

AIDS IN YOUTH

COUNTY OF SAN DIEGO, 2012

**County of San Diego
Health and Human Services Agency**

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HHSA

HEALTH AND HUMAN SERVICES AGENCY

AIDS IN YOUTH SAN DIEGO COUNTY 2012

County of San Diego
Health and Human Services Agency
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INTRODUCTION

The first cases of AIDS in youth, persons aged 13-24 years, in San Diego county were seven cases diagnosed in 1985. Since then, 620 individuals in this age group have been diagnosed with AIDS, while living in San Diego county and reported through December 31, 2011. These comprise 4.2% of all reported adult/adolescent cases, comparable to the 4.8% reported nationally through 2010. The proportion of cases, and the case rate in this age group, reached its apex in 2007-2011 after having been essentially stable at 3-4% from 1987 to 2002 (see Table 1). For purposes of this report, no pediatric cases (aged less than 13 years) will be discussed.

It should be noted that, in the data pre-

sented, the issue of “small numbers” may exist wherein there may be few cases among a specific group particularly relative to the overall number of cases. For example, the number of youth cases is small in comparison to the number of non-youth cases. This can lead to what appear to be differences between the groups, but the difference not being significant.

GENDER

Of the 620 cumulative youth cases reported since 1985, 80 (13.9%) are female (see Table 2). This proportion is significantly ($p<0.001$) greater than the proportion of cases older than 24 years who are female (7.6%). The proportion of female cases has not increased significantly over 5-year time periods since 1992

TABLE 1:

Proportion of Youth and Non-Youth AIDS Cases Over 5-Year Time Periods, San Diego County

	Time Period of Diagnosis						Total Cases*
	1987-1991	1992-1996	1997-2001	2002-2006	2007-2011	1981-2011	
Youth (13-24 yrs)	3.8%	3.7%	3.4%	5.5%	5.8%	4.2%	620
Non-Youth (>24 yrs)	96.2%	96.3%	96.6%	94.5%	94.2%	95.8%	14,111
Total Cases	3,268	4,823	2,407	2,152	1,614	14,731	14,731

*Does not include pediatric (age<13years) cases.

TABLE 2:

Male and Female Youth and Non-Youth AIDS Cases Over 5-Year Time Periods, San Diego County

Time Period of Diagnosis	Youth (13-24 Years)		Not Youth (>24 Years)	
	male	female	male	female
1987-1991	92.7%	7.3%	95.3%	4.7%
1992-1996	86.4%	13.6%	93.0%	7.0%
1997-2001	82.7%	17.3%	90.0%	10.0%
2002-2006	83.1%	16.9%	89.3%	10.7%
2007-2011	87.1%	12.9%	90.5%	9.5%
Cumulative*	87.1%	12.9%	92.4%	7.6%
Total Cases*	540	80	13,034	1,077

*Includes cases from 1981-2011. Does not include pediatric (age<13 years) cases.

-1996 in youth ($p=0.124$), but has in older ($p<0.001$) cases.

RACE/ETHNICITY

The most common race/ethnicity in youth AIDS cases in San Diego county is Hispanic (41.0%) followed by white (36.3%) (see Table 3). Youth cases are almost 50% more likely to be black ($p<0.001$) and almost twice as likely to be Hispanic ($p<0.001$) than non-youth cases. Non-youth cases are almost 40% more likely to be white ($p<0.001$) than youth cases.

Over 5-year time periods, since 1997-2001, there have been no significant changes in the proportion of youth AIDS cases who are black, white, or Hispanic (see Table 4).

AGE AT DIAGNOSIS

The majority (83.9%) of cumulative youth AIDS cases diagnosed in San Diego county were over 18 years of age when diagnosed with HIV, and 92.1% were over 18 years of age at the time of AIDS diagnosis (see Table 5 and Figure 1). Over 82% were over 20 years of age when diagnosed with AIDS and 55.5% were 23 or 24 years of age. The majority (65.5%) of the youth AIDS cases were also over the age of 20 years when diagnosed with HIV.

