AIDS IN OLDER PERSONS

COUNTY OF SAN DIEGO, 2007

County of San Diego
Health and Human
Services Agency,
HIV/AIDS Epidemiology Unit



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Older persons, aged 50 years and older, have not been a focus in HIV/AIDS prevention and testing programs. The first AIDS case in an older person was diagnosed in 1981 and since then there have been 1,444 diagnoses in San Diego County including 371 in persons aged 60 and older. Those over 50 years of age comprise 11.1% of cumulative cases diagnosed in the County, more than the 3.8% that are youth (aged 13-24 years) who have been a target of prevention efforts. In recent years (2002-2006), the proportion of those aged 50 years and older at diagnosis has risen to 16.2%.

Older persons with AIDS may face different challenges than younger cases, requiring different services and prevention programs. Also, in living cases diagnosed when less than 50 years of age, 22.9% are now 50 years of age or older (1.3% are 60 years of age and older) and may also require different services to deal with their disease.

GENDER

From 1987 to 2001, 92% of cases who are aged 50 years and older were male (see Table 1). In the most recent time period (2002-2006) the proportion of females in this age group has doubled (p<0.001) to 16% with a corresponding decrease in the proportion of male cases.

Overall, the proportion of males and females in the older case group has been similar to that seen in the younger cases. However, in the most recent time period there is an increase in the number females in the older group compared to the younger and a decline in the males of the older group. There is an overall trend for HIV and AIDS diagnoses at later ages. It should be noted that the number of female cases in this age group and time period is small and should be interpreted carefully.

RACE/ETHNICITY

The proportion of whites in older

TABLE 1: Proportion of AIDS cases aged 50 years and older, over 5-year time periods by gender, San Diego County

	Male		Female		
	<50 years	50+ years	<50 years	50+ years	
1981-1986	97.1%	98.2%	2.9%	1.8%	
1987-1991	95.2%	91.5%	4.8%	8.5%	
1992-1996	92.6%	92.5%	7.4%	7.5%	
1997-2001	87.4%	91.8%	10.6%	8.2%	
2002-2006	90.1%	84.0%	9.9%	16.0%	
Cumulative	92.5%	90.4%	7.5%	9.6%	
Total Cases	10,702	1,306	869	138	

AIDS cases has been consistently higher than in younger AIDS cases (see Table 2). Correspondingly, the proportion has been lower in other race/ethnicities than younger cases. In cumulative cases (1981-2006), those who are older are significantly more likely to be white (p<0.001), and less likely to be black (p=0.003) or Hispanic (p<0.001). In more recent cases (2002-2006), the significant differences remain between the proportion who are white (p<0.001) or Hispanic (p=0.037), but differences in proportion in blacks is no longer significant.

When race/ethnicity is examined by gender, there are differences across race/ethnicities and between males and females (see Table 3). In male, cases a pattern similar to that of all cases is seen. Male older cases are more likely to be white in both cumulative (p<0.001) and recent cases (p<0.001). Also, both older male cumulative (p<0.001) and recent (p=0.002) cases are less likely to be Hispanic, but only cumulative cases are less likely to be black (p=0.017).

Unlike male cases, older female cases differ from younger female cumulative (p=0.008) and recent (p=0.019) cases only in being less likely to be black. No differences are seen between older and younger female cases in proportion who are white or Hispanic.

MODE OF TRANSMISSION

Male and female cases have very different modes of transmission regardless of age (see Table 4). In all male cases, the most often reported risk is Men who have Sex with Men (MSM). Older male cases are less likely to be MSM, however, than younger cases both cumulatively (p=0.012) and recently (2002-2006) (p=0.013). They are more likely to have reported heterosexual risk, cumulatively (p<0.001) and recently (p=0.003). Although there is no difference in cumulative cases in terms of proportion reporting Injecting Drug Use (IDU) as mode of transmission, the recent older male cases are more likely than younger cases to report IDU as their risk

<u>TABLE 2</u>
Percent of cumulative and recent (2002-2006) AIDS cases aged 50 years or older by race/ethnicity, San Diego County

Race/	Cumulative (1981-2006)		Recent (2002-2006)		
Ethnicity	<50 years	50+ years	<50 years	50+ years	
White	60.9%	69.2%	44.6%	55.9%	
Black	12.7%	10.0%	15.0%	11.7%	
Hispanic	23.6%	18.8%	36.6%	30.6%	
Other*	2.8%	2.1%	3.8%	1.9%	
Total Cases	11,571	1,444	1,671	324	

^{*}Includes Asian, Pacific Islander, Native American.

