVL may reflect both the success of HIV prevention and care interventions (Das et al. PLoS ONE 2010).

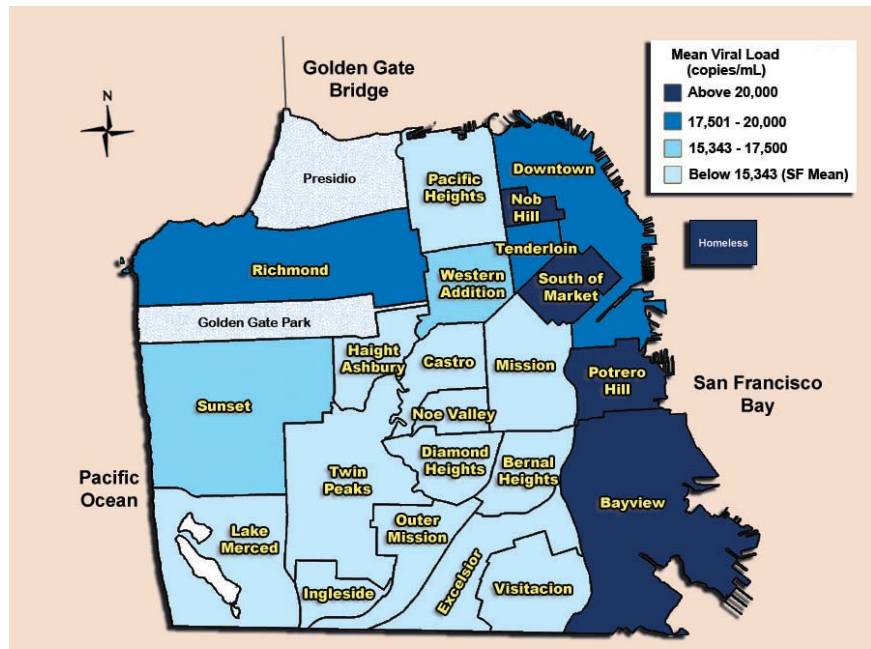
For 2008, Map 20.7 shows the geographic distribution of total CVL; total CVL is highest where there is the greatest number of people living with HIV. However, both the Castro and the Mission have similar total CVL, even though the Castro has twice as many people living with HIV than the Mission. This may reflect higher viral loads among the residents of the Mission as compared to those in the Castro.

Map 20.7 Geographic distribution of total community viral load, December 2008, San Francisco