Although these cases were classified as youth at the point of AIDS diagnosis, most were young adults and more likely to participate in sexual and drug activities that put them at risk than children with HIV or AIDS who

TABLE 3:
Percent of Cumulative (1981-2011) Youth and Non-Youth AIDS Cases by Race/Ethnicity, San Diego County

	Race/Ethnicity				Total**
	White	Black	Hispanic	Other*	
Youth (13-24yrs)	36.3%	17.7%	41.0%	5.0%	620
Non-Youth (>24yrs)	60.4%	12.3%	24.2%	3.1%	14,111
Total**	8,741	1,848	3,671	471	14,731

*Includes Asian, Pacific Islander, and Native American.

**Does not include pediatric (age<13 years) cases.

TABLE 4:
Changes in Proportion of Races/Ethnicities Over Time in Cumulative (1981-2011) Youth AIDS Cases, San Diego County

Time Period of Diagnosis	Race/Ethnicity				Total
	White	Black	Hispanic	Other*	
1987-1991	59.3%	17.9%	21.1%	1.6%	123
1992-1996	41.2%	12.4%	41.8%	4.6%	177
1997-2001	23.5%	17.3%	49.4%	9.8%	81
2002-2006	22.0%	19.5%	53.4%	5.1%	118
2007-2011	21.5%	22.6%	48.4%	7.6%	93
1981-2011	36.3%	17.7%	41.0%	5.1%	620

*Includes Asian, Pacific Islander, Native American.

Note: Percentages may not total 100 due to rounding.

TABLE 5:

Age at HIV and AIDS Diagnoses of Cumulative (1981-2011) Youth AIDS Cases, San Diego County

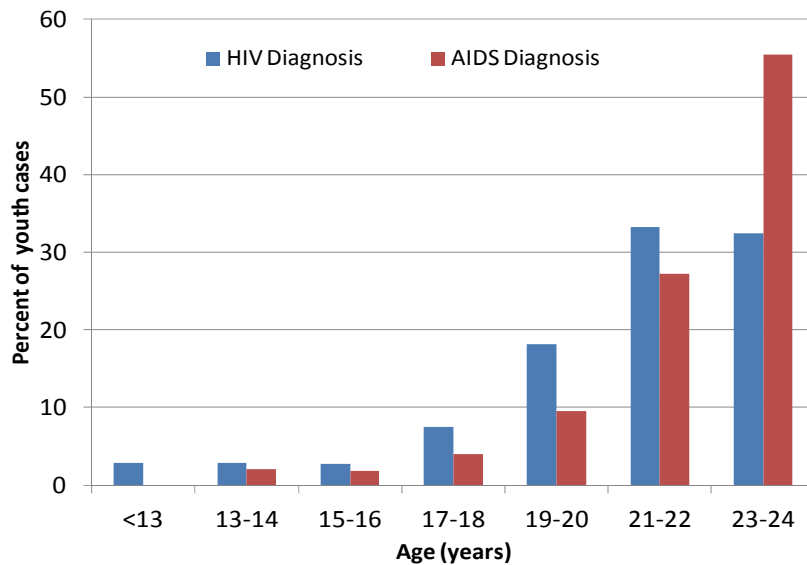
Age (years)	At HIV Diagnosis		At AIDS Diagnosis	
	number	percent	number	percent
<13	18	2.9%		
13-14	18	2.9%	13	2.1%
15-16	17	2.8%	11	1.8%
17-18	46	7.5%	25	4.0%
19-20	112	18.3%	59	9.5%
21-22	204	33.3%	170	27.5%
23-24	197	32.2%	342	55.2%
Total	612*		620	

*Age at HIV diagnosis missing for 8 cases.

Note: Percentage may not total 100 due to rounding.

FIGURE 1:

Age at HIV and AIDS Diagnosis of Cumulative (1981-2011) Youth AIDS Cases, San Diego County



are more likely to be maternally infected or have medical conditions, such as hemophilia, that put them at risk.