TABLE 3
Race/ethnicity in cumulative and recent male and female AIDS cases aged 50 years and older, San Diego County

	Cumulative (Cumulative (1981-2006)		002-2006)
	<50 years	50+ years	<50 years	50+ years
Male Cases				
White	62.7%	72.0%	46.9%	60.7%
Black	11.6%	9.4%	13.9%	12.1%
Hispanic	22.9%	17.2%	35.5%	25.7%
Other*	2.7%	1.5%	3.7%	1.5%
Total cases	10,702	1,306	1,506	272
Female Cases				
White	38.0%	42.8%	23.0%	30.8%
Black	25.7%	15.2%	24.8%	9.6%
Hispanic	31.4%	34.1%	47.3%	55.8%
Other*	4.9%	8.0%	4.8%	3.8%
Total cases	869	138	165	52

^{*}Includes Asian, Pacific Islander, and Native American.

(po.048). Cumulative older cases are more likely (p<0.001) to have had blood products (whole blood, packed red cells, clotting factor for hemophilia, etc.) than younger cases, but this difference is not seen in recent cases. Younger cumulative cases are more likely to report both MSM and IDU (MSM+IDU) than older cases (p<0.001), but significant differences are not seen in recent cases. In the younger cases the "other" category is more likely due to maternal acquisition or to have no specified risk.

Cumulative female older cases are more likely than younger cases to list heterosexual contact (p=0.011) or transfusion or tissue transplant (p<0.001) as mode of trans-

mission and less likely to list IDU (p<0.001). It appears that the difference between older and younger cases in proportion of "other" category is significant, but 4.3% of all younger cases are due to maternal transmission, which could not occur in the older cases. Once this is accounted for the proportion is very similar with younger cases have 1% with no identified risk compared to older cases with 0.7% having no identified risk. There were no significant differences in reported mode of transmission between older and younger female cases in recent years.

RESIDENCE AT DIAGNOSIS

Most AIDS cases diagnosed in the

TABLE 4: Mode of transmission in cumulative and recent AIDS cases, aged 50 years and older by gender, San Diego County

	Cumulative (Cumulative (1981-2006)		Recent (2002-2006)	
	<50 years	50+ years	<50 years	50+ years	
Male Cases					
MSM	79.5%	76.5%	76.2%	69.1%	
IDU	6.6%	7.2%	8.1%	11.8%	
MSM+IDU	11.3%	7.3%	9.9%	8.5%	
Heterosexual	1.4%	3.7%	4.8%	9.2%	
Blood/blood products	0.8%	4.7%	0.3%	0.4%	
Other*	0.4%	0.5%	0.8%	1.1%	
Total Cases	10,702	1,306	1,506	272	
Female Cases					
IDU	37.8%	18.1%	21.8%	19.2%	
Heterosexual	52.2%	63.8%	75.2%	76.9%	
Blood/blood products	5.7%	17.4%	0.6%	1.9%	
Other**	4.3%	0.7%	2.4%	2.0%	
Total Cases	869	138	165	52	

^{*}Includes maternal and risk not specified.

Note: percentages may not total 100 due to rounding.

County resided in the Central HHSA Region at the time of diagnosis. Those aged 50 years and over, however, were less likely to live in the Central Region (see Table 5). In cumulative cases, a smaller proportion of older persons lived in the Central Region at time of diagnosis (p<0.001) than younger cases, but a greater proportion lived in the East (p=0.003), North Coastal (p=0.001), North Inland (p<0.001), or North Central (p<0.001) regions. There was no significant difference in proportion in the South region. The significant differences remain when controlling for race/ethnicity. In recent cases (2002-2006), the only regional

differences seen are the lower proportion of older cases in the Central region (p=0.014) and this difference also remains when race/ethnicity is taken into account.

