AIDS in Youth

County of San Diego, 2011

County of San Diego
Health and Human Services Agency

Epidemiology & Immunization Services
HIV/AIDS Epidemiology Unit

COUNTY OF SAN DIEGO
HHSA
HEALTH AND HUMAN SERVICES AGENCY

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(click on 'Reports and Statistics')

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INTRODUCTION

The first cases of AIDS in youth, those aged 13-24 years, in San Diego County were seven cases diagnosed in 1985. Since then, 595 individuals in this age grouping have been diagnosed with AIDS while living in San Diego County and reported in the County through 2010. These comprise 4.1% of all reported adult/adolescent cases which is similar to the 4.5% reported nationally through 2008. The proportion of cases, and the case rate in this age group, reached its apex in 2006-2010 after having been essentially stable at 3-4% from 1985 to 2000 (see Table 1). For purposes of this report, no pediatric cases (aged less than 13 years) will be discussed. The cases used for this report were reported through December 31, 2010.

GENDER

Of the 595 cumulative youth cases reported since 1985, 79 (13.9%) are female (see Table 2). This is in contrast to cases older than 24 years in whom 7.6% are female. The proportion of female cases has increased significantly over time in both youth ($p=0.003$) and in older ($p<0.001$) cases.

RACE/ETHNICITY

More than 40% of all youth AIDS cases in San Diego County have been Hispanic (41.2%) and 36.5% have been white (see Table 3). Youth cases are almost 50% more likely to

TABLE 1:
Proportion of Youth and Non-Youth AIDS Cases Over 5-Year Time Periods, San Diego County

	Time Period of Diagnosis						
	1986-1990	1991-1995	1996-2000	2001-2005	2006-2010	1981-2010	Total Cases*
Youth (13-24 yrs)	4.1%	3.7%	3.6%	4.6%	5.5%	4.1%	595
Non-Youth (>24 yrs)	95.9%	96.3%	96.4%	95.4%	94.5%	95.9%	13,861
Total Cases	2,039	4,753	3,197	2,239	1,856	14,456	

*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

	Youth (13-24 Years)		Not Youth (>24 Years)	
	Male	Female	Male	Female
1986-1990	95.5%	4.5%	95.3%	4.7%
1991-1995	86.7%	13.3%	93.6%	6.4%
1996-2000	81.4%	18.6%	90.9%	9.1%
2001-2005	82.2%	17.8%	89.5%	10.5%
2006-2010	85.3%	14.7%	90.0%	10.0%
Cumulative*	86.7%	13.3%	92.4%	7.6%
Total Cases**	516	79	12,812	1,049

*Includes cases from 1981-2010.

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

be black (p<0.001) and almost twice as likely to be Hispanic (p<0.001) than non-youth cases.

The proportion of youth AIDS cases who are white has significantly decreased (p<0.001) over time, while the proportion who are Hispanic (p<0.001) has significantly increased over time (p<0.001) (see Table 4). The proportion of these cases who are black has significantly increased since 1991 (p=0.013).

Age at Diagnosis

The majority (83.4%) of cumulative youth AIDS cases diagnosed in San Diego County were over 18 years of age when diagnosed with HIV, and 91.6% were over 18 years of at 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 (65.7%) 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 HIV and of AIDS diagnosis, most were young adults, more likely to participate in sexual and drug activities than children who are more likely to be maternally infected or have medical conditions, such as hemophilia, that have put them at greater risk of infection.

