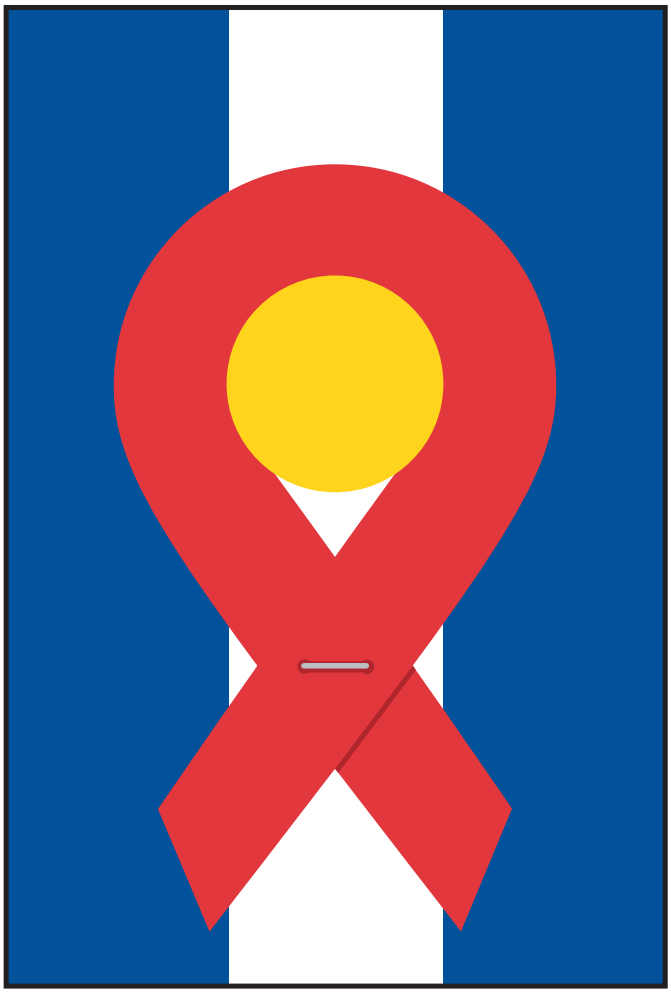
HIV & AIDS



in Colorado

Integrated Epidemiologic Profile of HIV and AIDS Prevention and Care Planning reported through June 2004

Colorado Department
of Public Health
and Environment

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Executive Summary

As of June 30, 2004, a cumulative total of 8,155 cases of AIDS and an additional 6,360 cases of HIV infection have been reported in Colorado. Significant decreases in AIDS incidence and mortality have been observed both in the United States and in Colorado since the introduction and use of new anti-HIV drug therapies in 1996. In 2003, 306 AIDS cases and 250 HIV cases were diagnosed. Newly diagnosed AIDS cases have remained relatively stable over the last five years, whereas cases of HIV have increased 15% over the last five years.

As a result of new therapies, fewer people are dying from AIDS and fewer people with HIV are progressing to AIDS. AIDS-related mortality has decreased by 25% between 1999 and 2003. Prevalent cases of HIV or AIDS have increased steadily. By December 2003, an estimated 9,589 persons were living with HIV or AIDS in Colorado, and 38% have progressed to AIDS.

The epidemic in Colorado is still overwhelmingly driven by sexual exposure, primarily among men who have sex with men (MSM), which continues to be the most significant risk group for males and compromise 72% of HIV cases diagnosed in 2003. Among females, the impact of heterosexual contact is undeniable, comprising 58% of new HIV cases.

Racial and ethnic minorities are disproportionately affected by HIV/AIDS, especially Blacks, which are over represented in all risk groups. When more recently infected cases are analyzed, increasing proportions appear to be racial or ethnic minorities.

HIV/AIDS continues to be geographically centered in the Front Range population of Colorado, although IDUs appear to be more likely than other risk groups to live in rural Colorado.

Although the number of women living with HIV in Colorado has increased, perinatal transmission has decreased dramatically since 1996. The decrease in transmission rates is attributed to the widespread screening of pregnant women for HIV and the use of anti-retrovirals during and after pregnancy, labor and delivery. Two cases of perinatally acquired HIV infection have been reported in infants born to HIV-infected mothers in Colorado in the last five years.

The majority of persons diagnosed with AIDS or HIV in 2003 (91%) had access to primary medical care. In 2003, Ryan White Comprehensive AIDS Resource Emergency (CARE) Act funds were used primarily to provide medical care and case management. A significant number of AIDS cases were tested later in the course of their HIV infection than other groups: Women, people of color, heterosexuals or individuals with no identified risk. Persons ages 30 to 39 and with no identified risk are less likely to receive primary medial care. Nearly 10% of persons newly diagnosed with HIV in Denver exhibit resistance to a major anti-retroviral drug class prior to 2001.

Overall Findings: Priority Groups for HIV Prevention

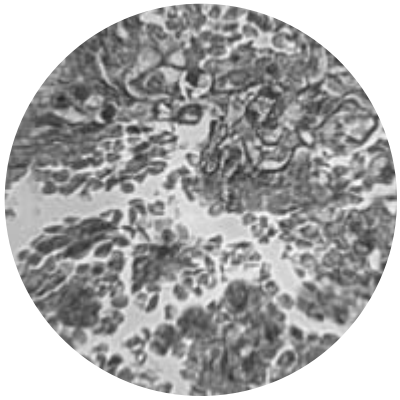
- **Men Who Have Sex With Men**
  The HIV epidemic in Colorado continues to consist primarily of MSM and MSM/IDU (men who have sex with men/injection drug use), which comprise over 75 % of cumulative cases of HIV and AIDS. Whites represent the largest racial group among MSM, comprising 68% of HIV diagnosed in 2003. Blacks and Hispanics are over represented in relation to the percentage of their population. MSM aged 20 to 49 are over represented among recently diagnosed HIV cases in relation to the percent of males in Colorado. Persons aged 30–39 had the highest percentage of cases. MSM have a much higher rate of recent infection (infected within 170 days of first HIV test) than any other risk group. White and Hispanic MSM and MSM under the age of 30 were more likely to have had more than 30 sexual partners in the past five years.

  In the last two years, increases in early syphilis cases among MSM indicate increased sexual risk behavior, which increases the possibility of transmission of HIV. Bathhouse contacts or sex arranged over the internet continues to be an important source of new HIV and syphilis infections.

- **Blacks**
  Blacks are over represented in the cumulative epidemic of HIV/AIDS in Colorado among recently infected persons and among all risk groups. The HIV rate per 100,000 for Blacks (20.6) in Colorado in 2003 was nearly four times the rate of Whites. Blacks are the only racial group that saw an increase in AIDS rate per 100,000 in the last 5 years. Among females, the differences are even more profound. Black females have rates per 100,000 that are 24 times higher than White females in recently diagnosed HIV cases.

- **Injecting Drug Users**
  Males account for the largest proportion of recently diagnosed HIV (74%). Blacks and Hispanics are disproportionately affected by IDU. Blacks represent 7% of HIV cases diagnosed between 2002 and 2003, but only 4% of the general population. Hispanics are over represented with 40% of HIV cases diagnosed in 2002–2003 and represent 19% of the population. HIV is clearly an epidemic among older persons (ages 30–49). Sixty-seven percent of recent HIV infection is in this age group.

- **Females**
  The proportion of females among newly diagnosed HIV cases is increasing. In 2003, women accounted for 10% of persons living with HIV and AIDS, an increase from previous years. Females have a higher proportion of Black cases, representing 32% of newly diagnosed HIV females. Heterosexual contact was the predominant risk for women diagnosed with HIV in 2003.



Data Sources

The data that form the basis of this report are principally reports of HIV (infection with the Human Immunodeficiency Virus) and AIDS (the most severe clinical manifestation of HIV) among persons who were living in Colorado at the time of this diagnosis. Frequently, both HIV infections and AIDS cases are combined for purposes of characterizing the whole epidemic and for analysis of trends. When AIDS cases are presented in this report, it is to compare the presumably "older" epidemic with more recently acquired infections. To focus on more recently acquired infections, HIV cases diagnosed in Colorado during 2002–2003 (that have not progressed to AIDS as of June 2003) are also presented in this report. Cases are reported to the Colorado Department of Public Health and Environment (CDPHE), HIV Surveillance Program and are entered into a database known as the HIV and AIDS Reporting System (HARS) that is used in all states (and in 13 cities) to enumerate AIDS and/or HIV infections in these jurisdictions. AIDS cases in this report meet the 1993 Centers for Disease Control and Prevention (CDC) surveillance case definition for AIDS, which includes HIV-infected persons with CD4+ counts of less than 200 mm^3 or those diagnosed with one of 21 opportunistic infections definitive of AIDS[1].

HIV infection and AIDS have been reportable by name in Colorado by regulation since 1985 and by statute since 1987. This law requires that both laboratories and physicians report cases of HIV and AIDS within seven days to CDPHE. In the case of laboratories, all tests indicative of or highly correlated with HIV, such as HIV positive antibody tests, HIV viral loads, positive cultures for HIV, and CD4+ counts of less than 500 mm^3 are reportable.

The Division of Local Affairs, State Demographer's Office has provided information about the characteristics of Colorado's population to allow comparisons to persons reported with HIV infection or AIDS. Colorado's demographic and geographic data is based on the 2000 United States (US) census and estimates are made each year about changes to Colorado's population by the State Demographer's Office.

The Colorado Department of Human Services, Alcohol and Drug Abuse Division has provided estimates about the scope and size of the injection drug population in Colorado.

The Vital Statistics Section of CDPHE has provided cause of death data obtained from death certificates filed with the department through 2003.

The Colorado Department of Corrections (DOC) has provided data on the demographic characteristics of the prison population.

The US Census Bureau provided a variety of demographic and socioeconomic data on Colorado.

The Colorado Department of Labor and Employment provided data on employment in Colorado.

Strengths and Limitations of the Data

Both HIV and AIDS have been reportable by name from laboratories and care providers since 1985 by regulation and since 1987 by statute. In 1987, CDPHE initiated an active system of surveillance for HIV and AIDS in order to accurately characterize the epidemic in Colorado. An evaluation study conducted in 2003 demonstrated that completeness of reporting of AIDS and HIV in Colorado was approximately 97 % for recently diagnosed cases. CDPHE also collects local variables, such as incarceration or Hepatitis C status, to provide additional information to HIV prevention and care planners.

In general, persons who are infected with HIV, without treatment, will eventually progress to AIDS. For some individuals, this progression may be relatively rapid (less than two years) but it usually occurs over a 5 to 10 year period. Thus, aggregate data about AIDS cases may have limited use for HIV prevention planning because they characterize persons (and their risk behaviors) who may have been infected more than 10 years ago. The introduction of highly active anti-retroviral therapies have further altered the natural history of HIV and delayed progression to AIDS, making AIDS data less useful each year for planning purposes. Data is available for persons recently diagnosed with HIV (which does not mean newly infected). Because these persons have not yet progressed to AIDS, they may represent those who are more recently infected with HIV (although this may be confounded by treatment). However, the usefulness of this data is limited because it only includes persons who elected to be tested for HIV. This represents a major limitation of HIV case reporting. They do not represent persons who have never accessed testing.

The usefulness of the data is further confounded by the availability of anonymous testing. Anonymous testing for HIV has been available as a testing option in Colorado since July of 1990. Because names are not used when a person is tested anonymously, these cases are not entered in the HIV/AIDS Reporting System database (HARS) and thus are not included in this report. When these persons access health care, they are reported by their providers and by laboratories that perform testing to assess immune function and at that point are entered into HARS. They are included in this epidemiological profile when they are reported with HIV or AIDS by name, and CDPHE can assure that no duplication in reporting has occurred.

Finally, data about risk is less complete for newly diagnosed HIV-infected persons than for persons with AIDS. In 2003, risk data for all AIDS cases reported since 1982 was not available for four percent of cases (n=8,155). However, 12 % of HIV cases diagnosed in 2003 (31 out of 250 cases) had no risk reported. The reason for this is that investigation of risk factors for HIV and AIDS occurs over time. Persons who are newly infected may not have discussed risk with HIV counselors, disease intervention specialists, or their care providers. As the patient seeks care and agrees to interviews, risk is more likely to be ascertained.

The location where a case of HIV or AIDS is “counted” presents a special challenge. Jurisdiction of a case of either HIV or AIDS is established at the time of diagnosis. Individual cases are not monitored for changes in address. Consequently, it is impossible to measure the impact of migration in or out of any county or on Colorado as a whole.

Lastly, caution should be exercised when interpreting small numbers. Population rates based on small numbers may be particularly misleading.

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Description of Colorado

Geography

Colorado is geographically a rural state. It is comprised of 64 counties and has a landmass of 104,095 square miles. The largest proportion of Colorado's population is located in 11 counties along the Front Range (Adams, Arapahoe, Boulder, Broomfield, Denver, El Paso, Jefferson, Larimer, Pueblo, and Weld), which account for 15% of Colorado's land area but 81% of the population. These counties include the population centers of Colorado Springs, Pueblo, metropolitan Denver, Boulder, Ft. Collins, and Greeley.

Population

According to the U.S. Census, Colorado's population reached 4.55 million in 2003.[2] Colorado ranks 22nd in the nation in population, that is approximately 1.6 % of the U.S. population.[3]

Age

The median age in Colorado is 34.9 years for the year 2004, up from 32.4 years in 1990 (The median age is projected to increase to 36.2 years in 2029)[4] and over 3.0 million people are under the age of 45 years.[2] The elderly population (over 65) has remained stable at approximately 10% of the population during the 1990s and is projected to remain at this level through 2010. The following table (**Table 1**) illustrates the distribution of the population by gender and age.

TABLE 1: 2003 Colorado Population by Age and Gender

Age Group	Male	Percent	Female	Percent	Total	Percent
<13	425,557	18.5%	405,652	18.0%	831,209	18.3%
13–19	230,449	10.0%	216,246	9.6%	446,695	9.8%
20–24	174,930	7.6%	154,475	6.8%	329,405	7.2%
25–29	183,387	8.0%	163,348	7.2%	346,735	7.6%
30–39	371,680	16.2%	341,910	15.2%	713,590	15.7%
40–49	365,962	15.9%	363,246	16.1%	729,208	16.0%
>49	543,278	23.7%	610,568	27.1%	1,153,846	25.4%
Total Population	**2,295,243**		**2,255,445**		**4,550,688**	

Source: U.S. Census Bureau, Population Division, State estimates by demographic characteristics—age, sex, race, and Hispanic Origin Vintage 2003

Race

Statewide, approximately 73% of the population classify themselves as White, 19% of the population classify themselves as Hispanic, 4% classify themselves as Black, 3% classify themselves as Asian Pacific Islander, and 1% classify themselves as American Indian. It is worth noting that according to the US Census Bureau 2003 American Community Survey 6.5% of Colorado's

Population may be non-citizen immigrants.[5] Because of Colorado's migrant workforce, it is likely that these immigrants are Hispanic.

The following tables show the racial breakdowns in Colorado by sex (**Table 2**) and county (**Table 3**).

TABLE 2: 2003 Colorado Population by Race and Gender

Race	Male	Percent	Female	Percent	Total	Percent
White (non-Hispanic)	1,655,343	72.1%	1,659,014	73.6%	3,314,357	72.8%
Hispanic	444,999	19.4%	402,473	17.8%	847,472	18.6%
Black (non-Hispanic)	90,758	4.0%	83,768	3.7%	174,526	3.8%
Asian/Hawaiian/PI (non-Hispanic)	55,863	2.4%	61,724	2.7%	117,587	2.6%
American Indian/Alaskan Native (non-Hispanic)	15,426	0.7%	14,792	0.7%	30,218	0.7%
Two or More Races	32,854	1.4%	33,674	1.5%	66,528	1.5%
Total Population	**2,295,243**		**2,255,445**		**4,550,688**	

Source: U.S. Census Bureau, Population Division, State estimates by demographic characteristics—age, sex, race, and Hispanic Origin Vintage 2003

TABLE 3: 2003 Colorado Population by Race and County

County	Hispanic	White	Black	American Indian & Alaska Native	Asian	Two or More Races
ADAMS	31.7%	60.1%	2.8%	0.7%	3.2%	1.4%
ALAMOSA	43.7%	52.5%	0.8%	1.2%	0.9%	0.8%
ARAPAHOE	14.5%	69.5%	8.8%	0.5%	4.6%	2.1%
ARCHULETA	15.7%	81.3%	0.4%	1.1%	0.6%	1.0%
BACA	7.6%	89.7%	0.0%	1.1%	0.3%	1.2%
BENT	29.5%	64.6%	3.8%	1.3%	0.6%	0.2%
BOULDER	11.8%	82.0%	0.9%	0.4%	3.6%	1.3%
BROOMFIELD	10.5%	82.4%	0.9%	0.5%	4.5%	1.3%
CHAFFEE	8.6%	87.8%	1.6%	0.8%	0.4%	0.7%
CHEYENNE	7.0%	91.9%	0.4%	0.6%	0.1%	0.0%
CLEAR CREEK	4.0%	93.5%	0.5%	0.6%	0.8%	0.6%
CONEJOS	58.6%	40.3%	0.1%	0.7%	0.1%	0.1%
COSTILLA	65.9%	31.3%	0.6%	1.1%	0.9%	0.1%
CROWLEY	22.9%	66.5%	7.1%	2.0%	0.9%	0.6%
CUSTER	2.4%	95.2%	0.4%	0.8%	0.4%	0.7%
DELTA	12.1%	85.7%	0.5%	0.4%	0.4%	0.8%
DENVER	34.8%	49.4%	10.6%	0.7%	3.1%	1.3%
DOLORES	4.2%	92.8%	0.0%	2.2%	0.5%	0.2%
DOUGLAS	6.0%	87.6%	1.2%	0.3%	3.2%	1.5%
EAGLE	26.2%	71.8%	0.3%	0.4%	0.9%	0.4%
EL PASO	11.9%	75.2%	6.5%	0.7%	2.8%	2.8%
ELBERT	4.7%	92.2%	0.9%	0.5%	0.4%	1.3%
FREMONT	10.4%	81.1%	5.3%	1.4%	0.5%	1.2%
GARFIELD	21.4%	76.5%	0.4%	0.4%	0.5%	0.8%
GILPIN	3.8%	93.1%	0.6%	0.7%	0.9%	0.8%
GRAND	5.0%	92.8%	0.6%	0.4%	0.7%	0.5%
GUNNISON	5.1%	92.2%	0.5%	0.6%	0.6%	1.1%
HINSDALE	1.6%	96.2%	0.0%	1.2%	0.9%	0.1%
HUERFANO	35.7%	58.7%	2.8%	1.4%	0.5%	0.9%
JACKSON	7.3%	92.0%	0.0%	0.7%	0.1%	0.0%
JEFFERSON	11.1%	83.6%	0.9%	0.5%	2.5%	1.3%

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TABLE 3: 2003 Colorado Population by Race and County

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County	Hispanic	White	Black	American Indian & Alaska Native	Asian	Two or More Races
KIOWA	2.6%	95.2%	0.6%	1.4%	0.1%	0.0%
KIT CARSON	16.0%	81.2%	1.7%	0.4%	0.4%	0.3%
LAKE	40.1%	58.2%	0.2%	0.9%	0.4%	0.2%
LA PLATA	10.3%	82.9%	0.4%	4.6%	0.5%	1.3%
LARIMER	8.9%	86.6%	0.7%	0.5%	1.7%	1.4%.
LAS ANIMAS	41.8%	55.3%	0.5%	1.1%	0.5%	0.6%
LINCOLN	9.1%	83.8%	5.1%	0.8%	0.7%	0.4%
LOGAN	12.3%	84.1%	2.1%	0.5%	0.4%	0.6%
MESA	10.3%	86.9%	0.4%	0.6%	0.5%	1.1%
MINERAL	2.0%	96.6%	0.0%	0.3%	0.0%	1.0%
MOFFAT	10.9%	86.6%	0.2%	0.8%	0.4%	1.1%
MONTEZUMA	9.4%	79.4%	0.2%	9.2%	0.3%	1.4%
MONTROSE	16.1%	81.3%	0.3%	0.9%	0.5%	0.9%
MORGAN	31.4%	67.0%	0.3%	0.6%	0.2%	0.4%
OTERO	38.1%	59.0%	0.6%	0.8%	0.8%	0.7%
OURAY	4.1%	94.0%	0.1%	0.6%	0.4%	0.8%
PARK	4.7%	92.4%	0.4%	0.8%	0.5%	1.1%
PHILLIPS	14.4%	84.3%	0.2%	0.2%	0.4%	0.4%
PITKIN	6.8%	90.4%	0.5%	0.2%	1.5%	0.5%
PROWERS	36.8%	61.6%	0.3%	0.6%	0.4%	0.3%
PUEBLO	39.3%	56.8%	1.8%	0.7%	0.6%	0.8%
RIO BLANCO	5.7%	92.2%	0.3%	0.6%	0.4%	0.8%
RIO GRANDE	39.1%	59.4%	0.3%	0.7%	0.2%	0.3%
ROUTT	3.5%	94.5%	0.3%	0.4%	0.5%	0.8%
SAGUACHE	46.2%	51.6%	0.0%	1.3%	0.5%	0.4%
SAN JUAN	8.4%	90.4%	0.0%	0.7%	0.0%	0.0%
SAN MIGUEL	8.1%	89.9%	0.2%	0.7%	0.9%	0.3%
SEDGWICK	12.1%	86.4%	0.4%	0.0%	0.9%	0.2%
SUMMIT	12.7%	84.5%	1.0%	0.4%	0.8%	0.7%
TELLER	4.3%	92.3%	0.7%	0.7%	0.7%	1.4%
WASHINGTON	6.6%	92.8%	0.1%	0.3%	0.1%	0.1%
WELD	29.7%	67.5%	0.5%	0.5%	0.9%	0.9%
YUMA	16.1%	83.1%	0.1%	0.2%	0.1%	0.4%

Source: U.S. Census Bureau, Population Division, County estimates by demographic characteristics—age, sex, race, and Hispanic Origin, July 1, 2003

Poverty and Income

According to the U S Census Bureau, in 1997 Colorado had the lowest rate of poverty in the country and the median household income was $40,853. In 2000, Colorado's median household income was $47,505: the proportion of the population living in poverty increased to 9.8% and national poverty ranking decreased to 37.[6] In 2003 Colorado's median household income increased to $50,538, it ranked 39th in the nation in poverty, and 9.8% of the population lived in poverty.[7] **Table 4** shows the poverty levels per county. Douglas County had the smallest percentage of people living in poverty (1.7%) while Crowley had the largest percentage of people in poverty (34.1%).[8]

TABLE 4: Percentage of the Population Under the Poverty Level by County

County	Percentage Under Poverty Level	County	Percentage Under Poverty Level	County	Percentage Under Poverty Level
ADAMS	8.9	ARCHULETA	13.2	BOULDER	7.8
ALAMOSA	20.3	BACA	17.5	CHAFFEE	11.5
ARAPAHOE	5.8	BENT	23.1	CHEYENNE	12.6

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TABLE 4: Percentage of the Population Under the Poverty Level by County

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County	Percentage Under Poverty Level	County	Percentage Under Poverty Level	County	Percentage Under Poverty Level
CLEAR CREEK	6.0	HUERFANO	21.9	PARK	6.2
CONEJOS	23.9	JACKSON	14.5	PHILLIPS	11.6
COSTILLA	28.5	JEFFERSON	5.1	PITKIN	4.4
CROWLEY	34.1	KIOWA	12.8	PROWERS	18.5
CUSTER	13.6	KIT CARSON	13.2	PUEBLO	14.6
DELTA	14.2	LAKE	11.0	RIO BLANCO	10.1
DENVER	13.1	LA PLATA	10.7	RIO GRANDE	18.5
DOLORES	15.2	LARIMER	7.5	ROUTT	6.2
DOUGLAS	1.7	LAS ANIMAS	18.4	SAGUACHE	21.7
EAGLE	6.0	LINCOLN	15.3	SAN JUAN	17.6
EL PASO	8.7	LOGAN	12.8	SAN MIGUEL	8.3
ELBERT	5.1	MESA	11.0	SEDGWICK	12.9
FREMONT	15.2	MINERAL	12.4	SUMMIT	6.1
GARFIELD	7.8	MOFFAT	9.9	TELLER	6.2
GILPIN	5.5	MONTEZUMA	16.2	WASHINGTON	11.9
GRAND	7.3	MONTROSE	12.6	WELD	10.0
GUNNISON	11.4	MORGAN	12.9	YUMA	13.2
HINSDALE	10.6	OTERO	19.1	**Entire State**	**8.9**
		OURAY	8.0		

Source: U.S. Census Bureau, Housing and Household Economic Statistics Division,
Small Area Estimates Branch, 2000 State and County FTP Files, model based estimates
Last Revised: October 28, 2003

Employment

There were an estimated 149,692 persons who were unemployed in Colorado in 2003, a rate of 6.0% according to the Colorado Department of Labor. This number is 7% higher than last year when 139,840 persons were unemployed for a rate of 5.7%. The current estimates of unemployment rates through October 2004 are 5.1% that reflects a decrease since 2002 and 2003.[9]

Health Insurance

According to the U.S. Census Bureau, the number of Coloradans with health insurance decreased in 2003. In 2003, 17.2 % of Colorado's population was uninsured, compared to 16.1 in 2002. This is the highest rate ever estimated.[10] Estimates by the Kaiser Family Foundation (**Table 5**) show the percentage of the population not covered by health insurance was much greater among Hispanics (36%) than among Whites (14%).[11]

TABLE 5: Percentage of the State Non-Elderly Adults Without Health Insurance Coverage by Race and Ethnicity (Rate of Non-Elderly Uninsured by Race and Ethnicity state data 2002–2003, U.S. 2003)

Race/Ethnicity	Percentage Uninsured
White only (non-Hispanic)	14
Black only (non-Hispanic)	Not Sufficient Data
Hispanic	36
Other	17

Sources: Urban Institute and Kaiser Commission on Medicaid and the Uninsured estimates
based on pooled March 2003 and 2004 Current Population Surveys.

Mortality

According to the Vital Statistics Section of CDPHE, Colorado's death rate in 2003 was 641.4 per 100,000 population with 29,410 deaths reported. Heart disease continues to be the leading cause of death, followed by cancer. While Colorado reported lower rates of death than the nation, Colorado's suicide rate (15.7 per 100,000) in 2003[12] continues to be the substantially higher than the US suicide rate (11.0 per 100,000 in 2002).[13]

Education

According to the Colorado Department of Education, in 2003 there was a combined public and non-public school enrollment of 814,500 in Colorado. There are 1728 public schools and 400 non-public schools in 178 districts across the state. Whites comprised 66% of school enrollment, Blacks 6%, Hispanics 24 %, American Indians 1%, and Asian 3%. The overall dropout rate in Colorado in 2003 was 2.4%. Dropout rates among Asians were lowest at 1.5%, and American Indians were highest at 3.8%. Dropout rates for Whites were 1.7%, Blacks were 3.0%, and Hispanics were 4.2%.[14]

Table 6 shows the percent of the population graduating from high school and college. Compared to other metropolitan statistical areas and the state as a whole, Boulder county-Longmont Primary Metropolitan Statistical Area (PMSA) had the highest proportion of high school and four year college graduates. Denver County Metropolitan Statistical Areas (PMSA) had a slightly higher proportion of high school and college graduates than the state as a whole.[15]

TABLE 6: Percentage of Population 25 Years and Over, High School Graduates or with Bachelors Degree or Higher, 2003

Area	Percent High School Graduate or Higher	Percent Bachelors Degree or Higher
Boulder–Longmont, CO PMSA	93.0	56.0
Colorado Springs, CO MSA	92.4	36.5
Denver, CO PMSA	88.8	35.8
Entire State	**88.1**	**34.7**

Source: U.S. Census Bureau, American Community Survey Office
Last Revised: Monday, September 13, 2004

Incarcerated persons

According to data from the DOC, 18,636 persons were in the custody of DOC in 2003 (a 6.8% increase over 2002); 13,750 were incarcerated in 24 state correctional facilities in 2003; 8 of the DOC facilities are located in Fremont County. The remaining, 4,886 were housed in contract facilities or county jails. Of the 18,636 inmates, 8.5% were females and 91.5% were males. The racial ethnic make-up of the DOC population is: 46% White, 22% Black, 29% Hispanic, 2% American Indian, and 1% Asian.[16]

2

Epidemiological Trends in HIV and AIDS in Colorado

Through June 30, 2004, a cumulative total of 8,155 cases of AIDS and 4,775 AIDS-related deaths have been reported. An additional 6,360 cases of HIV infection (persons who have not progressed to AIDS) have been reported. Colorado ranks 23rd in total cases of AIDS in the United States (0.9 % of all reported AIDS cases) and ranks 22nd in population (1.6% of United States population).