Most AIDS cases were living in the city of San Diego at the time of their diagnosis (see Table 6). Almost 75% of cases under age 50 years were living in San Diego, a significantly greater proportion than the almost 65% of those aged 50 years and older (p<0.001). Of areas with more than 1.2% of the diagnoses, only Spring Valley had a lower proportion of cases aged 50 and older than those under 50. Chula Vista, Oceanside, El Cajon, Escondido,

<u>TABLE 5</u>
Region of residence at time of diagnosis for cumulative and recent older (50+ years) AIDS cases, San Diego County

	Recent (2002-2006)		Cumulative (1981-2006)		
HHSA Region	<50 years	50+ years	<50 years	50+ years	
Central	59.4%	45.7%	53.7%	46.3%	
East	6.8%	8.9%	6.6%	9.6%	
South	10.0%	11.5%	18.2%	18.5%	
North Coastal	6.8%	9.1%	7.0%	8.0%	
North Inland	4.3%	6.4%	4.3%	5.9%	
North Central	12.7%	18.4%	10.2%	11.7%	
Total Cases	1,669	324	11,568	1,444	

TABLE 6
City of residence at diagnosis in older (50+ years of age)
AIDS cases, San Diego
County

City/Area	Aş		
at Diagnosis	<50 years	50+ years	All Cases
San Diego	74.5%	64.5%	73.4%
Chula Vista	3.4%	4.4%	3.5%
Oceanside	2.8%	3.9%	2.9%
El Cajon	1.8%	2.8%	2.0%
Escondido	1.8%	2.7%	1.9%
Vista	1.6%	1.8%	1.6%
La Mesa	1.4%	1.8%	1.5%
National City	1.4%	1.7%	1.4%
Spring Valley	1.4%	1.3%	1.4%
San Ysidro	1.3%	2.1%	1.4%
Total Cases	11,571	1,444	13,015

Each of the following has less than 1.2% of the remaining cases: Alpine, bonita, bonsall, Borrego Springs, Boulevard, Camp Pendleton, Campo, Cardiff-by-the-Sea, Carlsbad, Coronado, Del Mar, Descanso, Encinitas, Guatay, Imperial Beach, Jamul, Julian, Lakeside, Lemon Grove, Leucadia, Mount Laguna, Pauma Valley, Pine Valeey, Poway, Ramona, Ranchita, Rancho Santa Fe, San Luis Rey, San Marcos, Santa ysabel, Santee, Solana Beach, Valley Center.

Vista, La Mesa, National City, and San Ysidro each had a greater proportion of the cases 50 years and older. With the exception of Escondido, the areas in Table 6 occur not just in the order of proportion of cases, but in population size.

COUNTRY OF ORIGIN

There is no significant difference in the proportions of cumulative or recent older AIDS cases born in the United States (US) (see Table 7). There has, however, been a significant decline in the proportion

<u>TABLE 7</u> Place of birth of recent and cumulative older (age 50+ years of age) AIDS cases, San Diego County

	Recent (2002-2006)		Cumulative (1981-2006)		
Place of Birth	<50 yrs	50+ yrs	<50 yrs	50+ yrs	
USA	69.2%	69.6%	82.7%	82.6%	
US Dependency	0.7%	0.6%	0.7%	0.7%	
Other	30.1%	29.8%	16.6%	16.7%	
Total cases	1664	322	11564	1441	

of both older (p<0.001) and younger (p<0.001) AIDS cases born in the US over time. When the proportion of cases born in the US is examined by race/ethnicity, no differences (either recently or cumulatively) are seen in whites or blacks, but both older (p<0.001) and younger (p,0.001) Hispanic AIDS cases are more likely to have been born outside the US (p<0.001).

FACILITY OF DIAGNOSIS

The greatest proportion of cumulative AIDS cases were diagnosed in the hospital setting, either as an inpatient or an outpatient in both older and younger cases (see Table 8). In recent cases, the majority of both younger and older cases were diagnosed in the hospital setting. Both recent (p=0.005) and cumulative (p<0.001) older cases are more likely to have been diagnosed.

