



2001

hiv/aids epidemiology profile for community planning



In memory of Robert Clewis, 1950 – 2000

Robert Clewis was a Seattle native who grew up in central Seattle and attended Garfield High. At the time of his death in December 2000, Robert was a public health educator with Public Health – Seattle & King County, coordinating a large group of volunteers that helped staff the Needle Exchange and leading the methadone voucher program. Robert made a huge difference in the lives of many people, both those he served and those he worked alongside.

"Many of the folks on 2nd Avenue knew Robert from his own days on the street. They held him up as a role model—proof that you can get out of the life and go on to make life better for those around you."

-Kris Nyrop, Executive Director, Street Outreach Services

"Robert created credibility and trust by his sincere care for each person who came through the door—regardless of how 'hopeless' that person may have been in others' eyes. I never saw him give up on anyone—there was always hope in Robert's heart that changes could occur."

-Larry Keil, Operations Manager at the Needle Exchange

"Robert had a gift for connecting with people from all walks of life. He was authentic, and others responded in the same way."

-Sarah Williams, volunteer at the Needle Exchange

"Robert was a man of great joy, and he gave freely of himself to others. These last months, I had never seen him happier. He was in his element—doing good and doing it well. I'll miss him greatly."

-Michael Hanrahan, HIV/AIDS Program Coordinator

HIV/AIDS Epidemiology Profile for Community Planning Seattle-King County, Washington

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HIV/AIDS Epidemiology Profile for Community Planning — Report Highlights

As this report on the epidemiology of HIV/AIDS in Seattle and King County was being completed in June 2001, a milestone in the AIDS epidemic was reached. It was 20 years ago, in June 1981, that the first cases with the disease now known as AIDS were reported in the United States. This initial report, appearing in the *Morbidity and Mortality Weekly Report* from the federal Centers for Disease Control and Prevention, described an unusual form of pneumonia and other rare infections in five young gay men from Los Angeles, CA. In the intervening 20 years more than 400,000 Americans, and more than 21 million persons worldwide, have died from AIDS. Seattle-King County has seen more than 6,000 AIDS cases and 3,500 deaths due to AIDS and the number of persons living with AIDS in the county has increased steadily from about 1,000 persons in 1990 to over 2,500 in 2000.

In this 4th edition of the *HIV/AIDS Epidemiology Profile for Community Planning – Seattle & King County*, we describe the current status of the HIV/AIDS epidemic and changes in the epidemic in our community over the past two decades. Our ability to characterize HIV and AIDS has grown during this time from simple AIDS case reporting to an array of activities addressing: the prevalence and incidence of HIV infection, the natural history of HIV disease progression, social and behavioral correlates of infection, HIV-related health care utilization, and detection and study of early HIV infection. With this report, we seek to provide the Seattle-King County community with science-based data needed to effectively target and evaluate prevention and care services.

We describe both successes and continuing challenges related to the HIV/AIDS epidemic in Seattle-King County. Some of the highlights:

Successes

- AIDS case numbers peaked in 1993 with 649 cases reported among Seattle-King County residents. Since then annual AIDS cases have fallen to a low of about 200 cases reported in both 1999 and 2000.
- Deaths among persons diagnosed with AIDS have declined dramatically, from an average of 443 deaths per year in 1993 through 1995 to fewer than 100 deaths per year in 1998 through 2000.
- AIDS, which had been the leading cause of death among King County men ages 25-44 between 1989 and 1996, dropped out of the top three causes of death in this group beginning in 1997.
- No child born to a King County resident in 1998 or later has been reported with perinatally-acquired HIV.
- HIV prevalence and incidence remain low among heterosexual injection drug users.

Continuing challenges

- HIV and AIDS in Seattle-King County increasingly affect women, and women with HIV/AIDS are younger on average than men. Although the number of women reported with AIDS each year has remained relatively stable since the early 1990s, the percentage of all reported AIDS cases who are women has risen from only 1-2% in the 1980s to 10-12% in recent years.
- Racial and ethnic minorities are disproportionately affected compared to Whites. In recent years, the rate of AIDS among African Americans, Hispanics, and American Indians/Alaska Natives has been 3 times the rate among Whites in King County.
- Racial disparities are even greater among women, with the AIDS rate for African American females being 19 times that of White females during 1997-99.
- Behavioral risks for HIV transmission continue at high levels in some population groups. In one study of drug injectors, over two-thirds had shared needles in the past 6 months. Risky behavior such as unprotected sex and sex while high on drugs or alcohol continue among many gay men surveyed.
- Infectious syphilis had been almost completely eliminated in King County in the mid-1990s, however, a resurgence among men who have sex with men began in 1998, in over 70% of cases associated with coexistent HIV infection. This suggests recent increases in high risk sexual behavior among gay and bisexual men that could lead to rising HIV infection rates.

Where do we go from here?

Much has been accomplished already but there remains much more to do. In a commentary titled **20 Years of AIDS: Honoring those Lost to HIV by Preventing its Future Spread**, Dr Helene Gayle, Director of the CDC National Center for HIV, STD & TB Prevention said, "*History has demonstrated that prevention saves lives, but the fight is far from over. On this twentieth anniversary of the first cases of AIDS in this nation, let us remember those lost by recommitting to all those who can be saved.*"

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I. INTRODUCTION

The purpose of the **HIV/AIDS Epidemiology Profile for Community Planning** is to provide up-to-date data specific to Seattle and King County for use in planning and prioritizing community-based HIV/AIDS prevention and care services. Previous editions were published by Public Health—Seattle & King County in 1995, 1996, and 1999. This 2001 Profile is the first to include statistical data obtained through HIV case reporting, which was implemented in Washington State on September 1, 1999. We will continue to update and revise this publication periodically to serve the needs of community organizations, public health, and regional HIV/AIDS planning council activities.

This profile addresses four questions that are key to effective community planning:

- **What are the sociodemographic characteristics of the community’s population?**
- **What is the current and future impact of HIV/AIDS on the population?**
- **What is the geographic distribution of HIV/AIDS in the community?**
- **Who is at risk for becoming infected with HIV?**

The **HIV/AIDS Epidemiology Profile for Community Planning** brings together many sources of data to present a multi-dimensional profile of the epidemiology of HIV and AIDS in our region. Important differences in rates of HIV infection and AIDS by geographical, demographic, and behavioral characteristics are highlighted and, whenever possible, other relevant sources of information are incorporated. This report is part of a nationwide effort promoted by the Centers for Disease Control and Prevention (CDC) to provide community prevention planning groups with local HIV/AIDS epidemiology data. The Washington State Department of Health compiles a similar Profile concentrating on HIV and AIDS outside Seattle and King County.

Data for the Profile come from Public Health—Seattle & King County, the University of Washington, Washington State Department of Health, the CDC, and other sources as listed below. A more comprehensive discussion of these data sources is included in Appendix B.

- AIDS and HIV case reporting
- Adult Spectrum of HIV-related Diseases and HIV Disease and Care record review studies
- Supplement to HIV/AIDS Surveillance (SHAS) and Young Men’s Survey interview studies
- Anonymous HIV serosurveys
- The Raven, Grackle, and Kiwi studies of injection drug users
- HIV Incidence Study (HIVIS)
- HIV counseling and testing data
- Sexually transmitted disease reporting
- Teenage pregnancy statistics
- Health and risk behavior surveys
- U.S. census and other demographic and geographic population data

II. DESCRIPTION OF KING COUNTY

The HIV epidemic in the United States consists of multiple unevenly distributed regional epidemics among different population groups. These population groups may comprise persons who engage in similar high-risk behavior, such as injection drug use or male-male sex. HIV prevalence in at-risk populations varies geographically across the United States and within states and locales. It is the underlying prevalence of HIV infection and the frequency of high risk contacts between infected and uninfected persons that are the primary determinants of HIV spread. Although race and ethnicity are not risk factors for transmission of HIV or any other sexually transmitted diseases, they are considered markers for complex underlying social, economic, and cultural factors that affect personal behavior and health.

This section presents data on the regional geography and sociodemographic characteristics of the local population. This information is important to assess the context of the current and potential impact of HIV/AIDS in King County relative to other areas of the state and nation. The social, economic, and cultural context of HIV/AIDS must also be considered when designing and implementing prevention programs for diverse populations. More detailed population tables are included in the Appendix or are available on the King County web site at www.metrokc.gov/exec/orpp/agr/agr00.

Geography: King County consists of 2,128 square miles, which places it eleventh in geographical size among Washington State's 39 counties. While the county has only 3% of the state's land area, it is home to about 29% of Washington's year 2000 population of 5,894,121. King County ranks as the thirteenth most populous county in the United States.

AIDS service areas: The 39 counties in Washington State have been divided into six AIDS Service Networks (AIDSNETs). Each AIDSNET is represented on the statewide AIDSNET Council by the most populous county in the network region (see the Appendix for a list of counties by AIDSNET). AIDSNET Region 4 (King County) is unique because it includes just one county.

Seattle and the suburban cities: Eight of the 20 largest cities in Washington are in King County. Seattle (2000 estimated population 540,900) is the largest city within King County (2000 estimated population 1,685,600). As of August 1999, when the city of Sammamish was formed, the county contained 39 incorporated cities, which accounted for approximately 79% of King County's population. Thirty-two percent of county residents reside in Seattle, 47% in incorporated suburban cities, and 21% in unincorporated King County.

Population change: According to the King County Office of Regional Policy and Planning, the King County population grew by 11.8% between 1990 and 2000. During the ten year period, Seattle's population grew by only 4.8% whereas the population of the suburban cities rose by 33.4%, in part due to the incorporation of 8 new cities since 1990. Current population forecasts for King County in 2010 range from 1,833,000 to 1,856,000.

Population growth is unevenly distributed around the county. Suburban cities are acquiring most of the growth through both annexation and construction of new housing units. The cities of Kent, Bellevue, Des Moines, and Lake Forest Park have shown the largest amount of growth since 1990. Seattle continues to grow slowly; its population is now 10% larger than at its low point in 1986. Unincorporated areas of the county lost 30% in population between 1990 and 2000 due to annexation and incorporation.

Immigration: Immigration from other countries is an important component of King County population change. According to the 2000 Annual Growth Report, it is estimated that for the past several years 10,000 persons per year moved to King County from overseas. This means that a large proportion of the County's recent population growth has resulted from international migration as opposed to migration from other parts

of the US. In fact, in the past 2 years domestic migration must have been strongly negative, meaning many more people are moving out of King County than moving in.

Population growth indicators: As described in the 2000 Annual Growth Report, recent indicators of population growth in King County are mixed. However, after 4 years of booming growth in the late 1990s, indications in 1999 and 2000 are that growth is moderating.

-Indications of slowing growth in the past 2 years include:

- Population increases of less than one percent per year
- Slowed job growth—about 32,000 new jobs in 1999 after several years of 40,000 to 50,000 new jobs per year
- Enrollment in public and private elementary schools decreased by 0.5% per year
- Drivers licensing data showing that more people are moving out than are moving in from other states
- Cooling off of the booming housing market in terms of numbers of sales

-Indicators of continuing growth include:

- Immigration from other countries of about 10,000 persons per year
- Job growth, though moderating, continues to out pace population growth. During 1999, about 32,000 new jobs were added compared to around 40,000 jobs per year in the late 1980s to mid-1990s.
- Residential construction showed strong growth in 1999 with 14,600 new units permitted; more than half of these were in apartments or other multifamily buildings

Population age structure: As shown in Table 1, the age distribution of the county's population is also changing in significant ways. Since 1990, the number of children and teens age 10-19 has grown by over 25% while the number of people in their twenties declined by about 20%. The greatest increase in population size was among persons age 45-54.

Racial composition: King County generally has a more racially and ethnically diverse population than the state as a whole. The county is home to more than 50% of the state's African Americans and Asian/Pacific

TABLE 1: Population by age, King County, 1990-1999

Age	1990 Census		1999 Estimate		1990-1999	
	Persons	%	Persons	%	Change	
0-4	140,924	7.0%	106,461	6.3%	1,537	1.5%
5-9	98,828	6.6%	122,936	7.3%	24,108	24.4%
10-14	87,519	5.8%	112,547	6.7%	25,028	28.6%
15-19	87,664	5.8%	105,651	6.3%	17,987	20.5%
20-24	113,613	7.5%	94,794	5.7%	(18,819)	-16.6%
25-29	145,768	9.7%	113,204	6.8%	(32,564)	-22.3%
30-34	154,994	10.3%	132,768	7.9%	(22,226)	-14.3%
35-39	143,966	9.6%	161,287	9.6%	17,321	12.0%
40-44	126,128	8.4%	159,026	9.5%	32,898	26.1%
45-49	93,830	6.2%	140,311	8.4%	46,481	49.5%
50-54	68,806	4.6%	113,860	6.8%	45,054	65.5%
55-59	58,707	3.9%	77,320	4.6%	18,613	31.7%
60-64	55,480	3.7%	56,398	3.4%	918	1.7%
65-69	54,619	3.6%	47,101	2.8%	(7,518)	-13.8%
70-74	43,003	2.9%	45,324	2.7%	2,321	5.4%
75-79	31,859	2.1%	38,699	2.3%	6,840	21.5%
80-84	20,561	1.4%	25,831	1.5%	5,270	25.6%
85+	17,050	1.1%	23,481	1.4%	6,431	37.7%
Total	1,507,319	100.0%	1,677,000	100.0%	169,680	11.3%

Source: US Census, 1980 and 1990; Washington State Office of Financial Management, 1999.

Islanders. Persons of Hispanic ethnicity, however, are less likely to live in King County. Eastern Washington, with only two-thirds of the population of King County, has about 2½ times the Hispanic population.

As shown in Table 2, the overall estimated racial/ethnic composition of King County in 1998 was 80.0% White, 10.1% Asian/Pacific Islander, 5.3% African American, 3.5% Hispanic, and 1.1% American Indian/Alaska Native. Asian/Pacific Islanders showed the largest increase in population between 1990 and 1998 (45.2%) followed by persons of Hispanic ethnicity (30.2%) whereas Whites has the least change (6.1%).

While growth rates of minority populations in the county outside of Seattle exceed the rates of growth in Seattle neighborhoods, Seattle continues to have a higher number of minority residents than does the surrounding county. The largest numbers of African Americans reside in Southeast Seattle. The Auburn area has the highest Native American population. The highest numbers of Asians reside in Southeast Seattle. Seattle north of the Ship Canal has the most people of Hispanic ethnicity.

Economic indicators: The 2000 Annual Growth Report lists 8 key economic indicators for King County: *Real wages per worker* rose 32% from 1994 to 1999, after largely stagnating between 1980-1994.

Table 2. Estimated population by race, King County, 1990 and 1998

	<u>1990*</u>		<u>1998</u>		<u>1990-1998 Change</u>	
	Persons	%	Persons	%	Persons	%
<u>Non-Hispanic</u>						
White	1,256,345	83.3%	1,332,575	80.0%	76,230	6.1%
African American	74,851	5.0%	88,993	5.3%	14,142	18.9%
Native American	15,963	1.1%	18,328	1.1%	2,365	14.8%
Asian/Pacific Islander	115,822	7.7%	168,188	10.1%	52,366	45.2%
<u>Hispanic</u>	44,337	2.9%	57,716	3.5%	13,379	30.2%
Total	1,507,319	100.0%	1,665,800	100.0%	158,481	10.5%

Note: There were 16,409 "Other Race" persons in King County in 1990 Census. Federal OMB Directive 15 reassigns this population to one of the four specific races. Source: US Bureau of Census (1980 Census and PL 94-171 data for 1990) and Washington State Office of Financial Management ('98 est.).

Personal and household income exceeded national averages. Per capita personal income was 150% of the nationwide average in 1998. Total personal income in the Seattle-Bellevue-Everett metropolitan area rose 10.4% in 1998, the second fastest growth rates among all metro areas in the US. Household income exceeded the national average by 29% in 1999.

Percentage of population below the poverty level rose between 1980 and 1990 for all ethnic groups except non-Hispanic Whites. More recent data will be available with the publication of the 2000 census. The highest rates of poverty are among Native Americans and African Americans, with one-third of these ethnic groups living below the poverty level. Smaller proportions of Asian and Hispanic persons live below the poverty level.

New business growth was at a healthy 2.3% per year during the 1990s.

New jobs created exceeded population growth from 1990 to 1999 and averaged 2% per year. In the 5 years from 1994 to 1999, nearly 200,000 new jobs were added.

Employment in industries that export from the region declined slightly in the manufacturing sector in 1999 and nearly half of employment in the County's export industries now involve the export of services rather than raw materials or manufactured goods.

Education background of adults is high. One-third of adults have a college degree compared with 21% nationally; however the County has been importing college graduates to meet the demand for highly-skilled workers.

High school graduation rates dropped 6% between 1994 and 1997 but rebounded in 1997-1998 by 3%.

Nevertheless, in 1997-98, 18.4% of all public high school seniors failed to graduate with their class.

King County economics and growth in a regional context: It is important to view King County in a regional context. King County, with a million jobs, is the ninth largest county in the country in terms of total employment. The County has 45% of Washington jobs but only 29% of the State's population and only 30% of the housing units. King County experienced 65% of the State's job growth since 1995—172,000 jobs, an 18% increase, between 1995-1999. Most of the remaining job growth went to adjoining Snohomish and Pierce counties, leaving only 15% of the job growth in the remainder of the state. The overall trend in the past decade has been that job growth in King County has outstripped new housing units; moreover, housing costs have increased dramatically. This means that neighboring counties increasingly are serving as bedroom communities for the King County employment center.

Poverty rates: The most recent Washington State Population Survey was conducted by the state Office of Financial Management in the spring of 1998. Poverty, income, and education measures in King County as determined by the survey were as follows:

- King County had a lower rate of poverty than any other region of the state with 8.8% of families living below the poverty level (based on the 1997 Income and Federal Poverty Level which for a typical family of four was \$16,400 in 1997). The overall statewide rate of families in poverty was 11.9%. By region, poverty rates in areas other than King County were 10.2% in Clark County; 10.8% in the North Sound region (Whatcom/Skagit/Snohomish counties); 11.0% in the Puget metro region (Thurston/Pierce/Kitsap/Island counties) and 14.0% in the remaining counties of western Washington. Poverty rates were consistently higher in eastern part of the state with rates of 13.1% in Spokane County; 17.2% in Yakima/Tri-cities; and 22.1% in the balance of eastern Washington.
- The median household income in King County was \$49,000 as compared to \$40,707 statewide.
- 5.7% of King County households reported receiving some form of public assistance compared to 6.4% statewide. There was less variation among regions in the percent of households receiving public assistance than would be expected given the more extreme income and poverty differences. The range was from a low of 4.8% in the North Sound region to 8.5% in Yakima/Tri-cities.
- The percent of persons age 17 and older who were married was 53.9%, which was lower than any other area of the state; the statewide average was 58.6%.
- At 3.9%, King County had the lowest percent of persons age 25 and older without a high school diploma. The statewide average was 7.1% and the highest percentages were reported in eastern Washington excluding Spokane (14.0%) and Yakima/Tri-cities (19.2%).
- At 45.2%, King County had the highest percent of persons with a Bachelor's degree or higher compared to a statewide average of 32.8%.

Poverty rates by race/ethnicity and by geographical area within King County will be updated based on the 2000 census. However, these results were not released in time to be included in this report. Data from the 1990 census found that 8% of King County households were below the poverty level and the poverty rate was 6% among Whites, 22% among African Americans, 15% among Hispanics, and 26% among American Indians/Alaska Natives. Also according to the 1990 census, the highest proportion of families below the poverty level lived in Central Seattle, Southeast Seattle, Auburn, and Southeast King County.

Homelessness: Approximately 5,500 persons in King County are homeless on any given day with between 500 and 2,000 being youth. An estimated 25,000 King County residents have experienced homelessness in the past year. These estimates include persons spending nights in shelters for the homeless and those unsheltered. A major obstacle for homeless people becoming housed is the high cost of housing in Seattle and throughout King County. The average apartment rents for \$782 and generally requires first and last month's rent and a deposit. Therefore, a homeless person or family would need about \$2,000 to move into an apartment, plus the on-going monthly rent costs.

Public health service delivery: Public health services are provided by a joint Seattle/King County health department, Public Health—Seattle & King County. For smaller area analyses, the county has been divided into 20 Health Planning Areas (HPA) taking into account sociodemographic characteristics, health service utilization, local health department service areas, political jurisdictions, and sense of community self-identity. The HPA shown in Figure 1 and Table 8 are used in this report for analysis of small area comparisons.

III. OVERVIEW OF HIV/AIDS IN KING COUNTY

The Seattle Metropolitan Statistical Area (MSA, King, Snohomish and Island counties) ranked 56th in AIDS case rates among the 101 metropolitan areas in the United States with populations of 500,000 or more for cases reported between 7/99-6/00. This ranking is similar to 1997 when the Seattle MSA ranked 52nd among 97 metro areas, and is lower than in 1995 when the Seattle MSA ranked 35th. For the period 7/99-6/00, the rate of reported AIDS cases in the Seattle metro area was 11.4 per 100,000 population. New York City had the highest rate at 68.1 cases per 100,000. Other areas with high rates in 1999-00 were Miami (58.3), Fort Lauderdale (56.9), San Francisco (52.6), and West Palm Beach (50.5). The rate in the Portland area was lower than Seattle at 9.6, as was the Tacoma rate at 8.0 per 100,000.

King County (KC) has the highest rate of AIDS of all Washington State counties. Although KC has only about one-third of the state's population, two-thirds of the state's AIDS cases have been diagnosed in KC residents. Since the mid-1980s, however, there has been a steady trend toward proportionately fewer AIDS cases occurring in KC: 75% of the state's AIDS cases in 1986-87 compared to 63% in 1993-94, and 57% in 1998-99.

A. HIV Infection in King County

Prevalence—the estimated number of people with HIV infection in King County: Between 6,000 and 9,000 KC residents are estimated to be infected with HIV including more than 2,500 persons living with AIDS. This estimate was originally developed in 1995-96 and was derived from a revised nationwide HIV case estimate of 650,000-900,000 with the assumption that the proportions of all people living with HIV infection in KC and Washington State were equal to the proportions of all people living with AIDS who had been reported to public health departments. Public Health – Seattle & King County and the Washington State Department of Health previously released a joint publication entitled *HIV/AIDS Estimates and Forecasts* which provided a detailed description of the methods used to estimate number of people living with HIV infection in the different demographic categories. For this report, we have updated the estimates by gender, race, age, and exposure category based on data from persons living with HIV and AIDS and reported as of 3/7/01 (Table 3). These estimates are subject to change over time and as HIV case data become more complete and as the results of other studies become available.