Table 7 compares the demographic characteristics of newly diagnosed Colorado AIDS cases with United States AIDS cases for 2003. Persons diagnosed with AIDS in Colorado are more often male (86%) as compared to the United States (72%) cases The majority of newly diagnosed AIDS cases in Colorado are White (58%), compared to 29 % of United States cases. Blacks represent 17% of newly diagnosed AIDS cases in Colorado, compared to a substantial higher percent nationwide (50%). Hispanics represents a higher percent of new AIDS cases in Colorado (23%), compared to United States cases (19%).

TABLE 7: AIDS and HIV Adult/Adolescent Cases by Race

	Colorado AIDS Cases Diagnosed in 2003			Estimated U.S. AIDS Cases Diagnosed in 2003*		
Race	Male (p=264)	Female (p=42)	Total (p=306)	Male (p=30,851)	Female (p=11,211)	Total (p=42,062)
White (non-Hispanic)	156 (59%)	20 (48%)	176 (58%)	10,450 (34%)	1,725 (15%)	12,175 (29%)
Black (non-Hispanic)	41 (16%)	10 (24%)	51 (17%)	13,624 (44%)	7,551 (67%)	21,175 (50%)
Hispanic	59 (22%)	12 (29%)	71 (23%)	6,087 (19%)	1,744 (15%)	7,831 (19%)
Asian (non-Hispanic)	0 (0%)	0 (0%)	0 (0%)	408 (1%)	86 (2%)	494 (1%)
American Indian (non-Hispanic)	3 (1%)	0 (0%)	3 (1%)	150 (0%)	46 (0%)	196 (0%)
Other	5 (2%)	0 (0%)	5 (2%)	132 (0%)	59 (1%)	191 (0%)

*CDC HIV/AIDS Surveillance Report, Estimated number of cases and rates (per 100,000) of AIDS, by race/ethnicity, age category, and sex, 2003—50 States and District of Columbia, Vol. 15, Table 5

AIDS/HIV among Adults/Adolescents in Colorado

On the following page, **Figure 1** illustrates diagnosed cases of HIV and AIDS between 1999 and 2003. Cases of HIV have increased 15% over the last 5 years, from 218 cases in 1999 to 250 in 2003. The highest number of persons newly diagnosed with HIV was in 2002 when 306 cases were diagnosed. AIDS cases have remained relatively stable between 1999 and 2003 (311 and 306 cases respectively). The largest number of AIDS cases diagnosed was in 2000 with 341 cases.

FIGURE 1: Colorado AIDS and HIV by Year of Diagnosis, 1999–2003

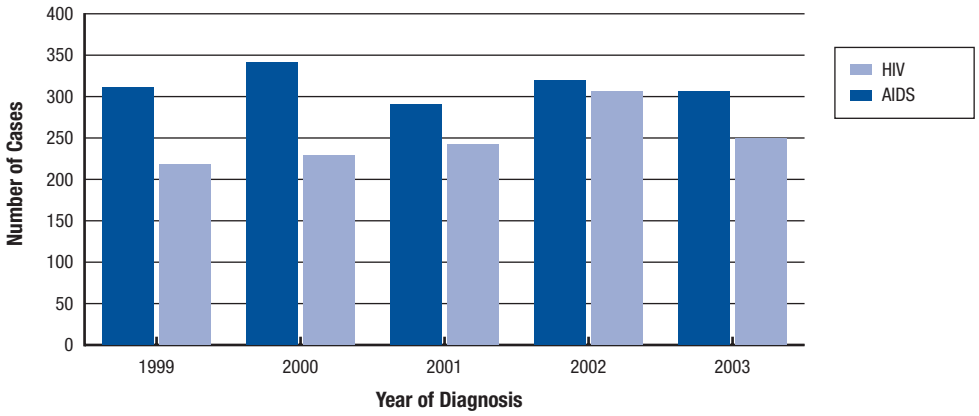


Figure 2 demonstrates the annual number of deaths among HIV and AIDS cases by sex. Deaths among males have fluctuated but the number remained relatively stable in the last five years. The range goes from a high of 117 deaths in 2002 to a low of 89 deaths in 2003. Among females, deaths declined 44%, from 16 in 1999 to 9 in 2003. Among females the numbers are small and should be interpreted with caution. Overall, the number of total deaths for both sexes have gone from 130 in 1999 to 98 in 2003, a 25% decrease.

FIGURE 2: Annual Deaths among Persons Diagnosed with HIV and AIDS in Colorado, 1999–2003

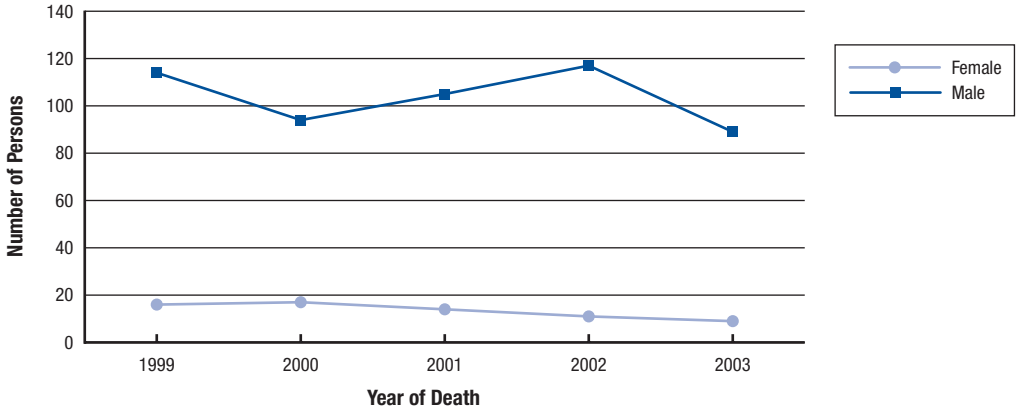


Figure 3 shows an increase in the number of persons living with either HIV or AIDS in Colorado in the last five years. The number of persons living with AIDS contributes to this increase in prevalent cases because of improved survival for persons with HIV or AIDS who receive treatment and due to decreases in the number of deaths. By the end of 2003, an estimated 9,589 persons were living with HIV or AIDS in Colorado (an increase of five percent over 2002 when 9,116 persons were living with HIV or AIDS.) The proportion of persons living with AIDS has increased slightly from 36% in 1999 to 38% in 2003.

FIGURE 3: Annual Number of Diagnosed Persons Living with HIV and AIDS in Colorado, 1999–2003

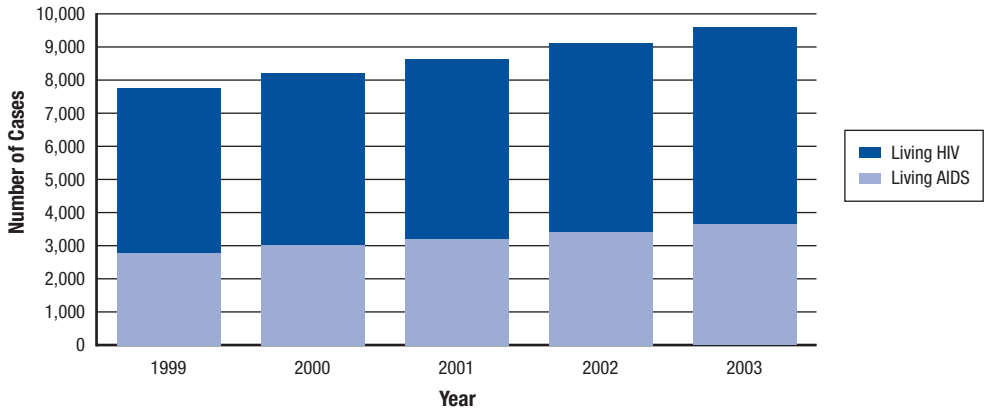


Table 8 illustrates the characteristics of persons living with HIV/AIDS. Males constitute the majority (90%) of persons living with HIV/AIDS. Whites constitute the largest racial group living with HIV/AIDS, representing 69%. Blacks continue to be disproportionately impacted by the epidemic. Although the percentage of Blacks in the total population is four percent, they represent 14% of prevalent cases. Cases of AIDS were more likely to be older than persons with HIV only. MSM is the predominate risk factor (64%) of persons living with HIV/AIDS. The majority (85%) of HIV/AIDS persons live in urban areas.

TABLE 8: Characteristics of Persons Living with HIV and AIDS in Colorado Reported Through 6/30/04

Characteristic	Persons living with HIV	Persons living with AIDS	Total living with either HIV or AIDS
Sex			
Male	90%	90%	90%
Female	10%	10%	10%
Age Group			
<13	0%	0%	0%
13–19	2%	0%	2%
20–24	15%	3%	10%
25–29	25%	12%	20%
30–39	41%	48%	43%
40–49	13%	28%	19%
>49	3%	9%	6%
Race			
White (non-Hispanic)	71%	66%	69%
Black (non-Hispanic)	14%	14%	14%
Hispanic	14%	18%	15%
Asian (non-Hispanic)	1%	0%	1%
American Indian (non-Hispanic)	1%	1%	1%
Multiple Race (non-Hispanic)	0%	0%	0%
Hawaiian/Pacific Islander (non-Hispanic)	0%	0%	0%

continued on page 14

TABLE 8: Characteristics of Persons Living with HIV and AIDS in Colorado Reported Through 6/30/04
continued from page 13

Characteristic	Persons living with HIV	Persons living with AIDS	Total living with either HIV or AIDS
Risk			
MSM	64%	64%	64%
IDU	9%	11%	10%
MSM/IDU	10%	10%	10%
Heterosexual Contact	7%	8%	7%
No Identified Risk	10%	6%	9%
Other	1%	1%	1%
Region			
Urban	89%	79%	85%
Rural	11%	21%	15%

HIV and AIDS by Gender

Although increases in prevalent cases (**Figure 4**) are seen in both men and women in the last five years, women accounted for an increasing proportion of persons living with HIV/AIDS. In 1999, women accounted for 8.6% (669 females out of a total of 7,743 persons) of living case of HIV or AIDS. As of December 31, 2003, females accounted for 940 cases (9.8%) of living cases of HIV or AIDS out of a total of 9,589.

FIGURE 4: Annual Number of Diagnosed Persons Living HIV and AIDS Cases by Sex in Colorado, 1999–2003

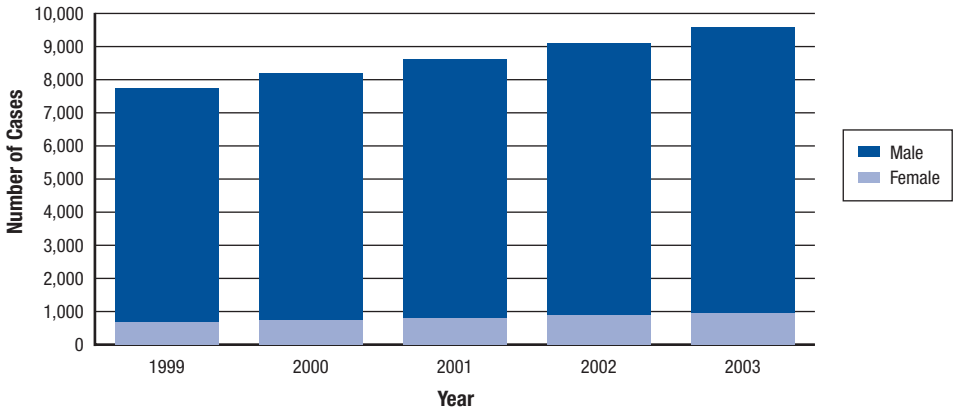


Figure 5 illustrates changes in the epidemic by comparing the gender characteristics of the earliest diagnosed AIDS cases with more recently diagnosed HIV cases. Among AIDS cases in the early years (1985 to 1989) of the epidemic, females accounted for only five percent of reported cases. When HIV cases reported from 1999–2003 are analyzed by gender, the proportion of cases among females had increased to 16%.

FIGURE 5: HIV and AIDS by Sex

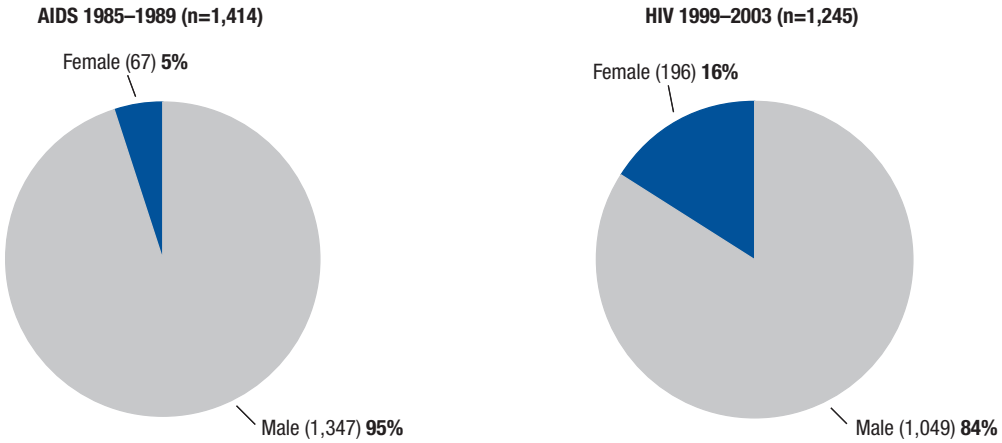
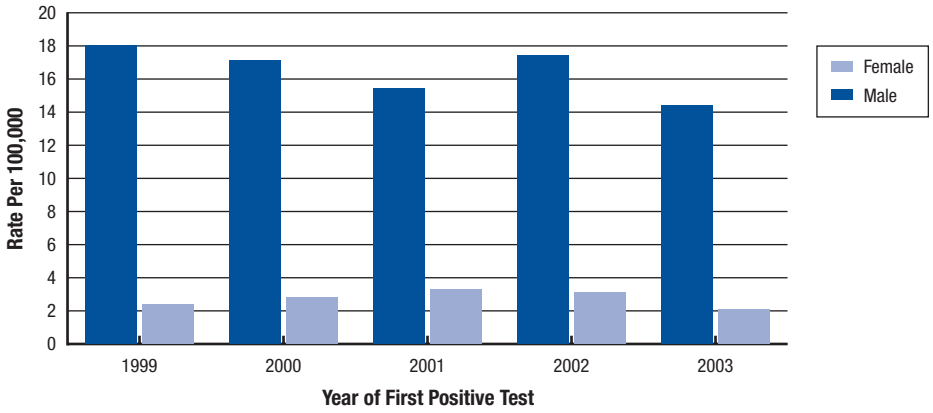


Figure 6 shows that HIV/AIDS rates per 100,000 population for males have decreased by 20% between 1999 and 2003 (from a rate of 18.0/100,000 to 14.4). Rates among females have remained low but have not decreased as substantially (12%, from 2.4 to 2.1/100,000) in the same time period. Among females, the rate per 100,000 has fluctuated between a low of 2.1 per 100,000 and 3.3 per 100,000.

FIGURE 6: HIV/AIDS Rate per 100,000 by Year of First Positive Test and Sex Reported Through 6/30/04, Colorado



AIDS/HIV by Race

In 2003, 250 persons were newly diagnosed with HIV, 219 (88%) were male and 31 (12%) were female. By race/ethnicity, 155 (62%) were White, 36 (14%) were Black, 54 (22%) were Hispanic, two (1%) were Asian, and three (1%) were American Indian (**Table 9**). Females were shown to have a higher proportion of newly diagnosed Black-not Hispanic HIV (32%).

TABLE 9: Colorado HIV Cases Diagnosed in 2003

	Male (n=219)		Female (n=31)		Total (n=250)	
Race	Number	Percent	Number	Percent	Number	Percent
White (non-Hispanic)	141	64%	14	45%	155	62%
Black (non-Hispanic)	26	12%	10	32%	36	14%
Hispanic	49	22%	5	16%	54	22%
Asian (non-Hispanic)	1	0%	1	3%	2	1%
American Indian (non-Hispanic)	2	1%	1	3%	3	1%
Multiple Race (non-Hispanic)	0	0%	0	0%	0	0%
Hawaiian/Pacific Islander (non-Hispanic)	0	0%	0	0%	0	0%
Total	**219**	**100%**	**31**	**100%**	**250**	**100%**

The following pie charts (**Figure 7**) illustrate the changes in the racial distribution of Colorado's HIV epidemic by comparing persons presumed to have been infected early in the epidemic (AIDS 1985-1989) versus those presumed to be more recently infected (HIV 1999-2003). Using this model, the proportion of Whites is smaller (from 83% of AIDS cases to 59% of HIV cases), while the percentage of Blacks is larger across the same groups (from seven percent of AIDS cases to 16% of HIV cases). The differences in the percentage of Hispanics also indicate that they are an increasing proportion of more recently infected persons, from nine percent to 23%.

FIGURE 7: AIDS and HIV Cases by Race, Colorado

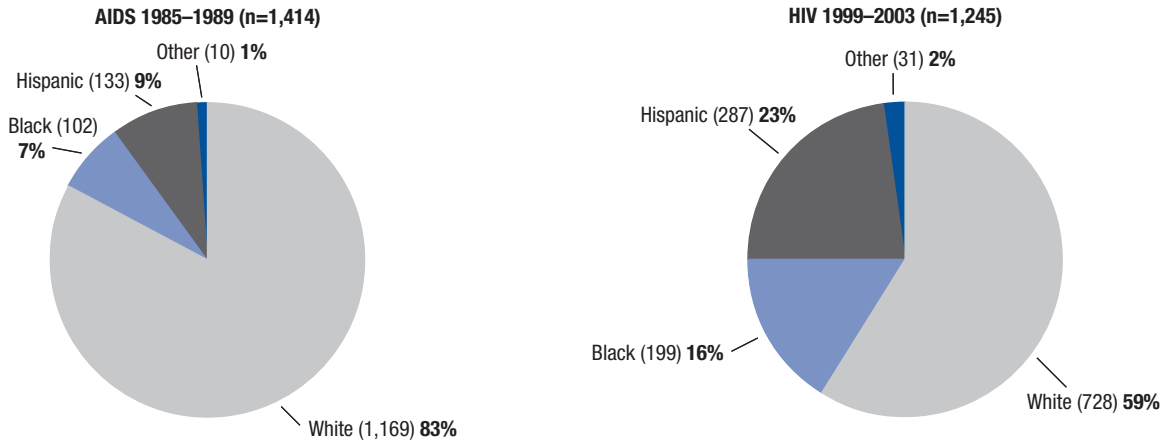
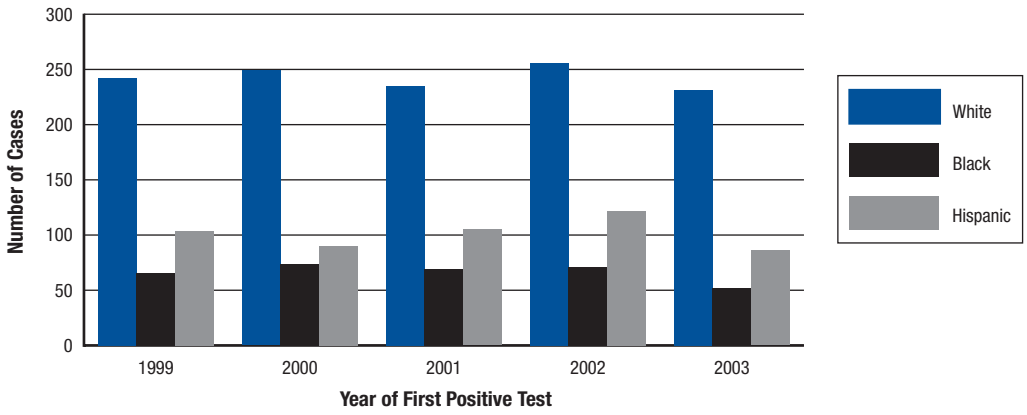


Figure 8 illustrates the number of cases of HIV and AIDS by year of first positive HIV test and race. Whites have maintained a relatively stable number of cases in the last five years. The largest number of cases was seen in 2002 when 256 cases were diagnosed positive with HIV; in 2003 231 Whites were diagnosed with HIV or AIDS. Ethnic minorities have seen more fluctuation in number of cases. Blacks declined from 66 cases in 1999 to 52 in 2003, a 21% decrease, although increases were seen from 2000 through 2002. Hispanics have seen a decrease of 17% in the last five years, from 104 cases in 1999 to 86 cases in 2003. In 2002, Hispanics had a high of 122 cases of newly diagnosed HIV.

FIGURE 8: HIV/AIDS Cases by Race and Year of First Positive Test Reported Through 6/30/04, Colorado



Although Whites comprise the largest number of both AIDS and HIV cases, **Figures 9 and 10** illustrate that when population rates are compared, both Blacks and Hispanics are disproportionately affected by this epidemic. **Figure 9** shows a decrease in AIDS by population rates among Whites and Hispanics. Blacks have seen an increase in the rate per 100,00 in the last five years. Blacks increased 28%, from 22.8 per 100,00 to 29.2 per 100,000. Hispanics declined 37% from 13.3 per 100,000 to 8.4 per 100,000. White AIDS case rates declined from 6.0 per 100,000 to 5.3, a 12% decrease.

FIGURE 9: AIDS Rate per 100,000 Population by Race in Colorado, 1999–2003

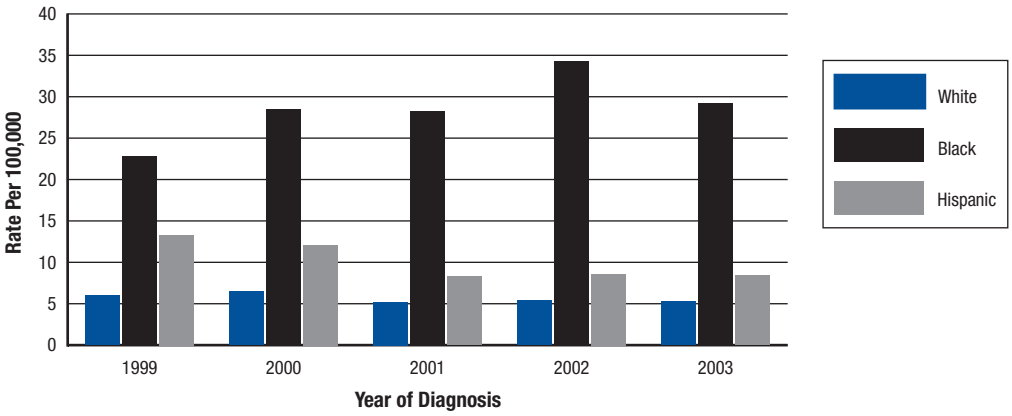


Figure 10 demonstrates trends in population rates in persons newly diagnosed with HIV. Ethnic minorities are disproportionately affected in rates per 100,000, with Black rates (20.6/100,000 in 2003) four times those of Whites (4.7/100,000 in 2003) and Hispanic rates (6.4/100,000) nearly one and a half times those of Whites. In the last five years rates have risen in Whites from 3.6 in 1999 to 4.7 in 2003. Blacks decreased 16% from 24.5 in 1999 to 20.6/100,000 in 2003. Hispanics decreased 32% from 9.4/100,000 to 6.4/100,000 in the same time period. In 2002,HIV rates increased in all racial/ethnic groups.

FIGURE 10: HIV Rate per 100,000 Population by Race in Colorado, 1999–2003

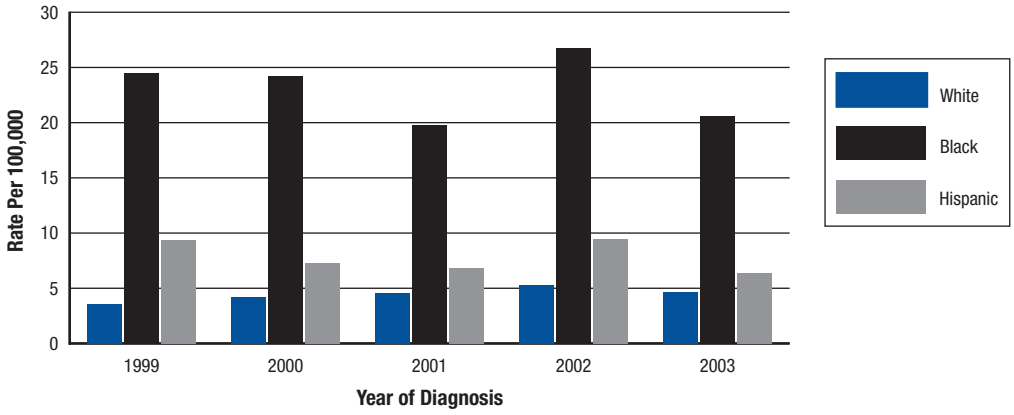


Figure 11 shows the number of AIDS cases diagnosed in the last five years by race. Cases decreased among Whites by 9% to 176 cases in 2003. Blacks AIDS cases increased by 28% from 40 to 51 cases in the same time period. Hispanics cases remained relatively stable with 71 cases of AIDS diagnosed in 2003.

FIGURE 11: Number of AIDS Cases by Race and Year of Diagnosis Reported Through 6/30/04, Colorado

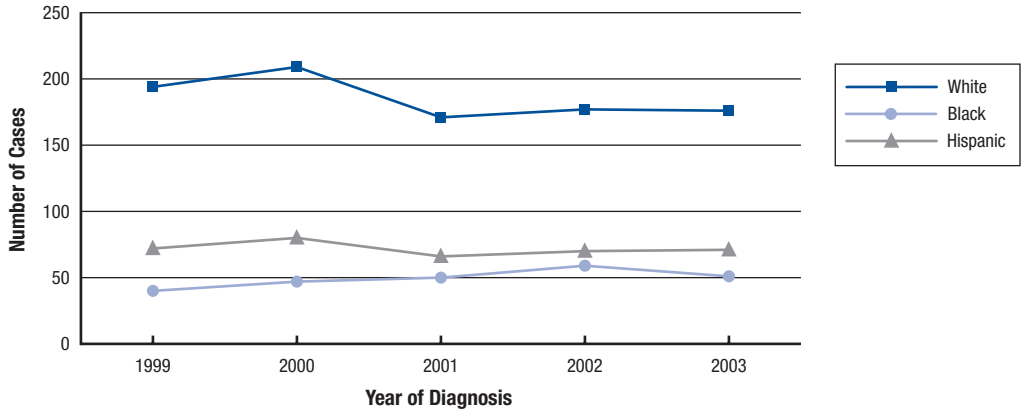
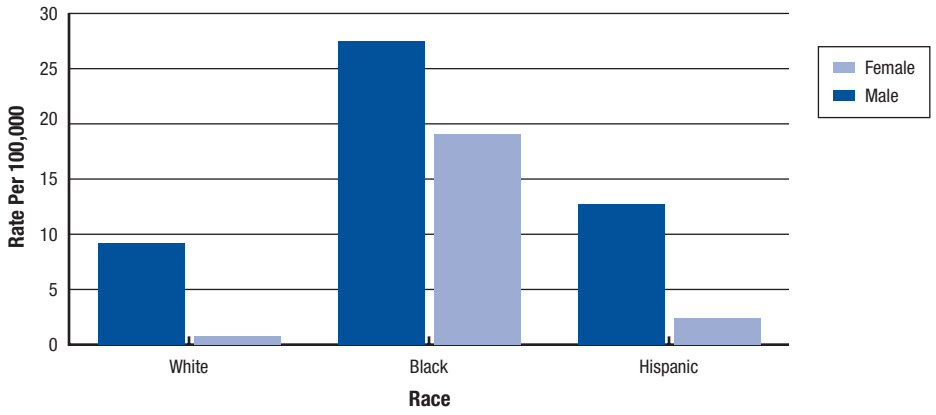


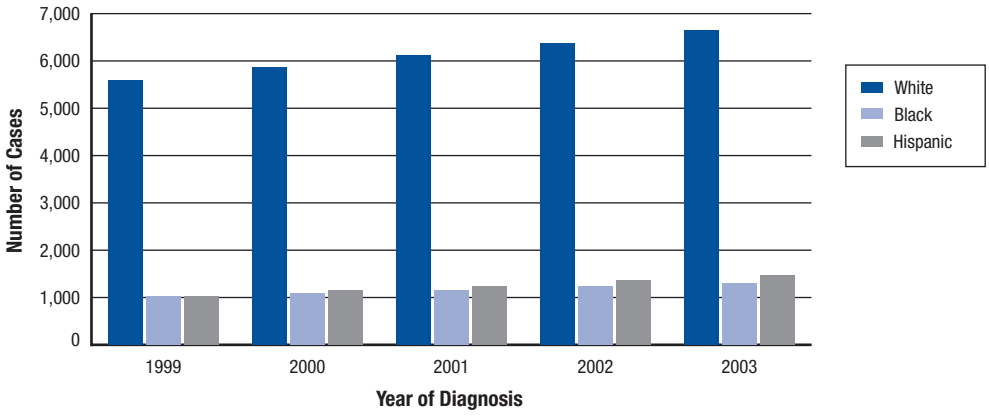
Figure 12 demonstrates the burden of HIV by gender on racial and ethnic minority populations in Colorado by illustrating recently diagnosed HIV cases. The rate among Black males (27.5/ 100,000 population) is nearly three times that of White males (9.2/100,000). Hispanic male rates (12.7/100,000) are nearly one and one half times that of White males. Among females the racial differences are even more profound. The rate among Black females (19.1/100,000) is over 24 times that in White females (0.8/100,000), and Hispanic females (3.5/100,000) is almost three times that of White females.