Mode of Transmission

Cumulative youth AIDS cases (1981-2010) are more likely to report heterosexual contact (p<0.001) and less likely to report Men

Table 3:
Percent of Cumulative Youth and Non-Youth AIDS Cases by Race/Ethnicity, San Diego County

	Race/Ethnicity				
	White	Black	Hispanic	Other*	Total**
Youth (13-24yrs)	36.5%	17.6%	41.2%	4.7%	595
Non-Youth (>24yrs)	60.7%	12.4%	23.9%	3.0%	13,861
Total**	8,630	1,829	3,561	436	14,456

*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 Youth AIDS Cases, San Diego County

Time Period of Diagnosis	Race/Ethnicity				Total
	White	Black	Hispanic	Other*	
1986-1990	57.3%	21.8%	19.1%	1.8%	110
1991-1995	44.8%	12.7%	39.8%	2.8%	181
1996-2000	26.8%	16.5%	45.4%	11.3%	97
2001-2005	26.7%	16.8%	50.5%	5.9%	101
2006-2010	15.8%	25.3%	54.7%	4.2%	95
1981-2010	36.5%	17.6%	41.2%	4.7%	595

*Includes Asian, Pacific Islander, Native American.

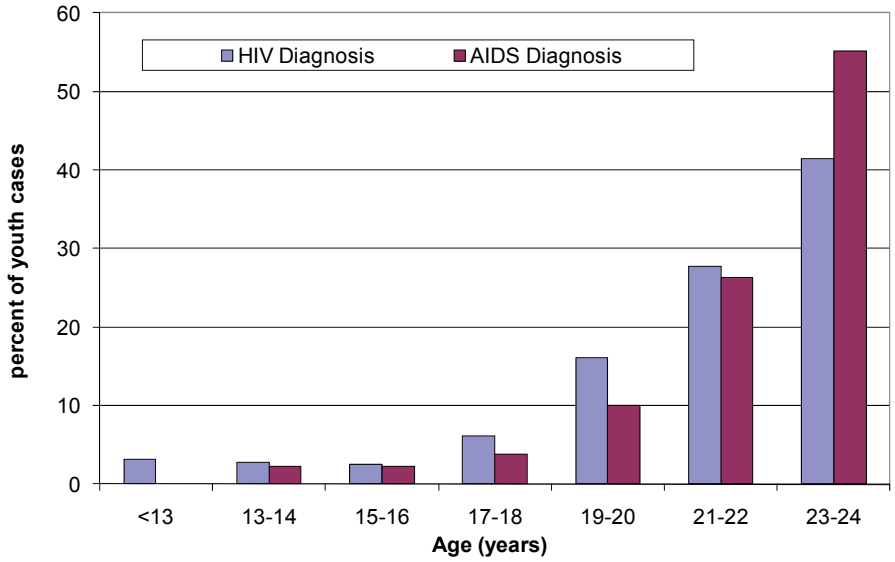
Percents may not total 100 due to rounding.

TABLE 5:
Age at HIV and AIDS Diagnoses of Cumulative Youth AIDS Cases, San Diego County

	At HIV Diagnosis		At AIDS Diagnosis	
Age (years)	number	percent	number	percent
<13	19	3.4		
13-14	17	2.9	13	2.2
15-16	17	2.9	12	2.0
17-18	44	7.5	25	4.2
19-20	104	17.7	55	9.2
21-22	195	33.2	160	26.9
23-24	191	32.5	330	55.5
Total	587*		595	

*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 Youth AIDS Cases, San Diego County



who have Sex with Men (MSM) ($p<0.001$) or Injection Drug Use (IDU) ($p=0.013$) as mode of transmission than non-youth cases (see Table 6). In recent cases (2006-2010), however, these differences are no longer significant. This may be due to the 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 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, 75.2% of the 516 cumulative males are MSM, and an additional 11.8% are MSM+IDU; 87% 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

Table 6:
Mode of Transmission in Cumulative and Recent (2006-2010) Youth and Non-Youth Cases, San Diego County

Mode of Transmission	1981-2010 Youth (13-24 yrs)	1981-2010 Non-Youth (>24 yrs)	2006-2010 Youth (13-24 yrs)	2006-2010 Non-Youth (>24 yrs)
MSM	65.2%	73.0%	75.8%	67.6%
IDU	5.9%	8.8%	6.3%	8.0%
MSM+IDU	10.3%	10.3%	3.2%	9.2%
Heterosexual contact	11.4%	6.1%	10.5%	13.4%
Blood products/Hemophilia	4.6%	1.3%	0.0%	0.2%
Maternal	1.3%	0.0%	3.2%	0.0%
Risk not specified/Other	1.3%	0.5%	1.1%	1.6%
Total	595	13,861	95	1,622

Note: Percentages may not total 100 due to rounding.

cases. Of the 79 cumulative female youth AIDS cases, heterosexual contact is the most frequently reported (74.7%) followed by IDU (10.1%).