<u>TABLE 8</u>
Facility type where diagnosed for recent and cumulative older (age 50+) AIDS cases, San Diego county

	Recent (2002-2006)		Cumulative ([1981-2006]
Facility Type	<50 yrs	50+ yrs	<50 yrs	50+ yrs
Private provider, HMO	20.8%	20.4%	23.6%	23.1%
Hospital, in- or outpatient	51.3%	59.9%	46.3%	56.2%
Correctional facility	3.2%	0.9%	1.3%	0.3%
Adult HIV clinic	24.2%	18.2%	16.3%	11.0%
Coroner	0.3%	0.6%	0.2%	0.5%
Other*	0.2%	0.0%	12.3%	8.9%
Total**	1,671	324	10,251	1,309

^{*}Includes pediatric HIV clinic, emergency room, TB clinic, and other HIV clinic types.

^{**}Information not available on all cumulative cases.

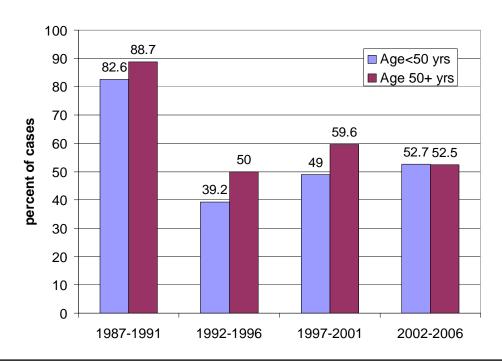
nosed in the hospital setting than younger cases. If separated, differences remain only for inpatient diagnoses (p<0.001 in cumulative cases; p=0.004 in recent cases) with no significant differences seen in the outpatient setting. It is possible that older persons are diagnosed more often as inpatients because older people are more likely to be hospitalized for other reasons than are younger people, or because their presenting illnesses may be more likely to require hospitalization.

Other than in the hospital setting, older and younger cases differed only in the proportion diagnosed in the correctional setting. Younger cases were more likely to be diagnosed in the correctional setting in both cumulative (p=0.002) and recent (p=0.023) time periods. No differences were seen in those diagnosed by private providers or HMOs, by clinics, or by the coroner.

TIME FROM HIV TO AIDS

Early in the epidemic the vast majority of cases progressed from HIV infection to AIDS in less than one year (see Figure 1). There was a substantial drop in the proportion of cases with less than a year between HIV and AIDS diagnoses starting in the 1992-1996 time period, but the proportion was still more than 40%. In the 1987-

FIGURE 1 Percent of older (50+ years) AIDS cases progressing from HIV infection to AIDS diagnosis in less than 1 year over 5-year time periods, San Diego County



1991 (p=0.005), 1992-1996 (p<0.001), and 1997-2001 (p=0.001) time periods, older cases have significantly greater proportion with less than a year between diagnoses. In the most recent time period, 2002-2006, no significant difference is seen.

SURVIVAL

When looking only at deceased cases, the proportion of older cases with less than a year between AIDS diagnosis and death is significantly higher than in younger cases in the 1981-1986 (p=0.007), 1987-1991 (p<0.001), and 1992-1996 (p<0.001) time periods (see Figure 2). No significant differences in proportion are seen in the

1997-2001 or 2002-20069 time periods.

All cases diagnosed in 2001 were analyzed to determine the proportion surviving less than 12, 24, and 36 months (see Table 9). The Centers for Disease Control and Prevention (CDC) provides national proportions surviving for those diagnosed in the same year. When comparing County and national data by age group, only those aged 30-39 had significant differences in proportion and only in survival less than 12 months, with those diagnosed in San Diego county having a significantly smaller proportion surviving to 12 months than national cases (0.88 vs. 0.93; p=0.003). After this initial difference, no further sig-

FIGURE 2
Percent of deceased older (50+ years) AIDS cases progressing from AIDS diagnosis to death in less than 1 year over 5-year time periods, San Diego County

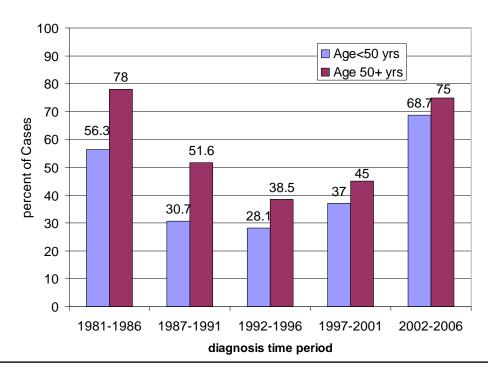


Table 9 Proportion of AIDS cases diagnosed in 2001 surviving greater than 12, 24, and 36 months, by age group, San Diego County compared to national (CDC) data