FIGURE 12: Average Annual HIV Case Rates 2001–2002 by Sex and Race, Colorado



Cases of persons living with HIV and AIDS by race are illustrated in **Figure 13**. Whites constitute the largest number and percentage of prevalent HIV/AIDS cases (6,656 out of 9,589 or 69% in 2003). Blacks and Hispanics have similar numbers of prevalent cases. In 2003, Hispanics account for 15% (1,462 persons) and Blacks account for 14% (1,310 persons) of persons living with HIV in Colorado.

FIGURE 13: Living HIV/AIDS Cases by Race Reported Through 6/30/04, Colorado



Although not graphically illustrated, the percent of foreign-born persons has been increasing among ethnic minorities. In HIV cases newly diagnosed in the last 3 years (2001–2003), 28% of Hispanics were foreign-born, their primary county of origin was Mexico. Among Blacks, 34% were foreign-born, their primary place of origin was the continent of Africa. Cultural and language barriers make these groups a challenge for prevention and care providers.

AIDS and HIV by Risk

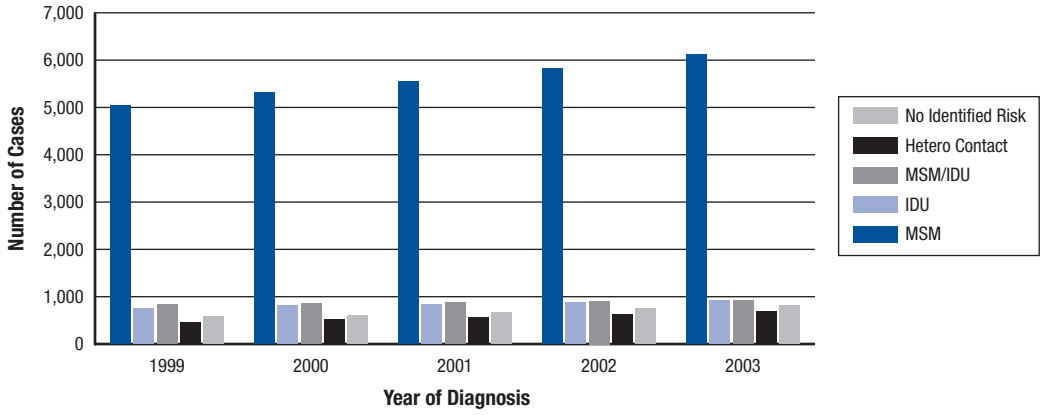
Table 10 displays HIV diagnosed in 2003 by risk categories and gender. One hundred and fifty-seven (72%) males were classified as being infected through MSM, 10 (5%) were IDUs, 19 (9%) through heterosexual contact, and 22 (10%) had no identified risk. Heterosexual contact was the largest risk factor for females in 2003, accounting for 58% of the cases. Females also had a higher percentage (29%) of no identified risk compared to males.

TABLE 10: Colorado HIV Cases by Risk and Gender, Diagnosed 2003

	Male (n=219)		Female (n=31)		Total (n=250)	
Risk	Number	Percent	Number	Percent	Number	Percent
MSM	157	72%	0	0%	157	63%
IDU	10	5%	4	13%	14	6%
MSM/IDU	11	5%	0	0%	11	4%
Heterosexual Contact	19	9%	18	58%	37	15%
No Identified Risk	22	10%	9	29%	31	12%
Other	0	0%	0	0%	0	0%
Total	**219**	**100%**	**31**	**100%**	**250**	**100%**

As shown in **Figure 14**, the vast majority of cases of persons living with HIV and AIDS in Colorado are MSM (6,114 cases representing 64%); MSM/IDU constitute another 10% (926 cases) of HIV cases who were living in 2003. The number of prevalent MSM cases increased by 21% from 1999 to 2003, while MSM/IDU increased by 12% in the same time period. IDU, which constitutes 10% (922 cases) of prevalent cases in 2003 and increased by 23% over the past five years. Heterosexual contact appears to be a growing risk group (increasing 53% in the same time period) but is far behind all other groups at seven percent (689 cases) of persons living with HIV or AIDS at the end of 2003. Persons with no identified risk (NIR) also demonstrated a substantial increase from 1999 to 2003, a 43% increase with 816 cases living in 2003.

FIGURE 14: Living HIV/AIDS Cases by Risk Reported Through 6/30/04, Colorado



AIDS and HIV by Age

Table 11 demonstrates the 250 cases of newly diagnosed HIV by age group and gender. Males had a higher percentage of cases in the 30–39 age group (39%). Females displayed even percentages in both the 20–29 and the 40–49 age groups (32% each). Overall, the majority of cases for both male and female were in the age group 30–39. The next largest represented age group was the 20–29 year olds.

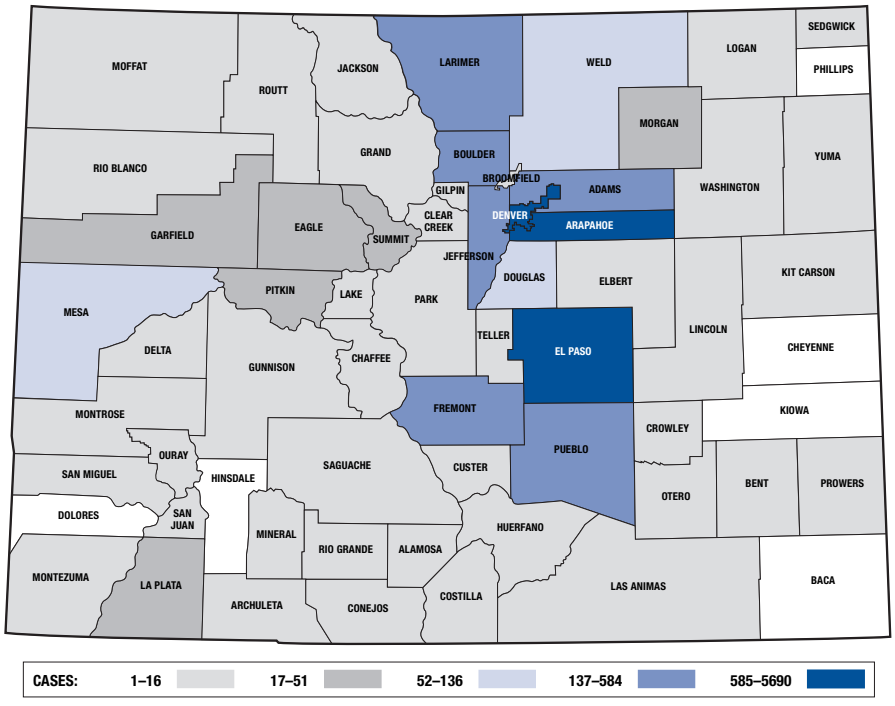
TABLE 11: Colorado HIV Cases by Age Group and Gender, Diagnosed 2003

	Male (n=219)		Female (n=31)		Total (n=250)	
Age Group	Number	Percent	Number	Percent	Number	Percent
<13	0	0%	0	0%	0	0%
13–19	3	1%	1	3%	4	2%
20–24	30	14%	5	16%	35	14%
25–29	34	16%	5	16%	39	16%
30–39	86	39%	7	23%	93	37%
40–49	50	23%	10	32%	60	24%
>49	16	7%	3	10%	19	8%
Total	**219**	**100%**	**31**	**100%**	**250**	**100%**

Geographical Characteristics of HIV

Figure 15 demonstrates that the HIV epidemic in Colorado is concentrated in the Front Range in the counties (and population centers) of Adams, Arapahoe, Boulder, Broomfield, Denver, Douglas, El Paso and Jefferson. These counties represent 88% of prevalent HIV/AIDS cases and 68% of Colorado's population. This map shows that Fremont County appears to have a disproportionate share of HIV because it is home to the Colorado state correctional facility that houses virtually all HIV infected prisoners. Because these patients are incarcerated, they do not place a burden for HIV care or prevention services on the surrounding rural community. Current statistics and county level data on HIV and AIDS can be obtained by accessing the Internet URL www.cdphe.state.co.us/dc/HIVSTDPROGS.ASP.

FIGURE 15: Living Colorado HIV/AIDS Cases by County of Residence at Time of Diagnosis



HIV Related Mortality

Table 12 illustrates the leading causes of death in males 25 to 44 years of age in 2003. Although HIV was the leading cause of death among young adult males (surpassing injuries) in 1992, it was the seventh leading cause of death in 2003. The five leading causes of death in males are unintentional injuries, suicide, heart disease, malignant neoplasm and liver disease in order of ranking.

TABLE 12: Top Ten Leading Causes of Death in Males Aged 25–44 Years in Order of Ranking, Colorado 2003

Cause of Death	Crude Rate	Number
1. Unintentional Injuries	50.7	370
2. Suicide	31.4	229
3. Heart Disease	18.6	136
4. Malignant Neoplasm	15.9	116
5. Chronic Liver Disease and Cirrhosis	7.4	54
6. Homicide	7.1	52
7. HIV	6.6	48
8. Events of Undetermined Intent	4.4	32
9. Diabetes Mellitus	2.2	16
10. Influenza and Pneumonia	1.6	12

HIV is no longer among the ten leading causes of death in young adult females aged 25–44. HIV deaths peaked in 1995 as the seventh leading cause of death in this group and tied with pneumonia in 1998 as the 10th leading cause of death. The five leading causes of death in women are unintentional injuries, malignant neoplasm, suicide, heart disease, and chronic liver disease in order of ranking.

3

Characteristics of HIV and AIDS in High Risk Populations

Men Who Have Sex With Men (MSM)

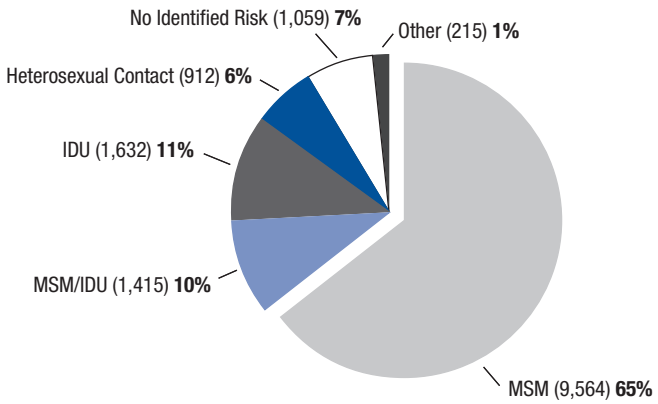
Estimates of MSM in Colorado

According to the U.S. Census Bureau, there are 1,621,223 males in Colorado between the ages of 15–64, which is the age range when persons are most sexually active. A search of the literature[17] indicates that the percentage of men who have sex with men (MSM) ranges from 2.1% to 10.1%, with the average at 2.9%. This would mean that the number of MSM in Colorado could be estimated to be 47,015 although the estimated range is much broader (34,045 to 163,743).

Proportion of the Epidemic Among MSM

The vast majority of persons with HIV or AIDS in Colorado are MSM (65% or 9,564 cases); all other modes of acquisition comprise a much smaller proportion than this significant group (**Figure 16**). Because MSM behavior hierarchically presents the greatest risk of acquiring HIV in Colorado, men who report both sex with men and injecting drug use (MSM/IDU), represent 10% (1,415 cases) of the total. Combined with MSM, together they comprise 75% of the epidemic in Colorado.

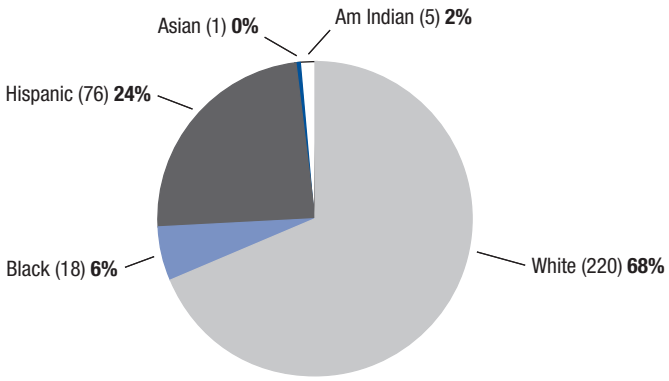
FIGURE 16: HIV/AIDS by Risk Reported Through 6/30/04, Colorado



Racial/Ethnic Trends Among MSM

As **Figure 17** on the following page demonstrates, Blacks are over represented in the HIV epidemic among MSM; they account for 4% of Colorado's population but comprise 6% of recently diagnosed HIV in this group. Hispanics are over represented (24% of newly diagnosed HIV) for their proportion of the population (19%). Whites are slightly under represented (68% of newly diagnosed HIV) for their proportion of the population (72%).

FIGURE 17: MSM HIV Diagnosed Positive 2002–2003 by Race Reported Through 6/30/04, Colorado



Figures 18 and 19 illustrate the changes in the number and proportion of persons diagnosed with HIV and AIDS cases by year of first positive test among White, Black and Hispanic MSM. The number of newly diagnosed cases (**Figure 18**) has remained relatively stable for White, Black and Hispanic MSM since 1999. In 2003, 166 Whites , 14 Black and 46 Hispanic MSM were reported. Hispanic MSM had an increase in cases in 2001 and 2002, 59 and 64 cases respectively.

FIGURE 18: Number of MSM with HIV/AIDS by Year of First Positive Test and Race Reported Through 6/30/04, Colorado

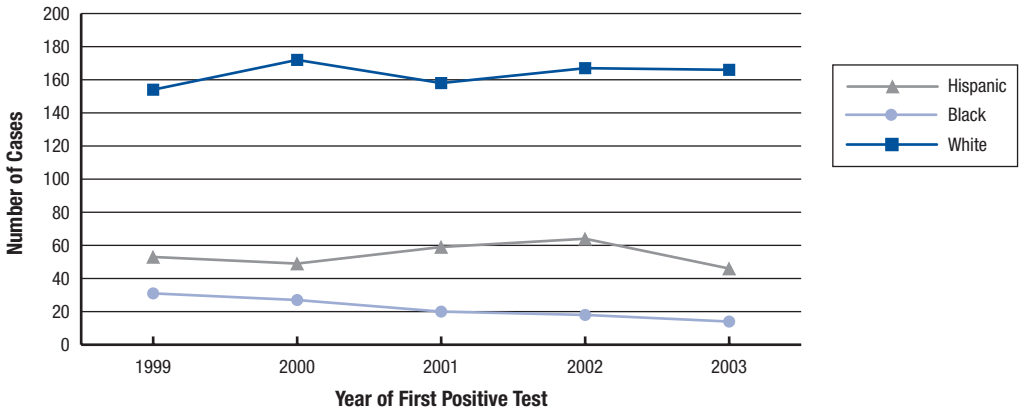
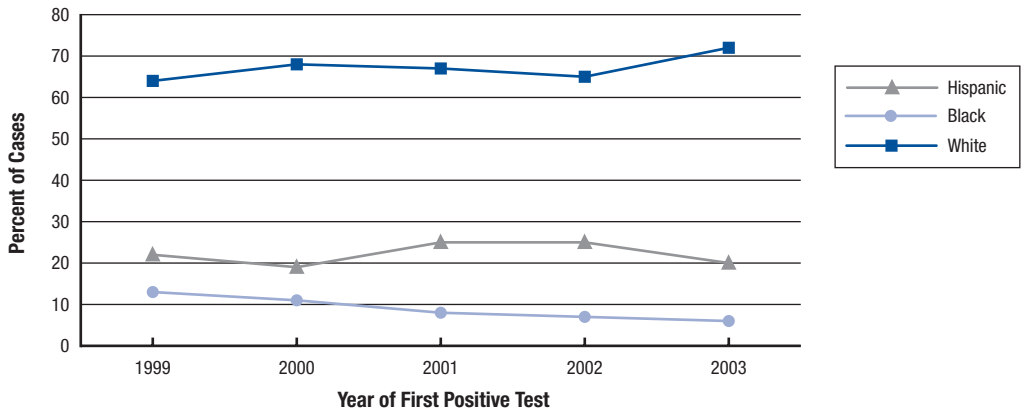


Figure 19 shows the percentage each racial group represents among MSM between 1999 and 2003. Whites accounted for 64% of the HIV/AIDS burden among MSM in 1999 and 72% in 2003, a 13% increase. The proportion of Blacks decreased in this time period, from 13% in 1999 to 6% in 2003, a 54% decrease. Hispanics MSM have remained relatively stable during this time period from 22% in 1999 to 20% in 2003, an increase was seen in 2001 and 2002 (25% each).

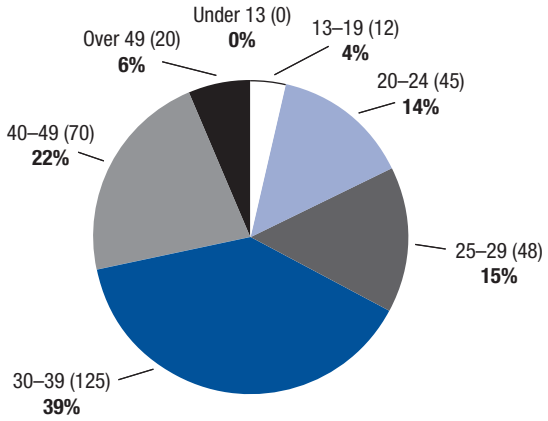
■ **FIGURE 19: Percentage of MSM with HIV/AIDS by Year of First Positive Test and Race Reported Through 6/30/04, Colorado**



Age Trends Among MSM

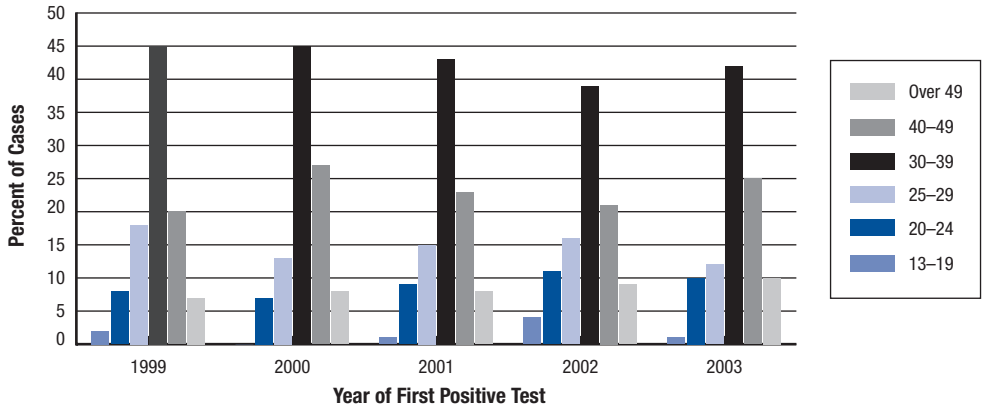
Figure 20 depicts the recent HIV epidemic among MSM by age. In Colorado, 39% of the HIV epidemic is found among the 30–39 year age group, which represents 16% of the male population. Men age 40–49 comprise 22% of recent HIV cases and are 16% of the male population. Young men age 20 to 29 are over represented; they comprise 16% of the male population but account for 29% of the epidemic. Teenagers age 13–19 make up 10% of Colorado's population, yet comprise only 4% of the epidemic.

■ **FIGURE 20: MSM HIV Diagnosed Positive 2002–2003 by Age Reported Through 6/30/04, Colorado**

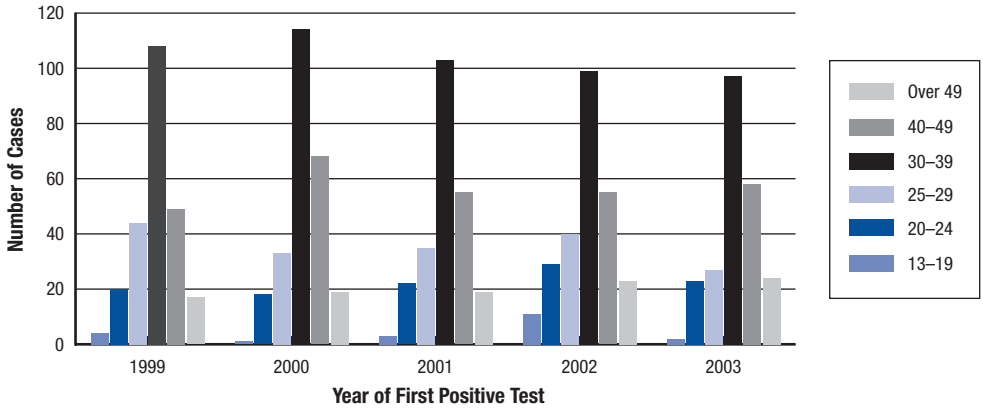


Figures 21 and 22 on the following page illustrate the number and proportion of HIV and AIDS cases diagnosed between 1999 and 2003 among MSM by age. **Figure 21** shows the proportion of positive HIV tests by age group. HIV cases diagnosed in MSM between 25–39 years old have decreased in the last five years. In the 20–25, 40–49 and over 49 age groups, there has been a slight increase in percent of cases. Numbers for the 13-19 year old age group are too small to illustrate significant changes. Decreases in the number of reported cases have been observed for the 20–29 and 30–39 age groups (**Figure 22**) in the last five years. The 20–29 year old age group went from 64 cases in 1999 to 50 cases in 2003. The 30–39 year old age group had 108 cases in 1999 to 97 cases in 2003.

■ **FIGURE 21: Percentage of MSM with HIV/AIDS by Year of First Positive Test and Age Reported Through 6/30/04, Colorado**



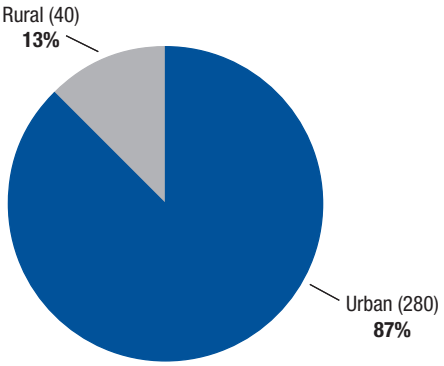
■ **FIGURE 22: Number of MSM with HIV/AIDS by Year of First Positive Test and Age Reported Through 6/30/04, Colorado**



HIV in MSM by Region

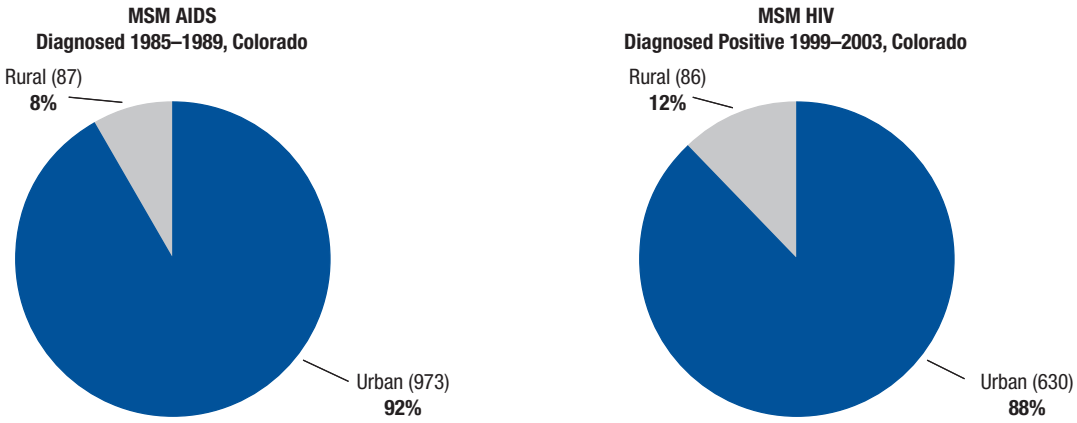
The HIV epidemic in Colorado among men who have sex with men is clearly centered in urban Colorado (the counties of Adams, Arapahoe, Boulder, Broomfield, Denver, Jefferson and El Paso), which accounts for 63% of the state's population but 87 percent of the recent HIV epidemic. **Figure 23** illustrates that only 13 percent of recently diagnosed HIV cases in this risk group are residents of rural Colorado (37% of Colorado's population).

■ **FIGURE 23: MSM HIV Diagnosed Positive 2002–2003 by Region Reported Through 6/30/04, Colorado**



HIV has remained a proportionately stable urban epidemic although **Figure 24** shows a 4% increase in rural cases between earlier diagnosed AIDS cases (1985–1989) and more recently diagnosed HIV (1999–2003).

■ **FIGURE 24: MSM with HIV and AIDS by Region, Colorado**



Other Factors Contributing to Risk Among Men Who Have Sex With Men (MSM)

SHAS Measures of Risk Behavior Reported for MSM

The supplement to HIV/AIDS surveillance (SHAS) questionnaire was administered at Denver Public Health to obtain additional risk, treatment, and substance use information from HIV positive individuals. Care providers, letters, and flyers recruited adults in HIV treatment for more than three months through the Denver Health and Hospital System. Consent forms were signed and all information was collected through self-report during an interview. Some 1,765 surveys were conducted between January 1991 and April 2000 and 520 updated versions of the survey were conducted between May 2000 and May 2004. In the following analysis, where possible, data from the two versions of the survey have been combined.

Number of Sexual Partners of HIV Positive MSM by Race and Age

An analysis (**Table 13**) of the number of sexual partners of HIV positive MSM by race and age reveals that White and Hispanic HIV positive MSM were more likely than Black and other HIV positive MSM to have had over 30 sexual partners in the past 5 years. Twenty-five percent of White HIV positive MSM and 22% of Hispanic HIV positive MSM had 30 or more sexual partners in the past 5 years, while 14% of Black and 18% of Other HIV positive MSM had 30 or more sexual partners in the past 5 years.