Country of Origin

Both cumulative and recent youth AIDS cases are more likely to have been born in Mexico and less likely to be born in the United States (U.S.) than non-youth cases ($p<0.001$) (see Table 7). There is no difference between youth and non-youth cases in terms of being born outside of 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 (see Table 8). Both youth and non-

Table 7:
Country of Origin of Cumulative and Recent (2006-2010) Youth and Non-Youth AIDS Cases, San Diego County

	1981-2010 Youth (13-24 years)		1981-2010 Non-Youth (>24 years)		2006-2010 Youth (13-24 years)		2006-2010 Non-Youth (>24 years)	
Origin	number	percent	number	percent	number	percent	number	percent
USA	425	71.4%	11,347	81.9%	68	71.6%	1,148	70.8%
Mexico	133	22.4%	1,791	12.9%	22	23.2%	367	22.6%
Other	37	6.2%	723	5.2%	5	5.2%	107	5.6%
Total	595		13,861		95		1,622	

Note: Percentages may not total 100 due to rounding.

TABLE 8:
HHSA Region of Residence at Time of Diagnosis in Cumulative and Recent (2006-2010) Youth and Non-Youth AIDS Cases, San Diego County

	1981-2010		2006-2010	
Region	Youth (13-24 yrs)	Non-Youth (>24 yrs)	Youth (13-24 yrs)	Non-Youth (>24 yrs)
Central	54.6%	57.1%	41.1%	49.4%
East	8.1%	7.2%	12.6%	8.1%
South	14.5%	10.7%	20.0%	18.9%
North Coastal	6.2%	7.6%	7.4%	8.1%
North Inland	4.9%	4.6%	5.3%	4.8%
North Central	11.6%	12.9%	13.7%	10.7%
Total	595	13,861	95	1,622

Note: Percentages may not total 100 due to rounding.

youth cases have decreased in the Central Region and increased in the South Region over time. Although the greatest proportion of cases were living in the Central Region at the time of diagnosis, youth cases, both cumulative and recent, are significantly (p=0.004) more likely than non-youth cases to have been living in the South Region at the time of diagnosis.

FACILITY OF DIAGNOSIS

Cumulative youth AIDS cases are less likely to have been diagnosed as a hospital inpatient (p=0.041) than non-youth cases (see Table 9). Youth cases are no more likely to have been diagnosed as a hospital outpatient (p=0.243), by a private physician (p=0.778), or in a correctional facility (p=0.876). There is no significant difference in the proportion of youth AIDS cases diagnosed in an adult HIV clinic, reflecting the number of youth cases over the age of 18 years. No youth cases have been diagnosed post-mortem.

ADOLESCENTS AND YOUNG ADULTS

Youth cases may be divided into adolescents (aged 13-18 years) and young adults (aged

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

Type of Facility	Youth (13-24 yrs)	Non-Youth (>24 yrs)
Private physician/HMO	19.2%	18.7%
Hospital, inpatient	24.6%	28.2%
Hospital, outpatient	13.3%	11.7%
HIV clinic	12.3%	11.4%
Coroner	0.3%	0.2%
Correctional facility	0.8%	0.9%
Other/Unknown*	29.5%	28.9%
Total	595	13,861

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

19-24 years). Adolescents make up 8.4% of the youth AIDS cases. The total number of youth cases is relatively small (n=595), therefore analysis is limited to cumulative cases of adolescents and young adults. Female cases make up 26.0% of adolescent cases, but only 12.1% of young adult cases (see Table 10). This is in part due to shifts in mode of transmission in the older group which includes a more MSM.