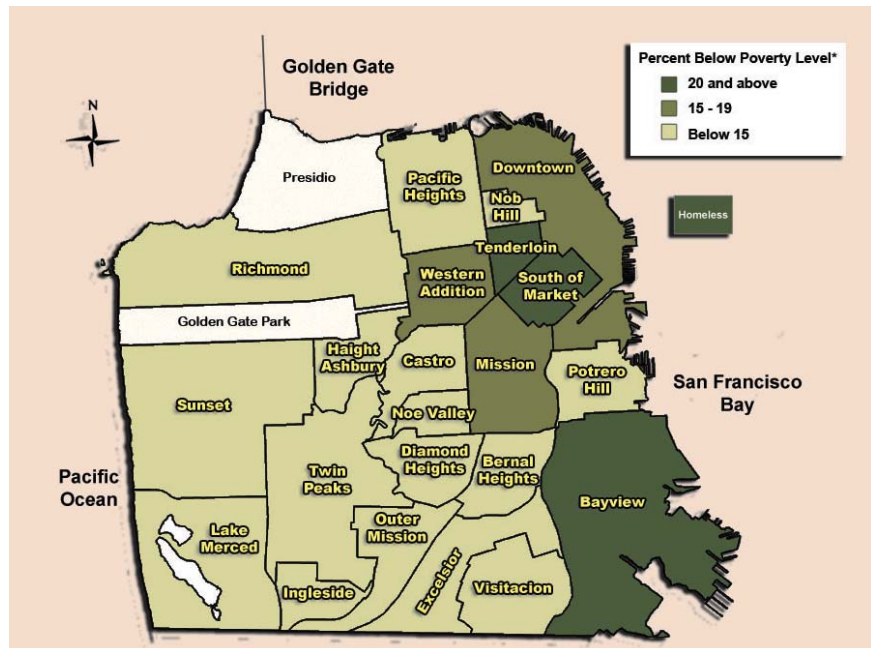


Map 20.8 shows the differences in mean CVL in San Francisco. Homeless individuals and the Bayview have the highest mean CVL, followed by the contiguous neighborhoods of South of Market, Nob Hill, Tenderloin, and Downtown. The neighborhoods with the higher mean CVL are the poor neighborhoods (Map 20.9) in the city.

Map 20.8 Geographic distribution of mean community viral load, December 2008, San Francisco



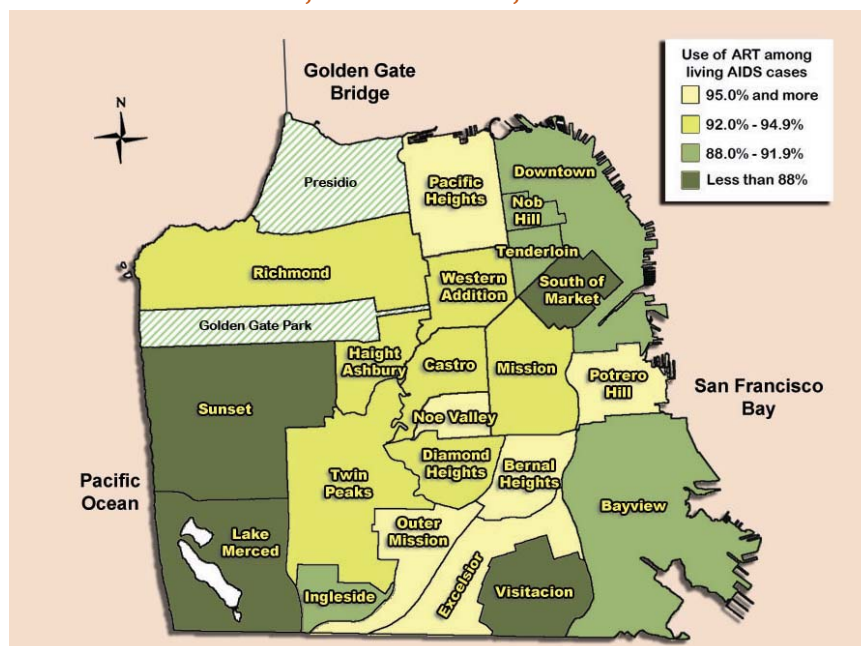
Map 20.9 Geographic distribution of poverty level, San Francisco



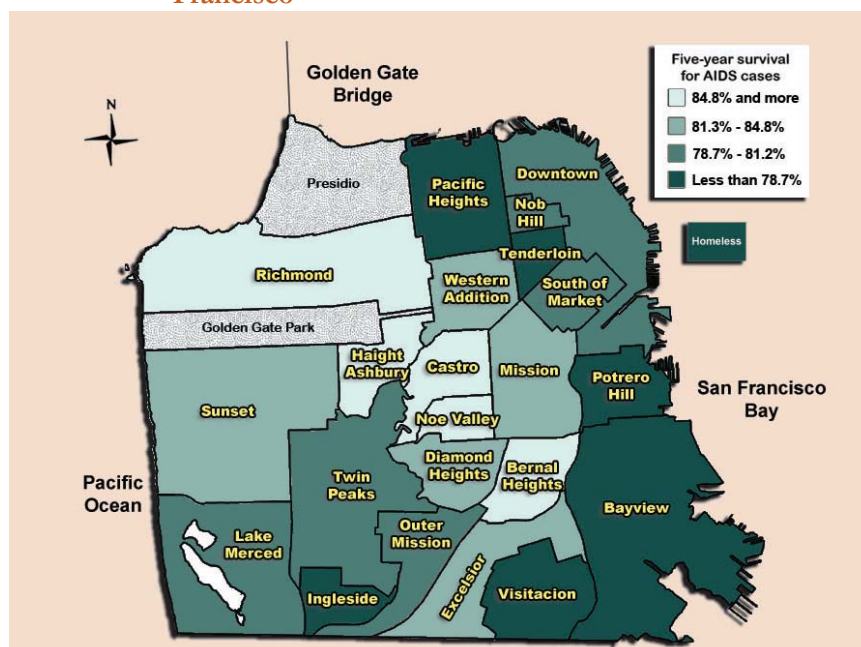
* Based on 2000 census data.