	Proportion Surviving					
	>12 m	onths	>24 m	nonths	>36 m	nonths
Age Group (yrs)	CoSD	US	CoSD	US	CoSD	US
30-39	0.88	0.93	0.87	0.90	0.84	0.87
40-49	0.89	0.90	0.86	0.86	0.84	0.83
50-59	0.82	0.86	0.80	0.81	0.75	0.77
60+	0.75*	0.75	0.75*	0.68	0.66*	0.65
< 50	0.89	0.92	0.87	0.89	0.85	0.86
≥50	0.80	0.85	0.79	0.78	0.73	0.74

^{*}Very small number of cases in age group.

nificant differences are seen. In older and younger cases, those aged less than 50 years also had a lower proportion of survivors at 12 months than national cases (0.89 vs. 0.92; p=0.005). This is reasonable given that many of them fall into the 30-39 year age group. No significant differences are seen between national and County cases aged 50 years and old, or in those under age 50 after the 12 month point.

AIDS DEFINING CONDITIONS

Every AIDS case, regardless of age, has been diagnosed with an AIDS-defining condition. The most common of these is a CD4+ cell count of less than 200/µl or less than 14% (see Table 10). Although there is no significant difference in the proportion having a decreased CD4+ count or percent between older and younger cumulative cases, more recent cases do differ. In more

recent years, younger cases are more likely to have a decreased CD4+ count or percentage than older cases (68.2% vs. 58.6%; p<0.001). Recent older cases (3.4%) are also more likely to have been diagnosed with cytomegalovirus (CMV) retinitis than younger cases (1.3%) (p=0.005), while no difference is seen in cumulative cases.

In both cumulative and recent cases, those who are older are more likely to have had wasting syndrome (p=0.001 p<0.001). Cumulative and recent older cases are also more likely to experience HIV encephalopathy (dementia) (p<0.001 p<0.001). In contrast to the 8.7% of older and 6.0% of younger cumulative cases, only 4.6% of older and 0.7% of younger recent cases experiences HIV encephalopathy (dementia). It may be that older persons are more likely to have wasting because they have less reserve tissue before infec-

<u>TABLE 10</u>
AIDS indicator conditions reported for cumulative older (50+ years) AIDS cases, San Diego County

	Cases <50 years		Cases 50+ years	
Reported Indicator Disease*	frequency	%**	frequency	%**
CD4+ count <200/μl or <14%	3,769	32.6	445	30.8
Pneumocystis pneumonia	3,203	27.6	359	24.8
Wasting syndrome	1,804	15.6	273	18.9
HIV encephalopathy	694	6.0	125	8.7
Kaposi's sarcoma	1,460	12.6	119	8.2
Candidiasis, esophageal	899	7.7	116	8.0
Cytomegalovirus	664	5.7	80	5.5
M. avium complex or M. kansasii	1,019	8.8	76	5.3
Immunoblastic lymphoma	381	3.3	59	4.1
M. tuberculosis, pulmonary	384	3.3	54	3.7
Cytomegalovirus retinitis	564	4.9	49	3.4
Toxoplasmosis, of brain	262	2.2	36	2.5
Herpes simplex, invasive or chronic	272	2.4	33	2.3
M. tuberculosis, disseminated or extrapulmonary	257	2.2	32	2.2
Cryptosporidiosis	450	3.9	31	2.1
Pneumonia, recurrent in 12 month period	104	0.9	14	1.0
Progressive multifocal leukoencephalopathy	168	1.5	15	1.0
Lymphoma, primary of brain	171	1.5	13	0.9
Candidiasis, pulmonary	73	0.6	11	0.8
Burkitt's lymphoma	51	0.4	7	0.5
Coccidiomycosis	55	0.5	6	0.4
Histoplasmosis	46	0.4	6	0.4
Mycobacterium, other species	62	0.6	4	0.3
Salmonella septicemia	22	0.2	4	0.3
Isosporioasis	25	0.2	2	0.1
Lymphoid interstitial pneumonia	21	0.2	0	0.0
Bacterial infections, recurrent	8	0.1	0	0.0
Total cases	11,571		1,444	