Adolescent and young adult cases differ in race/ethnicity. Adolescent cases are less likely to be white or black and more likely to be Hispanic than young adult cases ($p<0.001$) (see Table 11). Pediatric (under the age of 13 years) HIV cases, which are more likely to be Hispanic, explains only part of this racial/ethnic difference.

Adolescents make up a small proportion 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 do offer testing. These younger persons also may not perceive themselves to be at risk and therefore do not seek testing.

Adolescent and young adult cases also differ in mode of transmission (see Figure 2). Adolescent cases are more likely to have maternal HIV exposure than young adult cases (16.0% vs 0.2%). They are also more likely to have had blood product exposure (40.0% vs 0.9%) than young adult cases. Young adult cases have a much greater proportion of MSM than adolescent cases (69.2% vs 22.0%); young adult cases are closer in proportion of MSM to non-youth cases (73.0% of cumulative cases) (see Table 6). Adolescent and young adult cases are similar in the proportion having heterosexual transmission (10.0% and 11.6% respectively).

There appear to be differences in

Table 10:
Gender of Cumulative Adolescent and Young Adult Youth AIDS Cases, San Diego County

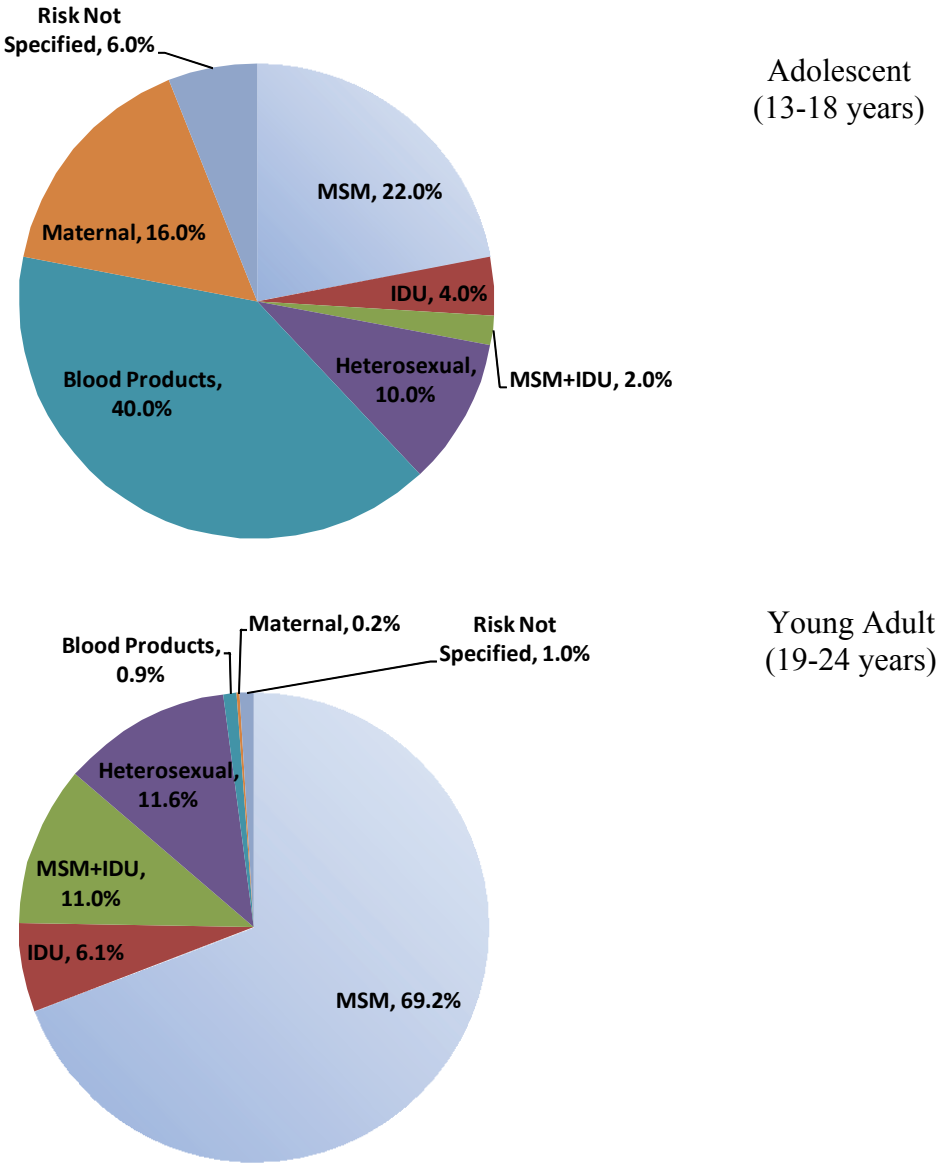
	Adolescent (13-18 years)	Young Adult (19-24 years)	Total cases
Male	74.0%	87.9%	86.7%
Female	26.0%	12.1%	13.3%
Total	50	455	595