The disparities in mean CVL track the uptake of antiretroviral therapy and survival of AIDS cases. In general, areas with high CVL correspond to areas with low uptake of ART (Map 20.10) and worse survival (Map 20.11). This is consistent with our understanding of correlates of morbidity and mortality in the HIV epidemic in San Francisco.

Map 20.10 Geographic distribution of ART use among persons living with AIDS, December 2009, San Francisco



Map 20.11 Geographic distribution of 5-year survival after AIDS for persons diagnosed with AIDS between 1996 and 2009, San Francisco





Technical Notes

HIV/AIDS Surveillance Methods

San Francisco HIV/AIDS cases are reported primarily through active surveillance activities in which public health personnel review laboratory and pathology reports and medical records to identify cases and complete the case report forms. HIV/AIDS cases are also identified through passive reporting, review of death certificates, validation studies using secondary data sources such as hospital billing records or other disease registries, and reports from other health departments. The surveillance system is evaluated regularly for completeness, timeliness, and accuracy.

Completeness of HIV and AIDS cases reporting in San Francisco is evaluated through a series of sensitivity studies conducted each year at various medical providers and facilities. Data on patients receiving care at the medical provider or facility is matched to the San Francisco HIV/AIDS registry and the completeness of case reporting is calculated. In 2009 sensitivity studies were conducted at two sites in San Francisco. The completeness of HIV case reporting and AIDS case reporting was found to be greater than 93% for both sites.

Publications of our HIV/AIDS data include only persons who were residents of San Francisco at the time they were diagnosed with HIV/AIDS. Our data also include San Francisco residents who were diagnosed in other jurisdictions. Persons diagnosed in San Francisco who resided in other jurisdictions at time of their HIV/AIDS diagnosis were excluded from the reports.

HIV/AIDS Incidence Rates

Annual race-specific rates are calculated as the number of cases diagnosed for a particular racial/ethnic group during each year divided by the population for that race/ethnicity, multiplied by 100,000. These rates are calculated separately for males and females. The annual populations are not available for transgender persons. Population denominators for the years 2000-2009 are obtained from the State of California, Department of Finance, Race/Ethnic Population with Age and Sex Detail, 2000-2050 data files, May 2004 (www.dof.ca.gov).

AIDS Survival

Survival was calculated as the time between the date of initial AIDS diagnosis and the date of death. This includes persons with at least one low CD4 (count < 200 or percent < 14%) and persons diagnosed with AIDS opportunistic illnesses. The follow-up information of cases was obtained through retrospective and prospective reviews of laboratory records and medical charts. Dates of death were obtained through review

of local death certificates, reports from the State Office of AIDS, and matches with the National Death Index (NDI). The most recent NDI match included deaths that occurred through December 31, 2007. Persons not known to have died were censored at the date of their last known follow-up or at December 31, 2007, whichever was more recent.

Causes of Death

Cause of death information on death certificates is coded using the International Classification of Diseases, 10th revision (ICD-10) for deaths occurring in 1999 or after, and the 9th revision (ICD-9) for deaths occurring prior to 1999. These codes are then processed and evaluated using a computerized system to determine the underlying and contributory causes of death (www.cdc.gov/nchs/about/major/dvs/im.htm). We obtained the ICD coded causes of death from the California multiple-cause-of-death computer tape for persons with AIDS who died prior to 1996. For AIDS deaths that occurred in 1996 and after, the cause of death information was obtained through matches with the National Death Index. Deaths attributable to HIV infection or AIDS are coded as 042-044 under ICD-9 and B20-B24 under ICD-10. In addition, the AIDS opportunistic illnesses, if listed on death certificates, are included in the category of 'HIV/AIDS' cause of death.