Table 3. Estimated number of HIV-infected people in selected populations in King County, 2000

Category	*% of persons living with HIV/AIDS	Low range Estimate	Mid-point Estimate	High range Estimate
SEX				
Male	91%	5,460	6,825	8,190
Female	9%	540	675	810
AGE GROUP (yrs.)				
<13	0.6%	35	45	55
13-19	1.2%	75	95	110
20-29	23%	1,380	1,725	2,070
30-39	47%	2,820	3,525	4,230
40-49	22%	1,320	1,650	1,980
50+	6%	360	450	540
HIV EXPOSURE				
MSM	70%	4,200	5,250	6,300
IDU (heterosexual)	7%	400	525	650
MSM/IDU	10%	600	750	900
Heterosexual contact	5%	300	375	450
Pediatric exposure	0.6%	35	45	55
Other or unknown	7%	420	525	630
RACE/ETHNICITY				
White, non Hispanic	74%	4,440	5,500	6,660
Black, non Hispanic	14%	840	1,050	1,260
Hispanic	8%	480	600	720
Asian/Pacific Islander	2%	120	150	180
American Indian/AK Native	2%	120	150	180
TOTAL, King County		6,000	7,500	9,000

*Percent of the 4,118 King County residents living with HIV or AIDS and reported to Public Health as of 3/7/01. Numbers in individual categories may not equal total because of rounding.

The estimated percent of persons infected in various HIV exposure groups and by demographic characteristics is described more fully in Section IV: Prevention Target Populations. Table 4 summarizes these findings.

Table 4. Estimated population sizes and percent of KC residents with HIV infection

Gender/risk Category	Est. population	Est. percent with HIV
Men who have sex with men & who inject drugs:	2,500 – 3,800	20 to 40 percent
Men who have sex with men (non injectors):	29,500 – 49,000	14 to 21 percent
Heterosexual drug injectors (male and female):	15,000	1 to 3 percent
Heterosexual non-drug injectors (age 15-69)*:	1.2 million	0.03 percent
Women of childbearing age (age 15-44):	380,000	0.04 to 0.1 percent
Racial/ethnic Category	Est. population	Est. percent with HIV
White (age 15-69)*:	968,458	0.4 percent
African American (age 15-69)*:	61,320	1.2 percent
Hispanic (age 15-69)*:	39,467	1.0 percent
Asian/Pacific Islander (age 15-69)*:	123,043	0.1 percent
American Indian/AK Native (age 15-69)*:	13,239	1.0 percent

*Age 15-69 is chosen to represent a sexually-active age range; population data from the WA State Office of Financial Management are estimates for 1998

Incidence—the estimated number of new HIV infections in King County: Several studies provide information about the number of new HIV infections that occur each year among King County residents. The study methods and results for each of these are described below.

❑ **STAHRs:** A new laboratory method of measuring HIV incidence has provided data on the incidence of HIV infections in King County. Known as the Serologic Testing Algorithm for Recent HIV Seroconversion (STARHS), this method uses a less sensitive EIA test (LS-EIA) for HIV antibody in addition to the standard EIA test. A blood specimen testing positive on the standard EIA test and negative on the LS-EIA indicates recent (within about 140 days) HIV infection. The following algorithm is then used to calculate the number of new HIV infections per 100 uninfected persons per year: (Recent HIV infections) divided by (Recent infections + Persons testing negative) x 140 days divided by 365.2 days x 100.

STARHS was used to estimate HIV incidence among 507 HIV positive sera collected between 1/96 and 10/99 at publicly-funded HIV test sites in King County including the Harborview STD Clinic, Public Health testing sites, and the Seattle Gay Clinic. Incidence was highest among men who have sex with men and also inject drug (MSM/IDU) with an estimated 4% (4 per 100 person-years) of uninfected MSM/IDU acquiring HIV infection per year (Table 5). An estimated 2.5% of uninfected MSM non-injectors acquired HIV annually. Among the MSM/IDU, rates appear to be higher among African Americans and Hispanics compared to Whites. Among MSM non-IDUs, rates appear to be higher in African Americans compared to Whites or Hispanics. However, in both comparisons by race, the differences observed did not reach statistical significance. Rates among IDU and women were significantly lower compared to MSM or MSM/IDU, with an estimated annual HIV incidence of only 0.1% to 0.2%.

Table 5. Estimated HIV incidence in KC by population group and race, 1996-99

Population/Race	HIV incidence per 100 person-yr (95% CI*)	Population/Race	HIV incidence per 100 person-yr (95% CI*)
MSM/IDU	4.0 (1.4-9.3)	MSM, non IDU	2.5 (1.7-3.7)
White	3.9 (1.2-10.0)	White	2.7 (0.1-4.2)
Black	5.8 (0.0-42.4)	Black	4.2 (0.4-12.3)
Hispanic	6.5 (0.0-47.5)	Hispanic	2.1 (0.0-7.9)
IDU, non-MSM	0.2 (0.0-0.7)	Women, all	0.1 (0.1-0.5)

*see footnote for Table 6

STARHS was also used to test stored blood sera collected in the unlinked King County STD Clinic survey from 1990 through 1999. These results suggest that HIV incidence was highest in 1990-91, fell to a low in 1994-95, and has risen since then (Table 6). HIV prevalence and incidence trends may be difficult to interpret based on serial cross-sectional surveys, such as that in the STD Clinic, because of there may be differences in the risk profile and demographic make up of clients seen in different survey years. Also, changes in testing patterns for syphilis and other STDs may influence the results of this type of survey if persons with HIV infection are differentially excluded from serology testing for other infections.

Table 6. Estimated HIV incidence in KC MSM by year, 1990-99

Year of survey at STD Clinic	<u>Men who have sex with men</u>		
	<u>Prevalence</u> %HIV+ (95% CI*)	<u>Estimated Incidence</u> % new HIV+ (95% CI*)	
Total	11.6 (10.2-13.2)	2.4 (0.9-5.0)	*The 95% confidence interval (CI) is the interval within which the point estimate (prevalence or incidence) is expected to fall 95% of the time; if the 95% CIs overlap then the difference in prevalence or incidence is not statistically significant.
1990-91	26.7 (21.4-32.5)	4.9 (0.6-12.5)	
1992-93	14.0 (10.7-18.0)	2.0 (0.2-8.9)	
1994-95	9.5 (6.6-13.2)	1.0 (0.1-4.4)	
1996-97	5.2 (3.3-7.9))	1.7 (0.1-7.6)	
1998-99	8.6 (6.4-11.3)	3.2 (0.8-9.3)	

❑ **Studies of persons repeatedly tested for HIV:** In follow-up studies of MSM repeatedly tested at the Public Health HIV/AIDS Program test site, annual HIV incidence declined from 12% in 1990 to 1.5% in 1997-98; these rates in MSM were substantially higher than those observed among women and heterosexual men attending the same testing site. Public Health's Grackle and Raven follow-up studies of drug injectors found no new HIV infections among 900 to 1,100 KC drug injectors retested each year between 1997-99.

❑ **Extrapolation of national estimates of HIV incidence:** Based on national estimates made in the mid-1990s, between 370 and 740 KC residents acquired HIV infection annually during those years. Subsequent analyses suggested that the true KC incidence may be closer to the lower end of the range. In an article published in the *American Journal of Public Health* in 1996, CDC epidemiologist Scott Holmberg estimated that between 206 and 823 HIV infections occurred annually in the Seattle Metropolitan Statistical Area which includes King, Island and Snohomish counties.

B. AIDS Cases in King County

The next sections review the epidemiology of AIDS in KC through 1999 or 2000, depending on the analysis, and examine trends over time. The data in this section are based on AIDS cases diagnosed among KC residents and reported to Public Health—Seattle and King County. Except for Figure 2 and Table 10, these data have not been adjusted for delays in reporting cases diagnosed in recent years. Persons who are residents of other counties but who receive medical care in KC and persons who moved here after their diagnosis of AIDS in another county or state are not included in these statistics.

Demographic characteristics of persons with AIDS by residence at the time of diagnosis: Of the 6,096 cumulative AIDS cases reported in KC through 12/00, 82% have been diagnosed in Seattle residents and 16% in people living outside the city of Seattle (Table 7). Of Seattle AIDS cases, 88% were attributed to male-to-male sex (MSM), with or without injection drug use, compared to 73% of cases in those living outside of Seattle. Compared to Seattle residents reported with AIDS, those living outside of Seattle when they were diagnosed with AIDS were more likely to be female (10% vs. 4%) and to have been reported as infected with HIV either heterosexually (7% vs. 2%) or through non-MSM injection drug use (8% vs. 5%).

Since asymptomatic HIV reporting began in KC in 9/99 through 12/00, 220 people with non-AIDS HIV infection have been newly diagnosed. Of these, 76% were residents of Seattle, 21% lived outside of Seattle, and 2% had an unknown residence at the time of HIV diagnosis. (Data not shown in Table 7). These HIV cases represent more recent diagnoses compared with AIDS case report data and suggest that the proportion of new HIV infections is increasing outside of Seattle.

Table 7. Demographic characteristics by residence of cumulative KC AIDS cases reported through 12/00

Residence at time of AIDS diagnosis:	Seattle N=4,984		Outside of Seattle N=997		Unknown N=115	
	No.	(%)	No.	(%)	No.	(%)
SEX						
Male	4,793	(96)	902	(90)	108	(94)
Female	191	(4)	95	(10)	7	(6)
RACE/ETHNICITY						
White	3,999	(80)	788	(79)	95	(83)
African American	509	(10)	112	(11)	11	(10)
Hispanic	298	(6)	69	(7)	7	(6)
Asian/Pacific Islander	96	(2)	19	(2)	2	(2)
Am Indian/AK Native	82	(2)	9	(1)	0	(0)
EXPOSURE CATEGORY						
Male/male sex (MSM)	3,862	(77)	662	(66)	76	(66)
Injection drug use (IDU)	264	(5)	75	(8)	7	(6)
MSM/IDU	538	(11)	74	(7)	11	(10)
Heterosexual sex	116	(2)	69	(7)	9	(8)
Other/Unknown*	204	(4)	117	(12)	12	(10)
TOTAL CASES (row %)	4,984	82%	997	16%	115	2%

*Blood products or undetermined HIV exposure

Rates of AIDS by geographic area within King County: Mapping of the residence of AIDS patients at the time of diagnosis generally reveals marked concentrations of cases in urban areas of greatest population density. Within Washington, the majority of cases reside in King County, although the County's proportion of cases has dropped from about 75% in the late 1980s to 50-60% in recent years. There is also great geographic variation in where AIDS cases occur within KC, with about 82% of cases residing within the city of Seattle at the time of AIDS diagnosis. This information is important in planning AIDS care services and in targeting HIV prevention efforts.

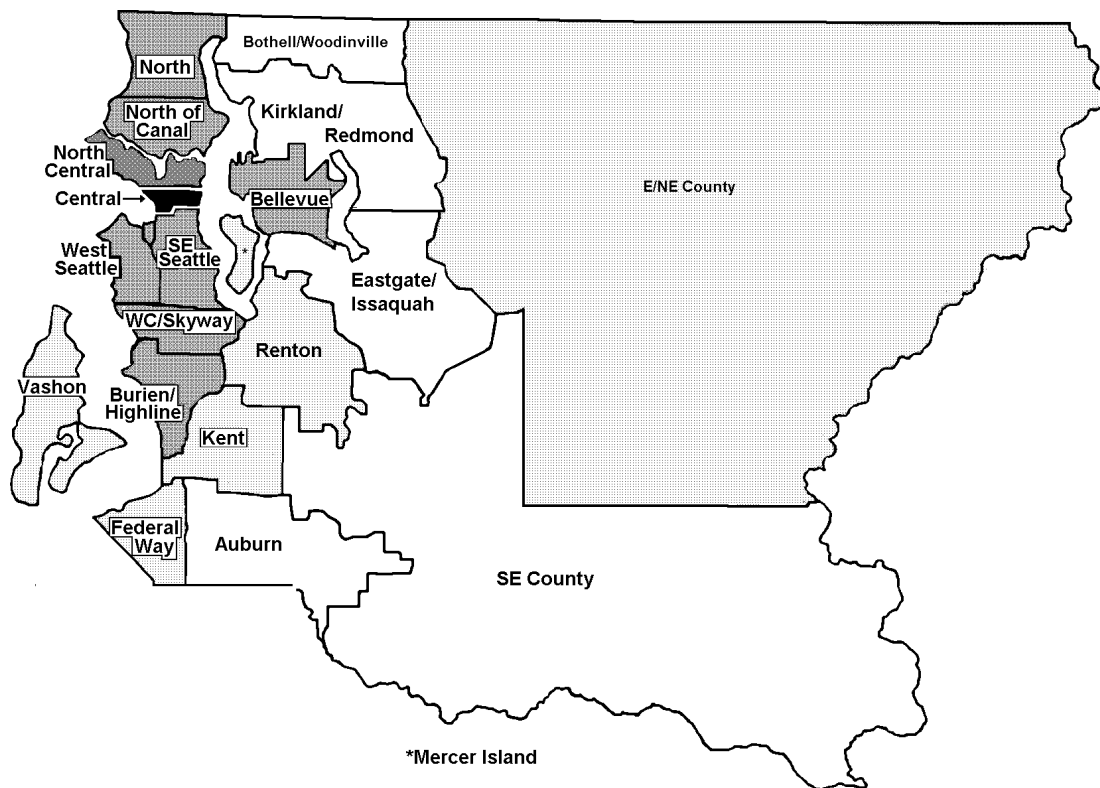
In the figure and tables below, rates of AIDS cases per 100,000 population diagnosed from 1997-1999 and reported through 5/30/00 were calculated by geographical area in King County. The population for each area for each of the three years was estimated by extrapolation from the U.S. Bureau of Census 1990 census. The Health Planning Areas used are based on aggregations of census tracts which were originally designed by Public Health-Seattle & King County to correspond as closely as possible with neighborhoods, utilization of clinics, travel patterns, and other factors of community interaction. Since census tract is not recorded for AIDS cases, some change in these boundaries was necessitated by the fact that ZIP codes overlap some census tracts. As a result, geographical areas do not correspond precisely to city boundaries. The confidence intervals take into account the degree of variability in the data and represent the range of values within which, upon repeated measure, the rate can be expected to fall 95% of the time. ZIP codes are shown in Table 8. Cumulative AIDS cases, AIDS cases diagnosed 1997-1999, annual rates per 100,000, and 95% confidence intervals (CI) are shown in Table 9.

The highest rates for AIDS were in Seattle, with lower rates occurring in KC outside Seattle. The overall average annual rate for Seattle was 22.3 (all rates are per 100,000 population). Within Seattle, rates ranged from 8.7 in North Seattle to 99.1 in the Central area. It is important to note that there continues to be a significant decline in the overall average annual rate of AIDS in Seattle since the 1993-1995 report in which the average annual rate was 70.8 per 100,000.

The overall average annual rate for KC outside Seattle also declined, to 4.3 per 100,000. Rates ranged from 8.7 in Bellevue to 1.2 in Southeast counties, and zero cases on Vashon Island during this three year period. While rates of AIDS actually increased in one area, Bothell/Woodinville, it should be noted that rates from areas with small populations will vary as new cases accrue, and should be interpreted with caution.

Table 8. ZIP Codes by geographical area in King County

<u>SEATTLE</u>		<u>KING COUNTY OUTSIDE SEATTLE (CONTINUED)</u>	
Central	98101, 98104, 98111, 98114, 98121, 98122	Burien/Highline	98062, 98138, 98148, 98158, 98166, 98188, 98198
North	98125, 98133, 98155, 98160, 98177	East/Northeast County	98014, 98019, 98024, 98045, 98050, 98051, 98065, 98068, 98224, 98288
North Central	98102, 98109, 98112, 98119, 98199	Eastgate/Issaquah	98006, 98027
North of Canal	98103, 98105, 98107, 98115, 98117, 98145, 98195	Federal Way	98003, 98023, 98054, 98063
Southeast	98108, 98118, 98124, 98134, 98144	Kent	98031, 98032, 98035, 98064
West	98106, 98116, 98126, 98136	Kirkland/Redmond	98033, 98034, 98052, 98053, 98073, 98083
<u>KING COUNTY OUTSIDE SEATTLE</u>		Mercer Island	98040
Auburn	98001, 98002, 98047, 98071	Renton	98055, 98056, 98057, 98058, 98059
Bellevue	98004, 98005, 98007, 98008, 98009, 98039	Southeast County	98010, 98022, 98025, 98038, 98042, 98048
Bothell/Woodinville	98011, 98028, 98041, 98072	Vashon	98013, 98070
		White Center/Skyway	98146, 98168, 98178

Figure 1. Map of AIDS case rates in King County by geographical area, 1997-1999**Table 9. Average annual AIDS rates by geographical area in King County, 1997-1999**

GEOGRAPHICAL AREA	Cumulative AIDS Cases 1982-99	AIDS CASES 1997--99	RATE PER 100,000	LOWER 95% CI	UPPER 95% CI
SEATTLE					
Central	1,400	142	99.1	83.5	116.7
North Central	1,582	120	43.0	35.7	51.5
North of Canal	598	47	9.3	6.8	12.3
North	296	34	8.7	6.0	12.1
Southeast Seattle	374	29	11.5	7.7	16.6
West Seattle	306	30	13.0	8.8	18.6
Subtotal	4,556	402	22.3	20.2	24.6
NON-SEATTLE					
Auburn	60	7	2.7	1.1	5.4
Bellevue	150	22	8.7	5.5	13.2
Bothell/Woodinville	40	5	2.3	0.7	5.3
Burien/Highline	135	15	6.5	3.6	10.6
East/Northeast County	27	4	3.7	1.0	9.4
Eastgate/Issaquah	41	6	2.6	0.9	5.5
Federal Way	95	18	7.0	4.2	11.1
Kent	91	12	4.5	2.3	7.8
Kirkland/Redmond	108	13	2.8	1.5	4.8
Mercer Island	23	3	4.6	0.9	13.1
Renton	84	14	4.1	2.3	6.9
Southeast County	33	3	1.2	0.2	3.3
Vashon	23	0	--	--	--
White Center/Skyway	133	15	6.5	3.6	10.6
Subtotal	1,043	137	4.3	3.6	5.0
ZIP	230	56	--	--	--
UNKNOWN/HOMELESS					
ALL KING COUNTY	5,829	595	11.9	10.9	12.9

AIDS case numbers and deaths: King County AIDS cases increased annually through 1993 when a peak of 649 cases was reported (Table 10 and Figure 2). Case numbers began to decline in 1994 (539 cases), and declines continued through 1999 when an estimated 200 cases are expected after adjustment for reporting delay. AIDS case numbers may be stabilizing as preliminary data adjusted for reporting delay suggests that about 200 cases diagnosed in 2000 are expected to be recorded. *[Note that case reporting in recent years is incomplete due to delays in reporting by medical providers; only about two-thirds of cases are reported within 6 months of AIDS diagnosis.]*

Figure 2 and Table 10 also show the number of deaths among persons with AIDS occurring during each year. As of 12/31/00 a total of 3,574 (59%) of the 6,096 cumulative cases diagnosed through 12/00 had died. Deaths in 1996 were down 37% from the previous three years when an average of 443 (range 438-452) deaths occurred each year. In 1997 deaths of AIDS cases declined an additional 63% with 106 deaths recorded, and in 1998 deaths decreased another 17% with 88 deaths recorded. In 1999, only 51 deaths were reported and preliminary data from 2000 suggest that there may have been a slight increase although reporting of deaths for 2000 is incomplete at this time. Major contributions to these declines in mortality most likely include improvements in antiviral treatment and prophylaxis for opportunistic infections and advances in the ability to use both HIV viral load and CD4 counts to tailor treatment regimens. The net result of the changes in deaths and AIDS incidence is that the number of persons living with AIDS continues to increase (Figure 3). As of 12/00, about 2,525 King County residents were living with AIDS as compared to about 1,750 in 1995.

Table 10. AIDS cases and deaths in KC and percent change by year of diagnosis or death, 1982-2000

Year of diagnosis or death	AIDS cases	% change from previous year	Deaths of persons reported w/ AIDS	% change from previous year
1982	1	--	0	--
1983	11	+1000	5	--
1984	60	+445	18	+260
1985	104	+73	58	+222
1986	186	+79	94	+62
1987	274	+47	137	+46
1988	352	+28	176	+28
1989	461	+31	220	+25
1990	518	+12	261	+19
1991	562	+8	341	+31
1992	620	+10	355	+4
1993	644	+4	440	+24
1994	540	-16	438	-0.5
1995	507	-6	452	+3
1996	418	-18	285	-37
1997	295	-29	106	-63
1998	250	-15	88	-17
1999	200*	-20**	51	-42
2000	202*	+1**	58*	+14**

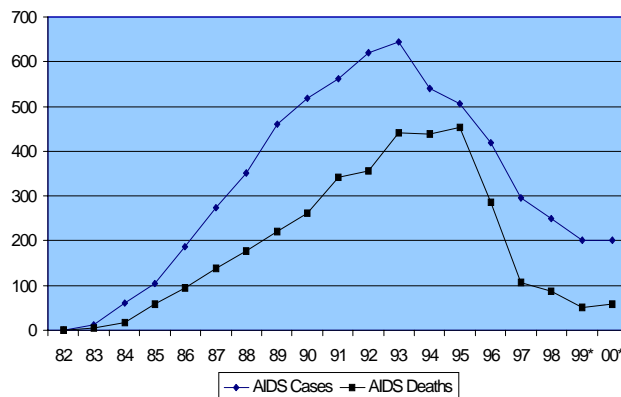
* Expected cases after adjustment for reporting delay

**Preliminary and subject to revision

HIV/AIDS was the leading cause of death in 25-44 year old male KC residents from 1989 until 1996 (Figure 4). In 1997, HIV/AIDS dropped to the fourth leading cause among men in this age group, after unintentional injury, cancer and suicide. In 1998, HIV/AIDS fell further to the fifth leading cause of death among 25-44 year old KC men just behind heart disease (Figure 4), and it was the seventh leading cause among women in this age group (Figure 5). If deaths among only Seattle residents are considered, HIV/AIDS ranked second (after unintentional injury) among men age 25-44 in 1998 and eighth among women in this age range.

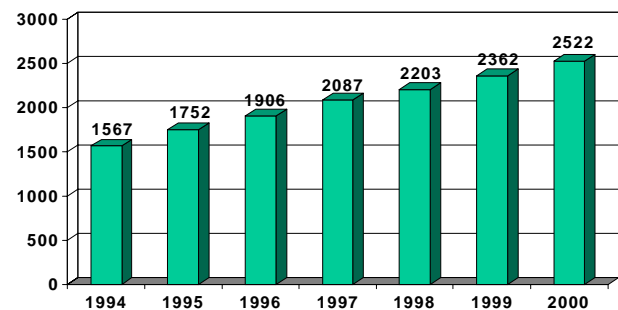
Another way to look at the impact of a specific cause of death in a community is by the analysis of the years of potential life lost (YPLL) before a certain age, usually age 65. The YPLL analysis takes into account both the number of deaths due to competing causes and the age at which death occurs. As shown in Figure 6, in 1998 deaths due to HIV/AIDS in KC had an impact similar to diabetes, chronic liver disease/cirrhosis, and cerebrovascular disease in terms of the number of years of potential life lost before age 65. Unintentional injuries, cancer, heart disease, suicide, and homicide all ranked higher than HIV/AIDS.