TABLE 13: Number of Sexual Partners Among HIV Positive MSM and MSM/IDU in the Past 5 Years by Race

	Race					Race				
	White	Hispanic	Black	Other	Total	White	Hispanic	Black	Other	Total
No. Partners	Number					Percent				
1	82	30	20	3	135	9%	13%	11%	18%	10%
2–5	289	87	80	5	461	31%	38%	43%	29%	34%
6–10	146	24	33	2	205	16%	10%	18%	12%	15%
11–30	175	39	28	4	246	19%	17%	15%	24%	18%
30+	227	52	27	3	309	25%	22%	14%	18%	23%
Total	**919**	**232**	**188**	**17**	**1,356**	**100%**	**100%**	**100%**	**100%**	**100%**

Table 14 summarizes the number of sex partners between HIV positive MSM and MSM/IDU in the last five years by age. HIV positive MSM under the age of 30 were more likely to have had more than 30 sexual partners in the past 5 years. Forty percent of HIV positive MSM 20–24 years of age and 31 percent of HIV positive MSM 25 to 29 years of age had 30 or more sexual partners in the past 5 years, while 17 percent of HIV positive MSM 40 to 49 years of age and 15% of HIV positive MSM over 50 years of age had 30 or more sexual partners in the past 5 years.

HIV positive MSM over 30 years of age were most likely to have had 2 to 5 sexual partners in the past 5 years. Thirty-five percent of HIV positive MSM 30–39 years of age, 39% of HIV positive MSM 40–49 years of age and 38% of HIV positive MSM of over 50 years of age had two to five sexual partners.

TABLE 14: Number of Sexual Partners Among HIV Positive MSM and MSM/IDU in the Past 5 Years by Interview Age

	Age						Age					
	20–24	25–29	30–39	40–49	>49	Total	20–24	25–29	30–39	40–49	>49	Total
No. Partners	Number						Percent					
1	0	13	76	37	9	135	0%	6%	10%	14%	17%	10%
2–5	15	62	259	105	20	461	24%	26%	35%	39%	38%	34%
6–10	10	41	108	39	7	204	16%	17%	15%	15%	13%	15%
11–30	13	46	138	41	8	246	21%	19%	19%	15%	15%	18%
30+	25	74	156	45	8	309	40%	31%	21%	17%	15%	23%
Total	**63**	**236**	**737**	**267**	**52**	**1,355**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

One year prior to the interview, 12% of the HIV positive MSM had abstained from sex, 34% were monogamous, and 33% had two to five sexual partners (**Table 15**). Twenty percent of the HIV positive MSM had six or more sexual partners in the past year. White MSM and Hispanic MSM were more likely than Black and other MSM to have had 6 or more sexual partners in the past 12 months. Twenty-seven percent of HIV positive Hispanic MSM and 22 percent of HIV positive White MSM had 6 or more sexual partners in the past year, while 15% of Black and 12% of other HIV positive MSM had 6 or more sexual partners in the 5 years.

TABLE 15: Number of Sexual Partners Among HIV Positive MSM and MSM/IDU in the Past Year by Race

	Race					Race				
No. Partners	White	Hispanic	Black	Other	Total	White	Hispanic	Black	Other	Total
	Number					Percent				
0	129	44	31	1	205	12%	19%	14%	6%	12%
1	374	97	79	11	561	34%	42%	35%	65%	34%
2–5	351	100	81	13	545	32%	43%	36%	76%	33%
6+	239	63	33	2	337	22%	27%	15%	12%	20%
Total	**1,093**	**232**	**224**	**17**	**1,648**	**100%**	**100%**	**100%**	**100%**	**100%**

The number of sex partners among HIV positive MSM and MSM/IDU is categorized by age in **Table 16**. MSM under 30 years of age were more likely than older MSM to have had 6 or more sexual partners in the year prior to the interview. Thirty-two percent of 20–24 year old HIV positive MSM and 27% of 25–29 year old HIV positive MSM had 6 or more sexual partners in the past year. Twenty percent of 30–39 year old, 15 percent of 40–49 year old and 14% of HIV positive MSM over 50 had six or more sexual partners in the past year.

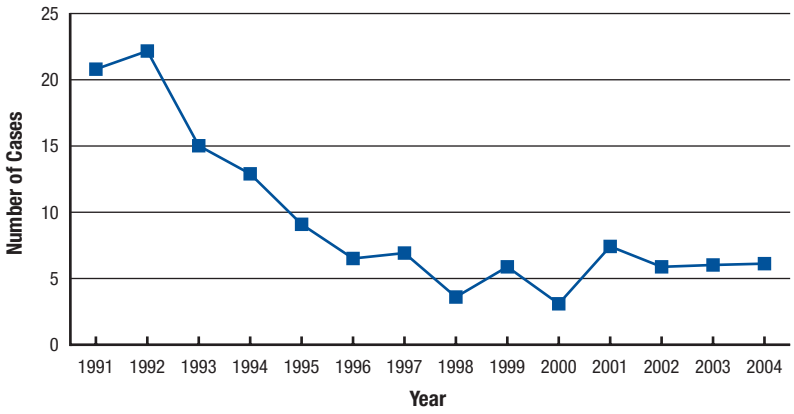
TABLE 16: Number of Sexual Partners Among HIV Positive MSM and MSM/IDU in the Past Year by Interview Age

	Age						Age					
No. Partners	20–24	25–29	30–39	40–49	>49	Total	20–24	25–29	30–39	40–49	>49	Total
	Number						Percent					
0	2	15	117	55	16	205	3%	5%	13%	16%	23%	12%
1	22	88	305	123	22	560	29%	8%	10%	36%	31%	34%
2–5	28	101	284	109	23	545	37%	36%	32%	32%	32%	33%
6+	24	74	177	52	10	337	32%	27%	20%	15%	14%	20%
Total	**76**	**278**	**883**	**339**	**71**	**1,647**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Trends in Rectal Gonorrhea in MSM

Figure 25 on the following page summarizes data from SHAS on MSM who reported having rectal gonorrhea. The percentage of HIV positive MSM respondents who ever had rectal gonorrhea decreased from 22% in 1992 to 4% in 1998. Since 1998 the percentage of respondents with rectal gonorrhea increased and fluctuated between 6% and 7%.

■ **FIGURE 25: Percentage of MSM Respondents with Rectal Gonorrhea**



In 2004, cases of quinoline-resistant gonorrhea have been reported in MSM in the Denver Metropolitan area. This has lead to new treatment guidelines for MSM.

Recent Trends in Syphilis Among Men Who Have Sex With Men (MSM)

Reflecting a national trend, syphilis cases among MSM began to appear in Colorado in 2000 and reached a peak in 2002. In an effort to more specifically characterize this trend and address its implications, an analysis was conducted in 2004 of disease intervention specialist (DIS) interview records of cases of MSM who contracted syphilis between 2000 through 2003. A total of 132 cases of early syphilis were reviewed. Approximately 68% of the cases occurred in men who were HIV infected, 80% of whom were previously HIV positive. Ages ranged from 17 to 59, with a median of 37 years. The ethnic breakdown generally reflected that of the state of Colorado; approximately 92% of the cases occurred in the Denver Metro Area. Analysis revealed more than over half of the cases were associated with anonymous and casual sex in bathhouses and/or arranged over the Internet. A third of the men interviewed frequented one specific bathhouse in Denver. Of the 43 men who reported being involved in long-term relationships, approximately two thirds had sexual relations with men other than their steady partners. Approximately one quarter of HIV positive men claimed to always disclose their serostatus to partners. Ten percent claimed to never disclose. Disclosure information is unavailable for 40% of the cases. Eighteen percent of the men claimed to always use condoms with anal sex, and over one quarter reported never using them.

Information from this analysis was then used to partially inform a qualitative study conducted later in 2004 among 92 high risk MSM in Denver. This study revealed critical information about the emotional and sociocultural context of high risk behaviors. Drug and alcohol and mental health issues were highly associated with high risk behavior as were powerful structural and sociocultural dynamics influencing anonymous and casual sex. Information from both of these studies will be used to guide new prevention approaches targeting MSM in 2005.

The following table illustrates the demographics and relationship characteristics of the number of new syphilis (primary, secondary and early latent) among MSM between 1999 and 2003. These data raise concerns about continued increases in sexual risk behavior and the possibility for increased HIV transmission.

Summary of Syphilis Cases Among MSM 1999–2003 (n=132)

TABLE 17: Number of Syphilis Cases Among MSM by Year in Colorado

Year	Number of Cases	Percent of Total Syphilis Cases
1999	1	0.8
2000	8	6.1
2001	13	9.8
2002	63	47.7
2003	47	35.6

TABLE 18: Syphilis Cases Among MSM by Age Group in Colorado, 1999–2003

Age Group	Number of Cases	Percent
17–19	1	0.8
20–24	7	5.3
25–29	16	12.1
30–34	25	18.9
35–39	35	26.5
40–44	29	22.0
45–49	10	7.6
50–54	7	5.3
55–59	2	1.5

TABLE 19: Syphilis Cases Among MSM by Race/Ethnicity in Colorado, 1999–2003

Group	Number of Cases	Percent
Black (non-Hispanic)	10	7.6
Hispanic	28	21.2
White (non-Hispanic)	88	66.7
Other	4	3.0
Unknown	2	1.5

TABLE 20: Characteristic Types of Sexual Relationships in Colorado in Syphilis Cases Among MSM, 1999–2003

Types of Sexual Relationships	Number of Cases	Percent
Anonymous	66	55.5
Casual	57	47.9
Short-term Steady Partner	22	18.5
Long-term Steady Partner	43	36.1
Sex with Women	5	4.2
HIV Positive Partners	16	13.5
Group Sex	4	3.4
Currently Only Steady Partners	15	12.6
Sexual Assault Victim	4	3.4

*Data was unavailable for 13 cases

TABLE 21: Syphilis Cases Among MSM by Race/Ethnicity in Colorado, 1999–2003

Type of Sex	Number of Cases	Percent
Anal (unspecified)	20	21.7
Anal (insertive)	18	19.6
Anal (receptive)	12	13.0
Anal (insertive and receptive)	31	33.7
Vaginal	2	2.2
Vaginal and Anal	3	3.3
Oral	76	82.6
Oral Only	6	6.5

*Data was unavailable for 40 cases

The Context of Risk Among Men Who Have Sex With Men (MSM)

The CDPHE Research and Evaluation Unit completed a comprehensive needs assessment in 2003 and developed an addendum to that assessment in 2004 based on newly gathered information. The following qualitative analysis was drawn from focus groups, interviews, surveys, and a community forum conducted with MSM as part of the needs assessment and its addendum. The participants in these studies expressed numerous opinions about the context of their lives and the issues that MSM currently face.

There is a high degree of diversity found among the MSM population in Colorado. Such diversity is evident based on dimensions of: ethnicity; socioeconomic circumstances; age; subcultures; political affiliations; geographic location (both between urban and rural areas and within urban settings); education level; expressions of gender; substance use; sexual behaviors; relationship status; HIV serostatus and degree of gay identification. Defining the parameters, dynamics, and culture of the "gay community" was problematic, and many were at a loss to name any community leaders. Many MSM in these studies did not see themselves as part of a gay community, and, rather than a positive source of mutual support, described the community as agist, racist, classist and sexist, characteristics that exacerbate the marginalization of gay men.

Participants described receiving very negative messages about themselves from the wider community, which prevent many from developing healthy self-images. Other issues for MSM included exclusion from family, social isolation, and, for those with HIV, the challenges of living with the disease and facing end of life considerations. Self-esteem was constantly under attack, and low self-esteem often contributed to substance abuse and high-risk behavior. Some African American MSM reported a lack of a strong, ongoing sense of both community and self-worth among African American MSM, that could affect levels of risk. They suggested that the wider African American community had rendered HIV and its impact on the community invisible, which made community level prevention efforts difficult. Latino MSM made a similar observation, lamenting that prominent community leaders had failed to mention HIV/AIDS as an issue affecting Latinos. Both African American and Latino communities were said to be less than welcoming and affirming to MSM, although the level of acceptance was perceived to be improving. Latino and African American MSM also expressed feeling a lack of inclusion in the broader MSM community, at times experiencing dis-

crimination and stereotyping similar to that found within the wider white-dominated society. Latino MSM mentioned that the lack of representations of Latinos in HIV prevention media often made it difficult for them to relate to the associated messages. Some African American MSM stated that a high degree of shame was attached to HIV disease and that stigma kept people from testing or seeking treatment if they were infected. Both the African American and Latino communities were said to have a relatively high percentage of MSM who do not gay identify, in part due to a widespread lack of acceptance of homosexuality in these communities.

Some described MSM culture as favoring self-indulgence and escapism, which was tied to substance abuse and unsafe sex. The role of gay bars as the primary socialization space for MSM was highlighted as a key factor in the proliferation of substance abuse. MSM were said to use and abuse substances and engage in high-risk sex for many reasons including factors such as history of abuse, growing up in a homophobic environment, shame, low self-esteem, mental illness (including depression), feelings of hopelessness, a need to feel attractive, a need to feel close to someone, tendency toward thrill seeking, and desire to enhance sexual pleasure. Many claimed that substance abuse tended to have negative effects on sexual health and social relationships. Sexual compulsion was seen by some as a community norm, and having multiple partners was expected, even though this often had negative consequences for emotional, social, and economic well-being. A need for acceptance or feeling a connection with others often drove the compulsion. Many MSM found it difficult to find and sustain committed, monogamous relationships. There were limited options for meeting other men outside of a bar, yet relationships generated in bars tended to be shallow. Also low self-esteem was often seen as a barrier to establishing steady relationships, and often, steady partnerships were not monogamous.

According to the participants in these studies, HIV tended to rank lower as a priority than other social, economic, religious, and health concerns, except among those living with the disease. HIV was rarely a topic of conversation, and when a person brought it up, it was often considered impolite, socially awkward, and inconsiderate to those who were HIV-infected. Many participants said that HIV tended to be absent from the concerns of MSM, which was an outcome of HIV exhaustion and/or denial. Advancements in HIV treatment had contributed to attitudes that HIV was just another chronic condition, and many MSM felt that a cure for HIV was imminent. Many HIV- positive men claimed that MSM who are HIV-negative did not understand the complex and harsh realities of living with HIV and tended to be too complacent.

These studies showed that many MSM were at high risk of contracting or transmitting HIV. “Barebacking” (unprotected anal sex) was a common practice. Reasons for lack of condom use included: drug/alcohol use; depression; loneliness; partner pressure; monogamy; lack of condom availability; similar serostatus of partners; dislike of condoms; cost of condoms; lack of lube; etc. Unprotected anal sex was very prevalent in bathhouses. Condoms were available but often not used. Access to lube was more problematic. The design of the bathhouse was perceived as promoting risk and discouraging any discussion of STDs. Some MSM who regularly frequented bathhouses viewed them as communal settings that affirmed patrons' sexual behavior and sexual orientation. Others emphasized that bathhouses were associated with anonymity and minimal com-

munication occurring between sex partners. Little negotiation of safer sex was practiced, and there was a common assumption that everyone at the bathhouse had HIV, which rendered disclosure of serostatus unnecessary. The Internet also offered opportunities for meeting anonymous sex and often drug-using partners as did MSM-themed telephone lines.

Partner status may also play an important role in sexual risk-taking. Many MSM suggested that in the context of a monogamous relationship they had chosen to forgo the use of condoms. Some indicated doing so only after feeling pressure from their partner. Others reported that they forego the use of condoms in an effort to feel closer to their partner.

The period of entry into MSM activity was especially said to be laden with risk, often including high levels of substance use and unprotected sex. According to study participants, there appeared to be an arrested sexual adolescence expressed by many who were only recently having sex with other men, which was often released in gay bars and other settings. For some young MSM, sex was used in exchange for shelter, food, and drugs. This phenomenon appeared to be quite common in Denver. A centrally located Denver area park was described as a gathering place for people who use and sell drugs. It was also a haven for homeless people and an ideal setting for sex exchange. Study participants also discussed MSM who did not identify as gay. Such men were often involved in relationships with women. Many gay-identified men were said to prefer men who identify as straight, and substances were often used to "lure" straight men into same sex activities.

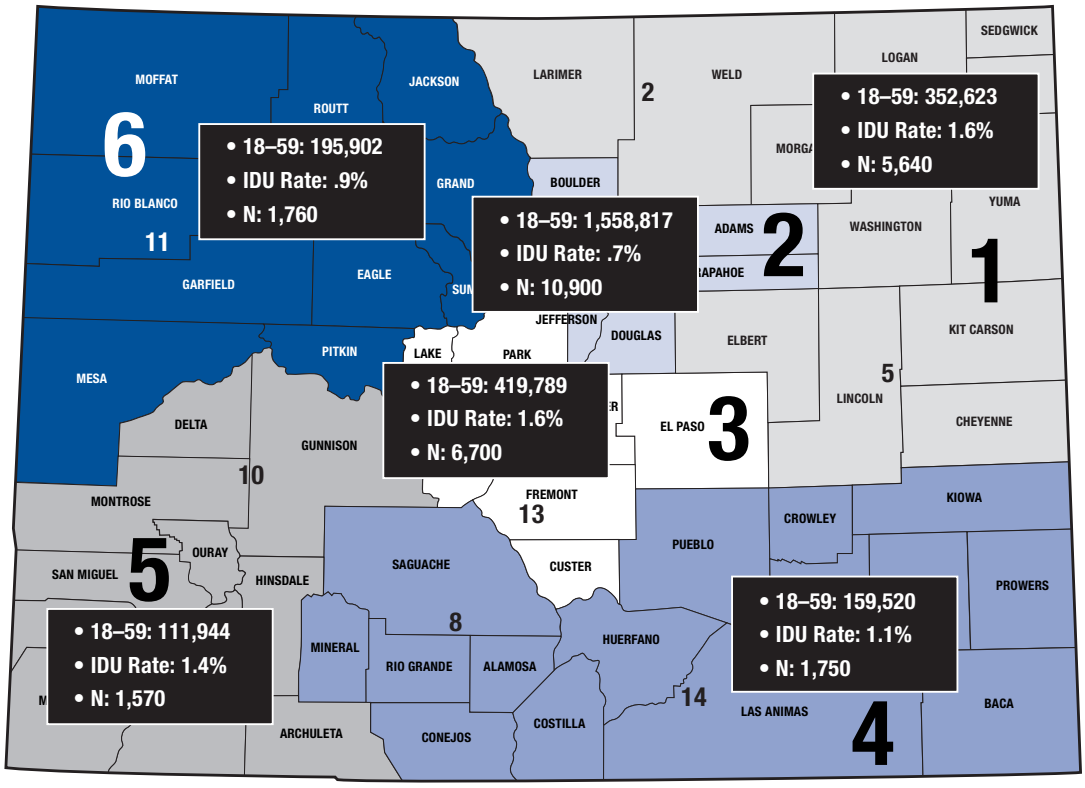
A wide range of opinions existed among MSM regarding the responsibility of a man living with HIV to disclose his serostatus to a sexual partner. While some believed that MSM living with HIV were obligated to disclose their status, others believed that an uninfected partner was responsible for protecting himself. Still others held that this was a mutual responsibility. MSM living with HIV reported fears of rejection and ostracism should they choose to inform a potential sexual partner of their serostatus. Many MSM reported growing tired of hearing prevention messages that stressed 100 percent condom use and that did not tailor messages to men's diverse situations. In general, level of risk among MSM was said to not be static in that at various times in their lives, MSM engaged in higher risk behaviors then returned to behaviors of lesser risk.

Injecting Drug Use (IDU)

Estimates of IDU in Colorado

According to data supplied by the Colorado Department of Human Services, Alcohol and Drug Abuse Division (ADAD), there are an estimated 28,320 persons who have ever injected drugs during their lifetime. It is also estimated that there are between 15,000 to 18,000 current IDUs in Colorado. **Figure 26** shows the geographic distribution of IDU in people who have injected drugs ever in their lifetime. Northeastern and the Denver metropolitan area have the highest IDU rates (1.6%), followed by the southwestern area (1.4%).

FIGURE 26: Lifetime IDU Rates by Substate Planning Area

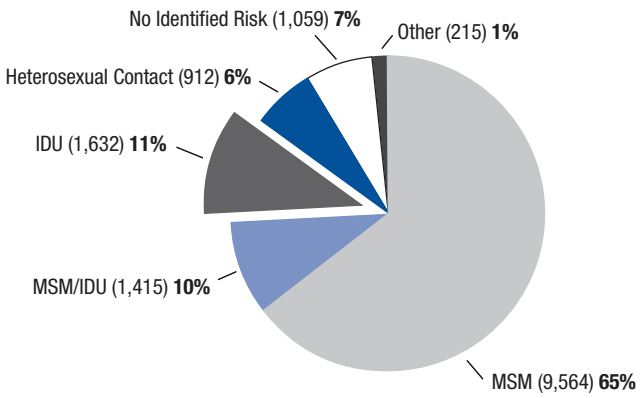


COLORADO TOTAL:	18–59: 2,798,595	IDU RATE: 1% 28,320	ESTIMATE FOR 2003

Proportion of Epidemic Among IDU

Through June 30, 2003, there were a cumulative total of 1,868 cases of AIDS and 1,354 cases of HIV infection associated with IDU (either IDU alone reported by the patient, reported MSM/IDU, or sex with an IDU). Of these, 81% were reported in men and 19% were reported in women. **Figure 27** on the following page shows the proportion of the epidemic by risk group. IDU comprises 10% of the total HIV/AIDS reported in Colorado.

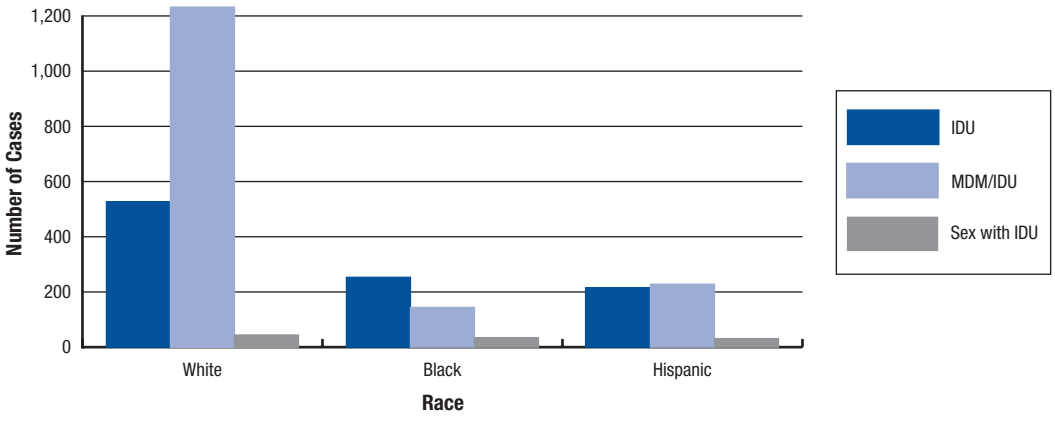
FIGURE 27: HIV/AIDS by Risk Reported Through 6/30/04, Colorado



Racial/Ethnic Trends Among IDU

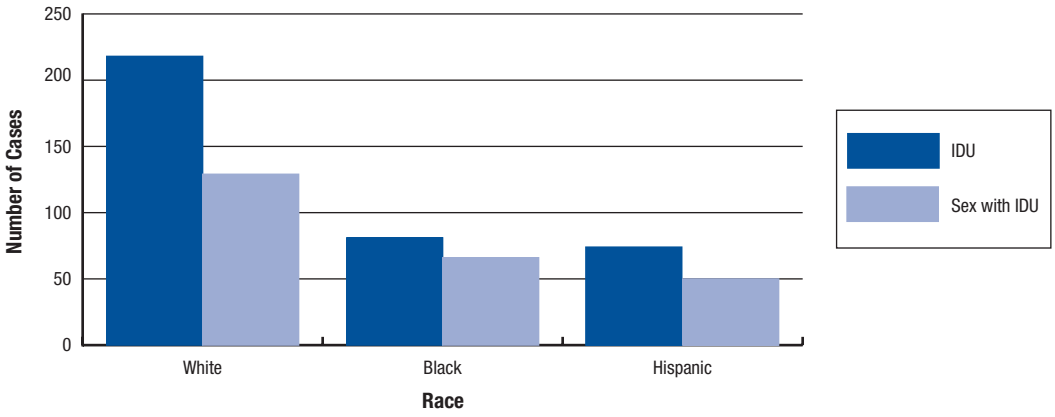
The following two graphs illustrate the impact of injection drugs on both adult /adolescent males and females. Among males 2,794 cases of HIV or AIDS were related to IDU, either through IDU, MSM/IDU or heterosexual contact to an IDU. **Figure 28** illustrates that among the 1,051 males with HIV or AIDS whose only risk is IDU, Whites account for 527 (50%) cases cumulatively, Blacks for 253 (24%) cases, and Hispanics for 215 (20%) cases. Among males who are MSM/IDU, the impact on racial/ethnic minorities is less profound. Of the 1,632 cases, White males account for the overwhelming majority of these cases (1,232 or 75%), Blacks for 144 cases (9%), and Hispanics for 228 (14%) cases. For the 111 men who acquired HIV through heterosexual contact with an IDU, there are 44 (40%) Whites, 34 (31%) Blacks, and 31 (28%) Hispanics reported.

FIGURE 28: Cumulative IDU-Associated HIV/AIDS in Males Reported Through 6/30/04, Colorado



Among women, the number of IDU-related HIV or AIDS cases (643) is smaller than for men, **Figure 29**. Three hundred ninety-two cases of HIV or AIDS in females are directly related to IDU. Whites account for 218(56%), Blacks account for 81 (21%) cases, and Hispanics constitute 74 (19%) and are over represented among female IDU. The number of cases of females who acquired their infection as a result of heterosexual contact with an IDU (251 total cases) is substantially higher for females than for males in all racial/ethnic groups. White females comprise 51% (129 cases), Black females are over represented at 26% (66 cases), and Hispanic females comprise 20% (50 cases) of this group.

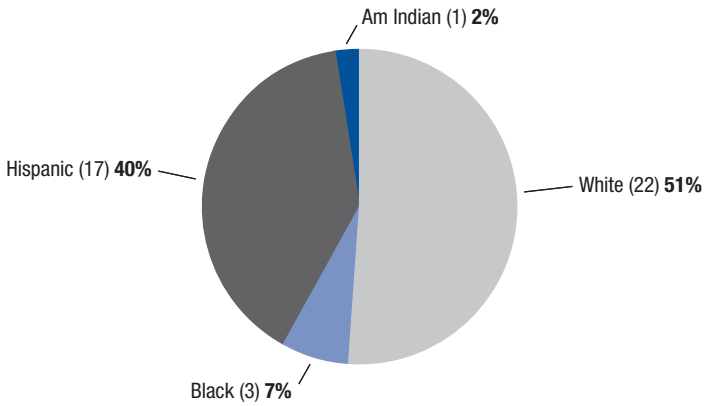
FIGURE 29: Cumulative IDU-Associated HIV/AIDS in Females Reported Through 6/30/04, Colorado



Although not graphically illustrated, of the cumulative confirmed HIV positive and AIDS cases in children in Colorado, 27% were associated with IDU because the mother reported a history of IDU, and 17% because the mother reported sexual contact with an IDU.

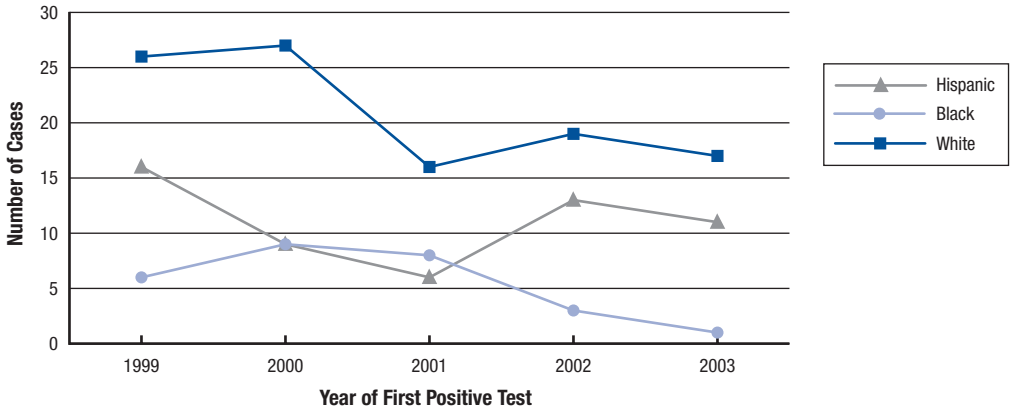
Figure 30 shows the forty-three HIV cases diagnosed in 2002–2003 among persons who report IDU, by race/ethnicity. Comprising 47% of new HIV cases, ethnic minorities are noticeably over represented compared to their proportion of the state's population. Hispanics are over represented at 40% and Blacks at 7%. Whites are under represented at 51% of the recent HIV burden.