Grouping of Data Categories

Data regarding certain racial/ethnic or risk categories are grouped together when the number of persons with HIV/AIDS in that particular group is small and/or does not present significant trends. For example, "Other" in the Race/Ethnicity breakdown represents Asian/Pacific Islander, Native American and people of mixed race. Whenever possible, this report presents the expanded race/ethnicity categories rather than aggregating into the group "Other". The label "Other" in the Exposure Category breakdown may include transfusion recipients, hemophiliacs, heterosexuals, persons acquiring AIDS perinatally, or persons of unidentified risk.

Transgender Status

In September 1996, the San Francisco Department of Public Health began noting transgender status when this information is contained in the medical record. Transgender individuals are listed as either male-to-female or female-to-male. The majority of transgender HIV/AIDS cases are male-to-female. Please note that there are several limitations of our transgender data. We believe that our report likely underestimated the number of transgender persons affected by HIV/AIDS because data collected for HIV/AIDS reporting are derived from the medical record. Consequently, information that may be discussed with the health care provider but not recorded in the medical record is generally not available for the purposes of HIV/AIDS case reporting.

Estimate of ART Use

Using surveillance data to estimate use of antiretroviral therapy (ART) will most likely result in an underestimate of the extent of its use. The underestimate occurs because use of ART is collected at the time a person with HIV infection is reported (which is often close to the time that they are diagnosed), a time at which many persons have not yet begun treatment. The San Francisco Department of Public Health collects follow-up information from selected health care facilities. For persons who receive care at these sites treatment data is likely to be more complete, because it allows us to capture the use of ART at some point following diagnosis after the date that the case report was completed. Follow-up information is also not available for persons who have moved away from San Francisco or who receive ongoing care outside of the city. Surveillance data provides information that indicates when a person was prescribed ART but does not provide information on adherence.

Estimate of Unmet Need

A data file is provided to us by the California State Office of AIDS to supplement our local data for unmet need estimate. The data file contains unduplicated records for persons with HIV/AIDS in San Francisco who were documented as having received care during July 1, 2007 to June 30, 2008. This information was obtained from Medi-Cal, AIDS Drug Assistance Program (ADAP), Kaiser Permanente Northern California, AIDS Regional Information and Evaluation System (ARIES), and the State HIV/AIDS Reporting System (HARS) records. Because data sources beyond the San Francisco HIV/AIDS case registry are included in this data file, the total numbers of cases in Table 18.1 are larger than the numbers presented in other tables of this report. This is most likely a reflection of differences in the residence at the time of diagnosis and the residence at the time of receipt of care.

D Data Tables

Figure 1.1 AIDS cases, deaths, and prevalence, 1980-2009, San Francisco 3

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Cases	3	26	99	274	557	859	1236	1629	1763	2162
Deaths	0	8	32	111	273	534	807	877	1038	1275
Persons Living with AIDS	3	21	88	251	535	860	1289	2041	2766	3653
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Cases	2046	2283	2327	2073	1787	1565	1081	804	695	579
Deaths	1364	1505	1641	1599	1592	1481	987	422	401	356
Persons Living with AIDS	4335	5113	5799	6273	6468	6552	6646	7028	7322	7545
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Cases	555	513	494	560	477	468	431	438	397	225
Deaths	348	322	323	301	305	312	288	267	173	138
Persons Living with AIDS	7752	7943	8114	8373	8545	8701	8844	9015	9239	9326

Figure 2.1 Number of AIDS cases by race/ethnicity, 2000-2009, San Francisco 8

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
White	317	297	292	283	259	271	242	251	206	109
African American	112	97	87	104	78	81	80	78	77	53
Latino	93	73	76	126	109	86	75	73	65	44
Other	33	46	39	47	31	30	34	36	49	19

Figure 2.2 Number of cases diagnosed with HIV infection by race/ethnicity, 2006-2009, San Francisco 8