Figure 2. AIDS cases and deaths in KC by year, 1982-2000



*adjusted for reporting delay

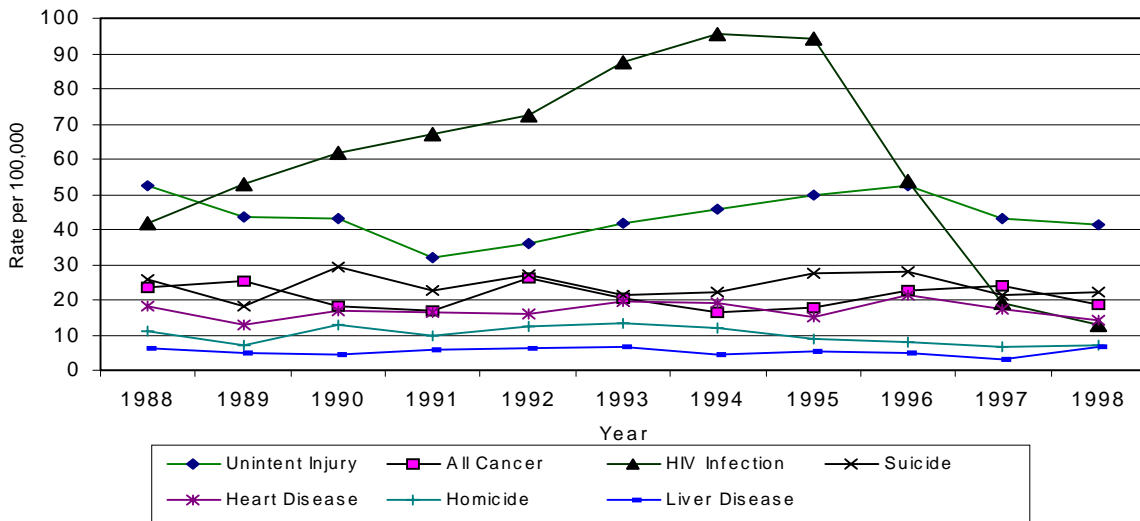
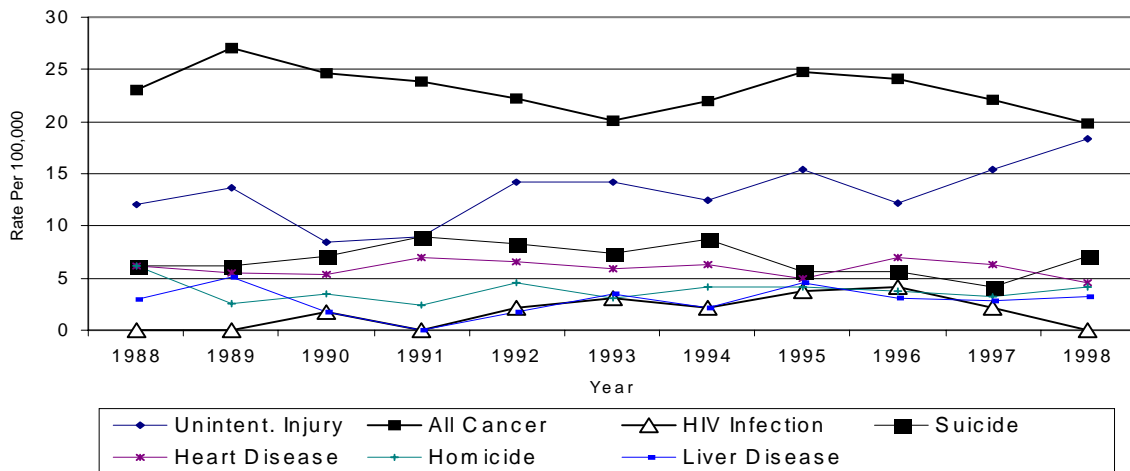
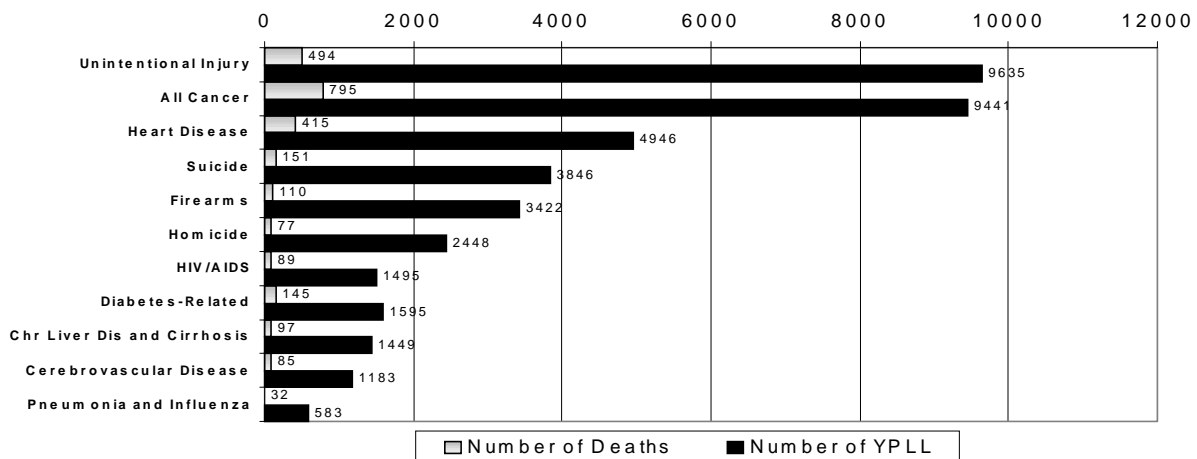
Figure 3. Number of persons living with AIDS in KC by year, 1994-2000



Gender and HIV exposure category: Of the 6,096 cumulative AIDS cases diagnosed in KC, 5,803 (95%) were male and 293 (4%) were female (Table 11). Female cases as a percent of all adult/adolescent cases in KC have risen over time—from 2-3% in 1987-90 to 7% in 1995-96, 8% in 1997, and 9% in 1998-99. In 2000, preliminary data show a marked increase to 14% of KC cases in females (Figure 7). Nationwide, according to statistics from the CDC, females were 17% of the cumulative adult/adolescent cases reported between 1981 and 1999, but 23% of adult/adolescent cases reported in 1999 alone.

Examination of KC AIDS case data by year of diagnosis shows that a decreasing proportion of cases have been among MSM or MSM/IDU (Figure 8). AIDS cases among persons in these risk categories declined from over 90% in 1987-90 to about 75% in 1996-99 and preliminary data for cases diagnosed in 2000 suggests a further decline to about 68%. The proportion of cases among heterosexual drug injectors has risen somewhat from about 4-6% of cases between 1987 and 1994 to 9-13% in recent years.

Among the 5,796 cumulative adult/adolescent male AIDS cases in KC, 79% were men who had sex with other men (MSM), 11% were MSM who were also injection drug users (MSM/IDU), 4% were heterosexual IDU, and 1% were associated with heterosexual transmission (Figure 9). The routes of HIV transmission for KC adult male AIDS cases remained relatively stable between 1987 and 1994. In 1995 and 1996, however, a higher proportion of cases (7%) were associated with IDU and a lower proportion with male-male sex (75%) compared to previous years (data not shown). In 1999, 69% of adult/adolescent male cases were attributed to MSM, 5% to IDU, 11% to MSM/IDU, 3% to heterosexual sex and 11% were reported without a specified risk factor and are undergoing epidemiologic investigation to determine their HIV exposure route.

Figure 4. Leading causes of deaths for males age 25-44, King County, 1988-98**Figure 5. Leading causes of death for females age 25-44, King County, 1988-98****Figure 6. Years of potential life lost before age 65 - King County, 1998**

Nationwide, 56% of all cumulative adult/adolescent male cases were exposed through sex with another man, 8% through male/male sexual contact and IDU, 22% through IDU, and 4% via heterosexual contact. In 1999, the proportion of US adult/adolescent male cases attributed to sex with another male decreased to 44%, while that for heterosexual contact increased to 8%. In 1999, 20% of the adult males were exposed by IDU and 5% had the combined risk of male/male sex and IDU.

Among the 285 cumulative adult/adolescent female AIDS cases in KC, 47% were reported to be exposed by heterosexual contact and 31% by IDU (Figure 9). Further exposure characterization of the 47% attributed to heterosexual contact showed that 15% were exposed by sex with an IDU, 7% with a bisexual man, 2% with a transfusion or blood product recipient, and 23% with an HIV-infected man whose transmission route was not identified on the case report form. Of the cumulative adult/adolescent female cases, 16% did not have an identified mode of exposure reported on the case report form.

Among KC women with AIDS, fewer were related to injection drug use and a greater proportion were related to heterosexual contact as compared to the nation as a whole. Nationwide, 40% of the cumulative AIDS cases in women have been attributed to heterosexual contact, 42% to IDU, and about 15% to other or unknown exposure modes. In 1999 alone, 40% were exposed by heterosexual contact, 27% by IDU, and about 32% had other or unknown exposure modes.

Universal screening of donated blood for HIV antibody began in 1985. The effects of the virtual elimination of HIV transmission through blood transfusion and clotting products are reflected in declining numbers of AIDS cases attributed to blood product exposure in recent years. In 1999, two KC AIDS case attributed to a transfusion or hemophilia treatment were reported. In 2000, reports of KC residents diagnosed with AIDS that year and reported as of 12/31/00 included no cases attributed to blood products.

Figure 7. Trends in percent of total AIDS cases in KC by sex and year, 1987-2000

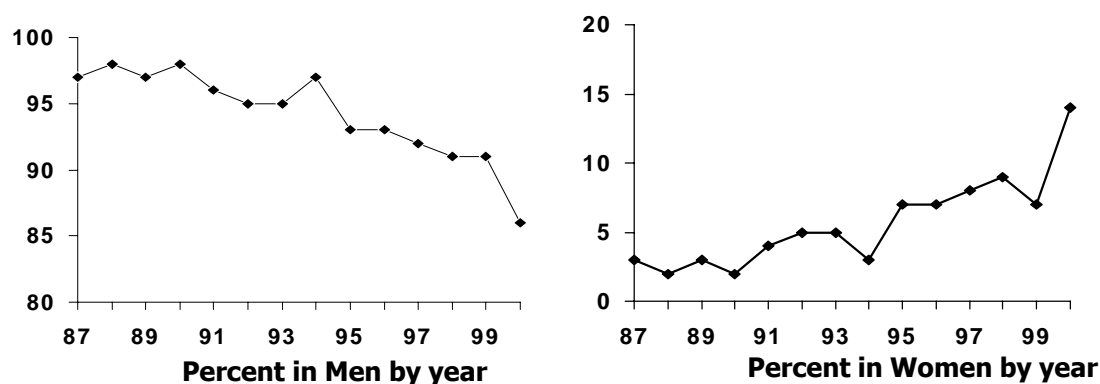


Figure 8. Trends in percent of total AIDS cases in KC by HIV exposure, 1987-2000

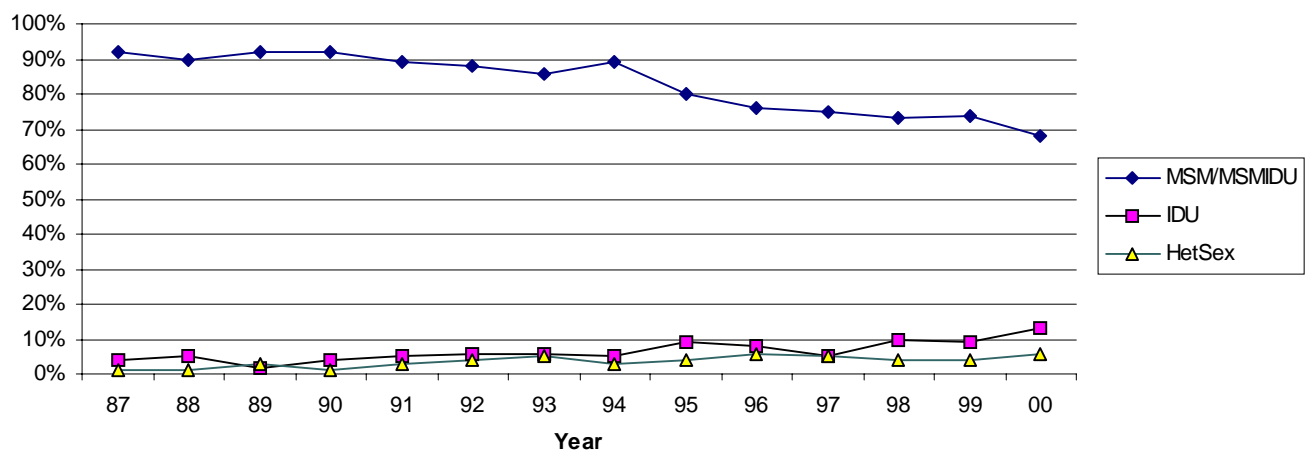
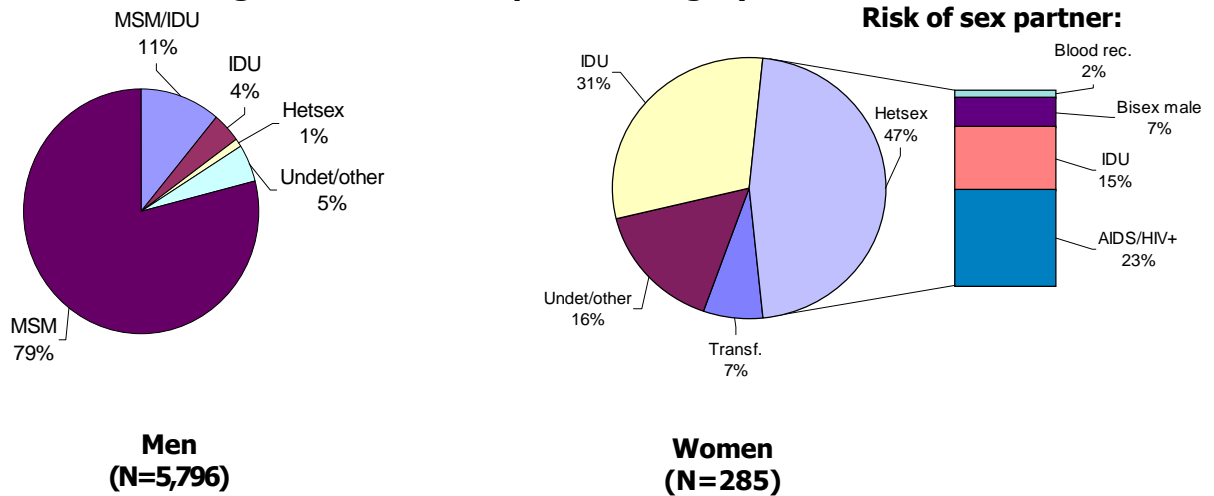


Table 11. AIDS in King County: Cases diagnosed through 2000 and reported as of 12/31/00

Category	Cases diagnosed in 1996		Cases diagnosed in 1997		Cases diagnosed in 1998		Cases diagnosed in 1999 ^a		Cases diagnosed in 2000 ^a		Cumulative cases reported 1982-2000	
TOTAL CASES	418		295		250		180		113		6,096	
SEX	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Male	388	93%	271	92%	227	91%	163	91%	97	86%	5,803	95%
Female	30	7%	24	8%	23	9%	17	9%	16	14%	293	5%
RACE/ETHNICITY												
White, not Hispanic	307	73%	202	68%	162	65%	124	69%	69	61%	4,882	80%
Black, not Hispanic	53	13%	41	14%	46	18%	27	15%	26	23%	632	10%
Hispanic	36	9%	31	11%	30	12%	21	12%	16	14%	374	6%
Asian/Pacific Islander	10	2%	9	3%	6	2%	3	2%	1	1%	117	2%
Am. Indian/AK Native	12	3%	12	4%	6	2%	5	3%	1	1%	91	1%
AGE AT DIAGNOSIS												
<13 (yrs)	3	1%	1	<1%	0	0%	0	0%	1	1%	15	<1%
13-19	1	<1%	1	<1%	0	0%	1	<1%	0	0%	12	<1%
20-29	59	14%	46	16%	32	13%	27	15%	21	19%	1,041	17%
30-39	211	50%	143	48%	122	49%	81	45%	44	39%	2,955	48%
40-49	116	28%	72	24%	63	25%	56	31%	34	30%	1,532	25%
>49	28	7%	32	11%	33	13%	15	8%	13	12%	541	9%
HIV EXPOSURE ^c												
Male/male sex	286	68%	186	63%	159	64%	117	65%	64	57%	4,600	75%
Injection drug use (IDU)	35	8%	15	5%	24	10%	16	9%	15	13%	346	6%
IDU & male/male sex	32	8%	34	12%	23	9%	16	9%	12	11%	623	10%
Heterosexual contact	23	6%	16	5%	11	4%	7	4%	7	6%	194	3%
Hemophilia	3	1%	3	1%	0	0%	1	1%	0	0%	30	1%
Transfusion/transplant	0	0%	3	1%	3	1%	1	1%	0	0%	53	1%
Parent at risk/has HIV	3	1%	1	<1%	0	0%	0	0%	1	1%	14	<1%
Undetermined/other	36	9%	37	13%	30	12%	22	12%	14	12%	236	4%
Deaths During Period	285		106		88		51		49 ^a		3,630	

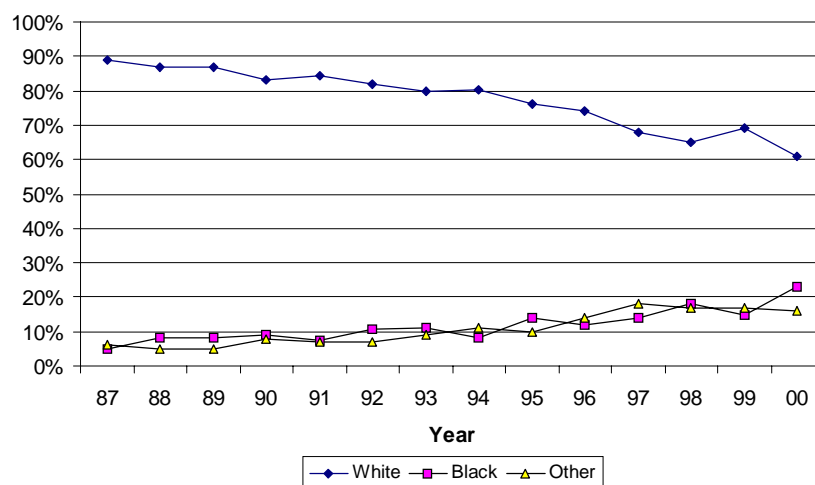
^a Provisional data due to reporting delays^b Cumulative cases in King County residents meeting the 1993 CDC surveillance case definition of AIDS diagnosed through 12/31/00 and reported as of 12/31/2000; includes cases diagnosed prior to 1993^c Cases with more than one risk factor other than the combinations given are tabulated only in the category listed first

Figure 9. Adult/adolescent AIDS cases diagnosed in KC through 2000 by gender and HIV exposure category



AIDS cases by race/ethnicity: The majority of AIDS cases in KC have occurred among Whites, however, people of color comprise an increasing proportion of AIDS cases. People of color were 11% of cases in 1982-86, 14% in 1987-91, 19% in 1992-94, 25% in 1995-96, and 35% in 1998-00. The proportion of KC AIDS cases occurring among African Americans rose steadily from 5% in 1987 to 14% in 1997 and 18% in 1999-00 (Figure 10). Between 1987 and 1999-00, the proportion of cases in persons of Hispanic ethnicity increased from 3% to 13% and cases among Native Americans went from 1% to 2%.

Figure 10. Trends in the percent of total AIDS cases in KC by race, 1987-2000



African Americans and Hispanics also account for a disproportionate number of cases relative to their population in the county. AIDS cases were diagnosed among African Americans and persons of Hispanic ethnicity for the 3-year period of 1997-99 at the average annual rate of 36.0 per 100,000 and 35.9 per 100,000, respectively (Table 12). This compares to a rate of 10.0 for Whites. For each racial/ethnic category, rates were considerably higher for males than females. Overall, the rate in males was 21.9 per 100,000 compared to 1.9 in females, a 12-fold difference (Table 12). It is important to note that with the exception of Asian/Pacific Islanders the average annual rates for each non-white racial/ethnic group continue to be significantly higher than that for Whites.

National statistics also show the marked disproportionate burden of AIDS among people of color. African Americans, who are 12% of the US population, comprise 37% of cumulative AIDS cases. Hispanics total about 9% of the population but are 18% of cases. The AIDS rate for US cases reported in 1999 was 66.0 per 100,000 for African Americans and 25.6 for Hispanics compared to 7.6 for Whites.

The proportion of AIDS cases by race varied between females and males in KC. African American males comprised 14% of the male cases diagnosed between 1997 and 1999 and had approximately three times the AIDS rate of White men. African American females were 47% of the female cases and had a rate 19 times higher than White females (Table 12). Nationwide, the relative difference between rates in African Americans and Whites by sex shows an even greater discrepancy. For US AIDS cases reported in 1999, the rates in African American males and females were 8 and 21 times higher than the rates in White males and females, respectively.

Mode of HIV exposure varied by race (data not shown in tables). Among cumulative White male AIDS cases in KC, 93% had male/male sexual contact with (11%) or without (82%) injection drug use, 3% were reported as heterosexual IDU, and 1% of the cases were exposed through heterosexual contact. African American males were less likely than White males to report having been exposed through male/male sex (69%) and more likely to report having acquired HIV through IDU (14%) or heterosexual contact (4%).

Among male Hispanic cases in KC, 82% were reported with male/male sexual contact, 10% with IDU, and 3% with heterosexual transmission. Among Native American males reported with AIDS, 84% were exposed through male/male sex, including 27% who were reported as MSM who also injected drugs, 9% were heterosexual IDU, and 1% with heterosexual transmission. The HIV risk in male Asian/Pacific Islanders most closely resembled White cases with 88% in men who have sex with men, 3% in heterosexual drug injectors, and 1% with heterosexual transmission.

Among the 293 cumulative female KC AIDS cases there were some differences by race in mode of exposure. Twenty-seven percent of the 161 White women with AIDS had IDU exposure, 51% had heterosexual risk, and 12% unidentified risk. Among 91 African American women with AIDS, 34% had IDU exposure, 37% heterosexual, and 21% unidentified risk.

The number of female cases in KC that were Hispanic (16), Asian (8) and American Indian/Alaska Native (17) was too small to make fully reliable comparisons of mode of exposure. Nevertheless, the distribution of exposure risk was as follows: for Hispanics, 6% had IDU exposure, 63% had heterosexual risk and 13% had no identified risk. For Asians, 38% had heterosexual risk and 50% had no identified risk. Seventy-one percent of American Indian/Alaska Native women had IDU exposure, 24% had heterosexual exposure and 6% had no identified risk.

Age at diagnosis of AIDS: AIDS affects persons at a relatively young age. Almost half (48%) of all KC AIDS cases were between 30 and 39 years old at the time of their AIDS diagnosis, 25% were 40 to 49 years old, and 17% were 20 to 29 years old (Table 11). A higher proportion of female (29%) than male (17%) cases were under age 30 at the time of their AIDS diagnosis. A similar age difference by gender is seen for all US cases. In KC, a cumulative total of 15 pediatric AIDS cases had been diagnosed through 2000, with 8 of these diagnosed since 1992. A cumulative total of 12 adolescent (age 13-19) AIDS cases had been reported, with 6 of these diagnosed since 1992.