MODE OF TRANSMISSION

Cumulative youth AIDS cases (1981-2011) are more likely to report heterosexual contact ($p < 0.001$) and less likely to report Men who have Sex with Men (MSM) ($p < 0.001$) or Injection Drug Use (IDU) ($p = 0.006$) as mode of

transmission than non-youth cases (see Table 6). In recent cases (2007-2011), there are no longer significant differences in the proportions with IDU or heterosexual contact, but youth cases are more likely ($p = 0.030$) to report MSM. This may be due to small numbers of cases in the recent time period. Because of their youth, these cumulative and recent cases are also more likely to have maternal transmission than non-youth cases. Cumulative youth

TABLE 6:

Mode of Transmission in Cumulative (1981-2011) and Recent (2007-2011) Youth and Non-Youth AIDS Cases, San Diego County

Mode of Transmission	1981-2011		2007-2011	
	Youth (13-24 years)	Non-Youth (>24 years)	Youth (13-24 years)	Non-Youth (>24 years)
MSM	66.1%	72.8%	78.5%	67.7%
IDU	5.6%	8.8%	4.3%	8.2%
MSM+IDU	10.5%	10.4%	4.3%	9.1%
Heterosexual contact	10.9%	6.3%	8.6%	13.1%
Blood products/Hemophilia	4.2%	1.2%	0.0%	0.2%
Maternal	1.5%	0.0%	3.2%	0.0%
Risk not specified/Other	1.1%	0.5%	1.1%	1.8%
Total	620	14,111	93	1,521

Note: Percentages may not total 100 due to rounding.

cases are also more likely to have been exposed to HIV through blood products than non-youth cases ($p < 0.001$), but recent cases do not differ in this regard.

When youth AIDS cases are separated by sex, 75.8% of the 540 cumulative males are MSM, and an additional 12.0% are MSM+IDU; 87.8% of the male youth AIDS cases are MSM or MSM+IDU. Injecting drug use is reported in 5.2% and heterosexual contact in 1.7% of male cases. Of the 80 cumulative female youth AIDS cases, heterosexual contact is the most

frequently reported (73.8%) followed by IDU (10.0%) (data not shown).

COUNTRY OF ORIGIN

Cumulative (1981-2011) youth AIDS cases are more likely to have been born in Mexico ($p < 0.001$) and less likely to be born in the United States (U.S.) ($p < 0.001$) than non-youth cases (see Table 7). In recent (2007-2011) cases however, the youth cases are more likely to have been born in the U.S. ($p = 0.033$) and there is no statistical difference between youth

TABLE 7:

Country of Origin of Cumulative (1981-2011) and Recent (2007-2011) Youth and Non-Youth AIDS Cases, San Diego County

Origin	1981-2011				2007-2011			
	Youth (13-24 years)		Non-Youth (>24 years)		Youth (13-24 years)		Non-Youth (>24 years)	
	number	percent	number	percent	number	percent	number	percent
USA	448	72.2%	11,500	81.5%	76	81.7%	1,088	71.5%
Mexico	133	21.5%	1,849	13.1%	12	12.9%	322	21.2%
Other	39	6.3%	763	5.4%	5	5.4%	111	7.3%
Total	620		14,111		93		1,521	

and non-youth cases in terms of being born in Mexico ($p=0.061$). There is no difference between youth and non-youth cases in terms of being born in a country other than the U.S. or Mexico. These data do not provide information on how long a given case has resided in the US or level of acculturation.

AREA/RESIDENCE AT DIAGNOSIS

Like non-youth cases, more youth cases have been diagnosed while living in the Health and Human Services Agency (HHSA) Central Region than other regions (see Table 8). Cumulative youth cases are significantly ($p=0.006$) more likely than non-youth cases to have lived in the South Region at the time of diagnosis, but this difference is not seen in recent cases. No other differences in proportions are seen in either cumulative or recent cases between regions.

Both youth and non-youth cases have significantly decreased in the Central Region (youth, $p=0.003$; non-youth, $p<0.001$) and significantly increased in the South Region over time (youth, $p=0.011$; non-youth $p<0.001$) (data not shown).