	2006	2007	2008	2009
White	300	279	245	204
African American	76	78	79	66
Latino	102	98	112	96
Other	42	62	57	45

Figure 2.3 Male annual AIDS incidence rates per 100,000 population by race/ethnicity, 2000-2009, San Francisco 9

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
White	159	149	147	142	128	137	120	123	98	51
African American	256	228	227	250	187	209	206	187	188	144
Latino	134	111	111	186	166	125	114	109	103	69
Other	23	32	25	34	20	19	23	26	30	12

Figure 2.4 Annual incidence rates of male cases diagnosed with HIV infection per 100,000 population by race/ethnicity, 2006-2009, San Francisco. 9

	2006	2007	2008	2009
White	140	132	117	96
African American	220	190	205	181
Latino	166	147	176	139
Other	29	41	38	32

Figure 2.5 Female annual AIDS incidence rates per 100,000 population by race/ethnicity, 2000-2009, San Francisco. 10

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
White	12	9	7	4	7	5	5	4	7	3
African American	69	69	44	74	59	47	47	61	61	31
Latina	19	8	10	14	16	18	10	10	8	8
Other	1	3	3	2	1	4	2	1	5	1

Figure 2.6 Annual incidence rates of female cases diagnosed with HIV infection per 100,000 population by race/ethnicity, 2006-2009, San Francisco. . . . 10

	2006	2007	2008	2009
White	12	8	8	5
African American	30	57	57	34
Latina	6	12	10	15
Other	3	3	3	1

Figure 2.7 Number of male AIDS cases by exposure category, 2000-2009, San Francisco 11

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
MSM	330	305	299	353	307	289	277	277	245	139
IDU	51	42	41	54	24	37	23	29	16	18
MSM IDU	87	82	88	70	74	77	71	65	65	28
Other	12	24	14	19	16	16	18	22	22	15

Figure 2.8 Number of male cases diagnosed with HIV infection by exposure category, 2006-2009, San Francisco 11

	2006	2007	2008	2009
MSM	360	332	346	290
IDU	22	27	18	13
MSM IDU	64	55	42	40
Other	29	41	37	26

Figure 2.9 Number of female AIDS cases by exposure category, 2000-2009, San Francisco 12

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
IDU	35	30	23	26	28	20	20	13	20	13
Heterosexual	15	10	9	13	6	14	7	16	17	5
Other	2	5	3	1	5	3	3	2	3	2

Figure 2.10 Number of female cases diagnosed with HIV infection by exposure category, 2006-2009, San Francisco 12

	2006	2007	2008	2009
IDU	19	14	14	10
Heterosexual	11	19	18	11
Other	6	8	7	7

Figure 5.2 Trends in specific causes of death by age group, 1996-2007, San Francisco 29

Deaths caused by HIV/AIDS			
	1996-1999	2000-2003	2004-2007
Under 40	78.4%	81.2%	68.6%
40-49	73.9%	78.2%	63.2%
50-59	70.6%	58.3%	62.4%
60 and over	61.6%	61.8%	52.1%

Deaths caused by non-AIDS cancer			
	1996-1999	2000-2003	2004-2007
Under 40	2.1%	1.8%	2.5%
40-49	3.7%	3.6%	8.7%
50-59	7.3%	13.8%	10.2%
60 and over	12.5%	13.7%	16.7%

Deaths caused by heart disease			
	1996-1999	2000-2003	2004-2007
Under 40	1.6%	3.6%	2.5%
40-49	2.0%	3.2%	4.7%
50-59	4.6%	7.8%	6.7%
60 and over	7.1%	11.8%	11.5%

Deaths caused by drug overdose, suicide, and mental disorders due to substance use			
	1996-1999	2000-2003	2004-2007
Under 40	5.6%	4.7%	15.1%
40-49	4.5%	6.0%	11.9%
50-59	3.0%	4.6%	9.0%
60 and over	4.5%	1.0%	3.1%

Figure 5.3 Age distribution for select underlying causes of death among persons with AIDS, 2004-2007, San Francisco 30