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

	Race/Ethnicity				
	White	African American	Hispanic	Other*	Total Cases
Adolescent (13-18 years)	24.0%	18.0%	48.0%	10.0%	50
Young Adult (19-24 years)	37.6%	17.6%	40.6%	4.2%	545
Total Cases	36.5%	17.7%	41.1%	4.7%	595

*Includes Asian, Pacific Islander, Native American

FIGURE 2:
Mode of Transmission in Cumulative Adolescent and Young Adult AIDS Cases, San Diego County



HHSA region of residence at time of diagnosis between cumulative adolescent and young adult AIDS cases (see Table 13). These differences are not significant, probably due to the small numbers of adolescent cases. Adolescent and young adult AIDS cases also do not differ in their country of origin; similar proportions of each group come from the US and from Mexico (see Table 14).

LIMITATIONS

The data contained in this report is de-

Table 13:
HHSA Region of Residence at Diagnosis in Cumulative Adolescent and Young Adult AIDS Cases, San Diego County

	HHSA Region						
	Central	East	South	North Coastal	North Inland	North Central	All Cases
Adolescent (13-18 years)	40.0%	16.0%	22.0%	8.0%	6.0%	8.0%	50
Young Adult (19-24 years)	56.0%	7.4%	13.8%	6.1%	4.8%	12.0%	545

Table 14:
Country of Origin of Cumulative Adolescent and Young Adult AIDS Cases, San Diego County

	Country of Origin			
	USA	Mexico	Other	Total Cases
Adolescent (13-18 years)	68.0%	22.0%	10.0%	50
Young Adult (19-24 years)	71.7%	22.4%	5.9%	545
Total Cases	71.4%	22.4%	6.2%	595

pendent on accurate reporting from healthcare providers, laboratories, and patients. Patients, for many reasons, may not wish to provide accurate information to their healthcare providers for reporting. This may be particularly true early in the patient-healthcare 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 are likely to be reported over time. Retrospective case finding will continue and it is expected that cases diagnosed in 2010 will be reported in 2011 and into 2012. 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 analysis.

Some of the variables under study do not have sufficient numbers of occurrences to make 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 impacts the youth population which comprises only 3.2% of all cumulative AIDS cases. Small numbers make analysis difficult for some variables, such as race/ethnicity by 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 their dis-

ease progress. It is probable that this has increased both the number of surviving cases and the length of their survival from 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. However, it is possible that some cases have died, but the death has not yet been reported to the County. Some of these cases may have left the County or state and died. 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 US, 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 Annual Report,
SANDAG population estimates,
HIV/AIDS Surveillance Report, 2010 (Vol. 19), Centers for Disease Control and Prevention

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