^{*}May not be a complete list of all indicators experienced by every case.

tion. The dementia seen in HIV patients is an Alzheimer's disease-like plaque-forming dementia. This and most other forms of dementia are more common in older persons than younger person. AIDS-related dementia seems to occur at age 50-55 years regardless of age at diagnosis. For this reason it is likely that the older patients would

^{**}Percent will not total 100 because each case may experience more than one indicator.

have dementia as a reported condition. It is not uncommon for only the first indicator condition to be reported. Younger cases may not survive to develop dementia. It is also possible that effective treatment in younger cases will forestall or prevent the occurrence of dementia.

Some reported indicator conditions show significant differences between older and younger cases only when cumulative cases are examined. Younger cases, under 50 years of age, have higher proportions of Pneumocystis pneumonia (p=0.023), Kaposi's sarcoma (p<0.001), Mycobacterium avium complex or M. kansasii (p<0.001), and cryptosporiodiosis (p=0.001) than older cases. No other significant differences were found.

It should be remembered that Table 10 may not provide a complete list of all AIDS defining conditions experienced by all cases. Frequently, only the first indicator of AIDS is reported at the time of diagnosis so it is not possible to determine from the data available the complete experiences of all cases in terms of opportunistic infections.

It is worth noting that, although the CDC did not use the low CD4+ count definition until 1993, previous cases were reviewed to determine if they qualified under the new definition, and are thus included in this category.

LIMITATIONS

The data presented in this report are dependent on accurate reporting from healthcare providers, laboratories, and patients. Patients, for many reasons, may not wish to provide accurate current or historical information to their healthcare providers for reporting. Healthcare providers may not report complete information because it is not available to them, they wish to protect their patients' privacy or other reasons. Each of these situations, and others, result in data that may not be accurate and these inaccuracies may impact analyses.

Caution should be exercised in the analysis of the most recent time period (2002-2006), because additional cases are likely to be reported over time. Retrospective case finding will continue and it is expected that cases diagnosed in 2006 will be reported in 2007 and into 2008. 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 this and future analyses.

Some of the variables under study do not have sufficient numbers of occurrences to make statistical inferences. When small numbers are presented, caution should be exercised in the interpretation of data presented.

In 1993 the AIDS case definition was

modified by the CDC to include those patients with evidence of HIV infection 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 disease 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. However, it is possible that some cases may have died, but the death was not reported to Community Epidemiology. Some of these cases may have left the area 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 United States, and even some other counties within California. These racial/ethnic demographic differences make comparisons of the County of San Diego 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 the County of San Diego.

SUMMARY

Older cases, as with all cases, are more likely to be male, but there has been an increase in the proportion of female cases over time.

The proportion of whites has been consistently higher in older cases than in younger cases, with correspondingly lower proportions of blacks and Hispanics. recent cases, differences in terms of proportion of black cases are not seen. In female cases, older cases are only significantly less likely to be black.

MSM remains the primary mode of transmission in male cases regardless of age, but older cases are more likely to report heterosexual transmission. Older female cases are less likely to report IDU than younger cases.

Most cases were diagnosed while living in the Central region and the city of San Diego, but older cases were less likely to live in this region or in San Diego, than younger cases.

There are no differences between all older and younger cases in terms of proportion born in the USA. Both older and younger Hispanic cases are less likely to be born in the US than non-Hispanic cases.

Older cases are more likely to be diagnosed in the hospital setting and less likely to be diagnosed in a correctional facility than younger cases.

Overall, older cases are more likely to have less than a year between HIV and AIDS diagnoses than younger cases, but not in recent years.

Older cases are more likely to have less than a year between AIDS diagnosis and death than younger cases, but this is not seen in recent years.

DATA SOURCES:

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

HIV/AIDS Surveillance Report, 2005 (Vol. 17), Centers for Disease Control and Prevention Profiles of General Demographic Characteristics, 2000, US Dept of Commerce