FIGURE 30: IDU HIV Diagnosed Positive 2002–2003 by Race Reported Through 6/30/04, Colorado

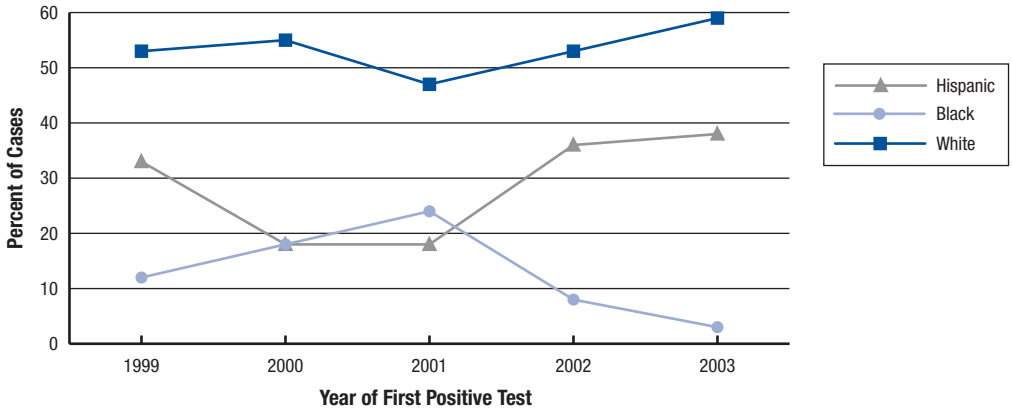


Figures 31 and 32 on the following page show the number and percent of new HIV cases among IDU by race/ethnicity. Reported cases diagnosed in 1999–2003 demonstrate a decreasing trend among all racial groups. This decrease is most apparent among Blacks. From 1999 to 2003, cases among Blacks decreased from 6 in 1999 to 1 in 2003, a decrease of 83%. Cases among Whites decreased in the same time period from 26 to 17 cases, a decrease of 37%. Cases among Hispanics also decreased in the same time period from 16 to 11 cases, a decrease of 31%. In comparison to total cases by race, both White and Hispanic cases have increased. Whites represented 55% of cases in 1999 compared to 59% of cases in 2003. Hispanics comprised 33% of cases in 1999 compared to 38% of cases in 2003. The numbers among Blacks and Hispanics are small and may not be significant.

■ **FIGURE 31: Number of IDU with HIV/AIDS by Year of First Positive Test and Race Reported Through 6/30/04, Colorado**



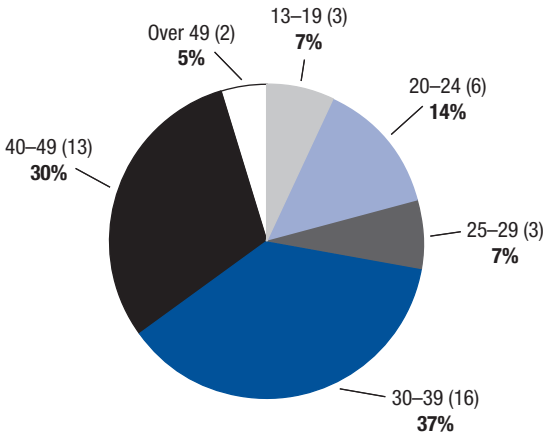
■ **FIGURE 32: Percentage of IDU with HIV/AIDS by Year of First Positive Test and Race Reported Through 6/30/04, Colorado**



Age Trends Among IDU

Figure 33 shows recently diagnosed HIV by age group. HIV is clearly an epidemic among older IDU (between the ages of 30–49) who comprise 67% of the recent (2002–2003) IDU epidemic and only 32% of Colorado's population. IDU age group of 20–29 year olds represent 21% (9 cases). Adolescents (13–19) and persons over 49 do not appear to be profoundly affected by HIV related to IDU.

■ **FIGURE 33: IDU HIV Diagnosed Positive 2002–2003 by Age Reported Through 6/30/04, Colorado**



The following two graphs (**Figures 34 and 35**) illustrate trends among IDU by age. The number of reported HIV diagnoses (**Figure 34**) have substantially declined in the last five years among the 40–49 and 30–39 age group (68% and 40%, respectively). However, the majority of cases are still seen in the 30–49 age group. Percentages of reported cases among IDU by age (**Figure 35**) have remained relatively stable across all age groups, except for 40–49 year olds who saw a decrease from 39% in 1999 to 21% in 2003. The numbers of reported cases among IDU by age are small. Caution should be exercised in interpreting them.

FIGURE 34: Number of IDU with HIV/AIDS by Year of First Positive Test and Age Reported Through 6/30/04, Colorado

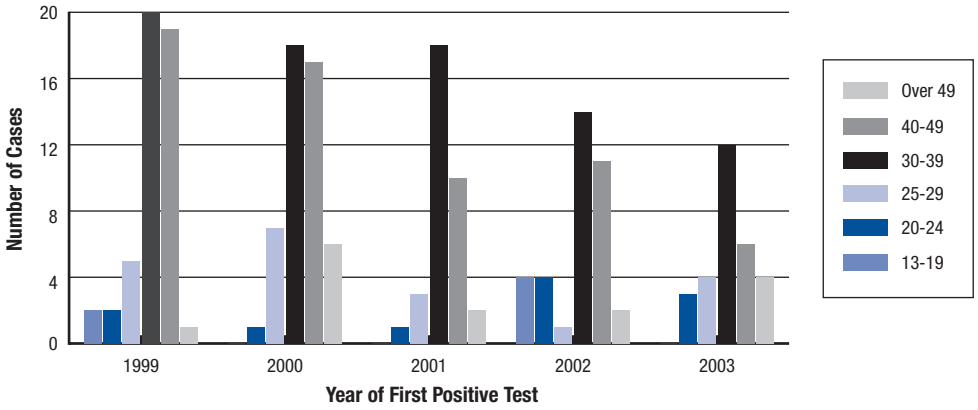
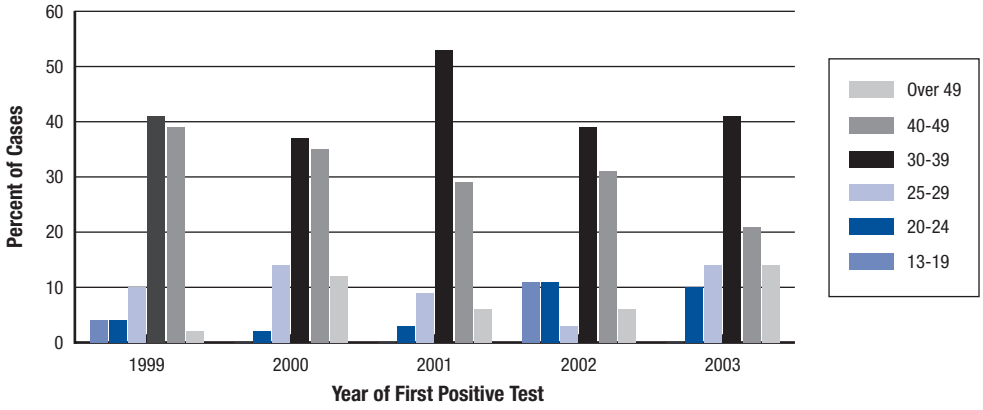


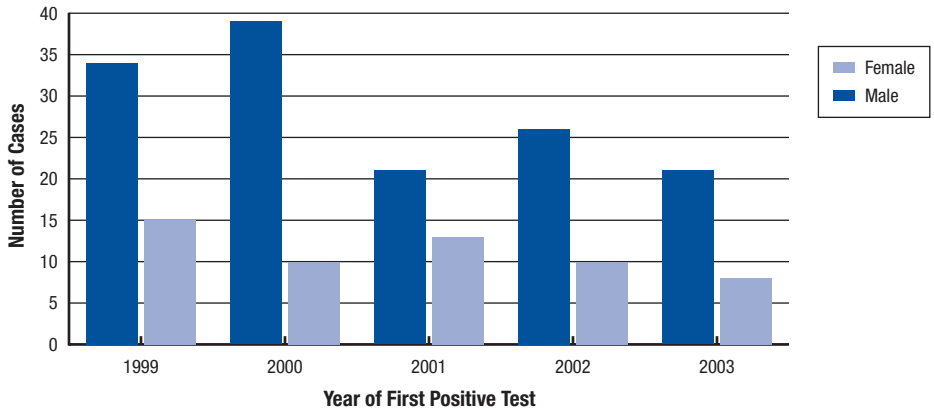
FIGURE 35: Percentage of IDU with HIV/AIDS by Year of First Positive Test and Age Reported Through 6/30/04, Colorado



Comparisons of HIV Among IDU by Sex

The two graphs on the following page (**Figures 36 and 37**) show both number and percentage of HIV and AIDS cases among IDU by sex from 1999 through 2003. The number of male IDU declined 38% from 34 cases in 1999 to 21 cases in 2003. Female IDU declined 47% in the last five years, from 15 cases in 1999 to eight cases in 2003. By gender the characteristics of the epidemic among IDU since 1999 have remained relatively stable (**Figure 36**), with females representing approximately one third of the proportion of HIV/AIDS cases.

■ **FIGURE 36: Number of IDU with HIV/AIDS by Year of First Positive Test and Sex Reported Through 6/30/04, Colorado**



■ **FIGURE 37: Percentage of IDU with HIV/AIDS by Year of First Positive Test and Sex Reported Through 6/30/04, Colorado**

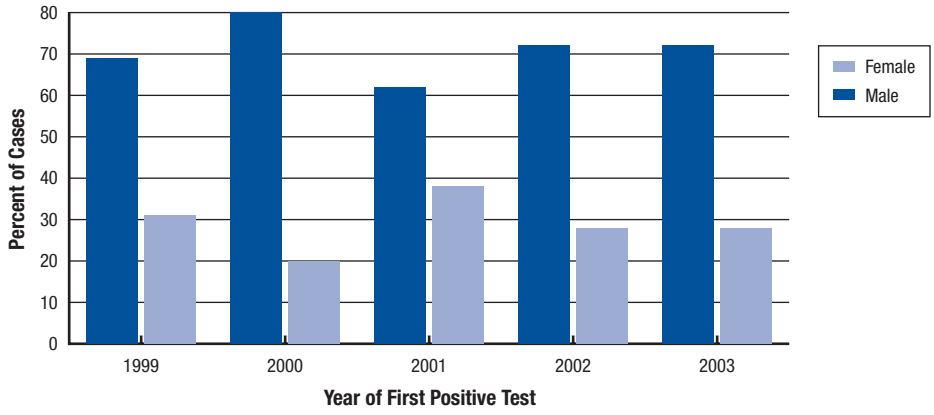
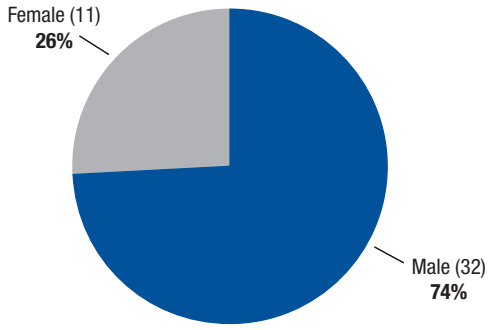


Figure 38 shows that males appear to bear a much larger burden of the recent HIV epidemic among IDU. Females account for 26% (11 cases) of recently diagnosed IDU, males account for 74% (32 cases).

■ **FIGURE 38: IDU HIV Diagnosed Positive 2002–2003 by Sex Reported Through 6/30/04, Colorado**



HIV Among IDU by Region

Figure 39 demonstrates that the recent HIV epidemic among IDU is largely urban (63%) compared to 37% rural. Urban Colorado is defined as the Front Range counties of Adams, Arapahoe, Boulder, Broomfield, Denver, Jefferson, and El Paso). Rural Colorado comprises 40 percent of the state's population.

FIGURE 39: IDU HIV Diagnosed Positive 2002–2003 by Region Reported Through 6/30/04, Colorado

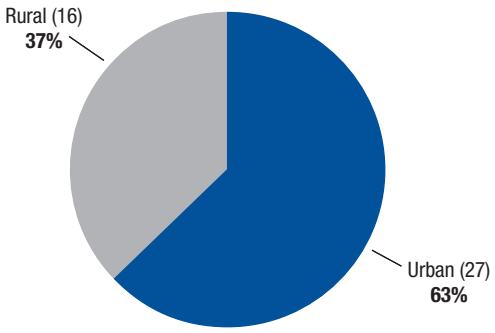
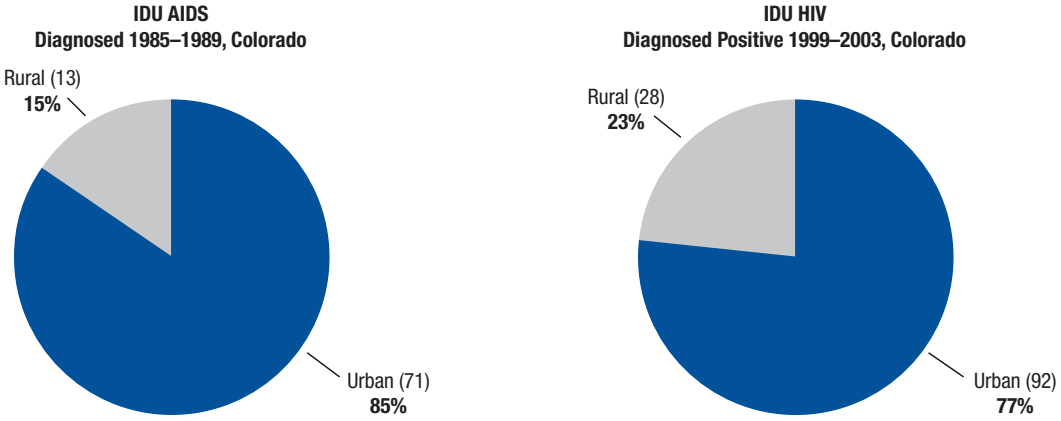


Figure 40 illustrates the geographic distribution of the proportion and number of HIV/AIDS cases among IDU. The small number of reported rural cases has fluctuated but has remained relatively stable over time. In AIDS cases diagnosed between 1985 and 1989, 15% of the cases resided in rural areas and 85% lived in urban areas. HIV diagnosed between 1999 and 2003 (presumably representing more recent infections) showed that 23% lived in rural areas compared to 77% in urban areas.

FIGURE 40: Geographic Distribution of HIV and AIDS Cases Among IDU



Other Factors Contributing to Risk Among Injection Drug Users (IDU)

Patterns and Trends in Drug Abuse[18]

According to a recently published ADAD report which compiles data from a variety of sources statewide, most amphetamine and methamphetamine indicators have increased in the past two years. Methamphetamine treatment admissions reached their highest level ever in 2003 (23% of total admissions). "New" users (defined as entering treatment within three years of use) are more often female (53%), non-White (77%) and under 25 years of age (58%). New users are more likely to have never been married (63%) and less likely to be employed (30%) compared to 37 % employment in "old" users (defined as entering treatment after four or more years of use). New users have a higher proportion of concurrent mental health problems than do old users (31% and 27% respectively). In 2003, 61% of methamphetamine treatment admissions administered the drug by smoking. Injecting methamphetamines has been the most common route of administration, however there has been a decline in the last 7 year in the proportion of IDU to 24% in 2003). There has also been a substantial increase in methamphetamine lab seizures by the DEA (increasing from 25 in 1997 to 464 in 2002). In the Denver Metro Area, one treatment program saw an increase in White MSM entering treatment. In other programs in the northeastern and southeastern Colorado, there has been increased use among Hispanics. It is speculated by clinicians that increase use is attributed to the drug's low price, availability and long lasting high.

Cocaine indicators were mixed during the last 3 years. Treatment admissions and new users in treatment remained relatively stable. However, cocaine related deaths, statewide hospital discharges (77.9 per 100,000) and the proportion of arrestees with positive cocaine urine screens increased in 2003. In 2003, 9% of people in treatment reported injecting cocaine compared to smoking (63%) and inhaling (23%).

Hepatitis C and HIV Co-Infection

Table 22 illustrates the comparison of the HIV reporting database to the database of persons infected with Hepatitis C since 1993; 1,313 persons with HIV were co-infected with Hepatitis C in this time period. Compared to the database of persons diagnosed since 1993 with HIV, persons co-infected with Hepatitis C were more likely to be IDU, female, older, and Black or Hispanic. Co-infection with Hepatitis C poses special clinical challenges for the treatment of HIV. Due to shared routes of transmission, hepatitis co-infection occurs in 12-30% of HIV patients.

TABLE 22: Hepatitis C and HIV/AIDS in Colorado, Cases Diagnosed Since 1993 and Reported Through 6/30/04

	HIV/AIDS with HCV		Total HIV and AIDS	
Male	1,118	85%	6,762	88%
Female	195	15%	884	12%
Current Age				
<13	2	0%	18	0%
13–19	1	0%	17	0%
20–29	30	2%	439	6%
30–39	269	20%	2,121	28%
40–49	664	51%	3,203	42%
>49	347	26%	1,848	24%
Race				
White	763	58%	4,939	65%
Black	244	19%	1,119	15%
Hispanic	266	20%	1,447	19%
Other	40	3%	141	2%
Risk				
MSM	338	26%	4,701	61%
IDU	478	36%	847	11%
MSM/IDU	348	27%	705	9%
Hemophilia	31	2%	21	0%
Heterosexual Contact	62	5%	685	9%
Transfusion	3	0%	21	0%
Total	**1,313**		**7,646**	

The Context of Risk Among Injection Drug Users (IDU)

CDPHE research and evaluation unit completed a needs assessment in 2003 and concluded the following qualitative analysis.

Information drawn from interviews, surveys, and focus groups conducted with IDU in the Denver area reveal drugs of choice that include powder cocaine, heroin, methamphetamines, crack, hallucinogens, and depressants. Drugs of choice tend to vary by socioeconomic circumstances, ethnicity, age, and sexual orientation. Sharing needles and syringes is said to be very common in the area, and the sharing of other drug preparation and injection-related equipment such as cotton, cookers, and water is even more common. Some IDU claim to view needle/syringe sharing as a habit and as part of socializing among long time users. Others describe sharing as an attempt to avoid withdrawal symptoms in an environment where access to sterile syringes is limited. Such limited access is attributed to policies at many local pharmacies that restrict sales, the lack of needle exchange, and state paraphernalia laws that restrict possession of needles/syringes. Not having a safe place to shoot drugs also influences injection-related HIV risk. This is especially a problem for those in unstable living situations. Some people are said to share needles because they really do not care what happens to them. Many IDU, however, do report taking precautions to reduce their risk for acquiring HIV while using drugs, including using only one's own syringe, using bleach, and limiting sharing to close friends, partners, and family members.

In addition to risks for HIV resulting from sharing needles, syringes, and other paraphernalia, IDU identify risks resulting from unprotected sex, including sex with high-risk partners. Female IDU report engaging in prostitution to support their own habits and often the habits of their steady male partners. Also, women users are often required to give sexual favors to dealers even when they have enough money to buy their drugs. They are also at heightened risk for violence and sexual assault. Many IDU claim to have unprotected sex due to a denial of risk, a dislike of condoms, or getting caught up in the heat of the moment. Some injectors, however, do report using condoms as well as monogamy and sexual abstinence as risk-reduction measures. Among many high-risk people, testing for HIV is said to be uncommon, and few IDU living with HIV are believed to disclose their serostatus.

Many IDU report that they started using drugs to forget the pain of coming from highly dysfunctional families in which physical, sexual, and emotional abuse were common. Other reasons that people give for beginning to use drugs include growing up in areas of high unemployment, poor schools, and discrimination; having family members (especially parents) who were users; having a partner who is a user; peer pressure and/or a need to belong; youthful rebellion; curiosity; personal tragedy; and physical pain. Among IDU it is common to see coexisting problems such as addiction, mental illness, physical illness, poverty, homelessness or unstable living situations, unemployment, histories of incarceration, and histories of violence.

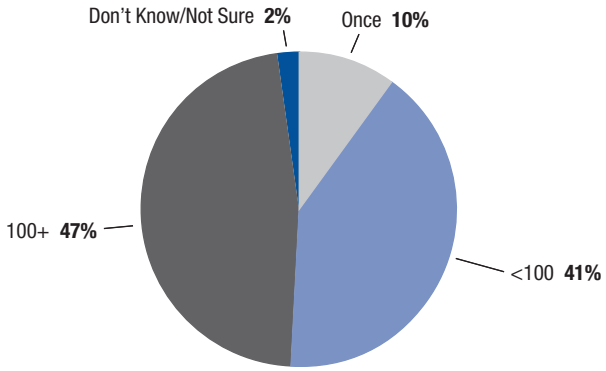
IDU confront many problems accessing necessary services. Overall, many IDU lack trust in other people, including other users, as well as trust in most agencies. They are especially mistrustful of the judicial system, law enforcement, and other government agencies. Difficulties in accessing medical care are common complaints and include the cost of care, long waits in order to see a provider, the quality of subsidized services, disrespectful treatment, and providers' reluctance to give pain medication to users. IDU also confront many problems accessing appropriate drug treatment, especially methadone maintenance. These include the cost of methadone, long intake processes, counselor attitudes, hours of operation, the inconvenience of daily visits, and the fact that they can be dismissed from the program for failure to pay, failure to show on a given day, and relapse. Some people also lament that methadone is very addictive with severe withdrawal symptoms. Other problems related to substance abuse treatment include: 1) waiting periods; 2) the short length of many treatment programs; 3) long separations from children while in residential treatment; 4) the rigidity of therapeutic communities; 5) the lack of dealing with mental health problems and major life concerns; 6) staff turnover; and 7) the lack of aftercare or maintenance programs. The location of many types of services and difficulties with transportation and childcare are also barriers to accessing services. Many women fear losing their children if they disclose to service providers that they are drug users. In general, users experience discrimination within many service arenas, with many providers treating them disrespectfully. Some agencies will not serve people who are known to be current and even former drug users. Other agencies that offer services to IDU are not equipped to address the depth and complexity of their life issues.

Measures of Risk Behavior Reported for IDU

Needle and Paraphernalia Sharing in HIV Positive IDU

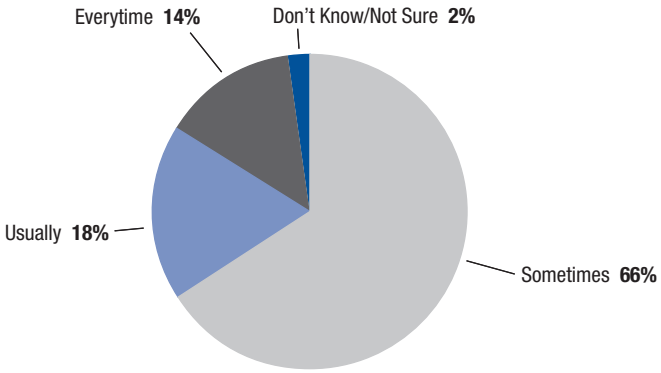
The following 3 figures summarized data on IDU needle/paraphanalia drug behaviors from the SHAS database. Some 774 HIV positive respondents indicated that they had injected drugs. Forty-seven percent (365) had injected 100 times or more and 41% (313) indicated that they had injected drugs several times but less than 100 times.

FIGURE 41: Number of Times Injection Drug Users Shot Drugs not Prescribed by a Doctor



Sixty-eight percent (528) of the respondents had shared a needle or syringe at some point in the past. Sixty-six percent (349) of the respondents who shared needles indicated that they shared less than half of the time, 18% (94) shared half the time, and 14 percent (73) shared every time.

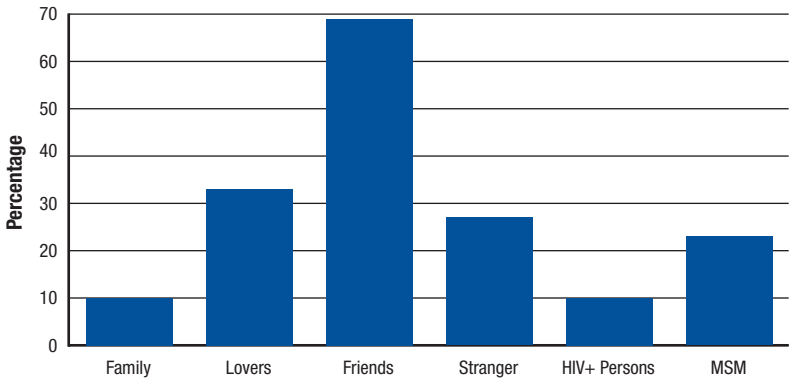
FIGURE 42: Frequency Injection Drug Users Shared Needles/Syringes



Needles were most likely to be shared with friends (69%) or lovers (34%). Twenty-seven percent shared with people they don't know very well and 23% shared with MSM.

Ten percent shared with family members and 10% shared with HIV positive individuals.

FIGURE 43: Relationship of Persons Sharing Drug Paraphanalia with Injection Drug Users



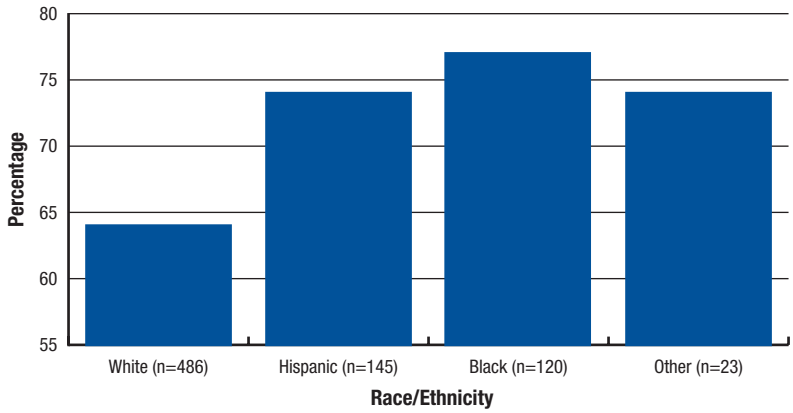
The demographic distribution of HIV positive respondents is in **Table 23**.

TABLE 23: Demographic Characteristics of Injectors Participating in the SHAS Survey

Age	Number	Percent
20–24	28	3.6%
25–29	107	13.8%
30–39	407	52.6%
40–49	204	26.4%
50+	407	52.6%
Homicide	28	3.6%
Sex		
Male	678	87.6%
Female	96	12.4%
Race/Ethnicity		
White	486	62.8%
Hispanic	145	18.7%
Black	120	15.5%
Other	23	3.0%
Total	**774**	

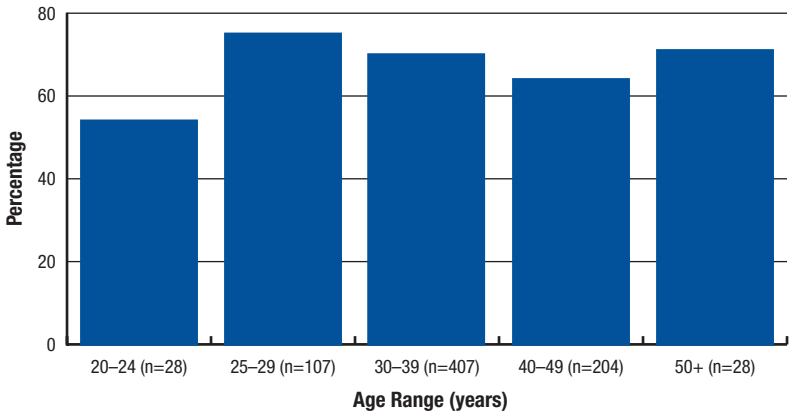
Figure 44 illustrates that White IDU were less likely than Black, Hispanic and other IDU to have shared a needle or syringe.