The demographic make up of people with AIDS varies by their age group at diagnosis (Table 13). In King County, youth age 13 to 19 and people in their 20's at the time of AIDS diagnosis were more likely to be women or to be people of color compared to persons 30 and older. By exposure category, persons age 20-29 at AIDS diagnosis were less likely to be classified as MSM and more likely to be classified as MSM/IDU compared to people 30 and older. Among persons 50 or older, a somewhat lower proportion of cases were MSM or MSM/IDU and a higher proportion were attributed to transfusion or receipt of blood products compared to persons age 20-49.

Table 12. AIDS cases diagnosed in KC in 1997-1999 and average annual rates per 100,000 population by race/ethnicity*

RACE/ETHNICITY	MALE		FEMALE		TOTAL	
	No.	Rate (95% CI)	No.	Rate (95% CI)	No.	Rate (95% CI)
White, not Hispanic	380	19.1 (17.2-21.1)	19	0.9 (0.6-1.5)	399	10.0 (9.0-11.0)
Black, not Hispanic	74	54.2 (42.6-68.1)	23	17.3 (11.0-25.9)	97	36.0 (29.2-43.9)
Hispanic	63	69.2 (53.2-88.5)	1	1.1 (0.0-5.8)	64	35.9 (27.7-45.9)
Asian/Pacific Islander	13	5.3 (2.8-9.0)	4	1.5 (0.4-3.9)	17	3.4 (2.0-5.4)
American Indian/ Alaska Native	16	60.0 (20.1-23.8)	2	7.2 (0.8-24.6)	18	33.0 (19.6-52.1)
TOTAL, FOR ALL RACES	546	21.9 (20.1-23.8)	49	1.9 (1.4-2.6)	595	11.9 (10.9-12.9)

*Rates in this table were calculated by summing cases diagnosed during 3 year period 1996-1998 divided by the sum of population estimates for each racial/ethnic group for each of the 3 years. Population data were extrapolated from the 1990 U.S. census.

Table 13. Age at AIDS diagnosis by sex, race/ethnicity, and HIV exposure for cumulative KC adult/adolescent AIDS cases diagnosed and reported as of 12/31/00

Category	13-19 yrs No. (%)	20-29 ys No. (%)	30-39 yrs No. (%)	40-49 yrs No. (%)	50 + yrs No. (%)
SEX					
Male	8 (67)	961 (92)	2,832 (96)	1,484 (97)	511 (94)
Female	4 (33)	80 (8)	123 (4)	48 (3)	30 (6)
RACE/ETHNICITY					
White	7 (58)	789 (76)	2,369 (80)	1,247 (81)	463 (86)
African American	4 (33)	129 (12)	290 (10)	157 (10)	46 (9)
Hispanic	0 (0)	87 (8)	189 (6)	77 (5)	19 (4)
Asian/Pacific Islander	0 (0)	12 (1)	69 (2)	28 (2)	8 (1)
Am. Indian/AK Native	1 (8)	24 (2)	38 (1)	23 (2)	5 (1)
HIV EXPOSURE					
Male/male sex	2 (17)	722 (69)	2,266 (77)	1,204 (79)	406 (75)
Inj. drug use (IDU)	1 (8)	67 (6)	163 (6)	100 (7)	15 (3)
IDU & male/male sex	1 (8)	144 (14)	337 (11)	116 (8)	25 (5)
Heterosexual contact	1 (8)	54 (5)	80 (3)	35 (2)	24 (4)
Transfusion/hemophilia	4 (33)	15 (1)	21 (1)	14 (1)	27 (5)
Other/unknown	3 (25)	39 (4)	88 (3)	63 (4)	44 (8)
TOTAL	12	1,041	2,955	1,532	541

C. Persons living with HIV/AIDS in King County, 2000

HIV case reporting in Washington State was implemented on September 1, 1999. In the 18 months between 9/1/99 and 3/7/01, a total of 310 newly-diagnosed HIV (non-AIDS) cases were reported in King County residents. Although the reporting system was new, given that most Washington State laboratories began submitting confirmed HIV-positive antibody test results soon after reporting became law, the 310 reports should represent a significant proportion of the KC residents confidentially tested and diagnosed with HIV infection during the interval (anonymously-tested HIV positive cases are not reported).

HIV (non-AIDS) case reports have also been received for 1,594 persons currently receiving health care who were diagnosed with HIV prior to the implementation of HIV reporting on 9/1/99, of whom 1,518 were presumed alive as of 3/01. These include KC residents diagnosed at any time since 1982 not reported as having progressed to AIDS and not known to have died. Reporting of HIV cases diagnosed prior to 9/1/99 is likely to be relatively less complete at this time. In addition, 2,600 persons living with AIDS had been reported and are not known to have died, resulting in a current total of 4,118 KC residents living with HIV/AIDS.

The epidemiologic profile of the recent HIV cases is likely to better characterize recent HIV transmission patterns compared to AIDS cases or persons infected less recently and currently living with HIV/AIDS. Information about the number and characteristics of persons living with HIV/AIDS is important in planning for health care and social services needs. As shown in Table 14, compared to persons currently living with HIV/AIDS, the 310 KC residents with recently-diagnosed HIV infection are more likely to be:

- ☐ Female (16% vs. 9%)
- ☐ African American (19% vs. 14%)
- ☐ Hispanic (12% vs. 8%)
- ☐ Currently less than 30 years of age (26% vs. 7%) *[Note that persons living with AIDS or longstanding HIV infection would be expected to be older than persons more recently diagnosed with HIV.]*

Unfortunately, a relatively higher percentage of recently-diagnosed HIV cases (14%) were reported without a specified risk factor for HIV exposure compared to all persons living with HIV/AIDS (7%). This makes valid comparisons of transmission route more difficult until public health staff can follow up with health care providers on cases missing HIV exposure information.

The epidemiologic profile of the 4,118 King County residents living with HIV/AIDS differs by gender (Table 14). Females living with HIV/AIDS tend to be younger — 17% are age 13-29 compared to 5% of males. Compared to males, females living with HIV/AIDS are much more likely to be African American (39% vs. 11%) or Native American (5% vs. 1%) and less likely to be White (45% vs. 77%). The proportion of Hispanics and Asian/Pacific Islanders are similar for males and females.

By HIV exposure category, a larger number and proportion of female cases are attributable to heterosexual contact and a higher proportion to the use of injection drugs compared to males (Table 14). For 27% of the female cases, the reporting health care provider did not know or did not report a risk factor for HIV. Many of these cases are likely due to heterosexual transmission from infected men; however, unless the woman knows that a sex partner either had HIV or a known risk factor (e.g., was bisexual or a drug injector), these cases cannot be classified as heterosexual transmission according to definitions established by CDC for epidemiologic classification of HIV exposure category.

Table 14. Persons living with HIV/AIDS by gender and persons with recently diagnosed HIV infection in King County reported as of 3/7/01

Characteristic	Living with HIV/AIDS						Newly-diagnosed HIV cases	
SEX								
Male					3,752 (91)		261 (84)	
Female					366 (9)		49 (16)	
	Male		Female		TOTAL		TOTAL	
	No.	(%)	No.	(%)	No.	(%)	No.	(%)
CURRENT AGE (yrs.)								
<13	5	(<1)	15	(4)	20	(<1)	4	(1)
13-19	8	(<1)	10	(3)	18	(<1)	7	(2)
20-29	185	(5)	52	(14)	237	(6)	70	(23)
30-39	1,465	(39)	146	(40)	1,611	(39)	134	(43)
40-49	1,501	(40)	104	(28)	1,605	(39)	77	(25)
>49	588	(16)	39	(11)	627	(15)	18	(6)
RACE/ETHNICITY								
White	2,892	(77)	163	(45)	3,055	(74)	203	(65)
African American	423	(11)	144	(39)	567	(14)	58	(19)
Hispanic	311	(8)	27	(7)	338	(8)	37	(12)
Asian/Pacific Islander	69	(2)	11	(3)	80	(2)	6	(2)
American Indian/AK Native	53	(1)	19	(5)	72	(2)	3	(1)
Unknown	4	(<1)	2	(<1)	6	(<1)	3	(1)
HIV EXPOSURE								
Male/male sex	2,886	(77)	--		2,886	(70)	189	(61)
Injection drug use (IDU)	192	(5)	98	(27)	290	(7)	26	(8)
Male/male sex & IDU	397	(11)	--		397	(10)	24	(8)
Heterosexual contact	48	(1)	140	(38)	188	(5)	19	(6)
Transfusion/hemophilia	24	(1)	13	(4)	18	(<1)	5	(2)
Mother at risk/has HIV	6	(<1)	16	(4)	22	(1)	3	(1)
Other/unknown	199	(5)	99	(27)	298	(7)	44	(14)
TOTAL CASES					4,118		310	

IV. HIV/AIDS EPIDEMIOLOGY IN PREVENTION TARGET POPULATIONS

This part of the epidemiology profile summarizes HIV/AIDS epidemiology in nine important prevention target populations. These include men who have sex with men (including those who are injection drug users), heterosexual drug injectors, people of color, women, homeless adults, incarcerated people, heterosexuals, young people, pregnant women and children). Data from many sources are incorporated to provide a comprehensive description of the epidemiology of HIV and AIDS in each of these groups.

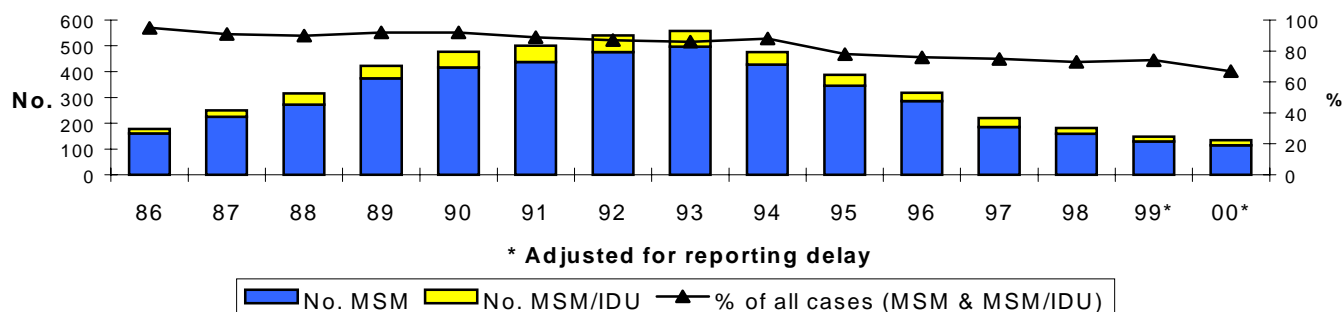
HIV/AIDS in Men who have Sex with Men

SUMMARY: Men who have sex with men (MSM) were the earliest group affected by HIV/AIDS in King County and continue to bear the largest burden of AIDS, HIV infection, and risk of infection. Of persons living with AIDS in King County, 71% are MSM and an additional 10% are MSM who have injected drugs (MSM/IDU). Time trend data through 2000 show that the proportion of AIDS cases who are MSM has gradually decreased while the proportion in women and non-MSM injection drug users has increased somewhat. However, current methods of estimating HIV incidence suggest that the rate of new infections in MSM has been rising over the past several years. In addition, STD rates increased substantially among MSM from 1997 through 2000, indicating significant increases in risky sexual behavior among King County MSM. These findings support the evidence of increasing incidence of new HIV infections among men who have sex with men in King County.

STATUS AND TRENDS IN HIV/AIDS CASES:

- King County AIDS case report data show declining annual AIDS diagnoses in MSM, a trend which began in 1994 and has continued through 2000 (see figure below). Nevertheless, MSM are by far the largest subgroup with AIDS in King County.
- The proportion of newly-diagnosed AIDS cases that are among MSM who do not inject drugs has dropped from 82% in 1982-85 to 62% in 1999-2000.
- The proportion of newly-diagnosed AIDS cases among MSM/IDU has remained at about 10% (varying from 7 to 12%), while the proportion of cases in heterosexual male and female drug injectors has risen from 3% in 1985-89 to 10% in 1998-2000.
- A higher proportion of cumulative AIDS cases diagnosed in residents of the city of Seattle have been MSM or MSM-IDU (88%) compared to residents of King County outside of Seattle (74%)
- Of the 1,340 cumulative HIV (non-AIDS) cases reported in King County as of 12/00, 77% were in MSM or MSM/IDU. Since asymptomatic HIV reporting began in King County in 9/99, 220 people with non-AIDS HIV infection have been newly diagnosed and reported. Of these, 67% were in MSM or MSM/IDU.

No. and Percent of AIDS Cases in King Co. MSM by Year of Diagnosis



POPULATION SIZES:

- Based on data from a variety of sources, Public Health-Seattle & King County estimates that MSM number between 32,000 and 53,000 in King County including approximately 2,500 - 3,800 MSM/IDU. HIV positive MSM are estimated to number 4,800 - 7,200 (midpoint = 6,000), including 600 - 900 HIV positive MSM/IDU.

HIV PREVALENCE:

- Depending on the site or population of MSM and the year of the survey, local HIV prevalence studies show that between 2.5% and 36% of MSM test HIV positive. Higher HIV prevalence rates are generally found in older MSM compared to younger MSM, in MSM with STDs, and in MSM/IDU.
- Among nearly 20,000 men tested at the Public Health HIV/AIDS Clinic between 6/86 and 12/00, the prevalence of HIV was 16% among MSM who did not inject drugs and 26% among MSM/IDU.
- During 1998-99, 8.6% of 488 MSM tested in the unlinked (anonymous) Harborview STD Clinic survey tested HIV positive.

- In the same STD Clinic survey, trend analysis showed that HIV prevalence decreased from 36% for all MSM in 1988-89 to 5% in 1996-97, then rose to 6% in 1998 and 11% in 1999. The declining trend between 1998-97 probably represents both a true decline in HIV prevalence and changes in the population of MSM attending the STD Clinic. The rise observed in 1998-99 is statistically significant and may be a reflection of possible increasing transmission of HIV in the past two years (see section on HIV incidence).
- In the 1999 STD Clinic unlinked survey, 41% of MSM who tested HIV + did not report a prior positive HIV test and did not receive HIV counseling at the survey visit (due to the anonymous study design). These men may not have been aware of their HIV + status.
- Public Health's Raven Study of drug injectors found that about 45% of gay and bisexual men who injected primarily amphetamines were HIV + compared to 29% of gay men and 8% of bisexual men who preferred other drugs (data from 1994-97). Another study conducted in 1994-99 found an HIV prevalence of 6% in MSM/IDU entering drug treatment; for these MSM, heroin was the primary drug used.

HIV INCIDENCE:

- HIV incidence was estimated from testing of 507 HIV positive stored serum specimens collected between 1/96 and 10/99 at publicly-funded HIV test sites in King County using the new less sensitive antibody test (LS-EIA) laboratory technique. These sites included the Harborview STD Clinic, Public Health-Seattle-King County testing sites, and the Seattle Gay Clinic. The STARHS algorithm was used to estimate HIV incidence with results as follows:

Population/Race	HIV incidence per 100 person-yr (95% CI*)	Population/Race	HIV incidence per 100 person-yr (95% CI*)
MSM/IDU	4.0 (1.4-9.3)	MSM, <u>non IDU</u>	2.5 (1.7-3.7)
White	3.9 (1.2-10.0)	White	2.7 (0.1-4.2)
Black	5.8 (0.0-42.4)	Black	4.2 (0.4-12.3)
Hispanic	6.5 (0.0-47.5)	Hispanic	2.1 (0.0-7.9)
IDU, non-MSM	0.2 (0.0-0.7)	Women	0.1 (0.1-0.5)

- LS-EIA testing of stored serum specimens and the STARHS algorithm were used to estimate trends in HIV incidence among MSM attending the King County STD Clinic between 1990 and 1999. HIV incidence was highest in 1990-91, fell to a low of 1.0% in 1994-95, and then increased to 3.2% in 1998-99 as shown below:

Men who have sex with men			*The 95% confidence interval (CI) is the interval within which the point estimate (prevalence or incidence) is expected to fall 95% of the time; if the 95% CIs overlap then the difference in prevalence or incidence is not statistically significant.
Year of survey at STD Clinic	Prevalence %HIV+ (95% CI*)	Estimated Incidence % new HIV+ (95% CI*)	
Total	11.6 (10.2-13.2)	2.4 (0.9-5.0)	
1990-91	26.7 (21.4-32.5)	4.9 (0.6-12.5)	
1992-93	14.0 (10.7-18.0)	2.0 (0.2-8.9)	
1994-95	9.5 (6.6-13.2)	1.0 (0.1-4.4)	
1996-97	5.2 (3.3-7.9))	1.7 (0.1-7.6)	
1998-99	8.6 (6.4-11.3)	3.2 (0.8-9.3)	

- In follow-up studies of MSM repeatedly tested at the Public Health HIV/AIDS Program's HIV test site, the annual new infection rate (proportion of seroconverters among all persons repeatedly tested) declined from 12% in 1990 to 1.5% in 1997-98. This rate remains substantially higher than the rate observed among women and heterosexual men attending this testing site.

BEHAVIORIAL RISKS:

- Project Shape conducted by the University of Washington School of Social Work interviewed 257 HIV + MSM in 1997-99 who had had anal sex with a male partner in the past 4 months outside of a mutually monogamous seroconcordant relationship. The correlates of these men having unprotected anal sex with a partner whose HIV status was either negative or unknown were:
 - ✓ a larger number of one-time partners
 - ✓ less disclosure of HIV status
 - ✓ negative attitudes about condoms
 - ✓ minimizing the likelihood and seriousness of causing new HIV infections
 - ✓ minimizing HIV transmission risks and personal responsibility
 - ✓ seeking sex for excitement or relief (as opposed to love)
- In 1999-00, the Sleepless in Seattle Study recruited 1,000 MSM at sites specializing in health care and HIV testing for MSM. All MSM interviewed had had anal sex within the previous year. The following behaviors were reported during the 2 months prior to interview:
 - ✓ 85% had any anal sex; 70% had receptive anal sex
 - ✓ 25% had met sex partners in bath houses or sex clubs and 13% had met sex partners in parks
 - ✓ Crystal methamphetamine use with sex was reported by 15% and popper use by 57%
 - ✓ At baths, 43% reported using condoms only "sometimes" or "never" for anal sex; 40% did not discuss HIV status prior to sex a majority of the time
 - ✓ 14% of HIV- MSM had one or more HIV+ sex partner, with the percent being greater among MSM older than 35, those with more than 5 sex partners in the past 2 months, and those that used crystal methamphetamine
 - ✓ 45% of HIV+ MSM had one or more HIV- sex partners and 33% had one or more sex partners of unknown HIV status
 - ✓ The HIV status of a sex partner was more likely to be unknown for partners met at baths or parks
- A multivariate analysis of MSM who were tested at the Public Health HIV/AIDS Program site between 1996-99 found that the following factors were associated with at least a two-fold increased risk of HIV seroconversion as determined by the use of the LS-EIA lab method for detecting recent HIV infection:
 - ✓ Unprotected receptive anal sex in the previous 6 months
 - ✓ Four or more male sex partners in the previous 2 months
 - ✓ A history of having ever traded sex for money or drugs
 - ✓ Age 35 or less

TRENDS IN STD RATES AS AN INDICATOR OF HIV RISK:

- After declines since 1983, STD rates increased substantially among MSM in King County beginning in 1997. The presence of an STD increases the likelihood of HIV transmission by two to fivefold according to the Centers for Disease Control and Prevention, and is a marker for high risk sexual behavior.
- Gonorrhea rates in MSM doubled between 1997 and 1999-00 whereas gonorrhea rates in all other King County residents remained relatively stable. In 1999, the rate of gonorrhea in MSM was 473 per 100,000, over 10-fold higher than the rate of 44 per 100,000 reported among non-MSM.
- Chlamydia rates reported in MSM in King County have more than tripled in the past 5 years, from about 30 per 100,000 in 1996 to about 111 per 100,000 in 2000.
- Early syphilis rates among MSM in King County rose from zero in 1996 to 88 per 100,000 in 1998 and about 150 per 100,000 in both 1999 and 2000.
- Early syphilis rates among HIV+ MSM climbed from 75 per 100,000 in 1997, to 600 per 100,000 in 1998 and nearly 1,200 per 100,000 in both 1999 and 2000.
- Among 160 King County MSM diagnosed with early syphilis between 1997-2000, 71% had known HIV infection and 3% were newly-diagnosed with HIV.
- Of 488 MSM tested in the unlinked STD Clinic survey during 1998-99, 18% of MSM with gonorrhea diagnosed at their clinic visit tested HIV + compared to 7.8% of those without gonorrhea. This compared to an HIV prevalence in women and non-MSM men STD clients of 0.3%, although the overall prevalence among those diagnosed with gonorrhea at their STD Clinic visit was ten-fold higher (3%).

SUBGROUP HIGHLIGHTS:**Young MSM**

- Young MSM are at high risk of acquiring HIV. Data from the Public Health HIV/AIDS Program HIV testing site indicates that of 2,361 HIV + male clients seen between 6/86-12/00, 1% reported first testing HIV + at age 19 or younger; 11% between age 20-24 and 25% between age 25-29.
- The Seattle Young Men's Survey (YMS) conducted by Public Health-Seattle & King County between 10/97 and 2/00 revealed an HIV prevalence of 2% among MSM age 15-22 compared to 5% in MSM age 23-29.
- Six large US cities conducted YMS in 1998-00 and surveyed more than 2,400 MSM age 23-29. Seattle had the lowest HIV prevalence (5%) and Dallas had the highest (18%). Overall, 46% of YMS participants reported unprotected anal intercourse during the previous 6 months; the figure for Seattle was 48%.
- In the Seattle YMS survey of MSM age 23-29, there were 22 participants who tested HIV positive. Nine of these men (41%) had been unaware that they were HIV positive prior to testing in YMS.
- YMS data showed high rates of multiple recent sex partners and high rates of alcohol and drug use. For over 25% of YMS participants with recent multiple sex partners, being high on alcohol or drugs was a reason for unprotected sex. These risks were more common among MSM age 23-29 compared to those 15-22 years of age, as shown below:

Risk behaviors in past 6 months among young MSM in King County

	15-22 yrs (n=368)	23-29 yrs (n=462)
≥ 5 male sex partners	23%	29%
Sex while high on alcohol or drugs	54%	71%
Anal sex	67%	78%
Unprotected anal sex	38%	48%

Men of color

- Most men of color currently living with AIDS reported male-male sex (with or without IDU) as a risk factor for HIV (69%); however this proportion is lower than among White men (92% reporting male-male sex).
- Of male AIDS cases reported through 12/00, 93% of Whites were MSM or MSM/IDU compared to 69% of African Americans; 80% of Hispanics; 84% of Am. Indian/AK Native; and 87% of Asian/Pacific Islanders.
- American Indian/AK Native men have the highest proportion of AIDS cases occurring among MSM/IDU and Asian/Pacific Islanders have the lowest. Of all King County AIDS cases reported through 12/00, MSM/IDU was reported as the HIV exposure category for 27% of American Indian/AK native men; 11% of White men; 11% of African American men; 8% of Hispanic men; and 5% of Asian/Pacific Islander men.