FACILITY OF DIAGNOSIS

Cumulative youth AIDS cases are significantly less likely to have been diagnosed in a hospital ($p=0.041$) than non-youth cases (see Table 9). Youth cases are significantly more likely than non-youth cases to have been diagnosed in an HIV clinic ($p=0.024$), or in a correctional facility ($p=0.007$). No youth cases have been diagnosed post-mortem.

ADOLESCENTS AND YOUNG ADULTS

Youth cases may be divided into adolescents (aged 13-17 years) and young adults (aged 18-24 years). Adolescents make up only 5.5% of the youth AIDS cases. The total number of youth cases is relatively small, 620, and therefore analysis is limited to cumulative cases of adolescents and young adults. Female cases make up 23.5% of adolescent cases, but only 12.3% of young adult cases (see Table 10). This is in part due to shifts in mode of transmission in the older group, young adults, which includes more MSM. Probably because of small numbers of cases, there is no significant difference in the proportion of female cases in ado-

TABLE 8:

HHSA Region of Residence at Time of Diagnosis in Cumulative (1981-2011) and Recent (2006-2010) Youth and Non-Youth AIDS Cases, San Diego County

Region	1981-2011		2007-2011	
	Youth (13-24 years)	Non-Youth (>24 years)	Youth (13-24 years)	Non-Youth (>24 years)
Central	54.0%	56.7%	41.1%	47.5%
East	7.9%	7.2%	12.6%	8.3%
South	14.5%	10.9%	17.9%	18.2%
North Coastal	6.1%	7.6%	6.3%	8.0%
North Inland	5.3%	4.6%	4.2%	5.2%
North Central	11.6%	12.8%	14.7%	10.9%
Unknown/missing	0.6%	0.2%	3.2%	1.9%
Total	622	14,111	93	1,521

lescent and young adult AIDS cases (=0.057).

Adolescent and young adult cases do not differ significantly in race/ethnicity; neither is more likely to be white (p=0.111), black (p=0.634), or Hispanic (p=0.144). The number of adolescents is small and this may impact the ability to determine true differences (See Table

11).

Adolescents make up a small proportion (5.5%) of youth cases overall. This may be due to under diagnosing in younger people or increased risk taking in young adults. Healthcare providers may not perceive these younger patients to be at risk for acquisition of HIV and

TABLE 9:
Facility of Diagnosis Type for Cumulative (1981-2010) Youth and Non-Youth AIDS, San Diego County

Type of Facility	Youth (13-24 years)	Non-Youth (>24 years)
Private physician/HMO	14.5%	21.6%
Hospital	23.2%	28.3%
HIV clinic	17.6%	14.3%
Coroner	0.0%	0.2%
Correctional facility	2.4%	0.9%
Other/Unknown*	42.3%	34.7%
Total	620	14,111

*Includes TB Clinic, Emergency Department, cases with missing information, and cases entered into the database before this information was collected.

TABLE 10:
Gender of Cumulative (1981-2011) Adolescent and Young Adult Youth AIDS Cases, San Diego County

	Adolescent (13-17 years)	Young Adult (18-24 years)	Total cases
Male	76.5%	87.7%	86.7%
Female	23.5%	12.3%	13.3%
Total	34	586	620

TABLE 11:
Race/Ethnicity of Cumulative Adolescent and Young Adult AIDS Cases, San Diego County

	Race/Ethnicity				Total Cases
	White	Black	Hispanic	Other*	
Adolescent (13-17 years)	23.5%	14.7%	52.9%	8.8%	34
Young Adult (18-24 years)	37.0%	17.9%	40.3%	4.8%	586
Total Cases	36.3%	17.7%	41.0%	5.0%	620