FIGURE 44: Percent of Injection Drug Users that Ever Shared a Needle or Syringe by Race/Ethnicity



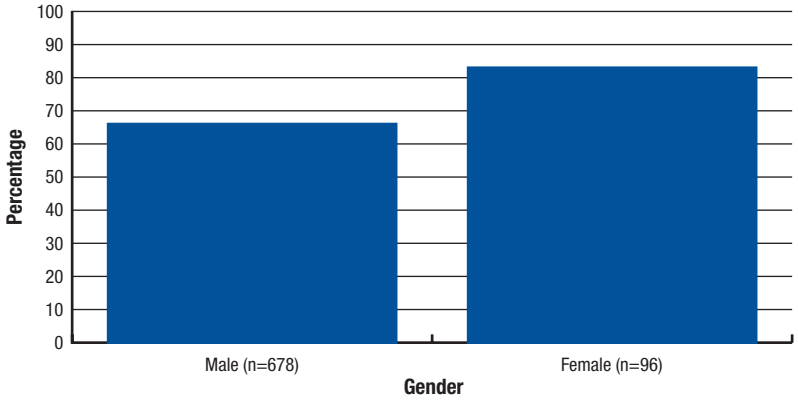
Needle sharing was most common in age group 25 to 29 (75%) In the age groups 30 to 39 and over 49, percentages of IDU that ever shared a needle or syringe were similar (70% and 71%, respectively).

FIGURE 45: Percent of Injection Drug Users that Ever Shared a Needle or Syringe by Interview Age



Females were more likely than males to have shared needles.

FIGURE 46: Percentage of Injection Drug Users that Ever Shared a Needle or Syringe by Gender



Some 268 HIV positive respondents had injected drugs in the past year. Fifty-one percent (138) of these injected once a month or less and 47% (127) injected once a week or more.

Thirty-six percent (97) of the respondents who had injected in the past year shared needles or syringes. Eighty-three of the respondents were asked how often they shared needles or syringes in the past year. Seventy-three percent (61) shared less than half of the time and 12% (10) shared half of the time and 13% (11) shared every time.

High Risk Heterosexual Contact

Estimates of High Risk Heterosexual Behavior in Colorado

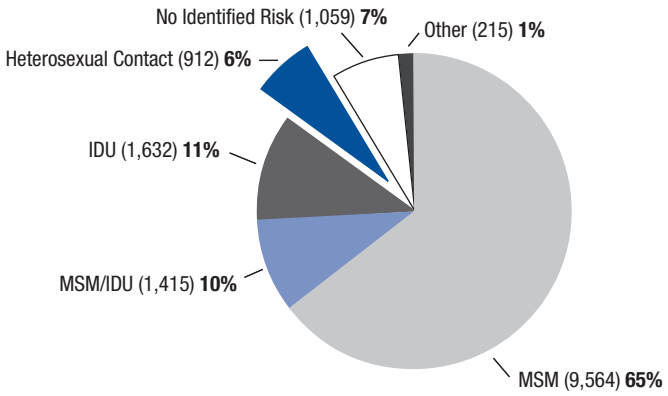
It is difficult to make an assessment of the number of persons in Colorado who engage in heterosexual contact that puts them at high risk for HIV acquisition. Despite the fact that those persons who acquire HIV heterosexually is not the same as those who acquire STDs, a diagnosis of a STD would suggest that the individual is engaging in unsafe sexual practices. Specific HIV prevention strategies should be directed toward these individuals. In 2003, 12,708 cases of Chlamydia and 3,114 cases of gonorrhea were reported to the CDPHE. Females are clearly at higher risk of acquiring Chlamydia. Among cases reported in 2003, females accounted for 76%. Among gonorrhea cases, females comprised 50%. Forty-six percent of Chlamydia cases reported in 2003 were missing race/ethnicity data. However, Blacks comprised 23% of cases, and Hispanics comprised 41% of cases with race/ethnicity data. Twenty-seven percent of reported gonorrhea cases were missing race/ethnicity data. Blacks comprised 45% of cases, and Hispanics comprised 28% of cases where race/ethnicity data was reported.

To assure the accuracy of data regarding heterosexual acquisition of HIV, for a case of HIV/AIDS to be classified as heterosexually acquired, CDPHE investigation must demonstrate that the individual had heterosexual contact with a partner who has documented HIV infection, or had heterosexual contact with a person who is in a high risk group for HIV (IDU or MSM). A report by the patient that he or she acquired HIV heterosexually will not automatically classify that individual into the category of heterosexual acquisition.

Proportion of Epidemic Among Heterosexuals

Heterosexual transmission (**Figure 47**) accounts for only six percent of Colorado's cumulative HIV/AIDS epidemic.

Figure 47: HIV/AIDS by Risk Reported Through 6/30/04, Colorado



Gender Trends in High Risk Heterosexual Contact

According to **Figure 48**, females are more likely to be recently infected by heterosexual transmission than males. Females account for 55% of this transmission category, whereas males account for 45% of this risk group.

■ **Figure 48: Heterosexually Transmitted HIV Diagnosed Positive 2002–2003 Reported Through 6/30/04, Colorado**

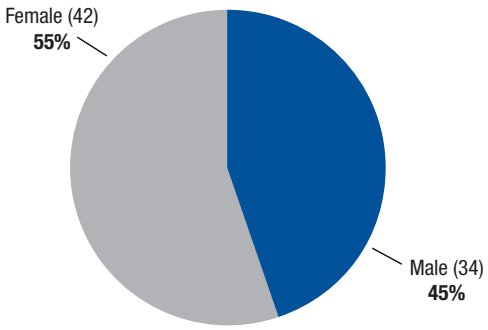


Figure 49 illustrates the number and proportion of heterosexually transmitted HIV/AIDS by year of first positive test and gender between 1999 and 2003. The number of heterosexually transmitted HIV cases in males has steadily increased in the last five years. In 1999, 12 cases were reported, compared to 24 cases in 2003. Among females, the number of cases reached a high in 2001 (41 cases) and dropped to a low of 23 cases in 2003. However, care should be taken in interpreting trends in this group, especially in recent years, due to the small number of cases.

■ **Figure 49: Number of Heterosexually Transmitted HIV/AIDS by Year of First Positive Test and Sex Reported Through 6/30/04, Colorado**

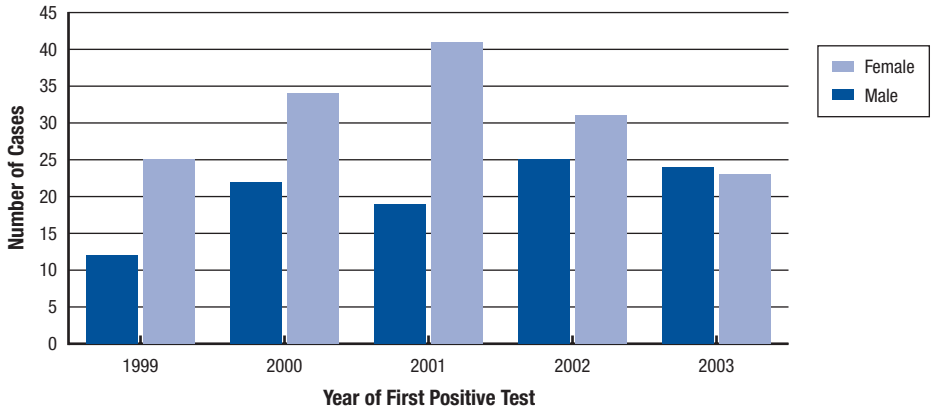
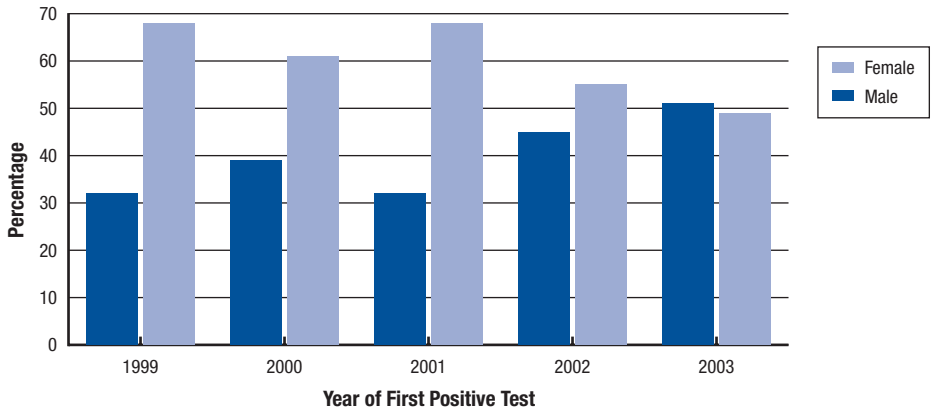


Figure 50 on the following page demonstrates the percent of heterosexually transmitted HIV/AIDS cases diagnosed between 1999 and 2003. The percent of males has increased from 32% in 1999 to 51% in 2003.

■ **Figure 50: Percentage of Heterosexually Transmitted HIV/AIDS by Year of First Positive Test and Sex Reported Through 6/30/04, Colorado**



Racial/Ethnic Trends Among High Risk Heterosexuals

Recently diagnosed cases of HIV attributed to heterosexual transmission are illustrated in **Figure 51**. Blacks represent the largest group affected through heterosexual transmission with 35 (47%) cases diagnosed between 2002 and 2003. Hispanics and Whites each comprise 26% of newly diagnosed cases with 20 cases. In comparison to their percentage of the general population, racial/ethnic minorities are over represented.

■ **FIGURE 51: Heterosexually Transmitted HIV Diagnosed Positive 2002–2003 by Race Reported Through 6/30/04, Colorado**

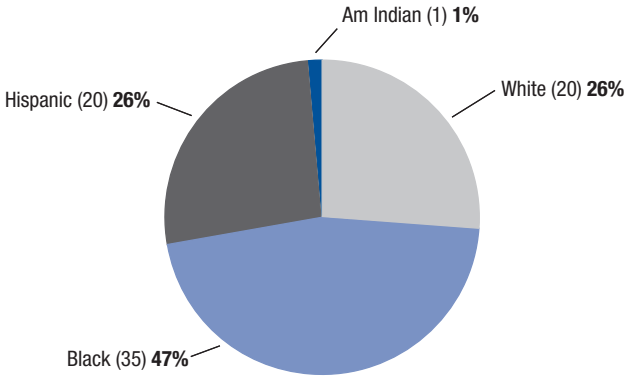
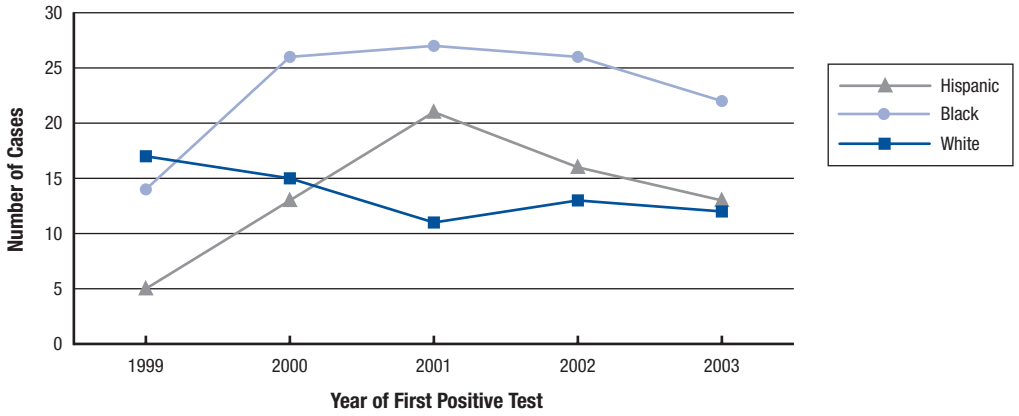


Figure 52 shows changes in the number of cases of heterosexually transmitted HIV/AIDS infection since 1999. These numbers are small and they should be interpreted cautiously. This chart shows fairly substantial fluctuations in reported cases in each racial group. In the last five years, Whites displayed an overall decrease since 1999. Cases in Whites decreased from 17 cases in 1999 to 12 cases in 2003. Hispanics demonstrated the largest increase in the last five years, from five cases in 1999 to 13 cases in 2003. Blacks also increased from 14 cases in 1999 to 22 cases in 2003.

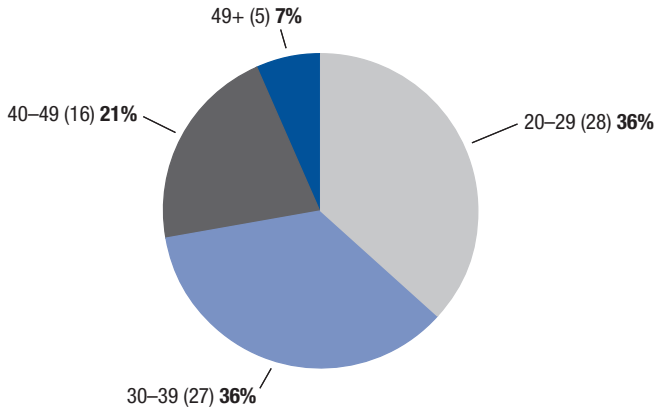
■ **Figure 52: Number of Heterosexually Transmitted HIV/AIDS by Year of First Positive Test and Race Reported Through 6/30/04, Colorado**



Age Trends Among High Risk Heterosexuals

Recently diagnosed cases of HIV attributed to heterosexual contact are illustrated by age in **Figure 53**. This graph indicates that the largest percentage (36%) of newly diagnosed cases are in the 20–29 and 30–39 age groups and 21% are in the 40–49 age group.

■ **FIGURE 53: Heterosexually Transmitted HIV Diagnosed Positive 2002–2003 by Age Reported Through 6/30/04, Colorado**



Infants Born to HIV-infected Women

As shown in **Table 24**, the number of infants born to HIV-infected women in Colorado peaked in 2000 with 29 births. Perinatal transmission dropped dramatically after that with the widespread use of anti-retrovirals during pregnancy, labor, and delivery. Exposed infants are also given anti-retroviral drugs for six weeks after their birth. Use of these drugs did not become a standard of medical care until 1996. Since 1996, there have been three cases of confirmed HIV infection reported in infants. According to the CDPHE vital statistics data obtained from birth certificate, one percent of mothers who delivered a child in 2003 did not receive prenatal care but only 71% had reported an HIV test during their pregnancy.

■ **TABLE 24: Number of Infants Born to HIV-infected Women by Year of Birth**

Year of Birth	Number of Infants born to HIV Positive Women	Number of Infants who aquired HIV perinatally
1999	12	1
2000	29	0
2001	21	1
2002	17	0
2003	21	0

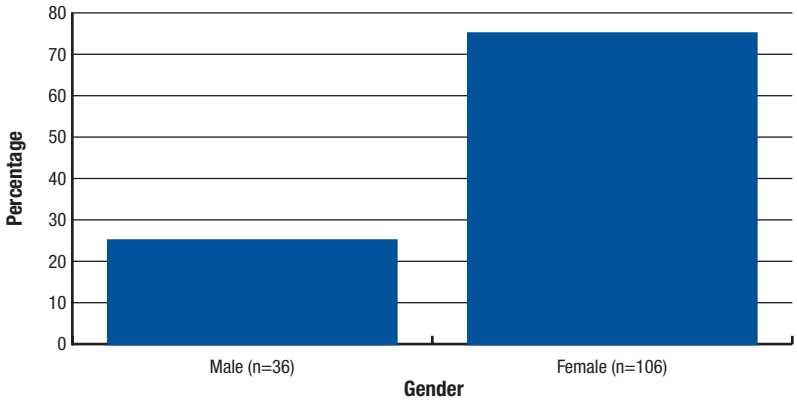
Other Factors That Contribute to Risk Among High Risk Heterosexuals

SHAS Data on Gonorrhea in HIV Positive Heterosexuals

The SHAS database was analyzed for behavioral data for HIV positive heterosexuals. The following graphs (**Figures 54, 55 and 56**) summarize the findings.

Thirty percent of the HIV positive heterosexual respondents had gonorrhea in the past. Females were more likely than males to have had gonorrhea.

FIGURE 54: Percentage of HIV Positive Heterosexuals Who Ever Had Gonorrhea by Gender



In general, Blacks, Hispanics, and others were more likely than Whites to have had gonorrhea. Blacks were most likely to have had gonorrhea.

FIGURE 55: Percentage of HIV Positive Heterosexuals Who Ever Had Gonorrhea by Race/Ethnicity

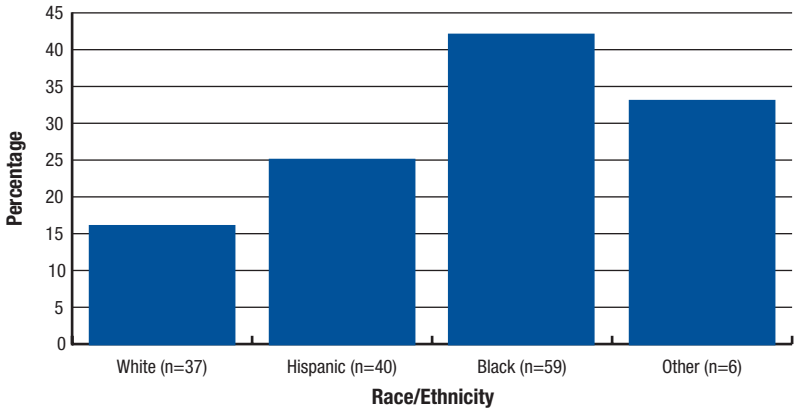
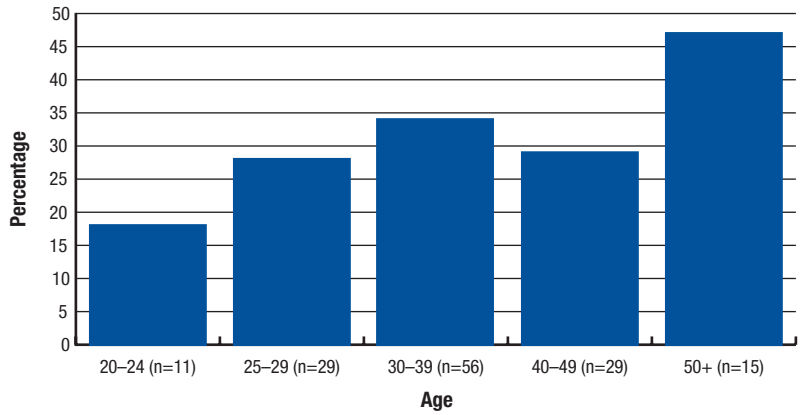


Figure 56 illustrates that with the exception of respondents aged 40–49 years, the likelihood of having had gonorrhea increased with age.

■ **FIGURE 56: Percentage of HIV Positive Heterosexuals Who Ever Had Gonorrhea by Interview Age**



The Context of Risk Among Women with Opposite Sex Partners

CDPHE research and evaluation unit completed a needs assessment in 2003 and concluded the following qualitative analysis. Among HIV infected people who claim sex with partners of opposite sex as their only risk for infection, the proportion of women is twice that of men. According to interviews, focus groups and surveys conducted among high-risk women, HIV risk is most often attributed to unsafe sex with multiple partners and/or sex with high-risk partners. Among many women at risk, unsafe behaviors occur in the context of alcohol and other drug use and their effects on decision-making, prostitution to support an addiction or their partner's addiction, and/or to meet basic needs, rape, low self esteem, and lack of empowerment. For many women, increased risk for HIV must be viewed against a backdrop of physical, sexual, and emotional abuse, issues of mental health, and the circumstances of poverty and attempts to meet basic needs.

Other factors affecting women's risk of HIV include denial of risk, getting caught up in the heat of the moment, the need for intimacy and trust, and difficulties negotiating condom use with men. Some women still think of HIV as a "gay men's disease" in spite of significant numbers of HIV cases occurring among women. Other women report that they can tell if a partner has HIV based on what the partner looks like or how the partner is dressed. Others believe that men cannot get HIV from women. Condom negotiation can be very difficult for many women given the resistance of their male partners. At times, even the suggestion of using condoms is reported to cause partners to become angry and accuse women of being untrustworthy.

Among women at increased risk, HIV prevention and related services are often viewed as inaccessible or inappropriate. For those seeking substance abuse treatment, barriers include the cost, accessibility, and availability of treatment; waiting lists to get into subsidized care; disrespectful treatment from providers; poor quality of care; the failure to address mental health issues that often underlie substance abuse issues; the short duration of many treatment programs; and the lack of aftercare follow-up. Many women cite cost as a barrier to accessing quality mental health care services, given that only a limited amount of subsidized care is available. This is especially the case for those who have not been clinically diagnosed with a serious mental illness yet suffer from problems such as depression, posttraumatic stress syndrome, and low self-esteem. Access to needed medications is also problematic for those who lack health insurance. Some women report that counselors are often not

sufficiently skilled to deal with women's difficult, more global life issues. Other barriers to accessing services include lack of transportation and childcare. Transportation is especially limited or reportedly non-existent for those living in rural areas. Stable housing situations are also reported to be difficult to access by persons with low incomes, especially for those who have a documented history of substance abuse and/or a criminal record. Additionally, not knowing where to go for services is a commonly reported problem.

Information drawn from women highlights the need to address HIV within the context of other, often competing yet interrelated priorities for women who are at increased risk. These priorities include ensuring adequate shelter, finding employment, providing for their children, avoiding addiction-related sickness, ensuring adequate childcare, dealing with grief and loss, accessing health care, and addressing the need to feel valued, respected, and loved.

Other Analysis of Populations at Risk

Other Modes of Transmission

It is important for HIV prevention planning that the HIV epidemic be characterized by mode of transmission. Persons who are diagnosed with HIV and AIDS are interviewed, and their medical records are examined to determine their risk category.

Data about risk is less complete for newly diagnosed HIV-infected persons than for persons with AIDS. Through June 30, 2003, risk data for cumulative AIDS cases was not available for 342 or four percent of cases (n=8,155); for AIDS cases newly diagnosed in 2003, risk was not identified in 12% of the cases. Similarly, 12% of newly diagnosed HIV cases (n=304) had no risk reported. It is important to articulate here that "no identified risk" does not mean that there are new or unidentified means of transmission. No cases of female-to-female transmission have been documented.

Other modes of transmission (blood transfusion, organ or tissue transplant, hemophilia and occupational acquisition) account for two percent of AIDS cases (160/8,155) through June 2003. Transfusion recipients account for 75 cumulative AIDS cases since 1982, transplant recipients for one; hemophiliacs (recipients of clotting factor) for 82, and occupational acquisition for two (both were health care workers who sustained percutaneous needle stick injuries from HIV-infected patients and seroconversion was documented; one other probable case of occupational acquisition is classified as "no identified risk".

Delays in HIV Testing

As **Table 25** shows, the time between the first positive HIV test and AIDS diagnosis was examined for cases of AIDS diagnosed between 1999 and 2003. A substantial number of AIDS cases test late in the course of their HIV infection. Forty-five percent were tested for HIV within two months and 47% within 12 months of AIDS diagnosis. These individuals pose a challenge to HIV prevention efforts. Knowing one's serostatus allows for early medical evaluation and possible appropriate clinical intervention as well as behavior changes that may prevent transmission to others.

Women tend to test later in their course of infection than men. People of color test later than Whites, and the Asian population tests latest (80% tested within 12 months of AIDS diagnosis). Cases with no identified risk (72%) and heterosexual contact (55%) test later in their infection than other risk groups. Region and gender does not affect testing behavior substantially.

TABLE 25: Colorado AIDS Cases Diagnosed 1999–2003

		Time between HIV test and AIDS diagnosis			
	n	Within 2 months		Within 12 months	
Total	1,568	620	45.3%	738	41.7%
Sex					
Male	1,381	553	40.0%	653	47.3%
Female	187	67	85.8%	85	45.5%
Race					
White	927	370	39.9%	419	45.2%
Black	247	83	33.6%	114	46.1%
Hispanic	359	156	43.4%	191	53.2%
Asian	5	2	40.0%	4	80.0%
Am Indian	17	5	29.4%	5	29.4%
Multiple	12	3	25.0%	4	33.3%
Risk					
MSM	903	364	40.3%	437	48.4%
IDU	189	48	25.4%	59	31.2%
Heterosexual Contact	159	68	42.8%	88	55.3%
No Identified Risk	163	106	65.0%	118	72.4%
Region					
Urban	1,306	515	39.4%	614	47.0%
Rural	262	105	40.1%	124	47.3%
Date of Diagnosis					
1999	311	127	40.8%	145	46.6%
2000	341	140	41.1%	170	49.9%
2001	290	122	42.1%	147	50.7%
2002	320	121	37.8%	143	44.7%
2003	306	110	35.9%	133	43.5%

HIV in Colorado's Prisons

Since 1985, the Colorado Department of Corrections (DOC) has screened inmates for HIV when they were admitted to a DOC facility. Through June 30, 2003, 564 HIV-infected inmates have been admitted to DOC. The overwhelming majority of these inmates are housed at the Colorado Territorial Correctional Facility in Canon City (CTCF) where specialized medical care is available. (There are three exceptions to housing HIV-infected inmates at CTCF: 1) When inmates pose a serious threat to the safety of other inmates, guards, or to themselves, they are incarcerated at the Colorado State Penitentiary, or so-called "Super-Max," where the inmate is confined to his cell 23 hours a day and does not have contact with other inmates; 2) when the patient is about to be released and is assigned to Camp George West, a pre-release facility; and 3) when the patient is hospitalized in a DOC mental health facility).

Figure 57 on the following page shows that the racial and ethnic composition of HIV and AIDS cases in the Colorado DOC is markedly different than the composition of Colorado's population (Whites account for 73% of the state, Blacks four %, and Hispanics 19%) and somewhat different than the DOC racial characteristics. The DOC population is 44% White, 36% Black, and 18% Hispanic. Blacks

are over represented among incarcerated persons by a factor of nine when compared to Colorado's population. Although not graphically illustrated, of the 504 case of HIV or AIDS at DOC, 91% are male and nine percent are female, which is fairly consistent with the sexual characteristics of DOC where 93% of inmates are male and 7% female.

Figure 57: HIV/AIDS in DOC by Race Reported Through 6/30/04, Colorado

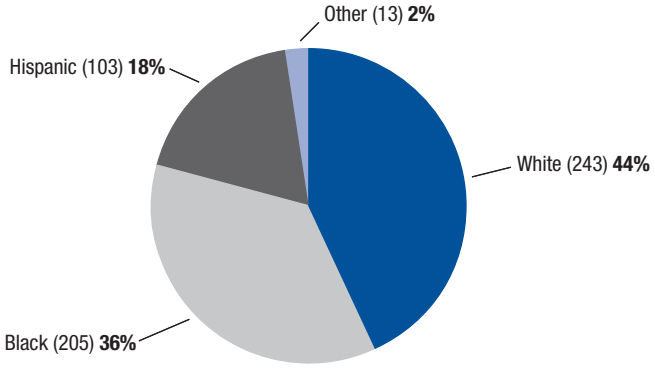
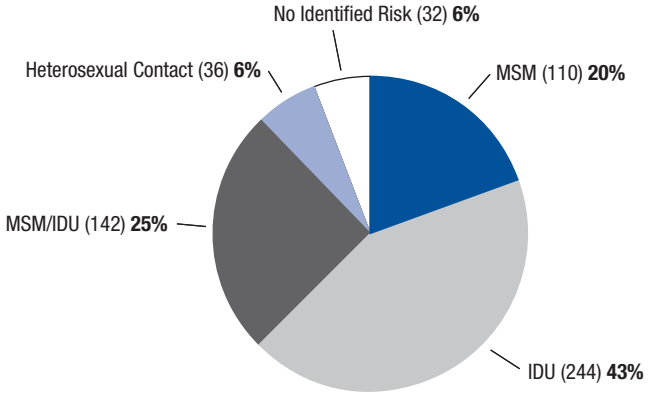


Figure 58 shows the risk characteristics of HIV in DOC. When compared to risk for Colorado's cumulative HIV/AIDS epidemic, prisoners with HIV are more likely to be IDU (43% compared to10%) and men who have sex with men and inject drugs (MSM/IDU) (25% compared to 11%). They are less likely to be MSM (20% among HIV/AIDS cases at DOC compared to 65% of cases statewide) or to have an unidentified risk (six percent at DOC compared to seven percent). The percentage of cases attributed to heterosexual acquisition is the same (six percent in both groups).