Bisexual men

- Of 7,575 MSM who sought HIV counseling and testing at Public Health's HIV/AIDS Program testing site between 1/88-8/97, 17% also reported one or more female sex partners in the past 12 months. This proportion increased from 15% in 1988 to 21% in 1995 and then decreased to 17% in 1997. The proportion of vaginal intercourse reported to be protected by condom use increased from 14% in 1988 to 36% in 1997.

Amphetamine use in MSM drug injectors

- Amphetamine use was reported by 40% of MSM drug injectors compared to 4% of non-MSM drug injectors in unlinked prevalence surveys conducted at King County drug treatment centers in 1988-97.
- In an interview study of IDUs conducted in King County from 6/94-5/98, amphetamine was the most common injection drug for 33% of MSM injectors compared to 5% of all other injectors. In this same study the prevalence of HIV was 47% in those MSM whose usual injection drug was amphetamine compared to 14% among MSM who primarily injected other drugs.

HIV/AIDS in Injection Drug Users

SUMMARY: Like other cities in the western US, the number of cases of HIV and AIDS among drug injectors is far less than those among gay and bisexual men. However, the percent of AIDS cases attributable to injection drug use (IDU) in King County is on the rise. While the proportion of total AIDS cases that were acquired via drug injection is 6%, in recent years nearly 10% of cases have been attributed to IDU. Drug injection is a more common route of HIV transmission for women compared to men and for people of color compared to Whites.

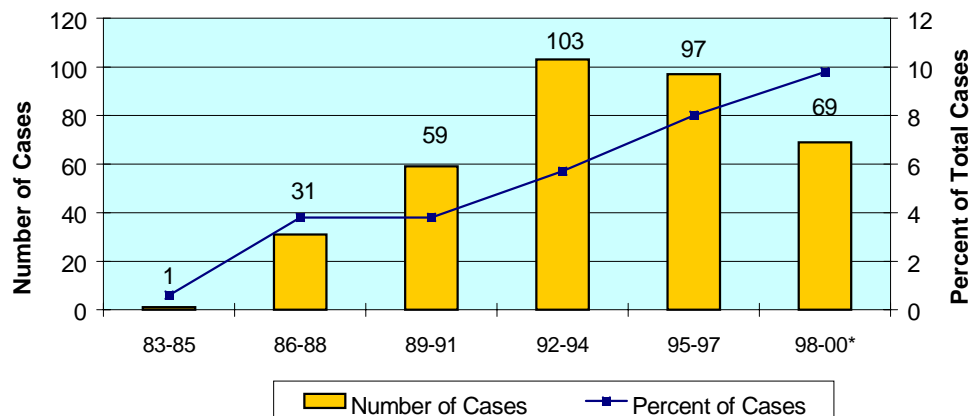
BACKGROUND AND POPULATION SIZES:

- There are an estimated 150,000 people in King County at increased risk of HIV infection because of illicit drug use or alcohol abuse. About 15,000 of these are at increased risk due to drug injection.
- The estimated number of HIV positive heterosexual IDU in King County is 400 to 650 (midpoint = 525).
- The estimated number of men who have sex with men and who also inject drugs is 600 to 900 (midpoint = 750). Most of these men are thought to have acquired HIV through sexual transmission rather than by sharing of injection equipment.
- The information in this fact sheet focuses on heterosexuals whose primary HIV risk is injection drug use. For information on men who have sex with men who also inject drugs, please see the fact sheet that addresses this group.

STATUS AND TRENDS IN HIV/AIDS CASES:

- AIDS in female and heterosexual male IDUs were first reported in King County in 1986. A cumulative total of 346 AIDS cases attributed to IDU had been diagnosed and reported through 12/00, representing about 6% of all county AIDS cases. An additional 100 IDUs had been reported with HIV infection but had not developed AIDS. Of all HIV/AIDS cases, 274 (52% of AIDS and 94% of HIV) were alive as of 12/00.
- The proportion of AIDS cases attributed to IDU among heterosexuals has increased from about 3% of cases in 1983-88 to 6% in 1992-94, 8% in 1995-97, and 10% in 1998-00 (see figure below).

No. and Percent of AIDS Cases in Injection Drug Users, King County 1983-2000*



*Adjusted for reporting delay.

- The overall proportion of AIDS cases among IDU in the US is 25%, or about four times that in King County (6%). The proportion of IDU cases in WA outside of King County (15%) is 2½ times that in King County.

- While the number of male IDUs in King County reported with AIDS (258) is higher than female IDUs (88), the proportion of male cases whose infection was attributed to IDU is 4% vs. 31% of females.
- Injection drug use is a relatively more common route of HIV transmission for King County African Americans with AIDS (14% of cases), American Indians/Alaska Natives (21%), and Hispanics (10%), compared to Whites (4%) or Asian/Pacific Islanders (3%).

HIV PREVALENCE AND INCIDENCE:

- The numbers of AIDS cases in IDUs by year of diagnosis in conjunction with estimates of the average length of time between HIV infection and the diagnosis of AIDS (back calculation), suggest that HIV entered the drug-injecting population in King County in the early to mid-1980s.
- In unlinked (anonymous) surveys conducted by Public Health-Seattle & King County, of more than 7,000 IDU entering King County drug treatment programs from 1988-99, 1.5% tested HIV positive.
- HIV prevalence among clients entering drug treatment has hovered around 2% and has not changed significantly over the 12 years that these unlinked HIV surveys have been conducted in King County.
- IDU in treatment (such as those tested in the unlinked surveys) tend to be at lower risk of HIV than other injectors. In one study, HIV prevalence among IDUs recruited at King County jail and at needle exchange sites was more than twice as high as IDUs in treatment.
- HIV incidence in King County IDU in 1996-99 (as measured by the laboratory LS-EIA method) was estimated at only 0.2 new infections per 100 uninfected IDU per year, compared to 2.5 in men who had sex with men (MSM) and 4.0 in MSM/IDU.
- Evidence of the instability of HIV prevalence in IDUs appeared in nearby Vancouver BC (Canada) in 1994 when an outbreak of HIV began. During the 1994-1997 period, the HIV prevalence in IDUs there rose from 3% to 23%, with a high annual incidence rate of 18 new infections per 100 IDUs.

BEHAVIORAL RISKS AMONG IDUs ARRESTED IN KING COUNTY:

- Public Health-Seattle & King County conducts an interview survey of IDUs arrested and booked into the King County Correctional Facility. Between 8/98 and 2/00, 560 persons (427 men and 132 women) were voluntarily interviewed and tested for HIV.
 - ✓ Nine (2%) were HIV positive with 5 (56%) of the 9 aware and 4 (44%) unaware of their HIV status.
 - ✓ 84% of men and 88% of women reported a prior HIV test.
 - ✓ The median age when study participants began drug injection was 19 years.
 - ✓ In the past month, 66% had injected drugs, with the majority injecting multiple times per day.
 - ✓ In the past 6 months, 62% had injected with a needle that had been used by somebody else.
 - ✓ In the past 6 months, 71% had shared cookers and 59% had backloaded (i.e., divided up drugs with somebody else using the same needle).

OTHER MEASURES OF RISK:

- Although HIV prevalence is relatively low in King County IDU, a high proportion have evidence of previous exposure to other blood-borne viruses. These include antibody to hepatitis C virus (present in more than 80%), antibody to hepatitis B virus (present in about 70%), and antibody to Human T-cell Lymphotropic Virus II (present in 10% or more). *[Note that hepatitis B and C are more easily transmissible than HIV.]*
- There is also evidence that transmission of other blood-borne viruses in local IDU does occur as a result of behaviors that can transmit HIV. In a follow-up study of Seattle-area IDU who had no serologic markers of previous exposure, 20% acquired hepatitis C and 10% acquired hepatitis B virus infection over a one-year period. These incidence rates suggest that risk behaviors persist and that there is a potential for future spread of HIV among IDU. In the same study, HIV incidence in IDUs was less than 0.5% per year.

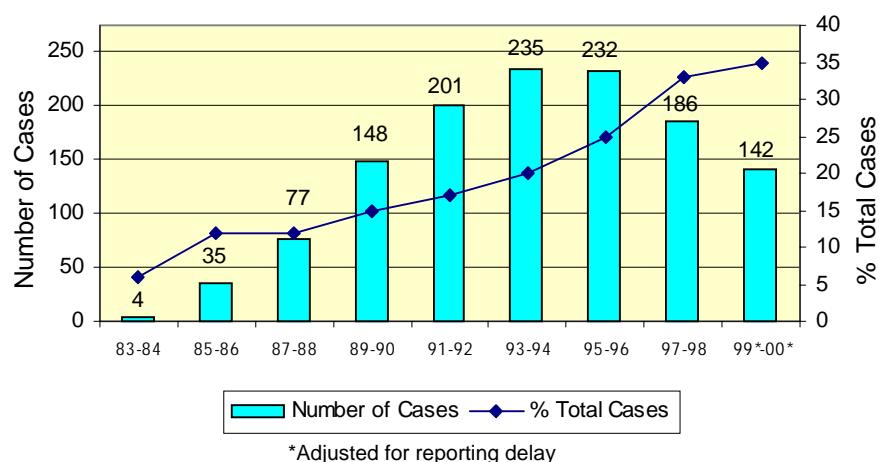
HIV/AIDS in People of Color

SUMMARY: In Seattle-King County, as in the U.S. as a whole, epidemiologic data indicate that HIV and AIDS are disproportionately affecting African Americans, American Indians/Alaska Natives, and persons of Hispanic ethnicity compared to Whites or Asian/Pacific Islanders. The racial disparity is even greater among women and children compared to men.

STATUS AND TRENDS IN HIV/AIDS CASES, WITH POPULATION SIZES:

- Between 1,600 and 2,340 (midpoint = 2,000) people of color residing in King County are estimated to be HIV positive compared to 4,440 to 6,660 Whites. By race/ethnicity this includes: 840 to 1,260 African Americans; 480 to 720 persons of Hispanic ethnicity; 120 to 180 Asian/Pacific Islanders; and 120 to 180 American Indian/Alaska Natives.
- Through December 2000, 1,214 people of color residing in King County had been reported with AIDS, representing 20% of the 6,096 total AIDS cases. Of the 1,340 persons reported with HIV infection (not AIDS) between 9/1/99 and 12/30/00, 27% were persons of color including 15% African Americans, 8% Hispanics, 2% Asian/Pacific Islanders and 2% American Indian/Alaska Natives.
- As shown below, AIDS cases in people of color make up an increasing proportion of all cases in King County, rising from less than 15% of cases in 1983-89 to 25% in 1995-96, and 35% in 1999. This trend has been greatest among African Americans and persons of Hispanic ethnicity.

No. and Percent of AIDS Cases in King County People of Color, 1983-2000



- AIDS rates in recent years (1997-1999) demonstrate the epidemic's disproportionate impact, with rates in African Americans, Hispanics and American Indian/Alaska Natives being over three times that of Whites in King County. AIDS rates in Asian/Pacific Islanders, however, continue to be significantly lower than Whites, as shown below.

	King Co. 1998 Est. Pop. Size		No. King Co. Of AIDS cases in 1997-99		Average annual AIDS case rate per 100,000 pop. (ave. 1997-99)	(95% Confi- dence Interval)
	No.	(%)	No.	(%)		
White	1,332,575	(80.0)	399	(67)	10.0	(9.0 – 11.0)
African American	88,993	(5.3)	97	(16)	36.0	(29.2 – 43.9)
Hispanic	57,716	(3.5)	64	(11)	35.9	(27.7 – 45.9)
Asian/Pac Islander	168,188	(10.1)	17	(3)	3.4	(2.0 – 5.4)
Am Ind/AK Native	18,328	(1.1)	18	(3)	33.0	(19.6 – 52.1)
TOTAL	1,665,800	(100)	595	(100)	11.9	(10.9 – 12.9)

- The racial disparities are greatest among women and children. In 1997-99, the average annual rate of AIDS for African American females (17.3 per 100,000) was 19 times that of Whites (0.9 per 100,000). Also, 8 (57%) of the 14 maternally-acquired pediatric AIDS cases reported in King County through 12/30/00 were born to women of color.
- More African American and American Indian/Alaska Native (AI/AN) men and women acquire HIV from injection drug use compared to other groups. The percent of AIDS cases by race for selected HIV exposure categories for males and females is given below (King County data through 12/00).

MALES (*N* = 5,803)

	<u>White</u>	<u>Af Am</u>	<u>Hisp</u>	<u>Asian</u>	<u>AI/AN</u>
Gay/bisexual non-injectors	82%	58%	72%	83%	57%
Gay/bisexual drug injectors	11%	11%	8%	5%	27%
Heterosexual drug injectors	3%	14%	10%	3%	9%
Heterosexual contact, non-injectors	1%	4%	3%	1%	1%

FEMALES (*N* = 293)

Drug injectors	27%	34%	6%	0%	71%
Heterosexual contact, non-injectors	51%	37%	63%	38%	24%
Transfusion recipients	8%	4%	6%	13%	0%
Undetermined	12%	21%	13%	50%	6%

HIV PREVALENCE:

- Seroprevalence data from unlinked surveys of King County Harborview Sexually-transmitted Disease (STD) Clinic patients indicate higher rates of HIV in heterosexual African American and Hispanic men and women compared to Whites. In STD Clinic surveys conducted in 1998-99, 0.2% of heterosexual Whites (n=1504) tested HIV positive compared to 0.7% of African Americans (n=562) and 0.7% of Hispanics (n=146). No heterosexual Asian/Pacific Islanders (n=587) since 1990 or American Indian/Alaska Natives (n=217) since 1992 have tested HIV positive in this survey.
- Seroprevalence data from unlinked surveys conducted in 1997-99 in drug treatment facilities located in King County shows significantly lower HIV prevalence rates among Whites (1.0%) entering drug treatment compared to African Americans (3.2%) or American Indians/Alaska Natives (6.2%). None of the 106 Asian/Pacific Islanders tested in this survey since 1991 were HIV positive.
- In surveys of women giving birth in King County from 1989 to May 1995 (when the survey ended), the percent of African American women testing HIV positive (0.3%) was 10 times the percent of White women (0.03%).

OTHER MEASURES OF RISK:

- Information about other STDs is useful in evaluating the risk of HIV transmission. King County STD data indicate much higher rates of gonorrhea, syphilis, and chlamydia among African Americans compared to Whites. For example, in 1998 the rate of gonorrhea in African American men was 9 times higher than the rate in Whites, and among African American women 22 times higher. Compared to Whites, 1998 gonorrhea rates were also significantly higher among American Indians/Alaska Natives and Hispanics, but lower among Asian/Pacific Islanders.
- Among adolescents, the birth rate can also be used as an indication of unprotected sexual activity and therefore risk of HIV infection. King County birth rates in 1997-99 for women 15 to 17 years of age were highest among Hispanics (49 per 1,000), American Indians/Alaska Natives (52 per 1,000), and African Americans (32 per 1,000) and lowest among Whites (11 per 1,000) and Asian/Pacific Islanders (12 per 1,000).

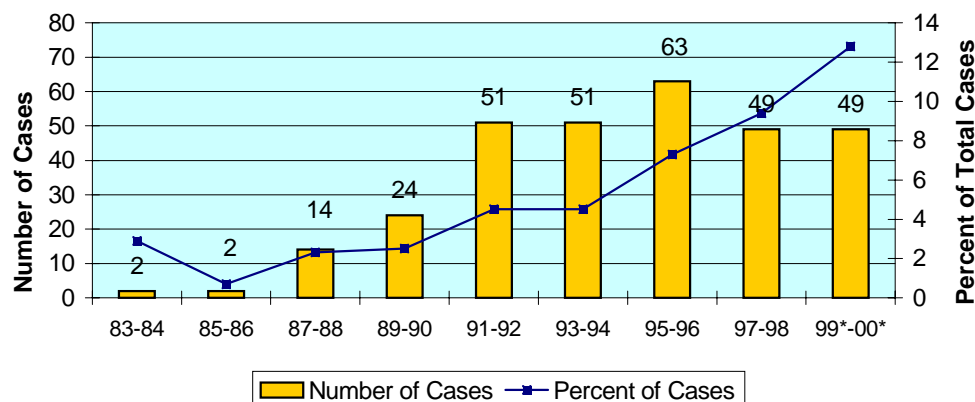
HIV/AIDS in Women

SUMMARY: In King County, women represent a relatively small proportion of the total HIV infections and AIDS cases. However, the proportion of AIDS cases in women and the number of women with HIV infection have increased in recent years, trends that are expected to continue. Women with HIV/AIDS tend to be younger than men, most acquire HIV through sexual contact with HIV-infected men, and women of color are disproportionately affected.

STATUS AND TRENDS IN HIV/AIDS CASES:

- 285 cumulative AIDS cases have been diagnosed and reported in King County females aged 13 and older through December 2000. Reports have been received for an additional 160 HIV positive women who have not developed AIDS to date. Data on asymptomatic HIV infection is incomplete because Public Health-Seattle & King County has only collected this information since HIV reporting was implemented in September 1999.
- AIDS cases in women rose from fewer than 10 cases per year in the 1980s to a peak of 35 cases in 1995. Since 1995, the number of women diagnosed with AIDS in King County has decreased slightly or remained constant each year, with 25-30 expected to be diagnosed in 2000 (not all cases diagnosed in 2000 have been reported as yet). However, the proportion of all cases that are among women has risen consistently, from 1-2% in the 1980s to 10-12% in recent years, as shown in the figure below.

No. and Percent of AIDS Cases in King County Women, 1983-2000*



*Adjusted for reporting delay.

- In King County, women tend to be diagnosed with AIDS at an earlier age than men -- 28% of King County women with AIDS were 20-29 years old at diagnosis compared to 17% of men. Of those who are HIV positive but have not developed AIDS, 40% of women were diagnosed at 20-29 years, compared to 34% of men, and 11% of these women were diagnosed as teenagers, compared to 2% of men.
- Nearly half (47%) of women with AIDS in King County were reported as having acquired HIV through heterosexual contact, 31% through use of injection drugs, 7% by blood transfusion and 16% by undetermined exposures. It is likely that many of the women in the undetermined exposure category acquired HIV through heterosexual contact; however cases are classified as such only when a woman reports having heterosexual relations with an HIV positive man or a man with a known risk (e.g., an injection drug user or bisexual man).
- As of December 2000, 305 women in King County were known to be living with HIV or AIDS (161 with AIDS and 144 with non-AIDS HIV infection). The true number of women with HIV/AIDS is greater than 305 because not all women with diagnosed HIV infection have been reported to Public Health as yet, and an unknown number of HIV positive women have not been tested for HIV and therefore remain undiagnosed.
- In King County, the average annual rate of AIDS in African American and American Indian/Alaska Native women is over 10 times greater than the rate in White women. The rate in Hispanic women is twice that in White women.

AIDS Cases and Average Annual Rates per 100,000 by Race in King Co. Women, 1996-99

Race/Ethnicity	Number*	Percent	Rate
White, non-Hispanic	38	42%	1.9
Black, non-Hispanic	32	35%	18.8
Hispanic	6	7%	4.5
Asian/ Pacific Islander	5	5%	1.5
American Indian/ Alaska Native	10	11%	30.3
Total	91	100%	2.7

*Not adjusted for reporting delay for 1999 data.

- The proportion of cumulative AIDS cases among women in the US is 17%, which is more than three times that in King County (5%).

POPULATION SIZES:

- The estimated number of King County women who are drug injectors or sex partners of drug injectors is 9,000-15,000.
- The estimated number of HIV positive adult/adolescent women in King County is 525 to 785 (midpoint = 655).

HIV PREVALENCE:

- HIV surveys in King County have been conducted to determine HIV prevalence (percent of people currently infected) among selected populations, as shown below. None of these surveys adequately measures the true prevalence of HIV among all women in King County.

Survey	Women No. tested	%HIV +	Survey	Women No. tested	%HIV +
Childbearing Women 1989-1995	123,268	0.04%	PH-SKC HIV Counseling 1988-6/2000	52,900	0.4%
STD Clinic 1988-1999	6,616	0.3%	Job Corps (WA State) 1988-1997	4,806	0.10%
Drug Treatment Centers 1988-1999	3,255	1.4%	Military Recruits (WA State) 1985-1998	20,260	<0.01%

- The prevalence of HIV among the 6,616 women tested for HIV in the unlinked (anonymous) STD Clinic survey has been stable over a 12-year study period from 1988 through 1999.

HIV INCIDENCE:

- HIV incidence was estimated from testing of 507 HIV positive stored blood specimens collected between 1/96 and 10/99 at publicly-funded HIV test sites in King County using the new less sensitive antibody test (LS-EIA) technique. The estimate of new HIV infections among women in this study was 0.1% (1 new HIV infection per 1,000 women per year). In comparison, the rate in all men was 8 times higher at 0.8%.

OTHER MEASURES OF RISK:

- Other sexually or parenterally transmitted diseases can indicate risk for HIV infection. For example, gonorrhea rates in King County women have declined steadily from 238 per 100,000 women in 1988 to 59 per 100,000 in 1998 (most recent data available). However, the gonorrhea rate in African American women was about 7 times greater than in White women in 1998.

HIV/AIDS in Pregnant Women and Children

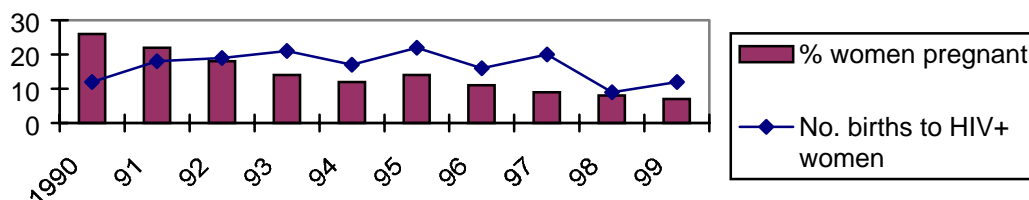
SUMMARY: There have been relatively few children diagnosed with HIV or AIDS locally. In King County, about 0.25% of cumulative AIDS cases have been in children less than age 13 compared to some parts of the US with rates of 1%-2% of cases. It is estimated that about 14 out of every 10,000 women of childbearing age in King County has HIV, with a significantly higher rate of women of color and their children infected compared to Whites. The Centers for Disease Control and Prevention is now reporting a steep decline nationwide in perinatally-acquired HIV resulting from rapid implementation of zidovudine and other antiretroviral therapies to reduce HIV transmission from mother to child. These successes highlight the importance of educating health care providers and the public in general about the benefits of HIV counseling and testing of pregnant women and those who may become pregnant.