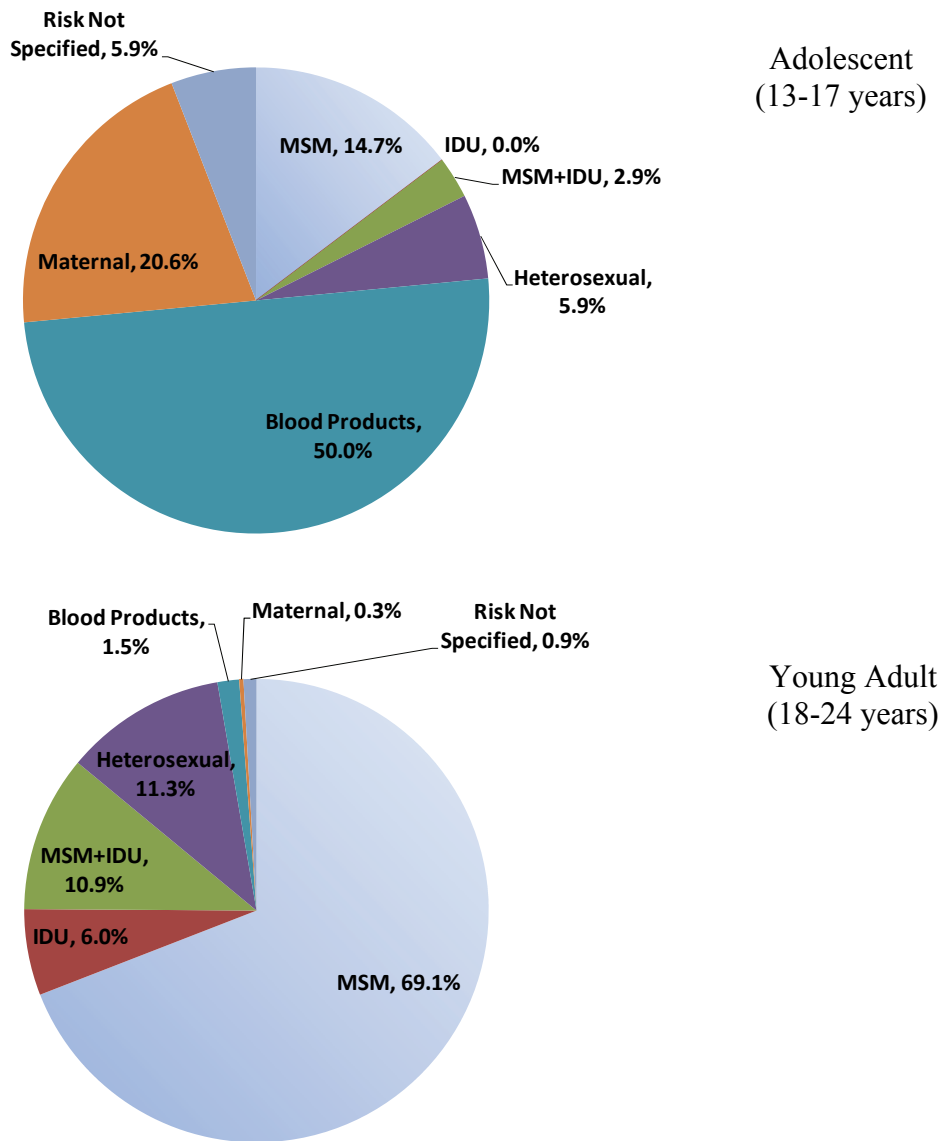
*Includes Asian, Pacific Islander, and Native American.

do not offer testing. Younger persons also may not perceive themselves to be at risk and therefore do not seek testing.

Adolescent and young adult cases differ in mode of transmission (see Figure 2). Adolescent cases are more likely to have maternal HIV exposure than young adult cases (20.6% vs 0.3%; $p < 0.001$). They are also more likely to

have had blood product exposure (50.0% vs 1.5%; $p < 0.001$) than young adult cases. Young adult cases have a much greater proportion of MSM than adolescent cases (69.1% vs 14.7%; $p < 0.001$); young adult cases are closer in proportion of MSM to non-youth cases (69.1% vs. 72.8% of cumulative cases) (see Table 6). Adolescent and young adult cases do not differ sig-

FIGURE 2:
Mode of Transmission in Cumulative (1981-2011) Adolescent and Young Adult AIDS Cases, San Diego County



nificantly in the proportion having heterosexual transmission (5.9% and 11.3% respectively; $p=0.329$).