	Under 40	40-49	50-59	60 and over
HIV/AIDS	109	282	214	100
Non-AIDS cancer	4	39	35	32
Heart disease	4	21	23	22
Drug overdose	11	25	14	2
Suicide	9	14	10	2
Mental disorders due to substance use	4	14	7	2
Liver-related causes	5	12	4	5
Chronic obstructive lung disease	0	5	11	6

Figure 5.4 Leading causes of death among San Francisco male residents aged 25-54 years, 2002-2007 31

	2002	2003	2004	2005	2006	2007
Accident	94	95	78	92	111	134
Non-AIDS cancer	90	89	84	79	76	80
Heart disease	104	107	75	82	83	78
HIV/AIDS	132	126	115	105	79	69
Suicide	42	57	44	41	48	55
Homicide	19	27	34	34	35	36
Mental disorder	50	47	59	58	49	26
Liver disease	28	32	24	35	26	25
Cerebrovascular	15	15	18	17	9	11
COPD	10	9	4	10	6	7

Figure 5.5 Leading causes of death among San Francisco female residents aged 25-54 years, 2002-2007 32

	2002	2003	2004	2005	2006	2007
Non-AIDS cancer	69	78	81	80	72	59
Mental disorder	12	16	8	23	13	7
Heart disease	31	30	23	28	22	14
Cerebrovascular	11	13	5	14	10	8
COPD	6	6	7	3	1	4
Liver disease	16	7	8	5	3	7
Accident	22	27	30	31	40	30
Suicide	9	14	13	11	11	12
Homicide	6	4	2	4	5	8
HIV/AIDS	11	16	16	14	15	7

Figure 5.6 Leading causes of death rates per 100,000 population among San Francisco male residents aged 25-54 years by race/ethnicity, 2007 33

	White	African American	Latino
HIV/AIDS	26	104	43
Heart Disease	29	144	15
Non-AIDS Cancer	28	88	15
Accident	53	296	37

Figure 5.7 Leading causes of death rates per 100,000 population among San Francisco male residents by age group, 2007 33

	0-29	30-39	40-49	50-59	60+
HIV/AIDS	4	5	58	65	23
Heart Disease	3	6	45	142	850
Accident	18	30	66	134	112
Non-AIDS Cancer	1	8	41	215	820
Mental Disorder	0	4	12	44	33
Suicide	9	22	23	29	29

Figure 7.1 Trends in insurance status among persons with AIDS by gender, 2004-2009, San Francisco 38

Male	2004	2005	2006	2007	2008	2009
Public	25%	31%	27%	29%	38%	39%
Private	47%	43%	44%	45%	40%	33%
None	27%	24%	25%	22%	19%	22%
Female	2004	2005	2006	2007	2008	2009
Public	67%	51%	70%	74%	80%	70%
Private	10%	22%	17%	13%	5%	5%
None	21%	27%	13%	10%	15%	25%
Transgender	2004	2005	2006	2007	2008	2009
Public	59%	58%	75%	50%	44%	60%
Private	0%	0%	0%	7%	22%	0%
None	41%	42%	25%	43%	33%	40%

Figure 8.1 AIDS cases, deaths, and prevalence among MSM, 2000-2009, San Francisco 40

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Cases	438	402	403	447	398	378	359	355	319	172
Deaths	283	249	250	231	233	235	227	212	135	116
Persons Living with AIDS	6773	6926	7079	7295	7460	7603	7735	7878	8062	8118

Figure 8.2 AIDS cases among MSM by race/ethnicity, 2000-2009, San Francisco . . 41

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
White	280	261	260	253	239	237	221	225	183	91
African American	55	47	42	53	42	48	46	34	43	31
Latino	74	60	69	106	92	71	63	64	55	35
Other	29	34	32	35	25	22	29	32	38	15

Figure 8.3 Cases diagnosed with HIV infection among MSM by race/ethnicity, 2006-2009, San Francisco 41