AIDS/HIV CASES AMONG CHILDREN IN KING COUNTY:

- A total of 15 pediatric AIDS cases (defined as age 0 to 12 years at the time of AIDS diagnosis) were reported between 1987 and the end of 2000. This represents 0.25% of the 6,096 cumulative AIDS cases.
- Fourteen (93%) of the children with AIDS were infected perinatally (before birth or during labor & delivery) and the remaining child was infected through blood products administered for hemophilia treatment.
- Eight (53%) of the 15 children with AIDS have died with the most recent death being in 1997. Of the remaining 7 children, 3 are now adolescents aged 13 years and older.
- As of 12/00, reports were received for 16 HIV-infected children who had not progressed to AIDS.
- Similar to AIDS, 15 (94%) of the 16 pediatric HIV infections were acquired by perinatal transmission.
- Thus, a cumulative total of 31 children with HIV/AIDS have been reported in King County; 20 are still less than 13 years of age and are not known to have died. The race/ethnicity of the 31 children with HIV/AIDS is 48% African American; 32% White; 13% Hispanic; and 6% Asian/Pacific Islander.
- No child born to a King County resident in 1998 or later has been reported with perinatally-acquired HIV.

HIV POSITIVE PREGNANT WOMEN RECEIVING CARE IN KING COUNTY, 1990-1999:

- Pregnancy is a common condition among HIV-infected women. In the ASD study sponsored by Public Health—Seattle & King County, 509 HIV positive women receiving care with King County providers were followed for an average of 3 years and 133 (26%) were pregnant at any time between 1990-99. *[Note: Some of the 509 women studied in ASD were residents of other counties and some are now deceased.]*
 - ✓ Among the HIV + women followed in this study, there were 9 to 21 births per year (see figure below).
 - ✓ The percent of HIV+ women who were pregnant declined from 26% in 1990 to 7% in 1999 (figure).
 - ✓ The average age of women with any pregnancy was 27 years relative to 34 years in those without pregnancies. Nearly one-fourth (24%) of women with any pregnancy had two or more pregnancies.



- ✓ There were no differences in the race of women who became pregnant vs. those who did not.
- ✓ Compared to women without pregnancy during follow-up, pregnant women were less likely to have a diagnosis of severe mental illness (psychoses & bipolar disorders—5% vs. 14%), but equally likely to be diagnosed with substance abuse (injection or non-injection drug use or alcohol abuse—42% vs. 43%).

HIV/AIDS AMONG WOMEN OF CHILDBEARING AGE (15-44 years) IN KING COUNTY:

- There are an estimated 525-785 (midpoint = 655) HIV-infected adult/adolescent women in King County.
- Approximately 83% of HIV-infected women are 15 to 44 years old, resulting in an estimated 435 to 650 (midpoint = 545) HIV-infected women of childbearing age living in King County.
- Given that there are about 384,000 women age 15-44 years living in King County, this means about 14 out of every 10,000 women of childbearing age has HIV infection.
- Women comprise 7% (148/2104) of persons living with AIDS and 11% (134/1183) of persons living with HIV who were 15-44 years old at the time of their diagnosis. *[Note that HIV case reporting is incomplete at this time].*
- Women comprised 39% of the 57 cases age 13 to 19 at the time of their HIV or AIDS diagnosis.

INFANTS BORN TO HIV POSITIVE MOTHERS AND MATERNAL ANTIRETROVIRAL USE:

- Since 1994, 83 children have been born to HIV positive women followed by perinatal care experts located at the University of WA Department of Obstetrics & Gynecology, Public Health—Seattle & King County's Northwest Family Center or Children's Hospital & Medical Center. Only one of these 83 children was subsequently found to be HIV infected.
- In the same period there were 9 other known HIV-infected children born to mothers who were not in care at one of the above facilities. Many of these mothers were unaware of their HIV status prior to pregnancy.
- Of 41 pregnant women followed by local experts since 1997, 37% were prescribed highly active antiretroviral therapy, 44% dual therapy, and 17% monotherapy. Only one woman did not receive antiretrovirals.

HIV PREVALENCE AND INCIDENCE:

- The Survey of Childbearing Women was a federally-funded, population-based survey that used blood obtained by metabolic screening programs to anonymously test newborns for HIV antibodies; a positive test indicated maternal HIV infection. The survey tested 123,268 infants born from 1989-95 and found maternal HIV infection in 0.04% (about 4 in 10,000) of King County women giving birth. Rates of HIV infection were 10 times higher in African American women compared to White women.
- Local data from 1997 to 1999 found 60 HIV-infected women out of 15,635 women tested at publicly-funded counseling and testing sites (less than 4/1000). Of these, a subset were tested for recent infection by the LS-EIA method and 8 (15%) of 55 were found to have acquired HIV within the past 2 to 5 months.

NATIONAL STUDIES AND POLICY RECOMMENDATIONS:

- A 1994 landmark study known as Pediatric AIDS Clinical Trials Group (PACTG) 076 showed reduction of perinatal HIV transmission from 26% to 8% with maternal and neonatal zidovudine (AZT) use.
- It is now recommended that all pregnant women undergo voluntary HIV screening, and that all HIV positive pregnant women be prescribed an antiretroviral regimen which includes AZT, especially in the last weeks of pregnancy and during delivery, and that children born to these women receive at least AZT.
- Universal HIV screening of pregnant women would reduce provider bias, as providers often do not request HIV tests for women they do not perceive to be at risk; it could also reduce stigmatization around HIV testing that may be felt by pregnant women. The Institute of Medicine has recommended routine HIV testing by a written decline option.
- In PACTG 367, 945 HIV positive pregnant women observed in 1998-99 were accessed for antiretroviral use and pregnancy outcomes.
 - ✓ Of the 945 women, 13% received no antiretrovirals, 19% received AZT alone; and 68% received multidrug antiretroviral regimens with or without a protease inhibitor.
 - ✓ Transmission rates of HIV to the infants were 26% with no antiretroviral therapy, 8% on AZT alone, and 1% to 3% for the other antiretroviral regimens.
- The risk of perinatal transmission increases if a woman acquires HIV during pregnancy, has a high HIV viral load, refuses antiretrovirals, and/or breastfeeds.

HIV/AIDS in Homeless Persons

SUMMARY: Although there have been no local population-based surveys of HIV infection in the homeless in King County, studies from other areas of the country indicate that homeless men and women are at high risk for HIV. Homeless people reported with AIDS in King County were more likely to be people of color and to have been exposed through injection drug use compared to those who were not homeless.

STATUS OF AIDS CASES:

- In King County AIDS case statistics, homelessness is defined as having no resident zip code at time of the AIDS diagnosis. This definition may undercount the number of homeless AIDS cases if, for example, the zip code of a shelter or friend's home was reported as the zip code of residence. Eighty-eight (2%) of the 4,448 AIDS cases diagnosed in King County between 1/91 and 12/00 were reported as homeless.
- Among homeless persons with AIDS, 59% were persons of color and 63% were either injection drug users (IDUs) or men who have sex with men and also inject drugs (MSM/IDUs) compared to 21% and 16%, respectively, among cases with a zip code of residence at diagnosis.

KING COUNTY AIDS CASES REPORTED BETWEEN JANUARY 1991 AND DECEMBER 2000

Homeless at time of AIDS diagnosis:	Yes		No	
	No.	(%)	No.	(%)
Sex				
Male	79	(90)	4,202	(94)
Female	9	(10)	246	(6)
Age				
<13	0	(0)	8	<1
13-19	0	(0)	7	<1
20-29	19	(22)	733	(16)
30-39	47	(53)	2,137	(48)
40-49	18	(20)	1,172	(26)
>49	4	(5)	391	(9)
Race/Ethnicity				
White	36	(41)	3,494	(79)
African American	34	(39)	484	(11)
Hispanic	11	(13)	304	(7)
Asian/Pacific Islander	0	(0)	95	(2)
Am Indian/AK Native	7	(8)	71	(2)
HIV Exposure Category				
Male/male sex (MSM)	25	(28)	3,311	(74)
Injection drug use (IDU)	32	(36)	262	(6)
MSM/IDU	24	(27)	428	(10)
Heterosexual sex	1	(1)	173	(4)
Other (blood products or undetermined)	6	(7)	255	(6)
TOTAL	88	(2)	4,448	(98)

POPULATION SIZE:

- The McKinney Act (Public Health Law 100-628, November 7, 1988) defines a homeless person as: "an individual who lacks a fixed, regular, and adequate residence or an individual who has a primary night-time residence that is either:
 - a supervised or publicly operated shelter designed to provide temporary or transitional living accommodation; or
 - a public or private place not designed for, or ordinarily used as, a regular sleeping accommodation for human beings."
- Approximately 5,500 persons (500-2,000 of whom are youth) are homeless in King County on any given day, and an estimated 25,000 persons have experienced homelessness in the past year. Unsheltered persons outside of Seattle are the least documented segment of King County's homeless.
- Homelessness is a particular concern among injection drug users in King County. In a Public Health survey of 560 drug injectors at the King County Correctional Facility interviewed between 8/98 and 2/00, 63% reported having no permanent residence prior to their arrest.

HIV PREVALENCE:

- In HIV prevalence surveys conducted by the Centers for Disease Control and Prevention between 1989 and 1992 in health clinics serving the homeless in 10 different cities (not including Seattle), the median HIV prevalence was 3.3%.¹
- Unlinked (anonymous) surveys of drug users entering treatment in King County between 1988 and 1991 showed that 5.3% of injection drug users without a permanent address were HIV infected compared to 2.4% of those with a permanent address.²
- Unlinked surveys of drug users entering treatment in King County between 1988 and 1999, revealed that 7% had no permanent address. Those with no permanent address were more likely to test positive for HIV infection (2.0% vs. 1.5%).
- A 1997 time-limited survey of homeless persons attending a downtown Seattle clinic serving a large homeless population found no HIV positives among 103 persons tested (95% confidence interval 0-3.5%).

DATA GAPS:

- HIV infection is one of many serious issues facing the homeless. In order to develop effective prevention and intervention programs for this population, a better understanding of the causes of homelessness and its association with mental illness and substance use problems is needed.
- Improved characterization of demographics, risk behaviors, and health status (including HIV, other sexually transmitted diseases, tuberculosis, substance use, and mental illness) among the homeless is also important.

¹Allen DM, Lehman JS, Green TA, et al. HIV among homeless adults and 'run away youth' 1989 - 1992. **AIDS** 1994;8:1593-1598.

²Harris NV, Thiede H, McGough JP, Gordon D. Risk factors for HIV infection among injection drug users: results of blinded surveys in drug treatment centers, King County, Washington 1988-1991. **JAIDS** 1993;6:1275-1282.

HIV Infection in Incarcerated People in King County

SUMMARY: Although there have been no comprehensive population-based surveys of HIV infection among persons in King County jails[^], results of a voluntary testing program conducted since 1986 indicate that about 2% of inmates tested were HIV positive. Incarcerated populations tend to have a higher prevalence of HIV infection than the general population, at least in part because they are more likely to have engaged in high-risk behavior such as injection drug use. There are also very high rates of chronic hepatitis C, a virus that like HIV is spread by sharing injection equipment, among drug injectors both in jails and in the community. HIV and hepatitis C infection among inmates are especially significant health concerns because jail populations, both locally and nationally, continue to increase each year. Close monitoring is warranted.

[^]The Regional Justice Center in Kent and the King County Correctional Facility in downtown Seattle.

STATUS AND TRENDS IN HIV INFECTION:

- The number of people incarcerated in the US has risen dramatically in recent years. It is now estimated that about 2 million people are in jails or prisons in the US. The HIV prevalence among these inmates is estimated to be 2.2% in males and 3.5% in females.¹
- The Washington Department of Health surveyed incoming inmates to state prisons in 1995 and 1997 and found an HIV prevalence of 1.0% in males and 0.8% in females.
- King County jail populations have increased an average of 5.5% each year over the last 10 years. The 2000 average daily population of 3,000 inmates is a 70% increase from the 1990 population. Jail staff estimate that on any given day about 2% of inmates, or about 60 people, are HIV positive.
- Results of voluntary HIV testing in King County correctional and detention facilities during the past 14 years are shown in the tables below. Of 13,185 tests performed, 293 (2.2%) people tested HIV +.
- As shown in the tables below, HIV prevalence was greatest among men who had sex with men (MSM: 16%) and MSM who reported injecting drugs (MSM/IDU: 11%).
- While the HIV prevalence rate was lower in male and female drug injectors (IDU: 2%), injection drug use was associated with the largest number of HIV infections identified: 72 (31%) of the 236 HIV + men and 35 (61%) of the 57 HIV + women.

HIV Prevalence among Persons Incarcerated in King County by Gender & HIV Risk, 6/86 - 10/00

MALES: Risk Category	# Tested	# HIV positive	% HIV positive
Male-male sex (MSM) and IDU	421	48	11%
MSM	277	45	16%
Injection drug use (IDU)	4,032	72	2%
Partner of HIV positive	106	7	7%
Partner of IDU	1,127	9	1%
Sex for money or drugs	982	9	1%
Other risk ^{^^}	1,571	9	1%
No risk identified	1,954	37	2%
Total, males	10,470	236	2%

^{^^}'Other risk' category includes transfusion recipients, clients reporting needlesticks or other blood exposure, and clients reporting multiple heterosexual partners.

FEMALES: Risk Category	# Tested	# HIV positive	% HIV positive
Injection drug use (IDU)	1,560	35	2%
Partner of MSM	90	2	2%
Partner of HIV positive	26	1	4%
Partner of IDU	236	1	<1%
Sex for money or drugs	231	5	2%
Other risk^^	237	0	0%
No risk identified	335	13	4%
Total, females	2,715	57	2%

^^Other risk' category includes transfusion recipients, clients reporting needlesticks or other blood exposure, and clients reporting multiple heterosexual partners.

BEHAVIORAL RISKS AMONG IDUs ARRESTED IN KING COUNTY:

- Public Health-Seattle & King County conducts an interview survey of injection drug users recently arrested and booked into the King County Correctional Facility. Between 8/98 and 2/00, 560 persons (428 men and 132 women) were voluntarily interviewed and tested for HIV.
 - ✓ Nine (2%) of the 560 tested HIV positive.
 - ✓ Of the 9 testing positive, 5 (56%) were aware of their HIV infection and 4 (44%) were unaware.
 - ✓ 84% of men and 88% of women reported a prior HIV test.
- The survey showed injection risk behaviors were common among the 560 IDU interviewed.
 - ✓ The median age when study participants began drug injection was 19 years.
 - ✓ In the past month, 66% had injected drugs, with the majority injecting multiple times per day. (Note that IDUs were reporting on behaviors outside jail, not while in jail.)
 - ✓ In the past 6 months, 62% had injected with a needle that had been used by somebody else before them; 71% had shared cookers; and 59% had backloaded.
- The survey also showed that sexual risks were common.
 - ✓ Over half the study participants reported a history of at least one sexually transmitted disease.
 - ✓ For both men and women, over two-thirds had unprotected vaginal sex and 8% had unprotected anal sex in the past 6 months.
 - ✓ 58% of men and 70% of women had more than one sex partner in the past year.

OTHER MEASURES OF RISK:

- **Prevalence of drug injection behavior:** Information from various national studies place the prevalence of drug injection in prison and jail populations at between 12-20%.²
- **Prevalence of STDs:** Several studies have documented a higher rate of STDs in incarcerated populations than in the general population. One study of women entering a Washington State prison found a 23% self-reported rate of previous STDs.³
- **Hepatitis C infection:** Hepatitis C infection is transmitted by sharing drug injection equipment and is very common among the IDU population in King County. In the Public Health Raven Study, 85% of IDU recently released from jail had hepatitis C infection.

¹Maruschak L. HIV in Prisons, 1997. US Department of Justice, Bureau of Justice Statistics. On line at: www.ojp.usdoj.gov/bjs/pub/press/hivp97.pr

²Mumola, CJ. Substance Abuse and Treatment, State and Federal Prisoners, 1997. US Department of Justice, Bureau of Justice Statistics. On line at: www.ojp.usdoj.gov/bjs/pub/press/satsfp97.pr

³Young DS. Health Status and Service Use among Incarcerated Women. **Family and Community Health**. October 1998, pp16-31.

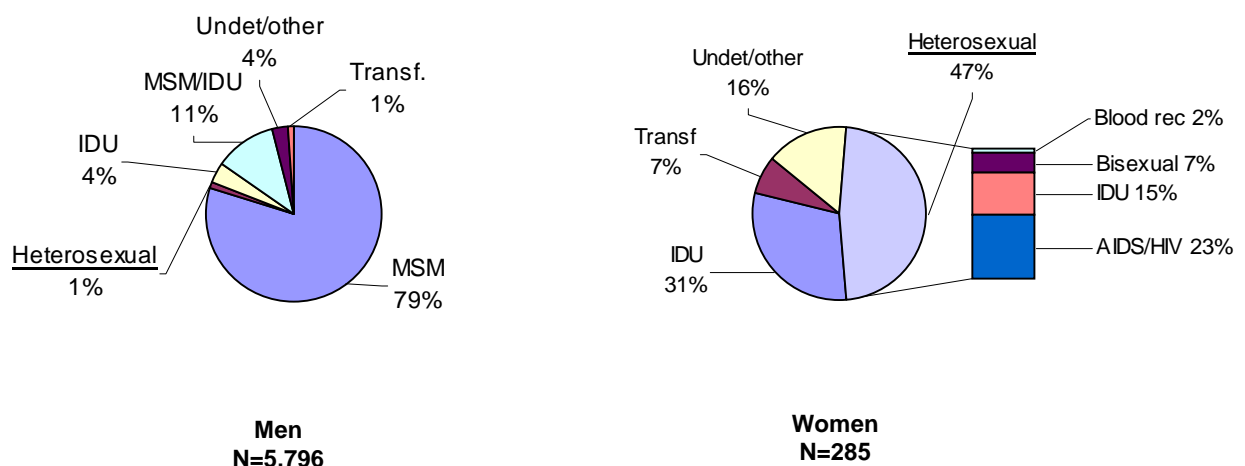
HIV/AIDS in Heterosexuals

SUMMARY: The proportion of AIDS cases attributable to heterosexual transmission in Seattle-King County, as in the U.S. as a whole, is on the rise. The proportion of total AIDS cases in King County acquired via heterosexual contact is 3%. Although heterosexual men and women represent a relatively small proportion of the total HIV infections and AIDS cases, about half of the women with AIDS in King County acquired HIV through heterosexual contact. Young adults, adolescents, and people of color are at much higher risk of contracting STDs, indirect indicators of unprotected sexual activity that could result in transmission of HIV.

STATUS AND TRENDS IN HIV/AIDS CASES:

- Nationally as of June 2000, the proportion of cumulative AIDS cases for both men and women attributed to heterosexual contact was 10%. Among women it was 40% vs. only 5% for men. Since 1992, heterosexual transmission has been the most common route of infection for women.
- As the U.S. epidemic has spread to include more men who are bisexually active or inject drugs, an increasing percentage of women with HIV/AIDS are infected heterosexually.
- As of 12/2000, 133 (47%) of the 285 cumulative AIDS cases in women residing in King County have been attributed to heterosexual transmission of HIV, compared to only 61 (1%) of 5,796 men. Preliminary data on men and women in King County who have tested HIV+ but have not developed AIDS follow a similar pattern, with 6 (1%) of the 1,164 men and 52 (33%) of the 160 women reported to have been infected via heterosexual transmission.
- In the 5-year period 1995-99, an average of 15 new heterosexually-transmitted AIDS cases were diagnosed and reported each year in King County.
- A closer look at the risk of the male sexual partner of King County women with AIDS who were infected heterosexually indicates that 23% of their partners had HIV or AIDS (but whose risk was otherwise unspecified), 15% used injection drugs (IDU), 7% were bisexual, and 2% had been infected through receipt of blood products (see figure below).

AIDS Cases Diagnosed in King County Adults and Adolescents Through December 2000 by Gender and Exposure Category



- Although the majority of cumulative AIDS cases have been in men who have sex with men (MSM) both in King County (76%) and in Washington State outside King County (66%), a generally increasing proportion of cases have been due to heterosexual contact, injection drug use in non-MSM or have been in women (see King County trend data below).
- In Washington State outside of King County, a higher proportion of cases consistently occur in non-MSM exposure categories. These data suggest that there will be increasing cases of heterosexually-acquired HIV and AIDS among women.

Trends in King County AIDS Cases, 1989-2000¹

Category	<u>1989-91</u>	<u>1992-94</u>	<u>1995-97</u>	<u>1998-2000¹</u>
Heterosexual Contact	2%	4%	5%	5%
Injection Drug Use	3%	6%	8%	10%
Adult Female	3%	4%	7%	10%
Undetermined Risk	1%	2%	9%	12%

¹Preliminary data due to reporting delays; the proportions of cases in heterosexual contact and IDU categories are expected to increase as cases initially reported with no identified risk are investigated and reclassified

POPULATION SIZES:

- The estimated King County population of 15-69 year-old heterosexuals is 1,191,500 (derived from 2000 estimated population minus the estimated exclusively MSM population).
- The estimated number of HIV infections in King County residents attributed to heterosexual transmission is 300 to 450 (midpoint = 375). There are additional HIV infections among heterosexual persons with non-sexual risk including use of injection drugs (estimated 400 to 650 infections) and persons acquiring HIV through receipt of blood products.

HIV PREVALENCE:

- Roughly 0.1% of the King County heterosexual population in the age range of 15-69 years is estimated to be HIV positive.
- Cumulative HIV prevalence among female and male, non-IDU, heterosexual clients seen at the Harborview Sexually-transmitted Disease Clinic (STD) in King County from 1998-99 was 0.3%. *[Note that persons attending an STD Clinic are considered at higher risk than the general population.]*
- Cumulative HIV prevalence among heterosexual male drug injectors entering drug treatment centers in King County from 1997-99 was 1.0%.

OTHER MEASURES OF RISK:

- Sexually transmitted diseases are an indirect indicator of unprotected sexual activity that could result in transmission of HIV. Due to more acute onset of symptoms for most other STDs compared to HIV, these data may provide more timely information on behavioral trends in the community.
- In 1998, the reported rate of sexually-transmitted gonorrhea in King County was 174 per 100,000 in 15-24 year-olds. The rate in 15-24 year-old African Americans was sixteen times greater than that in Whites of the same age.
- In 1999, King County chlamydia rates were 1,499 per 100,000 persons ages 15-19 compared to 514 per 100,000 in 25-29 year-olds. The chlamydia rate in African Americans ages 15-29 was nine times greater than that in Whites in the same age group.

HIV/AIDS in Young People

SUMMARY: HIV infection does not appear to be widespread among the general King County adolescent population, although it is present. Young men who have sex with men (MSM) are disproportionately affected compared to other youth and are at the greatest risk of HIV infection. Teenagers reported with HIV or AIDS through 12/00 were more likely to be African American and more likely to be female compared to older youth age 20-29. A smaller proportion of HIV infections in teenagers were among MSM and MSM/IDU combined (43%) compared to men age 20-24 years (74%) or age 25-29 years (84%). A recent study of young MSM age 23-29 conducted in six large US cities found that Seattle had the lowest prevalence of HIV (5%), with the highest rate (18%) observed in Dallas. However, the study found high levels of risky sexual behavior among young MSM in all cities.