Figure 58: HIV/AIDS in DOC by Risk Reported Through 6/30/04, Colorado



SHAS Data on the Number of Sexual Partners by Risk Group

The SHAS database was analyzed for the number of sexual partners by risk group. The findings are summarized in the following two tables.

The majority of HIV positive heterosexuals, IDUs, and respondents from other risk groups had five or fewer sexual partners in the past five years. MSM were more likely to have six or more sexual partners in the past five years and 23% had more than 30 sexual partners in the past five years.

TABLE 26: Number of Sexual Partners Among HIV Positive Persons in the Past Five Years by Risk Group

	Risk Group					Risk Group				
	HET	IDU	MSM & MSM/IDU	OTH	Total	HET	IDU	MSM & MSM/IDU	OTH	Total
No. Partners	Number					Percent				
0	20	43	135	11	209	30%	22%	10%	23%	13%
2–5	29	91	462	21	603	44%	46%	34%	45%	36%
6–10	11	22	205	9	247	17%	11%	15%	19%	15%
11–30	5	24	246	3	278	8%	12%	18%	6%	17%
>30	1	20	309	3	333	2%	10%	23%	6%	20%
Total	**66**	**200**	**1,357**	**47**	**1,670**	**100%**	**100%**	**100%**	**100%**	**100%**

In the 12 months prior to the interview, most heterosexuals (79%), IDUs (68%) and others (74%) were abstaining from sex or monogamous. Most MSM (53%), however, had multiple sexual partners. Twenty percent had six or more sexual partners in the past 12 months.

TABLE 27: Number of Sexual Partners Among HIV Positive Persons in the Past Year by Risk Group

	Risk Group					Risk Group				
	HET	IDU	MSM & MSM/IDU	OTH	Total	HET	IDU	MSM & MSM/IDU	OTH	Total
No. Partners	Number					Percent				
0	12	40	205	6	263	16%	17%	12%	7%	13%
1	47	124	564	58	793	63%	51%	34%	67%	39%
2–5	13	58	546	14	631	17%	24%	33%	16%	31%
>6	3	19	337	8	367	4%	8%	20%	9%	18%
Total	**75**	**241**	**1,652**	**86**	**2,054**	**100%**	**100%**	**100%**	**100%**	**100%**

HIV Incidence Estimated through the Serologic Testing Algorithm for Recent HIV Seroconversion Using Colorado Department of Public Health and Environment Counseling and Testing Data

The incidence of HIV infection in all people in Colorado is currently being estimated through a system of HIV incidence surveillance and is being piloted as an extension of HIV case surveillance. Another method to evaluate HIV incidence uses Colorado HIV counseling and testing data and stored HIV positive specimens to estimate recent infection in people who have been tested through the statewide counseling and testing sites (CTS), and whose HIV tests were performed at the CDPHE laboratory. These tests include people who voluntarily test at a Colorado facility (such as a CTS, healthcare clinic,

prison, jail, hospital or private medical doctors (MD) or through other methods, (such as CDPHE field visits for partner notification, or Western blot confirmatory tests) and are reported to CDPHE using the standard CTS form. Remnant serum is stored at CDPHE for all HIV positive tests. These specimens can be tested using STARHS once the CTS data have been cleaned and the first reported positive specimen for each HIV positive person has been identified. Specimens and data are unlinked from personal identifying information before testing for recent HIV infection occurs.

Data from 1994 through 1999 have been summarized and HIV incidence estimates have been calculated by sex, age, race, risk factors, and site type. The denominator of negative tests for this time period does not exclude repeat testers (therefore underestimating HIV incidence and prevalence estimates for 1994–1999), but the numerator of HIV positive tests was unduplicated. Data and HIV positive specimens for 2001 through 2003 are currently being prepared for unduplicating, unlinking and STARHS testing, and will be reported in later publications. All data from 2000 are complete, and both numerator and denominator tests have been unduplicated for this year yielding a more accurate estimate of HIV incidence, and can be included with 2001–2003 estimates. Previous STARHS data were reported in last year's Colorado Epidemiologic Profile of HIV and AIDS for one CTS and one sexually transmitted disease (STD) clinic over the time period 1994 through 2000. These data comprise 677 of 1,410 (48%) positive specimens tested for STARHS, and represent 113,898 of 168,225 (68%) tests reported from 1994 to 1999.

To begin to describe HIV incidence patterns across Colorado, summary data from all records from 1994 to 1999 are presented in **Table 28**.

TABLE 28: HIV Seroincidence in Colorado Estimated by STARHS, 1994–1999
Unlinked CTS Data for HIV Specimens Tested at CDPHE Laboratory

	Total Population # HIV Positive per # Tested	HIV Sero-Prevalence	# STARHS Tested	# Recent Infections	HIV SI per 100 PY	(95% CI)	Crude SI %
Total Number	**1,730/168,225**	**1.03%**	**1,410**	**258**	**0.41**	**(0.290, 0.600)**	**18.3%**
Gender							
Male	1,464/88,082	1.66%	1,198	216	0.66	(0.458, 0.972)	18.0%
Female	266/80,143	0.33%	212	42	0.14	(0.082, 0.249)	19.8%
Race							
White	835/115,436	0.72%	677	149	0.35	(0.235, 0.527)	22.0%
Black	302/17,503	1.73%	243	38	0.59	(0.335, 1.054)	15.6%
Hispanic	312/25,044	1.25%	246	33	0.36	(0.200, 0.659)	13.4%
Asian/PI	10/2,033	0.49%	10	0	0.00	-	0.0%
AI/AN	12/1,648	0.73%	11	3	0.43	(0.060, 1.719)	27.3%
Other	31/2,682	1.16%	26	4	0.39	(0.080, 1.296)	15.4%
Unknown	228/3,879	5.88%	197	31	2.10	(1.114, 3.915)	15.7%
Age Group (Years)							
0–9	5/400	1.25%	3	2	1.80	(0.255, 7.176)	66.7%
10–19	31/24,348	0.13%	22	7	0.09	(0.033, 0.232)	31.8%
20–29	472/69,103	0.68%	384	91	0.35	(0.225, 0.558)	23.7%
30–39	756/41,902	1.80%	625	96	0.61	(0.392, 0.963)	15.4%
40–49	342/22,956	1.49%	278	48	0.56	(0.331, 0.969)	17.3%

continued on page 59

TABLE 28: HIV Seroincidence in Colorado Estimated by STARHS, 1994–1999
Unlinked CTS Data for HIV Specimens Tested at CDPHE Laboratory
continued from page 58

	Total Population # HIV Positive per # Tested	HIV Sero-Prevalence	# STARHS Tested	# Recent Infections	HIV SI per 100 PY	(95% CI)	Crude SI %
50–59	92/6,110	1.51%	73	9	0.41	(0.152, 1.003)	12.3%
60–69	24/1,233	1.95%	19	4	0.89	(0.195, 2.936)	21.1%
70 positive	5/474	1.06%	4	0	0.00	-	-
Unknown	3/1,699	0.18%	2	1	0.19	(0.007, 1.186)	50.0%
Risk Factors							
MSM/IDU	130/1,637	7.94%	107	18	3.07	(1.425,6.354)	16.8%
MSM	729/15,831	4.61%	571	114	2.07	(1.362,3.201)	20.0%
Het/IDU	175/14,488	1.21%	151	26	0.47	(0.240,0.892)	17.2%
Sex partner HIV risk	142/14,363	0.99%	118	19	0.35	(0.165, 0.706)	16.1%
STD Diagnosis	79/27,917	0.28%	59	16	0.17	(0.078,0.345)	27.1%
Hemo/blood prod. recip	11/11	100.00%	8	0	-	-	0.0%
Sex Assault Victim	5/7,601	0.07%	2	0	0.00	-	0.0%
Health care exposure	9/8,325	0.11%	7	1	0.03	(0.001,0.229)	14.3%
NIR	315/315	100.00%	286	47	214.85	(90.576,526.33)	16.4%
Hetero/ no other risk	117/70,384	0.17%	91	17	0.07	(0.032,0.138)	18.7%
Not specified	17/6,775	0.25%	10	0	0.00	-	0.0%
Site Type							
HIV CTS	715/73,325	0.98%	544	103	0.40	(0.262,0.624)	18.9%
STD Clinic	186/40,573	0.46%	133	29	0.22	(0.120,0.398)	21.8%
Drug Treatment Center	57/7,629	0.75%	48	7	0.25	(0.081,0.666)	14.6%
Family Planning Clinic	9/17,956	0.05%	9	2	0.03	(0.002,0.131)	22.2%
TB	17/1,453	1.17%	13	2	0.39	(0.041,1.759)	15.4%
CHC / PHC*	4/3,959	0.10%	3	1	0.07	(0.002,0.488)	33.3%
Prison or Jail	103/3,030	3.40%	102	17	1.25	(0.539,2.735)	16.7%
Hospital / Private MD	451/5,790	7.79%	420	64	2.73	(1.634,4.608)	15.2%
Field Visit	92/1,035	8.89%	57	19	7.12	(3.643,13.661)	33.3%
Other**	96/13,468	0.71%	81	14	0.27	(0.115,0.590)	17.3%

HIV Human Immunodeficiency Virus; MSM Men who have sex with men; IDU Intravenous drug user; O.R. Odds ratio;
C.I. Confidence interval; SI Seroincidence, PY Person-Years.
HIV seroincidence calculated as per Janssen et al, 1999.
First positive or last negative HIV test was used for each person, from the CDPHE Counseling and Testing Sites (CTS) database.
Indeterminate HIV tests were deleted. Some Risk Factor and Site Type categories are not presented here due to small numbers.
*Community/Public Health Clinic
**Site Type Other includes: public and private out-of-state, public other, outreach testing, etc.
HIV Serosurveillance, STD/HIV Section, DCEED, Colorado Department of Public Health and Environment, 12/8/2004.

In this table, HIV prevalence and incidence data are based on all positive and negative tests submitted to the CDPHE laboratory from 1994 to 1999. Indeterminate HIV tests are excluded from analysis since these do not influence calculations of seroprevalence or seroincidence. Most tests have corresponding data collected using the CDPHE HIV Serology form. A total of 1,730 unduplicated HIV positive tests were analyzed as part of 168,225 HIV tests performed at CDPHE from 1994 to 1999. Negative tests are not unduplicated for this time period, and repeat negative tests in the denominator will tend to underestimate true HIV incidence and prevalence by increasing the size of the denominator.

Overall, HIV seroincidence for 1994 to 1999 is estimated to be 0.41 per 100 person-years (PY). Person-years is a specific measurement for incidence data to standardize the number of recent infections that were identified over the period of time that the population is at risk to become infected. For example, if incidence is calculated to be 1 per 100 PY, this can be interpreted as one person becoming infected with HIV during 100 years of following a disease-free group of people. Each person usually contributes a different amount of follow up time, so 10 people could be followed for 10 years each, or 50 people could contribute two years each to the denominator. New infections are measured in the numerator and the number of people followed multiplied by the amount of time that they were followed is measured in the denominator. HIV seroprevalence is measured as the number of people who are infected with HIV divided by the total number of people who were tested for HIV (excluding indeterminate tests), and is a single measurement that does not take time at risk for becoming infected into account. HIV incidence and HIV prevalence are not directly related in magnitude or trend, that is prevalence can be low and incidence can be high, or vice versa, as measured over time.

The overall crude HIV seroincidence is 18.3% (258 recent infections per 1,410 HIV positive specimens tested, meaning nearly one in five specimens available for STARHS was evaluated as a recent, not long-standing, infection). HIV seroprevalence is 1.03% (1,730 HIV positive persons per 168,225 tests, or 1 person infected per 100 persons tested for HIV).

In this analysis, males are nearly five times more likely to be recently infected than are females. Blacks are not quite twice as likely to be recently infected than Whites or Hispanics. By age group, children aged zero to nine years are most likely to be recently infected, and this finding points to two potential confounders in these summary data. In general, younger children have less time than adults to contribute to the follow up period, and the likelihood of capturing recent HIV positive specimens is greater when the time at risk is (artifactually) compressed. Also, estimates of HIV incidence are dependent upon negative testing data that are representative of the population at risk. Younger children would be more likely to test as positive and less likely to test as negative since specific clinical criteria for testing in this group would increase the number of positive tests and exclude negative tests from being performed in the first place. Note that the confidence interval for this estimate is very wide (0.255 to 7.176) which is another indication of the instability of measurement. The lowest estimate of recent infection is in the 10 to 19 year age group, and is 4 to 10 times lower than other age groups.

By risk behaviors, MSM/IDU are most likely to be recently infected (3 recent infections per 100 MSM/IDU followed for one year). In these data, 2 recent infections per 100 PY are observed in MSM. Heterosexuals with no other risk and persons exposed through occupational health care are less likely to be recently infected (0.7 and 0.3 per 100 PY). Heterosexual IDU and persons whose sex partner is at risk for HIV are more likely than persons who had ever had an STD diagnosis to be recent infections (0.47 and 0.35 compared to 0.17 per 100 PY). Of interest, the NIR category has the highest seroincidence estimate since there are no corresponding negative tests for 315 positive tests. This classification artifact is one example of the limitations of these data which need to be evaluated when interpreting HIV incidence estimates.

By site type, CDPHE Client-Based Prevention (CBP) field staff visits have the highest seroincidence estimate (7.12 per 100 PY). Field staff follow persons who have been exposed to HIV and other STDs and target those persons most likely to be recently infected. Hospital and private MD sites have the next highest seroincidence of 2.73 per 100 PY, however, these data are skewed by the practice of sending HIV positive specimens to the CDPHE lab for HIV confirmatory testing and to report HIV positive cases to the state. This group is more likely to have HIV positive specimens and the lack of negative test data overestimates the incidence of HIV. The higher incidence in the jail and prison sites (1.25 per 100 PY) also reflects this practice of sending HIV positive data without corresponding HIV negative data. HIV CTS and STD clinic sites have lower, albeit, more stable and representative estimates of HIV incidence for persons who voluntarily test for HIV at a CTS or who attend an STD clinic and receive voluntary HIV testing (0.40 and 0.22 per 100 PY).

This summary is an overview of HIV incidence estimates through STARHS testing of HIV positive specimens collected from 1994 to 1999 in the Colorado statewide CTS system. Current work at CDPHE includes evaluating 2000 through 2003 CTS specimens and testing patterns, and establishing a statewide HIV incidence surveillance as an extension of HIV/AIDS case surveillance.

4

Ryan White HIV/AIDS Care Act Special Questions and Considerations

On August 18, 1990, Congress enacted Public Law 101-381, the Ryan White Comprehensive AIDS Resources Emergency (CARE) Act. The CARE Act has been reauthorized twice, and represents the largest dollar investment made by the federal government to date specifically for the provision of services for people living with HIV (PLWH) disease.

The CARE Act is intended to help communities and states increase the availability of primary health care and support services in order to reduce utilization of more costly inpatient care, increase access to care for underserved population, and improve the quality of life of those affected by the epidemic. Briefly, the Act directs assistance through the following channels:

Title I Eligible Metropolitan Areas (EMAs) with the largest numbers of reported cases of AIDS, to meet emergency service needs of PLWH disease.

Title II All states, the District of Columbia, Puerto Rico, and eligible US Territories to improve the quality, availability, and organization of health care and support services for individuals living with HIV disease and their families.

Title III Public and private non-profit entities to support outpatient early intervention HIV services for PLWH.

Title IV Public and private nonprofit entities for projects to coordinate services and to provide enhanced access to research for children, youth, women, and families with HIV/AIDS.

Part F Special Projects of National Significance (SPNS) to support the development of innovative models of HIV/AIDS care that are designed to be replicable and have a strong evaluation component; AIDS Education and Training Centers (AETC) to conduct education and training for health care providers; and the HIV/AIDS Dental Reimbursement Program to assist accredited dental schools and post-doctoral dental programs with uncompensated costs incurred in providing oral health treatment to HIV-positive patients.

The state of Colorado receives funding from all Titles, as well as Part F. Of interest here are Titles I and II.

As an EMA, the five-county Denver metropolitan area receives Title I funding. These funds are administered by the Mayor's Office of HIV Resources and support a variety of community-based services related to HIV/AIDS.

In Colorado, Title II funding is administered by the CDPHE. The purpose of these funds is to improve the quality, availability, and organization of health care and support services for individuals and families with HIV disease. Title II funds support a wide range of services statewide, including the AIDS Drug Assistance Program (ADAP), Health Insurance assistance, and a multitude of health related services provided by regional consortia across the state.

Title I—Denver Metro Area

Table 29 shows a comparison between clients served by the Ryan White Title I in 2003 and persons diagnosed with AIDS in the Denver metro area in 2003. CARE Act funds serve a larger proportion of persons who acquired HIV heterosexually when compared with persons diagnosed with AIDS in 2003. The majority of clients are male (82%), but females receive a greater proportion of services in proportion to AIDS cases. Most clients fall within the 25 to 44 age range (56%). Persons under 13 and between the ages of 45–64 receive a higher percent of services in comparison to AIDS cases diagnosed in their age groups in 2003.

In 2003, 3,459 clients received services funded through the Ryan White Title I award. Of these, 655 were new clients. Of the clients who received services during 2003 (**Table 30**), the majority of persons (2,180) received medical care, 1,980 received case management, 729 received dental care, 929 received mental health services, and 260 received substance abuse treatment. The average number of visits for each service were as follows: substance abuse treatment averaged 20.2 visits, case management 17.1, mental health services 11.4, medical care 9.8, and dental care 4.1. Substance abuse services include both outpatient and residential care. In a residential treatment setting, visits are counted in terms of inpatient days. Therefore, this data must be interpreted with caution.

Other services provided by Title I included home health care, hospice care, client advocacy, emergency financial, food bank/home delivered meals, housing services, permanency planning, transportation, day/respite care, and other support services.

■ **TABLE 29: Title I Client Characteristics by Race/Ethnicity, Sex, and Age in the Denver Metropolitan Area, 2003**

Client Characteristics	CARE ACT Clients Title % of Clients	Denver Metro AIDS Surveillance Data % of Cases
Race/Ethnicity		
White (non-Hispanic)	52%	51%
Black (non-Hispanic)	18%	20%
Hispanic	21%	25%
Asian/Pacific Islander (non-Hispanic)	<1%	0%
American Indian/Alaska Native (non-Hispanic)	1%	3%
Multiple Race/Unknown (non-Hispanic)	2%	2%
Sex		
Male	82%	88%
Female	18%	12%
Other/Unknown	<1%	0%
Age		
<13	8%	<1%
13–24	4%	3%
25–44	56%	74%
45–64	34%	21%
>64	1%	2%
Risk		
MSM	54%	55%
IDU	8%	11%
MSM/IDU	7%	10%
Heterosexual Contact	15%	10%

■ **TABLE 30: Title I Average Number of Visits Per Client by Type of Service, 2003**

	Medical Care	Dental Care	Mental Health Services	Substance Abuse Treatment	Case Management
Number of Clients	2,180	729	929	260	1,980
Number of Visits	21,274	2,986	10,631	5,263	33,851
Average Number of Visits per Client	9.8	4.1	11.4	20.2	17.1

Title II Statewide

Table 31 shows a comparison between clients served by the Ryan White Title II in 2003 and persons diagnosed with AIDS in Colorado in 2003. In 2003, 2,146 clients received services funded through the Ryan White Title II award, of these 309 were new clients. Title II provides services to a smaller proportion of Blacks and MSM/IDU than were diagnosed with AIDS in 2003. The majority of clients receiving services through Ryan White Title II are male (85%). Most of the clients who received services fell within the ages of 25 to 44 (60%) but represent a lower percent (69%) compared to Colorado AIDS cases diagnosed in 2003.

Of the 2,146 clients who received services funded through Title II award (**Table 32**), the majority of clients received case management (821). Two hundred fifteen received medical care, six received mental health services, 25 received dental care and 1 received substance abuse treatment.

Figure 59 shows the average number of visits per client over a three-year period. Medical care, dental care, and mental health services were relatively stable between 2000 through 2002. There has been more than a two-fold increase in case management from 7.0 visits in 2000 to 14.0 visits in 2003. Substance abuse treatment declined from 57.3 visits in 2001 to 33.9 visits in 2003.

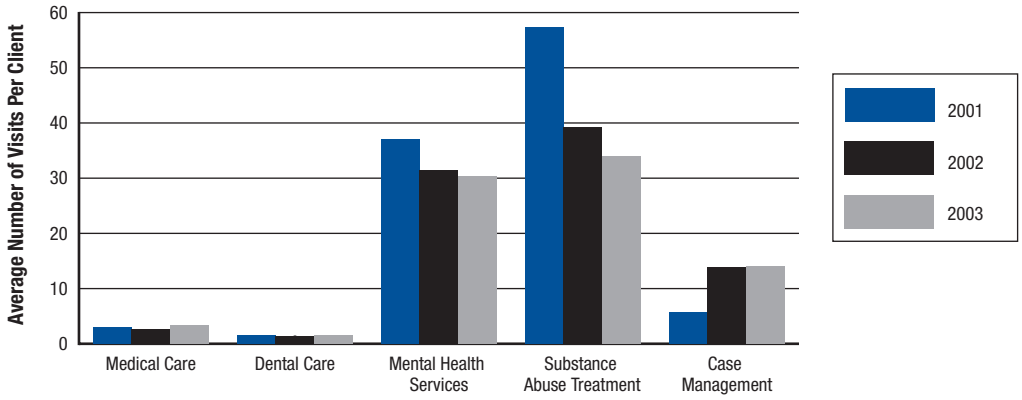
■ **TABLE 31: Title II Client Characteristics by Race/Ethnicity, Sex, and Age in Colorado, 2003**

Client Characteristics	CARE ACT Clients Title % of Clients	Colorado AIDS Surveillance Data % of Cases
Race/Ethnicity		
White (non-Hispanic)	63%	58%
Black (non-Hispanic)	11%	17%
Hispanic	22%	23%
Asian/Pacific Islander (non-Hispanic)	<1%	<1%
American Indian/Alaska Native (non-Hispanic)	1%	1%
Multiple Race/Other (non-Hispanic)	1%	2%
Sex		
Male	85%	86%
Female	15%	14%
Other/Unknown	<1%	0%
Age		
<13	1%	0%
13–24	2%	4%
25–44	60%	69%
45–64	37%	27%
>64	1%	<1%
Risk		
MSM	64%	58%
IDU	11%	13%
MSM/IDU	1%	6%
Heterosexual Contact	22%	11%

■ **TABLE 32: Average Number of Visits Per Client by Type of Title II Service, 2003**

	Medical Care	Dental Care	Mental Health Services	Substance Abuse Treatment	Case Management
Number of Clients	215	25	6	1	821
Number of Visits	710	39	10	1	11,530
Average Number of Visits per Client	3.3	1.56	1.67	1	14

FIGURE 59: Average Number of Visits Per Client by Type II Service, 2000–2003



	Medical Care	Dental Care	Mental Health Services	Substance Abuse Treatment	Case Management
2001	*3.0*	*1.5*	*37.1*	*57.3*	*5.7*
2002	*2.7*	*1.4*	*31.5*	*39.2*	*13.8*
2003	*3.3*	*1.6*	*30.4*	*33.9*	*14.0*

AIDS Drug Assistance Program (ADAP)

Since 1987, Congress has appropriated funds to assist states in providing FDA-approved antiretroviral therapies to AIDS patients. With the initial passage of the Ryan White CARE Act in 1990, the assistance programs for antiretroviral therapies were incorporated into the Title II award and became commonly known as ADAP. ADAP now provides FDA-approved HIV-related prescription drugs to under-insured and uninsured individuals living with HIV/AIDS. For many people with HIV, access to ADAP serves as a gateway to a broad array of healthcare and supportive services, as well as other sources of coverage including Medicaid, Medicare, and private insurance.

In Colorado during 2003, persons enrolled in ADAP were able to access the following classes of anti-retroviral medications: nucleoside analogues, protease inhibitors and non-nucleosides. During calendar year 2003, 1,219 clients accessed ADAP. Of the 1,219 clients, 145 were new. Most ADAP clients were male (87%), fell within the age range of 25–44 (59%) and identified as primarily White (57%), Hispanic (24%), or Black (13.5%). Asian, American Indian/Alaska Native and other were represented in very small numbers.

Prior to July 1, 2001, the financial eligibility criteria for ADAP were at or below 185 percent of the Federal Poverty Level. On July 1, 2001, the financial eligibility was expanded to include people at or below 300 percent of the Federal Poverty Level.

Number and Characteristics of Individuals Who Know They Are HIV Positive but Who Are Not in Care?

The Health Resources and Service Administration (HRSA) defines unmet need as lack of evidence of any of the following three components of HIV primary medical care: viral load, CD4 count, or use of antiretroviral therapy during a 12-month period. Colorado law requires that laboratories report all tests indicative of HIV infection to CDPHE. All viral load tests and CD4 counts less than 500_{mm3} absolute or under 29% are reported to the surveillance program. The results are entered into the HARS on a yearly basis. Viral load and CD4 tests are used by care providers to determine if it is appropriate to initiate antiretroviral treatment. These tests enable us to identify and characterize HIV infected persons who are receiving primary medical care and those who are not in care. Additional laboratory information is obtained by conducting medical record chart reviews and contact with primary care providers. The following table describes the pattern of primary medical care.

Table 33 shows the unmet need of primary medical care. Of the 284 persons diagnosed living with AIDS in 2003, two (<1%) were not receiving primary medical care. A much higher percentage of persons diagnosed with HIV in 2003 were not receiving medical care (18%). This may be the result of persons who had a recent negative HIV test and are now recently infected and may not feel the need immediate medical care. Nine percent of persons newly diagnosed HIV or AIDS in 2003 were not in care.

TABLE 33: Colorado Determination of Unmet Need

	Number of Persons Living	Number of Persons Receiving Primary Medical Care	Number of Persons Who are Not in Primary Medical Care (unmet need)
AIDS Diagnosed 2003	284	282 (99%)	2 (<1%)
HIV Diagnosed 2003	248	203 (82%)	45 (18%)
Total HIV/AIDS Diagnosed 2003	532	485 (91%)	47 (9%)

Table 34 illustrates the demographic characteristics of the 47 persons recently diagnosed with HIV or AIDS not in primary care by diagnostic category. The majority are male (87%). Whites comprise the highest percent by racial group (57%). Blacks represent 17% and Hispanics represent 21% of persons not in primary medical care. The largest age group not in care is among 30–39 year olds (40%) followed by 40–49 year olds (28%). MSM are the largest risk group not in care (53%), followed by persons with no identified risk (28%).