	2006	2007	2008	2009
White	262	242	211	179
African American	43	33	45	45
Latino	92	81	92	80
Other	35	52	51	40

Figure 8.7 Syphilis among MSM, 2000-2009, San Francisco 44

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Primary	13	45	95	105	118	70	74	59	111	108
Secondary	27	71	193	215	206	148	143	124	194	189
Early Latent	11	36	151	159	180	162	151	136	189	197

Figure 9.1 AIDS cases, deaths, and prevalence among non-MSM IDU, 2000-2009, San Francisco 46

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Cases	88	72	65	80	52	57	43	42	36	31
Deaths	52	60	58	60	60	62	48	47	28	16
Persons Living with AIDS	736	748	755	775	767	762	757	752	760	775

Figure 9.2 AIDS cases among non-MSM IDU by race/ethnicity, 2000-2009, San Francisco 47

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
White	32	29	24	27	16	27	16	16	16	10
African American	46	34	36	35	27	24	20	22	15	15
Latino	9	5	2	14	8	5	6	2	3	3
Other	1	4	3	4	1	1	1	2	2	3

Figure 9.3 Cases diagnosed with HIV infection among non-MSM IDU by race/ethnicity, 2006-2009, San Francisco 47

	2006	2007	2008	2009
White	21	23	19	10
African American	15	15	10	8
Latino	4	2	2	4
Other	1	1	1	1

Figure 10.1 AIDS cases, deaths, and prevalence among heterosexuals, 2000-2009, San Francisco 49

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Cases	19	17	15	21	14	19	20	32	25	13
Deaths	4	8	9	6	5	6	6	7	4	2
Persons Living with AIDS	146	155	161	176	185	198	212	237	258	269

Figure 10.2 AIDS cases among heterosexuals by race/ethnicity, 2000-2009, San Francisco 50

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
White	3	2	4	3	3	3	2	2	2	1
African American	9	10	6	13	3	5	9	21	11	6
Latino	6	2	2	3	5	7	6	7	4	6
Other	1	3	3	2	3	4	3	2	8	0

Figure 10.3 Cases diagnosed with HIV infection among heterosexuals by race/ethnicity, 2006-2009, San Francisco 50

	2006	2007	2008	2009
White	7	5	5	5
African American	9	19	13	9
Latino	4	9	8	5
Other	3	6	3	1

Figure 11.1 AIDS cases, deaths, and prevalence among women, 2000-2009, San Francisco 53

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Cases	52	45	35	40	39	37	30	31	40	20
Deaths	25	26	29	28	23	28	32	19	22	6
Persons Living with AIDS	430	449	455	467	483	492	490	502	520	534

Figure 11.2 Female AIDS cases by race/ethnicity, 2000 to 2009, San Francisco . . . 54

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
White	19	15	12	7	11	9	8	7	11	5
African American	22	22	14	23	18	14	14	18	18	9
Latina	10	4	5	7	8	9	5	5	4	4
Other	1	4	4	3	2	5	3	1	7	2

Figure 11.3 Female cases diagnosed with HIV infection* by race/ethnicity, 2006 to 2009, San Francisco 54

	2006	2007	2008	2009
White	20	14	13	8
African American	9	17	17	10
Latina	3	6	5	8
Other	4	4	4	2

Figure 13.1 Infants born to HIV-infected mothers by year of birth and infant HIV status, 1994-2009, San Francisco 59

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
HIV Infected	5	5	2	0	3	1	0	0	2	1
Seroreverted	12	14	9	11	9	9	12	16	9	16
Status Unknown	2	1	0	0	1	0	0	0	0	0

	2004	2005	2006	2007	2008	2009
HIV Infected	1	0	0	0	0	0
Seroreverted	6	7	8	5	8	5
Status Unknown	0	0	0	0	0	0

Figure 15.1 AIDS cases, deaths, and prevalence among transgender persons, 2000-2009, San Francisco 62

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Cases	23	15	17	24	17	12	12	14	9	5
Deaths	12	15	9	9	12	11	12	14	11	3
Persons Living with AIDS	164	164	172	187	192	193	193	193	191	193