STATUS AND TRENDS IN HIV/AIDS CASES:

- From 1982 through December 2000, 6,096 AIDS cases were diagnosed in King County residents and reported to the HIV/AIDS Program of Public Health-Seattle & King County. Of these, 15 (<1%) were less than 13 years old; 12 (<1%) were 13-19; 151 (2%) were 20-24; 890 (15%) were 25-29; and 5,028 (83%) were 30 years or older.
- As of December 2000, an additional 1,340 people with non-AIDS HIV infection in King County residents were diagnosed and reported. Of these, 16 (1%) were less than 13 years old; 43 (3%) were 13-19; 170 (13%) were 20-24; 284 (21%) were 25-29; and 827 (62%) were 30 years or older.
- Over two-thirds of the HIV/AIDS cases diagnosed between ages 13 and 24 were in males who had sex with other males (with or without injection drug use), 8% were injection drug users (without male-to-male sex), 9% had heterosexual risk, and 10% had no identified risk.

King County HIV/AIDS cases in younger age groups reported through 12/00

	13-19 years 12 AIDS/43 HIV only		20-24 years 151 AIDS/170 HIV only		25-29 years 890 AIDS/284 HIV only	
	Total	(%)	Total	(%)	Total	(%)
Sex						
Male	33	(60)	270	(84)	1,081	(92)
Female	22	(40)	51	(16)	93	(8)
Race/Ethnicity						
White	32	(58)	224	(70)	898	(76)
African American	15	(27)	49	(15)	137	(12)
Hispanic	5	(9)	31	(10)	96	(8)
Am Indian/AK Native	2	(4)	9	(3)	28	(2)
Other or unknown	1	(2)	8	(2)	15	(1)
Exposure Category						
Male-male sex	20	(36)	190	(59)	827	(70)
Injection drug (IDU)	7	(13)	22	(7)	69	(6)
Male-male/IDU	4	(7)	47	(15)	160	(14)
Heterosexual sex	9	(16)	25	(8)	51	(4)
Transf/hemophilia	5	(9)	8	(2)	14	(1)
Undetermined/other	10	(18)	29	(9)	55	(5)
Total Cases	55	(100)	321	(100)	1,174	(100)

POPULATION SIZES:

- Estimated King County population in 2000 age 15-19: 114,050; age 20-24: 100,415
- Estimated King County population of gay or bisexual males age 15-24: 9,500

HIV PREVALENCE:

- The estimated number of King County residents age 13-19 with HIV is 75 to 110 (midpoint = 95).
- Anonymous HIV prevalence (percent of people currently infected with HIV) surveys have been conducted in several specific populations in King County. These surveys and other data sources all have unique features, and results cannot be extrapolated to the general population. Data are summarized below:

Source of data, year(s)	Age (yrs.)	HIV+/ No. tested	% HIV+
AIDS Prevention Program, 1996-2000	<20	27/1122	2.4
AIDS Prevention Program, 1996-2000	20-24	282/4413	6.4
STD Clinic, 1996-99	<20	0/483	0.0
STD Clinic, 1996-99	20-29	14/2783	0.5
Drug Treatment Centers, selected facilities 1997-99	<25	2/127	1.6
Drug Treatment Centers, selected facilities 1997-99	25-29	2/235	0.9
Youth Clinic Survey, 1993	<25	2/138	1.45
Adolescent Clinic Survey, 1993-94	13-22	2/628	0.32
Childbearing Women Survey, 1989-94	<20	7/8,708	0.08
Young Men's Survey, 1997-98	15-18	0/85	0.0
Young Men's Survey, 1997-98	19-22	5/201	2.5
Young Men's Survey, 1998-2000	23-29	22/462	4.7
Job Corps, 1993-97 (Seattle MSA)*	16-24	2/2,180	0.09
Military recruits, 1985-98 (Seattle MSA)*	<20	1/19,364	0.01
Military recruits, 1985-98 (Seattle MSA)*	20-24	8/10,728	0.07

* The Seattle MSA includes King, Snohomish and Island counties

- HIV prevalence among MSM 23-29 years of age was estimated by the Young Men's Survey conducted in six US cities in 1998-00. Prevalence ranged from a low of 5% in Seattle to a high of 18% in Dallas.

RISK BEHAVIORS IN YOUNG GAY MALES:

- Results from the Seattle-area Young Men's Survey in 1997-98 showed that of those MSM ages 15-18 who had had anal sex in the past six months, 53% had had sex without a condom compared to 64% of 19-22 year olds. Of those ages 23-29 years who had had anal sex in the past six months, 62% had had unprotected anal sex (with 42% "sometimes" and 20% "never" using a condom during sex).

OTHER RELEVANT INFORMATION FOR HIV PREVENTION:

- Diagnosis of a sexually transmitted disease indicates unsafe sexual behavior, and the presence of an STD increases the risk of acquiring HIV. Young people continue to have the highest rates of STDs. In King County, the 1999 chlamydia and gonorrhea rates were 1575 and 209 per 100,000, respectively, for 18-19 year olds compared to 257 and 105 per 100,000 for 30-34 year olds.
- Results from risk behavior surveys provide important information about behaviors that may place young people at risk for HIV infection. The Seattle Public Schools 1999 Teen Health Risk Survey showed that 40% of high school students had had sex. Of those reporting sex in the previous three months, 61% had had sex without a condom at least once during that time.
- According to the Seattle Public Schools 1999 Teen Health Risk Survey, 1% of high school students said they were homosexual, 3% bisexual, 90% heterosexual, and 6% said they were unsure.

V. OTHER INDICATORS OF BEHAVIORAL RISKS

AIDS case report data provide very accurate information on the epidemiology of AIDS in King County. Although HIV data are still incomplete, the recently implemented HIV reporting system provides a promising data source for estimating HIV prevalence and rates of new infection in the general population. In addition, other data sources can contribute to a more complete picture of the current and potential impact of HIV in our region. These surrogate data include rates of other sexually transmitted disease (STD) statistics, teen pregnancy rates, and results from local behavioral risk studies.

Data sources for these include the Washington State Department of Health Infectious Disease and Reproductive Health Assessment Unit, the Center for Health Statistics, and Public Health-Seattle & King County. Population data are from the Washington Department of Social and Health Services, Washington State Adjusted Population Estimates, April 1999 (1990-2002), Zip Code and 1980-1986 Census Tract Population Estimates are based on figures from Claritas Corporation (1980-1989), and the Census Tract Population Estimates are from the Washington Department of Social and Health Services, December 1995 (1987-1989). Data from these sources were used in the descriptions of the specific target groups in Section IV. In addition, some general KC STD and teenage pregnancy statistics are presented in this section.

Sexually transmitted disease rates: Diagnosis of a sexually transmitted disease indicates unsafe sexual behavior, and therefore, a greater risk of HIV infection. In addition, STDs may increase a person's risk of acquiring and transmitting HIV infection. For example, syphilis infection may produce open genital sores, causing vulnerability to direct HIV entry to the bloodstream. Co-infection with HIV and STDs like gonorrhea enhance HIV transmission to an uninfected sexual partner by increasing HIV viral shedding and increasing the viral load in genital secretions. Although HIV is not transmitted as readily as certain other STDs and the risk of HIV infection depends on the HIV prevalence in the population, STD statistics provide useful information for HIV education and prevention programs about the extent of risky sexual behaviors in specific geographical areas and populations and also about STDs as transmission cofactors for HIV. The STD data presented below are based on cases reported to Public Health.

Figure 11 shows the number of reported cases of primary, secondary, and early latent syphilis in KC from 1988-2000. While infectious syphilis had been almost completely eliminated from KC in the mid-1990s, it has recently reappeared. The resurgence of syphilis is an area of immediate concern for HIV prevention efforts and reflects high-risk sexual behavior, especially among men who have sex with men. Case counts of early syphilis among MSM in KC rose from zero cases in 1996 to 68 in 1999 and recent syphilis rates among MSM have returned to 1982 levels of 150 cases per 100,000. Of those MSM diagnosed with early syphilis between 1997 and 2000, 71% had known HIV infection and 3% were newly diagnosed with HIV.

Figure 12 shows the KC 1997-1999 average annual rate of gonorrhea and chlamydia by age. The majority of cases (61% of gonorrhea and 80% of chlamydia cases) were diagnosed in persons under 30 years. Persons aged 15-19 and 20-24 years had much greater rates of chlamydia than those aged 35-39 years, with 1,280 and 1,281 cases per 100,000, versus 106 per 100,000, respectively. Similarly, those aged 20-24 years had the highest rates of gonorrhea, with 248 cases per 100,000, compared with 68 per 100,000 for those aged 35-39 years.

Table 15 compares 1997-99 average annual gonorrhea and chlamydia rates in different geographic areas of KC. Because gonorrhea and chlamydia are most commonly diagnosed in persons younger than 30 years, only rates for 15-29 year olds are included. Rates vary greatly across the county with chlamydia and gonorrhea rates almost two and three times higher, respectively, in Seattle than rates in other areas

of KC. Within Seattle, the Central and Southeast areas have the highest rates. In areas outside Seattle, the highest rates are in White Center/Skyway and Highline/Burien.

Table 16 shows gonorrhea rates per 100,000 in 15 to 29 year olds in KC between 1990 and 1999. Rates have generally declined in the past decade both in Seattle and other areas of the county among males and females and in all racial/ethnic categories, from an overall KC high of 484.1 per 100,000 in 1990 to a low of 180.8 per 100,000 in 1999. Discrepancies continue to persist with higher rates in Seattle compared with the rest of the county and among African Americans, Hispanics, and American Indians/Alaskan Natives compared to Whites and Asian/Pacific Islanders.

Chlamydia rates in 15-29 year old KC residents are presented in Table 17. Many chlamydia infections are asymptomatic and may only be diagnosed because infected persons are screened. Some of the differences in chlamydia reporting statistics may be due to differences in screening policies and programs. From 1990 through 1996 county-wide chlamydia rates generally decreased, from a high of 1,037 cases per 100,000 in 1990 to a low of 830 per 100,000 in 1996. In 1997, however, rates increased to 1,133 per 100,000 and as of 1999 chlamydia rates in 15-29 year olds remained more comparable to the higher rates of the early 1990s.

Figure 11. Number of primary, secondary, and early latent syphilis by gender, King County, 1988-2000

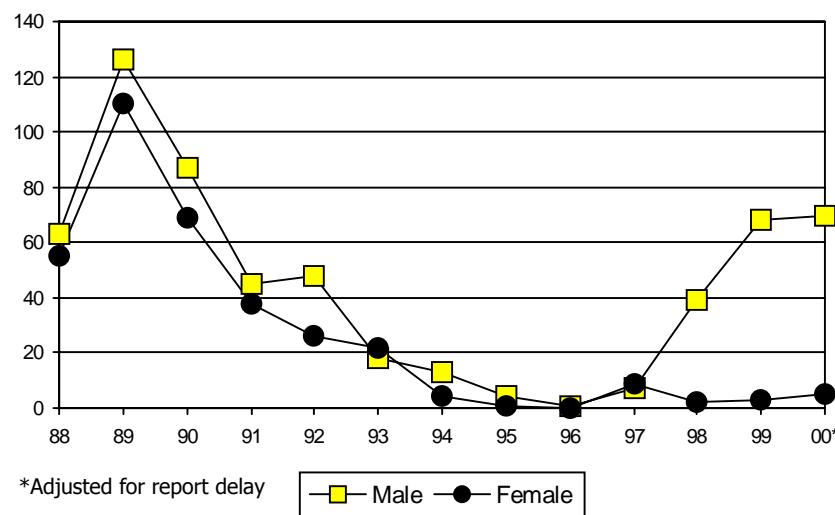
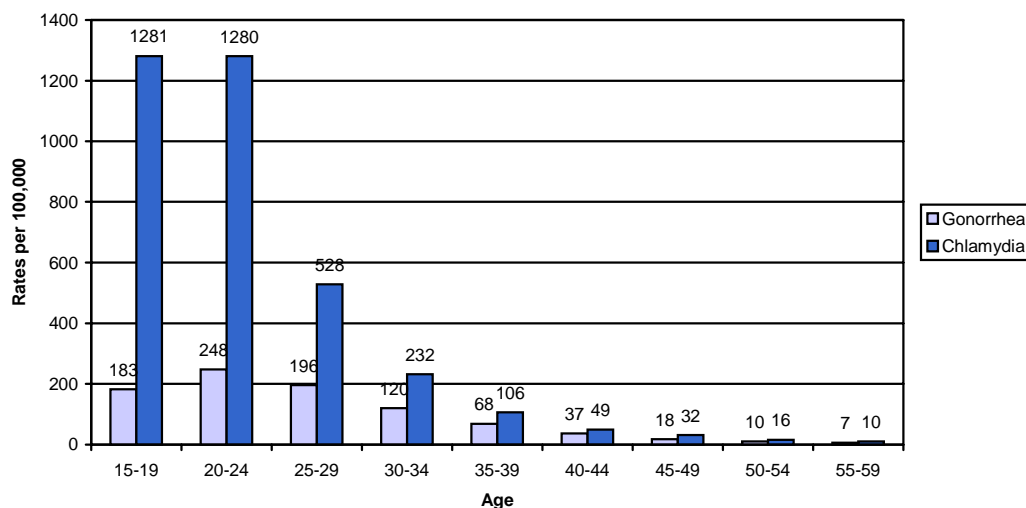


Figure 12. Three-year average annual rates of chlamydia and gonorrhea by age, King County, 1997-1999



As with gonorrhea, discrepancies persist with higher chlamydia rates in Seattle compared to the rest of the county, and in people of color compared to Whites. Females have higher rates than males, but this may be at least partially related to more routine screening of women.

After declines since 1983, gonorrhea and chlamydia rates have increased substantially among MSM in KC in recent years. Gonorrhea rates in MSM in the STD Clinic at Harborview Medical Center doubled from 1997 to 1999, and chlamydia rates in MSM seen at the Clinic have more than tripled in the past five years.

Compared with gonorrhea and chlamydia, relatively few cases of acute hepatitis B were reported and three-year average annual rates are presented in Table 18 rather than trend data by year. Like HIV, hepatitis B is also transmitted through sharing of injection drug equipment. Hepatitis B rates, however, may under-represent risky behaviors because of vaccine-acquired immunity. Rates were higher in Seattle than other areas of the county, among men compared to women, and among Hispanics and American Indians/Alaskan Natives compared with Whites, Asians, and African Americans.

Table 15. Average annual gonorrhea and chlamydia rates per 100,000 in 15-29 year olds by Health Planning Area, King County, 1997-1999

Health Planning Area	GONORRHEA		CHLAMYDIA	
	Rate per 100,000	95% CI	Rate per 100,000	95% CI
SEATTLE				
Central	813.3	717.2-918.8	2165.6	2006.8-2333.9
North Central	330.8	282.6-384.9	653.6	585.1-728.1
North of Canal	98.8	81.3-119.0	505.8	465.1-549.2
North Seattle	197.5	151.2-253.6	1120.4	1005.5-1244.9
Southeast Seattle	793.0	715.3-877.1	3075.9	2920.7-3237.3
West Seattle	258.7	209.9-315.6	1381.8	1265.4-1506.1
SUBTOTAL	345.4	325.0-366.7	1261.4	1222.3-1301.6
NON - SEATTLE				
Auburn	116.5	90.4-147.9	843.6	770.2-922.1
Bellevue	61.7	40.7-89.8	482.4	419.6-552.1
Bothell/Woodinville	44.4	25.9-71.0	345.0	288.7-409.0
East/Northeast County	**	**	360.9	277.5-461.5
Eastgate/Issaquah	33.4	18.3-55.9	295.9	246.2-352.8
Federal Way	161.2	129.0-199.0	1068.4	982.6-1159.9
Highline/Burien	293.2	247.2-345.3	1459.7	1354.5-1571.0
Kent	152.8	122.5-188.4	1002.9	922.4-1088.7
Kirkland/Redmond	32.9	22.0-47.2	354.6	316.5-396.2
Mercer Island	**	**	309.5	213.2-434.7
North County	64.1	40.7-96.1	560.0	485.4-643.0
Renton	178.4	143.7-219.0	960.7	877.6-1049.6
Southeast County	26.9	13.9-46.8	380.9	325.9-442.7
Vashon Island	**	**	205.0	98.5-375.2
White Center/Skyway	388.0	327.3-456.8	2037.1	1894.6-2187.7
SUBTOTAL	118.2	109.9-127.0	768.0	746.5-789.9
KING COUNTY TOTAL	208.2	199.1-217.7	1006.4	986.2-1027.0

** The number of cases is too small to calculate a meaningful rate

Table 16. Gonorrhea rates per 100,000 in 15-29 year olds, King County, 1990-1999

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
SEX										
Male	481.4	482.8	403.3	301.9	256.7	261.7	195.0	233.7	205.4	190.2
Female	486.9	484.6	407.7	302.6	280.4	271.1	184.0	280.0	164.5	171.1
RACE										
White	213.0	213.3	218.4	159.4	125.6	117.1	92.5	108.8	90.5	86.4
African American	4509.3	4300.5	3384.2	2293.1	2131.4	1980.1	1330.5	1817.3	1133.9	1086.4
Am Ind/AK Native	614.3	579.7	493.5	386.2	446.1	470.1	278.7	395.1	293.4	193.9
Asian	140.0	124.5	140.4	81.4	49.2	86.3	57.2	97.6	61.4	56.0
ETHNICITY										
Hispanic	629.4	816.6	618.6	503.8	240.2	324.4	108.8	374.9	370.3	218.6
LOCATION										
Seattle	946.3	928.3	653.9	494.1	405.4	400.2	298.1	394.3	323.0	318.6
KC minus Seattle ¹	192.9	214.9	183.0	150.2	152.4	165.6	110.1	160.1	96.9	98.9
King County	484.1	483.7	405.5	302.3	268.4	266.3	189.6	256.3	185.3	180.8

Table 17. Chlamydia rates per 100,000 in 15-29 year olds, King County, 1990-1999

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
SEX										
Male	487.0	523.6	441.5	392.0	399.8	405.8	411.1	549.4	469.8	550.2
Female	1598.3	1647.4	1483.1	1219.1	1422.2	1332.2	1264.4	1738.4	1317.7	1435.4
RACE										
White	790.1	784.7	743.7	563.8	585.4	524.6	461.1	581.2	453.0	528.6
African American	4524.2	5021.4	4233.9	3474.5	4188.2	3905.4	3649.2	5370.9	4310.7	4089.8
Am Ind/AK Native	1363.0	1487.9	1618.6	1235.8	1396.4	960.6	1413.2	1540.9	1075.9	1492.8
Asian	624.0	646.0	627.6	550.4	596.3	673.8	757.5	955.3	686.1	858.9
ETHNICITY										
Hispanic	992.3	1213.7	1090.0	1328.9	1725.0	1772.6	1839.7	2683.0	1723.4	2044.5
LOCATION										
Seattle	1500.3	1557.2	1206.3	982.1	1179.0	1140.5	1081.0	1420.3	1116.0	1247.1
KC minus Seattle ¹	755.5	792.4	679.4	595.0	638.3	616.0	575.4	839.7	692.8	772.7
King County	1037.2	1079.7	956.4	800.4	903.7	861.4	830.3	1133.4	886.3	985.5

¹King County outside the city of Seattle

Table 18. Three-year average annual acute hepatitis B rates per 100,000 in 15-29 year olds, King County, 1995-1997

SEX	Rate	95% CI ¹
Male	10.1	7.5-13.5
Female	2.2	1.1-4.0
RACE		
White	5.7	4.1-7.7
Black	3.3	0.4-11.4
Am Ind/AK Native	7.4	0.3-37.7
Asian	4.5	1.5-10.4
ETHNICITY		
Hispanic	9.8	2.6-24.5
LOCATION		
Seattle	11.5	8.1-16.0
KC-Seattle ²	3.6	2.2-5.4
King County	6.2	4.7-8.1

¹95% Confidence Interval²King County outside the city of Seattle

Teenage pregnancy rates: An important indicator of unprotected sex among adolescent females is the teenage pregnancy rate; local rates for 1987-1998 are shown in Table 19. Pregnancy rates are based on reported birth and abortion data and do not include miscarriages and fetal deaths (spontaneous abortions after 20 weeks). Pregnancy rates in 15-17 year old females declined from a high of 120.8/1,000 in 1988 to 49.5/1,000 in 1998 in Seattle and from 46.4/1,000 in 1987 to 33.3/1,000 in 1998 in other areas of King County. In King County as a whole, 1,180 or about 4% of 15-17 year old females became pregnant in 1998.

Table 19. Pregnancy rates per 1,000 15-17 year olds, King County, 1987-1998

Year	Seattle		King Co. Outside Seattle		King County	
	Number of pregnancies	Rate per 1,000	Number of pregnancies	Rate per 1,000	Number of Pregnancies ¹	Rate per 1,000
1987	660	101.7	901	46.4	1566	60.4
1988	752	120.8	859	43.2	1612	61.8
1989	648	110.7	840	45.2	1489	60.9
1990	657	112.8	775	41.6	1434	58.6
1991	639	108.6	749	39.2	1390	55.6
1992	583	98.2	761	38.2	1349	52.1
1993	524	85.9	785	37.9	1317	49.1
1994	540	87.2	810	37.8	1359	49.2
1995	463	71.0	820	38.1	1290	46.0
1996	427	62.0	824	36.7	1258	42.9
1997	445	60.8	805	34.5	1260	41.1
1998	372	49.5	798	33.3	1180	37.5

¹The number of pregnancies in King County may be slightly higher than the sum of pregnancies in Seattle and in King County minus Seattle due to missing data on census tract for persons known to live in King County

VI. APPENDIX

A. Glossary

1987 AIDS case definition: The CDC surveillance definition for AIDS implemented in 1987 included 23 clinical AIDS indicator diseases (MMWR 1987 Vol. 36, No. 1S). The 1987 case definition was based on the 1986 HIV Classification System and replaced the 1985 case definition.

1993 AIDS case definition: The 1993 CDC surveillance definition for AIDS in adults and adolescents was implemented January 1, 1993 (MMWR 1992. Vol. 41, No. RR-17). It added the following to the 23 indicator conditions from the 1987 AIDS definition: 1) persons with HIV infection and CD4+ T-lymphocyte count $<200/\text{mm}^3$ or $<14\%$ of total lymphocytes and no AIDS-defining conditions; 2) HIV-infected persons with pulmonary TB, recurrent pneumonia, or invasive cervical cancer. Other countries have not adopted the inclusion of severe immunosuppression ($\text{CD4} < 200$ or 14%) as an AIDS-defining condition.

1993 HIV classification system: The 1993 CDC adult/adolescent AIDS case definition is based on the 1993 HIV Classification System (MMWR 1992. Vol. 41, No. RR-17). This system classifies HIV according to clinical and immunosuppression stages as shown in the table below. In 1994, CDC published a revised pediatric HIV classification system for children under 13 years (MMWR 1994. Vol. 43, No. RR-12), which is also organized according to clinical and immunosuppression stages of HIV infection although the categorization of CD4 counts is different. AIDS and Symptomatic non-AIDS HIV-related conditions in children, adolescents, and adults have been reportable in Washington State since 1987. Asymptomatic HIV infection became reportable in Washington State in September 1999 (WAC 246-100), since replaced with WAC246-101).