There appear to be differences in HHSA region of residence at time of diagnosis between cumulative adolescent and young adult AIDS cases (see Table 12), however only the difference in proportion living in the East Region at time of diagnosis (17.6% vs. 7.6%, $p=0.024$) are significant.

Adolescent and young adult AIDS cases also do not differ significantly in their country of origin; similar proportions of each group come from the US, from Mexico, and from other countries (see Table 13).

LIMITATIONS

The data contained in this report are dependent on accurate reporting from healthcare providers, laboratories, and patients. Patients, for many reasons, may not provide accu-

rate information to healthcare providers for reporting. This may be particularly true early in the patient-provider relationship. Healthcare providers may not provide complete information or data entry errors may occur. These inaccuracies may impact analysis, either inflating differences or diminishing them.

Caution should be exercised in the analysis of the most recent time period because additional cases diagnosed in this time period are likely to be reported over time. Retrospective case finding will continue and it is expected that cases diagnosed in 2011 will be reported in 2012 and into 2013. Case reports are also updated as new information becomes available. When, for example, more information on risks is obtained, the database is updated and this may impact proportions and rates used in analyses.

Some of the variables under study do not have sufficient numbers of occurrences to make

TABLE 12:
HHSA Region of Residence at Diagnosis in Cumulative (1981-2011) Adolescent and Young Adult AIDS Cases, San Diego County

	HHSA Region						All Cases
	Central	East	South	North Coastal	North Inland	North Central	
Adolescent (13-17 years)	44.1%	17.6%	20.6%	2.9%	5.9%	8.8%	34
Young Adult (18-24 years)	55.1%	7.3%	14.2%	6.3%	5.3%	11.8%	586
Total Cases	338	49	90	38	33	72	620

Note: percentages may not total 100 due to rounding.

TABLE 13:
Country of Origin of Cumulative (1981-2011) Adolescent and Young Adult AIDS Cases, San Diego County

	Country of Origin			Total Cases
	USA	Mexico	Other	
Adolescent (13-18 years)	61.8%	29.4%	8.8%	34
Young Adult (19-24 years)	72.8%	21.1%	6.1%	586
Total Cases	72.2%	21.5%	6.3%	620

statistical inferences. It is the policy of the County of San Diego, Health and Human Service Agency not to report fewer than five individuals for any given variable. When small numbers are presented, caution should be exercised in the interpretation of data presented. This is particularly true for pediatric AIDS cases and, to a lesser extent, those diagnosed while in a correctional facility. This also applies to youth cases which comprise only 4.2% of all cumulative AIDS cases. Small numbers make analysis difficult for some variables, such as race/ethnicity or HHSA region.

In 1993, the AIDS case definition was modified by the CDC to include those HIV positive patients in whom the CD₄ absolute count dropped below 200, or in whom the percent of CD₄ cells fell below 14%. This increased the number of cases substantially and allowed for the identification of cases earlier in disease progression. It is probable that this has increased both the number of surviving cases and the length of their survival from AIDS diagnosis to death. The change in case definition and the

increase in cases identified earlier in the course of disease may make comparisons to earlier cases, diagnosed after the onset of an opportunistic infection or other indication of a profoundly failing immune system, difficult.

Whenever possible, case information is updated as to vital status of cases (e.g., when a case dies). However, it is possible that some cases have died outside of San Diego county with a delay in notifying the Epidemiology and Immunization Services Branch. This may result in inaccurate assumptions and survival calculations.

The county has a higher proportion of Hispanics and a lower proportion of blacks than do many states, the United States, and even some other counties within California. These racial/ethnic demographic differences make comparisons of San Diego county to the nation as a whole, and to other counties and states, difficult and must be taken into account when discussing the impact of the AIDS epidemic on San Diego county.

DATA SOURCES:

County of San Diego, HIV/AIDS Epidemiology Unit database and Biannual Report.
SANDAG population estimates.

HIV/AIDS Surveillance Report, 2010 (Vol. 22), Centers for Disease Control and Prevention.

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