TABLE 34: Demographics of Persons Not in Primary Medical Care Diagnosed in 2003

	Persons Living with HIV	Persons Living with AIDS	Total Living with Either HIV or AIDS
Sex			
Male	39 (86.7%)	2 (100%)	41 (87.2%)
Female	6 (13.3%)	0 (0%)	6 (12.8%)
Current Age Group			
<13	0 (0%)	0 (0%)	0 (0%)
13–19	1 (2.2%)	0 (0%)	1 (2.1%)
20–24	2 (4.4%)	0 (0%)	2 (4.3%)
25–29	7 (15.6%)	1 (50%)	8 (17%)
30–39	18 (40%)	1 (50%)	19 (40.4%)
40–49	13 (28.9%)	0 (0%)	13 (27.7%)
>49	4 (8.9%)	0 (0%)	4 (8.5%)
Race			
White (non-Hispanic)	26 (57.8%)	1 (50%)	27 (57.4%)
Black (non-Hispanic)	8 (17.8%)	0 (0%)	8 (17%)
Hispanic	9 (20%)	1 (50%)	10 (21.3%)
Asian (non-Hispanic)	0 (0%)	0 (0%)	0 (0%)
American Indian (non-Hispanic)	2 (4.4%)	0 (0%)	2 (4.3%)
Multiple Race (non-Hispanic)	0 (0%)	0 (0%)	0 (0%)
Hawaiian/Pacific Islander (non-Hispanic)	0 (0%)	0 (0%)	0 (0%)
Risk			
MSM	24 (53.3%)	1 (50%)	25 (53.2%)
IDU	4 (8.9%)	0 (0%)	4 (8.5%)
MSM/IDU	2 (4.4%)	0 (0%)	2 (4.3%)
Heterosexual Contact	3 (6.7%)	0 (0%)	3 (6.4%)
No Identified Risk	12 (26.7%)	1 (50%)	13 (27.7%)
Other	0 (0%)	0 (0%)	0 (0%)
Total	**45 (100%)**	**2 (100%)**	**47 (100%)**

Table 35 shows the demographic characteristics of the 485 persons receiving medical care who were diagnosed with either HIV or AIDS in 2003. When compared to persons not in care, they are more likely to be MSM. Persons in the 30 to 39 age group and with no identified risk are less likely to be receiving primary medical care.

TABLE 35: Demographics of Persons in Primary Medical Care Diagnosed in 2003

	Persons Living with HIV	Persons Living with AIDS	Total Living with Either HIV or AIDS
Sex			
Male	178 (87.7%)	241 (85.5%)	419 (86.4%)
Female	25 (12.3%)	41 (14.5%)	66 (13.6%)
Current Age Group			
<13	0 (0%)	0 (0%)	0 (0%)
13–19	1 (0.5%)	0 (0%)	1 (0.2%)
20–24	21 (10.3%)	5 (1.8%)	26 (5.4%)
25–29	34 (16.7%)	16 (5.7%)	50 (10.3%)
30–39	75 (36.9%)	109 (38.7%)	184 (37.9%)
40–49	50 (24.6%)	110 (39%)	160 (33%)
>49	22 (10.8%)	42 (14.9%)	64 (13.2%)
Race			
White (non-Hispanic)	129 (63.5%)	166 (58.9%)	295 (60.8%)
Black (non-Hispanic)	27 (13.3%)	46 (16.3%)	73 (15.1%)
Hispanic	44 (21.7%)	63 (22.3%)	107 (22.1%)
Asian (non-Hispanic)	2 (1%)	0 (0%)	2 (0.4%)
American Indian (non-Hispanic)	1 (0.5%)	3 (1.1%)	4 (0.8%)
Multiple Race (non-Hispanic)	0 (0%)	3 (1.1%)	3 (0.6%)
Hawaiian/Pacific Islander (non-Hispanic)	0 (0%)	1 (0.4%)	1 (0.2%)
Risk			
MSM	133 (65.5%)	159 (56.4%)	292 (60.2%)
IDU	9 (4.4%)	37 (13.1%)	46 (9.5%)
MSM/IDU	9 (4.4%)	19 (6.7%)	28 (5.8%)
Heterosexual Contact	33 (16.3%)	32 (11.3%)	65 (13.4%)
No Identified Risk	19 (9.4%)	35 (12.4%)	54 (11.1%)
Other	0 (0%)	0 (0%)	0 (0%)
Total	**203 (100%)**	**282 (100%)**	**485 (100%)**

Antiretroviral Drug Resistance Surveillance in Colorado

The Colorado Department of Public Health and Environment (CDPHE) and the Centers for Disease Control and Prevention (CDC) is engaged in a pilot surveillance project designed to estimate the prevalence of transmission of Antiretroviral Drug Resistant (ARVDR) Strains of HIV in Colorado. This surveillance project was designed to confirm recent research findings, which report the prevalence of drug resistance strains in drug naïve patients as >5% in the United States.[19] These research findings hypothesize that patients receiving HIV drug treatment may not be following drug regimes and, as a result, are developing and transmitting drug resistance strains of HIV. Antiretroviral drug resistance is seen as problematic in newly infected populations, because it can limit initial HIV treatment options.

The Colorado Department of Public Health and Environment Institutional Review Board (IRB) approved the ARVDR Surveillance project in January 2003. As a result of this review, the IRB determined that the project provided beneficial information to individuals and did not present any additional risks to patients receiving an HIV test. Therefore, consent was not required to submit residual serum specimens for ARVDR surveillance. CDPHE began submitting specimens to the Stanford Virology Laboratory for genotype testing and the CDC Serum Bank for phenotype testing in February 2003.

In addition to testing for HIV drug resistance through genotype and phenotype testing, the Serological Testing Algorithm for Recent HIV Seroconversion (STARHS) is also applied to remnant diagnostic HIV positive serum per the ARVDR surveillance protocol. STARHS is used to determine if the specimen represents a recent infection (HIV infection acquired in the last 170 days). However, STARHS is under an investigational new drug classification through the Food and Drug Administration and consent needs to be obtained before a specimen can be submitted for STARHS evaluation.

Between July 1, 2003 and June 30, 2004, 285 HIV tests have been reported to be eligible for ARVDR surveillance. Eligibility for this project is determined using three factors:

- The individual must be 13 years of age or older
- The individual must not have received antiretroviral therapy prior to the reported HIV test being used for ARVDR surveillance
- The individual's diagnostic HIV test must not have been more than three months prior to the test being used for ARVDR surveillance purposes

During this same time period, 119 specimens were genotype tested at the Stanford Virology Laboratory, no specimens were phenotype tested at the CDC and results from 70 specimens evaluated using STARHS were reported to CDPHE. The following figures outline the results reported for those specimens.

TABLE 36: Demographic Characteristics of Individuals Tested Through ARVDR Surveillance

Characteristic	All Persons Tested Through HIV ARVDR Surveillance		Persons Have Some Level of ARVDR		Persons Classified as Recent Infections Using STARHS	
	n=119	(%)	n=14	(%)	n=23	(%)
Sex						
Male	111	93.28	14	100	23	100
Female	8	6.72	0	0	0	0
Age Group						
<13	0	0	0	0	0	0
13–19	5	4.20	0	0	2	8.69
20–24	19	15.97	2	14.28	6	26.10
25–29	16	13.45	2	14.28	4	17.39
30–39	41	34.45	7	49.99	7	30.44
40–49	30	25.21	3	21.43	3	13.04
>49	5	4.20	0	0	1	4.35
Missing	3	2.52	0	0	0	0

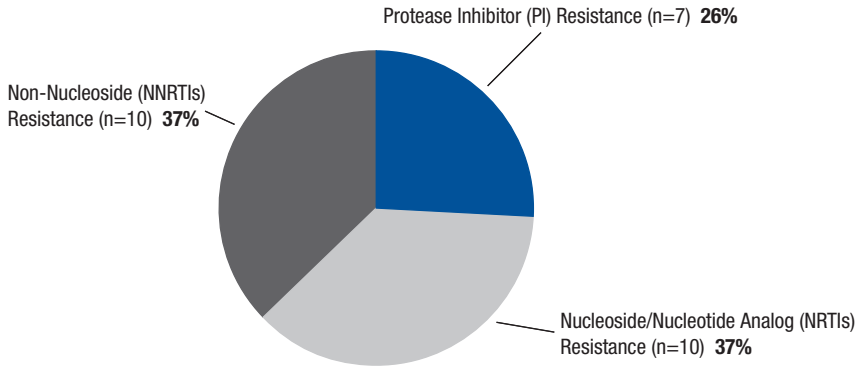
continued on page 69

TABLE 36: Demographic Characteristics of Individuals Tested Through ARVDR Surveillance
continued from page 68

Characteristic	All Persons Tested Through HIV ARVDR Surveillance		Persons Have Some Level of ARVDR		Persons Classified as Recent Infections Using STARHS	
	n=119	(%)	n=14	(%)	n=23	(%)
Race						
White (non-Hispanic)	70	58.82	8	57.14	14	60.87
Black (non-Hispanic)	16	13.46	2	14.29	3	13.04
Hispanic	13	10.92	3	21.43	4	17.39
Asian (non-Hispanic)	0	0	0	0	0	0
American Indian (non-Hispanic)	0	0	0	0	0	0
Multiple Races/Other	0	0	0	0	0	0
Missing	20	16.81	1	7.14	2	8.70
Risk						
MSM	75	63.03	8	57.14	20	86.96
IDU	4	3.36	1	7.14	0	0
MSM/IDU	8	6.72	2	14.28	0	0
Heterosexual Contact	10	8.41	1	7.14	1	4.35
No Identified Risk	14	11.76	1	7.14	0	0
Other	8	6.72	0	0	2	8.70

In **Figure 60**, the prevalence of HIV drug resistance is shown by separate drug class. In the time period of this report, 119 specimens were submitted to Stanford Virology Laboratory for genotype testing. Out of all the specimens submitted, 14 specimens had some level of drug resistance.

Figure 60: Prevalence of HIV Drug Resistance by Drug Class



In **Figure 61** on the following page, the prevalence of HIV drug resistance is shown for those people that were evaluated as having a Long Term Infection (identified more than 170 days after infection) by STARHS. This figure is also separated by drug class. There were 8 instances of drug resistance among 47 people classified has having Long Standing Infections. No drug resistance was seen among those people considered to have a Recent Infection (Infection occurring less than 170 days prior to testing).

■ **Figure 61: Prevalence of HIV Drug Resistance by Drug Class in Person with Long Standing Infection**

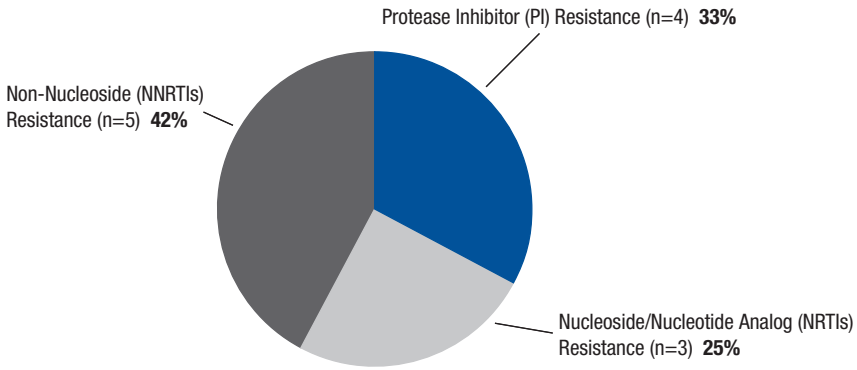


Figure 62 illustrates the facility type were those specimens submitted for ARVDR surveillance were initially tested for HIV. These sites provided CDPHE with specimens that had enough leftover serum to be sent for genotype testing. The primary sites where specimens were obtained for ARDVR testing were HIV counseling and testing sites and STD clinics.

■ **FIGURE 62: ARDVR Specimens Submitted for Genotype Testing by Facility**

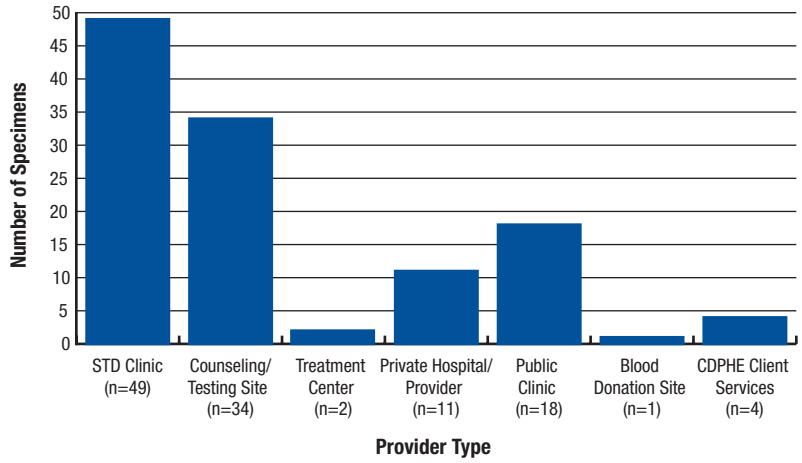


Figure 63 illustrates the facility type where those specimens testing positive for some level of HIV drug resistance originated. Out of the 119 specimens that were submitted for testing, only 14 presented with some ARVDR.

■ **FIGURE 63: ARDVR Specimens Positive for Resistance by Facility Type**

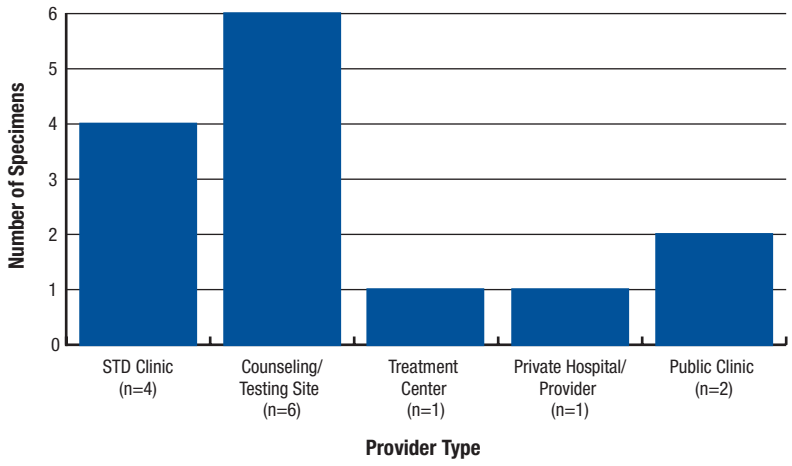
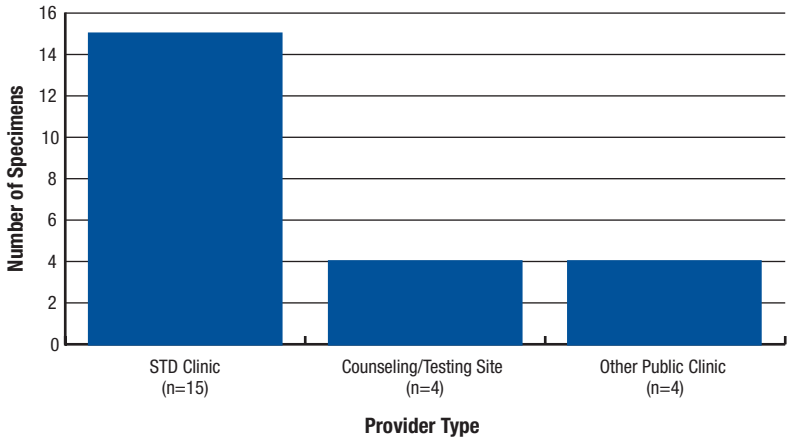


Figure 64 shows the facility type for specimens that were evaluated and classified as Recent Infection (HIV infection acquired in the last 170 days) by STARHS. A total of 70 specimens were evaluated using the STARHS algorithm. Forty seven of specimens were consider to be long standing infections and 23 specimens were considered to be recent infections.

■ **FIGURE 64: Recently HIV Infected Specimens by Facility Site Type**



Sentinel Surveillance of Variant and Resistant HIV-1 Strains, Denver, Colorado, from 1998 to 2000

The Sentinel Surveillance of Variant and Resistant HIV Strains (SSVRS) in the United States research study was conducted in nine Denver HIV counseling/testing and HIV care sites from 1998 to 2000. The Denver Public Health collected specimens and data in 1998–2000. Preliminary drug resistance data are available from plasma specimens collected sequentially from persons who were eighteen years or older, diagnosed with HIV within the past twelve months, had no AIDS-defining conditions, and who reported no antiretroviral drug use, i.e., were drug-naïve as confirmed by medical chart

review. Summary data from ten cities (including Denver) were published in 2004 in the June 15 Journal of Infectious Diseases.[20] Of 1,082 persons enrolled and successfully tested in the 10-city study, 8.3% had evidence of HIV drug resistant mutations. In Denver, evidence of drug resistance was present in 9.5% of 179 persons enrolled and tested.

In Denver, two counseling and testing sites and seven HIV care sites (early intervention and infectious disease clinics) enrolled 179 participants who gave informed consent and allowed blood to be drawn for reverse transcriptase (RT) and protease genotyping. Phenotypic testing was performed on those specimens with an RT or major protease mutation associated with lowered antiretroviral drug susceptibility. Through phenotypic testing, the inhibitory concentration of specific antiretroviral drugs to stop the growth of live virus by 50 percent, (the IC50), was measured for 13 major antiretroviral drugs in three drug classes. Additionally, serologic testing for recent HIV seroconversion (STARHS) was conducted on 171 specimens to evaluate drug resistance in persons with more recent infection.

Of 179 specimens, 17 (9.5%) were found to have a mutation associated with resistance to a nucleoside reverse transcriptase inhibitor (NRTI), a non-nucleoside reverse transcriptase inhibitor (NNRTI), or a protease inhibitor (PI). None of the 17 exhibited resistance to more than one drug class. There was no significant difference in presence of drug resistance by age, sex and race/ethnicity, by exposure category, by recent infection or by CD4 count. In Denver, the only statistically significant difference was by site type: HIV care clinics were seven times more likely to have newly diagnosed persons with drug resistance than were HIV counseling and testing sites. (Odds Ratio=7.32, Exact 95% CI: 1.61-67.40, p=.007) (See **Table 37**) The initial questionnaire and follow-up data for Denver are not yet available for "Partner taking HIV medications" for comparison to the larger published study. Of interest, only 2.3% (4 of 171) specimens tested by STARHS showed evidence of recent infection within the past six months.

In comparison, the 10-city study (which included Denver) had more statistical power, and drug resistance was more likely to be present in newly diagnosed HIV positive persons who were White, who reported MSM and whose partners took HIV medications. HIV antiretroviral drug resistance differences by age group, sex, site type, city, recent infection status and CD4 count were not significant in the larger study. Most mutations in Denver were to NRTIs (15 compared to 1 NNRTI- and 1 PI-resistant specimen). This finding was consistent in the 10-city study.

Conducting HIV genotypic testing prior to initiating antiretroviral drug therapy in newly diagnosed persons may be a valuable tool to identify persons who have been infected with virus that has mutations associated with decreased susceptibility to antiretroviral drugs, and to insure that the first therapeutic regimen is most likely to be successful. The presence of nearly 10% major class drug resistance mutations in persons newly diagnosed with HIV in Denver prior to 2001 suggests the need to routinely evaluate antiretroviral drug resistance in persons who have never taken HIV drugs, and to continue routine surveillance for HIV drug resistance in newly diagnosed persons in Colorado and across the US.

TABLE 37: Demographic and HIV Drug Resistance Characteristics in Specimens Collected from Persons Newly Diagnosed with HIV, Denver, Colorado, 1998–2000

	Number	RT or Major PI Mutation N	Percent
	n=179	**17**	**9.5%**
Age Group			
18–25	21	3	14.3%
25–34	78	5	6.4%
35–44	52	7	13.5%
45+	28	2	7.1%
Sex			
Male	161	15	9.3%
Female	18	2	11.1%
Race/Ethnicity			
AA/Black	25	2	8.0%
Hispanic	39	6	15.4%
White	102	9	8.8%
Other	13	0	0.0%
Site Type			
HIV Care Clinic	97	15	15.5%
HIV Testing Site	82	2	2.4%
Exposure Category			
Male-Male Sex	121	12	9.9%
Drug Injection	29	1	3.4%
Heterosexual	29	4	13.8%
Recent Infection	**n=171**		
Yes	45	4	8.9%
No	126	12	9.5%
CD4 Count	**n=57**		
500+	29	3	10.3%
<500	28	0	0.0%
Mutation Associated with Resistance to:			
Nucleoside RT Inhibitor	179	15	8.4%
Non-Nucleoside RT Inhibitor	179	1	0.6%
Protease Inhibitor*	179	1	0.6%
2+ Drug Classes	179	0	0.0%

*Only primary mutations considered for protease inhibitors

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Glossary

AIDS (acquired immunodeficiency syndrome): An HIV-infected person receives a diagnosis of AIDS after the development of one of the CDC-defined AIDS indicator illnesses (see opportunistic infection) or on the basis of the results of specific blood tests (i.e., a CD4+ count of less and 200 cells/microlites or a CD4+ percentage of less than 14). A positive HIV test result does not mean that a person has AIDS.

antiretroviral therapy (ART): Anti-HIV treatments designed to reduce the levels of HIV in a person's body.

CDC: The Centers for Disease Control and Prevention, in the U.S. Department of Health and Human Services, is the lead federal agency for protecting the health and safety of the people of the United States. CDC accomplishes its mission through developing and applying disease prevention and control, environmental health, and health promotion and education activities designed to improve public health in the United States. The CDC provides most of the funding for HIV prevention and HIV Surveillance activities in Colorado.

denominator: Divisor; the term of a fraction, usually written under or after the line that indicates the number of equal parts into which the unit is divided; used to calculate a rate or ratio. For example, in the fraction ¾, four is the denominator.

epidemiology: Study of how diseases or health conditions are distributed in a population. Consequently, an epidemiologist may analyze public health data to determine how a disease is transmitted and to recommend interventions, to identify segments of a population at risk of acquiring a disease, or to monitor disease trends and predict the course and effect of a disease.

exposure categories: To monitor how HIV is being transmitted, HIV/AIDS cases are classified as one of several exposure (risk) categories developed by the CDC.

- *Male-male sexual contact* refers to men who have sex with men (MSM); that is, homosexual or bisexual contact.
- *Injection drug-use* refers to the use of forms of drugs that require injection. Although it may be valuable to know that a person has used illicit drugs through other routes, this information would not be enough to classify a case as an exposure through injection drug use.
- *High-risk heterosexual contact* refers to heterosexual contact with a partner who is at increased risk for HIV infection, i.e., a MSM, an infection drug user, or a person with documented HIV infection.
- *Hemophilia/transfusion/transplant* cases are those resulting from a confirmed transfusion of blood or blood products before 1985.
- *Perinatal HIV* cases define HIV infection in children resulting from transmission from an HIV-positive mother.
- *Unspecified, or no identified risk (NIR)*, cases are those persons who have no reported history of exposure at the time of the report date. This category includes persons for whom the surveillance protocols to document risk behavior information have not yet been completed, persons who have declined to disclose their risk behavior or who deny any risk behavior, and persons who do not know the HIV status or risk behaviors of their sex partners.

Genotype: The genetic constitution of an individual or group.

HAART (highly active antiretroviral therapy): Aggressive anti-HIV treatments that usually include a combination of protease and reverse transcriptase inhibitors, which interrupt the HIV life cycle and whose purpose is to reduce a person's viral load to undetectable levels.

HIV (human immunodeficiency virus): The virus that causes AIDS. A person who has contracted the virus is said to be HIV-positive or HIV infected.

incidence: Refers to the number of new cases of a disease that occur in a population during a specified time, usually a year. Even though HIV data are often presented as "new cases of HIV", these data do not represent new infections (true HIV incidence) because a person may not be tested for HIV during the same period that he or she became infected. On the other hand, incidence can be calculated for diseases (e.g., some STDs). These diseases have clear symptoms that are detectable when a person becomes infected and that cause a person to be tested or to seek treatment shortly after infection.

numerator: Dividend, the term of a fraction, usually written above or before the line that indicates the number of parts that are to be divided; used to calculate a rate or ratio. For example, in the fraction ¾, three is the numerator.

perinatal: The word means "around birth" and is used to describe events that occur during labor and birth, and immediately after delivery. When used to describe HIV transmission, however, this word applies more broadly and describes any time that a mother may transmit HIV to her child—while she is pregnant, during birth, or through breastfeeding.

prevalence: Refers to the total number of persons with a specific disease or condition at a given time. HIV prevalence data are generally presented as "persons living with HIV." HIV prevalence data provided by HIV surveillance programs underestimate the true HIV prevalence because HIV-infected persons who have not yet been tested or reported to the health department are not included.

proportion (percentage): A proportion is a type of ratio in which the numerator is included in the denominator. Because the numerator is a subset of the denominator, a proportion can be thought of as a ratio of a part to the whole. A proportion is usually expressed as a percentage.

rate: Type of ratio that includes a specification of time. In epidemiology, rates express the probability of, or risk for, disease or other events in a defined population during a specified period, often one year.

ratio: The value obtained by dividing one quantity by another. For example, the fraction ¾ is a ratio and can be expressed verbally as "three divided by four". Both rates and proportions are specific examples of ratios.

reporting delay: The time lag between the diagnosis of a new case of HIV or AIDS and the report to the health department. Because of reporting delays, surveillance estimates of cases diagnosed in recent periods underestimate the actual number of cases diagnosed in those periods. Consequently, data for recent periods are adjusted to account for the anticipated number of cases diagnosed, but not yet reported. For AIDS cases, the HIV/AIDS Reporting System (HARS) was used to generate reporting delay fractions.

Ryan White CARE Act: The Ryan White Comprehensive AIDS Resources Emergency Act was created to provide federal assistance to increase the availability of primary health care and support services for persons living with HIV disease, to increase access to care for underserved populations, and to improve the quality of life of those affected by HIV infection. The CARE Act was first enacted by Congress in 1990 and was reauthorized in 1996 and 2000.

HRSA implements the CARE Act and directs assistance through the following channels:

- *Title I* provides support to eligible metropolitan areas (EMAs) with the largest numbers of reported AIDS cases, to meet emergency service needs of persons living with HIV.
- *Title II* provides support to all states and territories to improve the quality, availability, and organization of health care and support services for persons living with HIV and their families.
- *Title III* supports early-intervention outpatient HIV services through funding to public and private nonprofit entities.
- *Title IV* funds public and private nonprofit entities to conduct projects to coordinate services to children, youth, women, and families with HIV/AIDS.
- *Part F* provides support for Special Projects of National Significance (SPNS) to develop and evaluate innovative models of HIV/AIDS care, for AIDS Education and Training Centers (AETCs) to conduct education and training for health care providers, and for the HIV/AIDS Dental Reimbursement Program to assist with providing oral health services to HIV-infected patients.

SHAS: The supplement to HIV/AIDS surveillance (SHAS) questionnaire was collected at Denver Public Health to obtain additional risk, treatment, and substance use information from HIV positive individuals.

surveillance: In a public health context, refers to the intentional collection of data on diseases or other important health conditions in order to monitor where the condition occurs and to determine the risk factors associated with the condition.

Testing (anonymous, confidential): In Colorado, a person can choose to be tested anonymously or confidentially for HIV infection. Positive results of anonymous and confidential HIV tests are reported to the health department, where the information is maintained under the strictest security and confidentiality measures. Persons who are tested anonymously do not provide their names when they are tested. Persons who are tested confidentially do provide their names when they are tested.

Abbreviations

ADAD: Alcohol and Drug Abuse Division
ADAP: AIDS Drug Assistance Program
AETC: AIDS Education and Training Centers
ART: antiretroviral therapy
ARVDR: Antiretroviral Drug Resistance
CARE: Ryan White Comprehensive AIDS Resource Emergency Act
CBP: Client Based Prevention
CDC: Centers for Disease Control and Prevention
CDPHE: Colorado Department of Public Health and Environment
CTCF: Colorado Territorial Correctional Facility
CTS: Counseling and Testing Site
DEA: Drug Enforcement Agency
DOC: Department of Corrections
EMA: Eligible Metropolitan Area
FDA: Federal Drug Administration
HAART: highly active antiretroviral therapy
HARS: HIV/AIDS Reporting System
HRSA: Health Resources and Services Administration
IDU: injection drug user
MSA: metropolitan statistical area
MSM: men who have sex with men
MD: Medical Doctor
NNRT: non-nucleoside reverse transcriptase inhibitor
NRTI: nucleoside reverse transcriptase inhibitor
PI: protease inhibitor
PLWH: people living with HIV
PMSA: primary metro statistical area
PY: person-years
RT: reverse transcriptase
SHAS: Supplement to HIV/AIDS Surveillance
STARHS: Serological Testing Algorithm for Recent HIV Seroconversion
STD: sexually transmitted disease

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