<i>CD4 Count</i>	<i>Category A</i>	<i>Category B</i>	<i>Category C</i>
	<i>Asymptomatic/ Acute HIV</i>	<i>Symptomatic non-AIDS</i>	<i>Symptomatic AIDS</i>
<i>500 +</i>	<i>A1</i>	<i>B1</i>	<i>C1</i>
<i>200-499</i>	<i>A2</i>	<i>B2</i>	<i>C2</i>
<i><200</i>	<i>A3</i>	<i>B3</i>	<i>C3</i>

AIDS: Acquired immunodeficiency syndrome, the end-stage of HIV infection.

AIDS case reporting delay: The time between diagnosis of an AIDS case and the receipt of the case report by public health.

AIDS case reporting completeness: The proportion of all diagnosed AIDS cases which are reported to public health after allowing for a certain reporting delay time.

Adjustment for reporting delay: A mathematical procedure to compensate for delays in the time between the date of HIV or AIDS diagnosis and the date of report to public health. Yields an estimate of case numbers which will be recorded once reporting is complete.

Anonymous HIV testing: A person is tested for HIV but does not have to give his or her name; all specimens are marked with a code number and cannot be linked to the patient's name.

Blinding: Assignment of treatment to individual subjects in such a way that subjects only (single blinding) or both subjects and treating physicians (double blinding) do not know the actual treatment allocation.

CD4 (or T4): A type of white blood cell (lymphocyte) that oversees the action of the human immune system and is the main target of HIV. Also called a helper T-cell.

CDC: Centers for Disease Control and Prevention, a federal agency headquartered in Atlanta. The Division of HIV/AIDS Prevention is part of the National Center for HIV, STD, and TB Prevention.

Chlamydia: A sexually transmitted disease (STD) caused by the bacteria *Chlamydia trachomatis*. In men, chlamydia is characterized by a discharge from the urethra. Most women with chlamydia have no symptoms, but if left untreated, they can develop pelvic inflammatory disease (PID) and infertility. Chlamydia is treated with antibiotics.

95% confidence interval (CI): The 95% CI is used to illustrate the uncertainty of a point estimate such as a rate, and is defined as follows: the range of values within which, upon repeated measure, the rate can be expected to fall 95% of the time.

Confidential HIV testing: A person is tested for HIV and gives his or her name; specimens can be linked to a name.

Cumulative cases: All cases occurring during an extended period of time. Example: The cumulative number of AIDS cases in Washington State from 1982 to the present is 7,226.

EIA test: Enzyme immunoassay, a blood test which indicates the presence of antibodies to HIV. The HIV EIA test does not detect the disease AIDS, but only indicates if HIV infection has occurred.

Epidemiology: The study of the distribution and determinants of disease within human populations.

Gonorrhea: A sexually transmitted disease caused by the organism *Neisseria gonorrhoeae*. Also known as the clap, GC, the drip.

HIV: Human immunodeficiency virus type 1; previously known as HTLV-III or LAV, the cause of AIDS.

Health planning area(s) (HPA): King County is divided into 20 health planning areas based on aggregations of census tract areas which were originally designed by the SKCDPH to correspond as closely as possible to neighborhoods, clinic utilization, travel patterns, and other factors of community interaction. Since census tract is not recorded for AIDS cases, zip code-defined HPAs are used for geographic analysis of AIDS data.

Hepatitis B: A form of viral hepatitis, or inflammation of the liver, caused by an infectious agent called the hepatitis B virus (HBV). HBV may be transmitted through contact with infected body fluids, including blood, saliva, seminal fluid, vaginal secretions, and breast milk.

Highly active antiretroviral therapy (HAART): A combination, or cocktail, of several anti-HIV drugs, at least one of which is often a protease inhibitor.

Incidence: The number of new cases within a given time period (usually one year). Example: The incidence of AIDS in Washington in 1995 was 857 cases.

IDU: Injection drug user. For the purposes of defining HIV exposure, any injection drug use not prescribed by a medical professional since 1978 is included.

KC: King County.

PLWA: Persons currently living with AIDS.

MSA: Metropolitan Statistical Area: the Seattle MSA includes King, Snohomish, and Island counties.

MSM: Men who have sex with other men, whether or not they self-identify as homosexual; includes both homosexual and bisexual men.

Marker: A substitute measure, or proxy, for an event or disease that can't be measured any other way.

Median survival time: The interval between the diagnosis of a specific illness (i.e. AIDS) and the point in time at which 50% of persons with this condition have died; often expressed in months for AIDS.

NIR: No identified risk. These are persons with no reported history of exposure to HIV through any of the routes listed in the hierarchy of exposure categories (e.g. in Table 11). NIR cases include persons whose risk is currently under investigation; persons whose exposure history is incomplete because they died, declined to be interviewed or were lost to follow up; and persons who were interviewed or for whom other follow-up information was available and no exposure mode was identified. Persons who have an exposure mode identified at the time of follow-up are reclassified into the appropriate HIV exposure category.

Prevalence: The number of existing cases in a population at a specific point in time. Example: The estimated prevalence of HIV positive persons in King County in 1995 was 7,500.

Protease inhibitor: A drug that binds to and blocks HIV protease from working, thus preventing the production of new infectious viral particles.

Public Health: Refers to Public Health - Seattle & King County, the joint city - county health department.

Rate: A fixed ratio between two things; a quantity, amount, or degree of something measured per unit of something else, usually a period of time. Example: 55 miles per hour is a rate of speed; 55 cases per 100,000 population per year is an annual incidence rate.

Report delay: The period between the date a reportable disease is diagnosed by a physician and the date that the diagnosis is reported to public health officials.

SI: Severe immunosuppression defined as a CD4+ T-lymphocyte count $<200/\text{mm}^3$ or percent of total lymphocytes less than 14. Under the expanded 1993 CDC AIDS case definition, SI in the presence of HIV infection is an AIDS-defining condition.

Seroprevalence: The frequency of individuals in a population that have antibodies to a particular organism, e.g., HIV, in their blood serum.

Syphilis: A contagious disease that can be spread sexually and from infected mother to her child, caused by the organism *Treponema pallidum*. Also known as lues and "bad blood".

STD: Sexually-transmitted disease.

Western blot: A blood test used to detect HIV antibody. Compared to the ELISA, the Western Blot is more specific and more expensive. It can be used to confirm the results of the ELISA test.

YPLL: Years of potential life lost before a certain age (often 65). This measure is useful to compare the societal impact of mortality due to different causes.

B. Data Sources

A summary of the main data sources used to develop Public Health–Seattle & King County’s *HIV/AIDS Epidemiology Profile for Community Planning* is presented below. For additional information, call the PHSKC HIV/AIDS Epidemiology Program at (206) 296-4645 or visit the Epidemiology Program Website at <http://www.metrokc.gov/health/apu/epi>

King County HIV/AIDS Case Registry (1982-ongoing)

This database includes demographic, geographic, exposure, and some diagnostic and laboratory data for HIV/AIDS cases who resided in KC at time of diagnosis. It includes data on cases reported with AIDS and symptomatic non-AIDS HIV (B1/B2) since the 1980s. In September 1999, this registry was expanded to include data on cases reported with asymptomatic HIV infection. Because AIDS case reporting is 90-95% complete, these data provide good population-based epidemiological information on AIDS in KC and have been widely used for HIV/AIDS prevention and care services planning. Asymptomatic HIV reporting provides epidemiological data on the earlier stages of HIV infection and can contribute a more recent picture of the epidemic. However, because it has only recently been implemented, asymptomatic HIV reporting is probably less than 70% complete and can not yet be considered population-based.

Basic cumulative HIV/AIDS statistics are published monthly, and the semiannual *HIV/AIDS Epidemiology Report* provides more detailed statistics. Public Health’s HIV/AIDS Epidemiology Program tracks HIV/AIDS in KC and manages the KC data. With the assistance of local health departments, the Washington State Department of Health Infectious Disease and Reproductive Health Assessment Unit gathers case reports in the rest of the state and manages the statewide case registry.

Adult/Adolescent Spectrum of HIV-related Diseases Study (ASD) (1989-ongoing)

The Adult/Adolescent Spectrum of HIV-related Diseases (ASD) Study is an ongoing medical record review follow-up study of persons with HIV infection seen in outpatient settings. ASD is funded by the CDC and Seattle-King County is one of 11 participating sites nationwide. Demographic, exposure, clinical, laboratory, treatment, and health utilization information is gathered semi-annually. These data are representative of people with HIV infection seeking care at a variety of outpatient facilities in KC. Updates from the ASD study are published in the *HIV/AIDS Epidemiology Report*. The HIV/AIDS Epidemiology Program manages this database.

Public Health - Seattle & King County HIV Counseling and Testing Data (1987-ongoing)

This database (“lab slip database”) includes HIV results, demographic, and risk data for all publicly funded HIV counseling and testing (CT) sites. Public Health’s HIV/AIDS Program (HAP) collects additional data on clients tested at HAP and HAP outreach sites and publishes the results in *The Quarterly Data Report of the HIV/AIDS Program*.

Record-based HIV Prevalence Surveys in Drug Treatment Centers (1988-ongoing)

To monitor HIV seroprevalence in sentinel populations at higher risk of HIV infection, the CDC funds surveys in drug treatment centers in selected cities nationwide. These surveys are ongoing, anonymous, record-based HIV prevalence surveys which include HIV status, demographic, exposure, sexual, and injection drug behavior characteristics of drug users entering treatment. These data provide good epidemiological information on drug users entering drug treatment in KC, but can not be generalized beyond the surveyed population. These surveys do not provide information on HIV seroincidence. Updates from this study are published annually in the *HIV/AIDS Epidemiology Report*. The HIV/AIDS Epidemiology Program manages this database.

Record-based HIV Prevalence Surveys in STD Clinics (1988-ongoing)

To monitor HIV seroprevalence in sentinel populations at higher risk of HIV infection, the CDC funds surveys in STD clinics in selected cities nationwide. In 1998, CDC reduced the number of sites funded for

the STD survey and Seattle was among those defunded. The STD survey was continued with local funding in 1998; the status of the 2001 survey is uncertain. This anonymous record-based HIV prevalence survey has been conducted annually at the STD Clinic located at Harborview Medical Center since 1988. Data collected include HIV status, demographic, exposure, sexual behavior and STD diagnoses. These data provide good epidemiological information on STD clinic clients, but can they not be generalized beyond the surveyed populations. These surveys do not provide information on HIV seroincidence. Updates are published annually in the *HIV/AIDS Epidemiology Report*. The HIV/AIDS Epidemiology Program manages this database.

Record-based HIV Prevalence Surveys in Adolescents (1993 - 1994)

Anonymous record-based HIV prevalence surveys funded by the CDC were conducted in a high risk adolescent population (1993) and at an adolescent health clinic (1993-94) in KC. Data include HIV status, demographics, sexual, and drug use behavior characteristics. Data from these surveys can not be generalized beyond the surveyed populations. These surveys do not provide information on HIV seroincidence. The HIV/AIDS Epidemiology Program manages this database.

Interview Follow-up HIV Study of Injection Drug Users (RAVEN) (1994-ongoing)

This study is funded by the National Institute for Drug Abuse (NIDA) and the CDC. Injection drug users in drug treatment programs and not in treatment programs are interviewed at baseline and one year later about sexual and drug use behaviors. HIV, hepatitis C, hepatitis B, HTLV I and II, herpes simplex virus type 2, and syphilis status are assessed at baseline and follow-up. This study provides information on the prevalence and incidence of HIV and other parenterally-transmitted pathogens among injection drug users both in and out of treatment and the relationship between past or newly acquired infection and sexual and drug use behaviors. Updates from the RAVEN study are published in the *HIV/AIDS Epidemiology Report* and in peer-reviewed journals. The HIV/AIDS Epidemiology Program manages this database.

Record-based HIV Survey of Childbearing Women (1989-May 1995)

The HIV Survey of Childbearing Women was funded by the CDC and conducted statewide between 1989 and May 1995. The HIV status of childbearing women was assessed through anonymous testing of dried blood specimens from newborn infants. The database contains HIV status, demographic and geographic information on childbearing women and was the only population-based source of HIV data. Results from this study were published in the 3rd quarter 1996 *HIV/AIDS Epidemiology Report*. The Washington State Department of Health Infectious Disease and Reproductive Health Assessment Unit manages this database.

Military Recruit Data (1985-98)

Aggregated statistical results from HIV screening of military recruit applicants are published annually by the CDC. State and Metropolitan Statistical Area (MSA) specific results are available and include demographic (gender and race) and HIV prevalence information. Data for Washington State and the Seattle and Tacoma MSAs are available from the HIV/AIDS Epidemiology Program and are published annually in the *HIV/AIDS Epidemiology Report*.

Job Corps Data (1988-1997)

Aggregated statistical results from HIV screening of entrants to the Job Corps—a residential occupational training program for disadvantaged youth administered by the Department of Labor—are provided to state and local health departments by the CDC. Data include HIV prevalence and demographic information. Data for Washington State and the Seattle MSA are available from the HIV/AIDS Epidemiology Program and are published annually in the *HIV/AIDS Epidemiology Report*.

RAVEN Study (6/94-6/00)

This study, funded both by NIDA (National Institute of Drug Abuse) and CDC, was initially conducted between 6/94 and 4/98. The principle aims of RAVEN were to evaluate the effectiveness of needle exchange to reduce the transmission of blood-borne infections and to measure the incidence and risk factors for these infections in injection drug users (IDUs). A total of 3000 IDUs were enrolled in RAVEN,

representing approximately 20-25% of all drug injectors living in the area. Several articles have been published and more are in preparation.

NIDA funded a continuation of the RAVEN Study through 2000, to follow up on several findings from the original RAVEN analysis, including possible time-related influences on the association between needle exchange and HIV risk. Analysis of these data is in progress. The significance of this research will be to understand more fully what is accomplished by needle exchange, and what may be needed to achieve better results.

Grackle Study (1996-ongoing)

This study was initially funded by CDC through the Association of Schools of Public Health; funding from NIH (NIDA) came later. The specific aims of GRACKLE are to study the epidemiology of incident hepatitis C virus infection in injection drug users and to carry out a molecular epidemiology study of the genetic relatedness of new HCV infections in social networks of drug injectors in relation to risk behavior within the network. The molecular epidemiology study (named the TIE Study) is a collaboration between the Epidemiology Research Unit and the Virology Department at UW. A recent paper was the first to demonstrate transmission of a blood-borne virus via shared use of drug preparation equipment (drug cookers and filtration cotton).

Young Men's Survey, Phase 1 (10/97-10/98)

This was a CDC-funded study of young men (ages 15-22) who have sex with other men (MSM) and attend public venues in King County. This CDC-designed project has been conducted in 6 other urban areas in the US. The goal of the study was to assess the prevalence of HIV, hepatitis B and other sexually and parenterally-transmitted infections as well as the associated behavioral risk factors in this population of young, gay and bisexual males. An overview of results was published in the *HIV/AIDS Quarterly Epidemiology Report*, 4th quarter, 1998. A report of results from the seven participating sites was published in JAMA 2000 (see below for YMS website citation). Several other analyses are underway.

Young Men's Survey, Phase 2 (12/98-2/00)

This Phase includes 23-29 year old men attending public venues in the Seattle area. In addition to HIV and hepatitis B testing, participants also receive counseling and testing for hepatitis A and syphilis. Data were collected 12/98 – 2/00. A summary of findings was published in the *HIV/AIDS Epidemiology Report*, 1st half year.

Survey of HIV Prevalence and Incidence and Risk Behaviors in IDUs - The Kiwi Study (8/98-ongoing)

The goals of this CDC-funded study are to design, pilot, implement and evaluate a system to assess HIV prevalence, infection trends, and risk-related behaviors trends and related behaviors, and estimate HIV incidence among IDUs booked into the King County jail. The need for strengthened monitoring within this population is related to the outbreak of HIV in Vancouver, BC coupled with reduced capacity to monitor this population as the RAVEN Study was reduced in size and scope. RAVEN data indicated that a vast majority of this population circulates through the jail, making it an ideal site for enhanced surveillance. CDC worked closely with us to design the protocol and have funded 5 other sites across the country for a similar study based on our Seattle experience. The study was expanded to the Regional Justice Center in Kent in the year 2000 and hepatitis C testing was added. HIV incidence is measured through two different methods: 1) Using the LS-EIA to assess recent seroconversions and 2) by comparing baseline HIV test results with subsequent results among persons who re-enter the study or who are tested at other health department sites. A report summarizing results was published in the *HIV/AIDS Epidemiology Report 2nd half 2000*.

HIV Incidence Study (HIVIS)

This CDC-funded study uses the serologic testing algorithm (aka STARHS) to detect recent HIV seroconversion among King County residents receiving HIV counseling and testing at publicly funded sites and at a large private provider serving King County. KC's public laboratory is one of 6 labs across

the country that is funded to use STARHS methodology. KC's lab and the public health lab in San Francisco will conduct all STARHS testing in the western part of the country.

1999 Seattle Teen Health Survey

This health behavior survey, which includes sexual behavior questions, is conducted biannually in Seattle schools and include students in grades 7 through 12. Results from the 1999 survey were published in a report which is available from the Seattle School District's Health Education Office. All high school students and a random sample of 7th and 8th grade students were invited to participate in the 1999 survey.

Demographic, Socioeconomic, and Geographic Population Data

Projected and adjusted demographic population data for King County and smaller geographical areas of King County are based on 1990 census data. (At the time this report was prepared 2000 census data was not yet available.) Sociodemographic data (e.g., household income, unemployment, and education) in this report are from 1990 census data. Population data are obtained from the Washington State Department of Social and Health Services, Office of Research and Analysis. Population growth forecasts were obtained from the King County Office of Budget and Strategic Planning and the Puget Sound Regional Council. Some of these data are available to the HIV/AIDS Epidemiology Program through the VISTA database and data analysis system developed by the Epidemiology, Planning and Evaluation Program.

Mortality Statistics

Death certificate information includes the cause of death for deaths occurring in King County. Persons with AIDS who die in King County are included regardless of where they resided at the time of their AIDS diagnosis. AIDS cases are reported in the county of residence at time of diagnosis. These data are available to the HIV/AIDS Epidemiology Program through the VISTA database and data analysis system. The mortality statistics are based on data collected by the King County Office of Vital Statistics.

Sexually Transmitted Disease Reporting Data

This database includes demographic, geographic and diagnosis data on those sexually transmitted diseases (STD) which are legally notifiable under state administrative code. Statistics are compiled by the PHSKC STD Program. These data are available to the PHSKC HIV/AIDS Epidemiology Program through the VISTA database and data analysis system developed by the Epidemiology, Planning, and Prevention Program.

Sexually Transmitted Disease Database

This database includes demographic, geographic, diagnosis and sexual orientation data for clients seen at the Clinic. The STD Clinic manages this database.

Teenage Pregnancy Data

This database contains pregnancy data collected from birth certificates and provider reporting of induced abortions. Spontaneous abortions and fetal deaths (miscarriages after 20 weeks) are not included. These data are available to the HIV/AIDS Epidemiology Program through the VISTA database and data analysis system developed by the Epidemiology, Planning, and Prevention Program.

Public Study Findings: Several reports have been published. Please see Public Health websites:

Epidemiology Program – <http://www.metrokc.gov/health/apu/epi/>
 "Volunteer bias in randomized evaluations of the efficacy of needle exchange programs"
 "Methadone treatment and HIV and hepatitis B and C risk reduction among injectors in the Seattle area"
 "Changes in injection risk behaviors associated with participation in the Seattle needle exchange program"

Young Men's Survey – <http://www.metrokc.gov/health/apu/YMS/menuyms.htm>
 "Questions and Answers about the Seattle Area Young Men's Survey"
 "The Seattle Area Young Men's Survey: Phase 1 results"
 "The Seattle Area Young Men's Survey: Phase 2 results"

"Depression and HIV Risk Behavior among Drug Injectors and Young Gay Men in Seattle"
 "Drugs, Alcohol and Risky Sex Among Seattle Area Young MSM"

C. AIDSNET Regions and Counties

Cumulative AIDS cases and deaths by resident county and AIDSNET region, at the time AIDS diagnosis - Reported as of 12/31/00 - WA State

		TOTAL CASES		DEATHS		PRESUMED LIVING	
		No.	(%) ¹	No.	(%) ²	No.	(%) ²
Region 1:	Adams	3	(0.0)	1	(33)	2	(67)
	Asotin	13	(0.1)	6	(46)	7	(54)
	Columbia	3	(0.0)	2	(67)	1	(33)
	Ferry	5	(0.1)	5	(100)	0	(0)
	Garfield	0	(0.0)	0	(0)	0	(0)
	Lincoln	3	(0.0)	2	(67)	1	(33)
	Okanogan	19	(0.2)	6	(32)	13	(68)
	Pend Oreille	8	(0.1)	4	(50)	4	(50)
	Spokane	386	(4.1)	215	(56)	171	(44)
	Stevens	17	(0.2)	6	(35)	11	(65)
	Walla Walla	53	(0.6)	27	(51)	26	(49)
	Whitman	9	(0.1)	4	(44)	5	(56)
	SUBTOTAL	519	(5.5)	278	(54)	241	(46)
Region 2:	Benton	65	(0.7)	28	(43)	37	(57)
	Chelan	31	(0.3)	19	(61)	12	(39)
	Douglas	2	(0.0)	2	(100)	0	(0)
	Franklin	22	(0.2)	10	(45)	12	(55)
	Grant	25	(0.3)	19	(76)	6	(24)
	Kittitas	13	(0.1)	8	(62)	5	(38)
	Yakima	130	(1.4)	68	(52)	62	(48)
	SUBTOTAL	288	(3.1)	154	(53)	134	(47)
Region 3:	Island	51	(0.5)	33	(65)	18	(35)
	San Juan	16	(0.2)	10	(63)	6	(38)
	Skagit	45	(0.5)	27	(60)	18	(40)
	Snohomish	494	(5.2)	262	(53)	232	(47)
	Whatcom	133	(1.4)	69	(52)	64	(48)
	SUBTOTAL	739	(7.8)	401	(54)	338	(46)
Region 4:	King	6,102	(64.7)	3,583	(59)	2,519	(41)
Region 5:	Kitsap	166	(1.8)	95	(57)	71	(43)
	Pierce	837	(8.9)	454	(54)	383	(46)
	SUBTOTAL	1003	(10.6)	549	(55)	454	(45)
Region 6:	Clallam	44	(0.5)	21	(48)	23	(52)
	Clark	326	(3.5)	181	(56)	145	(44)
	Cowlitz	80	(0.8)	44	(55)	36	(45)
	Grays Harbor	41	(0.4)	21	(51)	20	(49)
	Jefferson	23	(0.2)	11	(48)	12	(52)
	Klickitat	10	(0.1)	8	(80)	2	(20)
	Lewis	36	(0.4)	23	(64)	13	(36)
	Mason	60	(0.6)	14	(23)	46	(77)
	Pacific	12	(0.1)	8	(67)	4	(33)
	Skamania	7	(0.1)	5	(71)	2	(29)
	Thurston	135	(1.4)	69	(51)	66	(49)
	Wahkiakum	2	(0.0)	0	(0)	2	(100)
	SUBTOTAL	776	(8.2)	405	(52)	371	(48)
TOTAL		9,427	(100.0)	5,370	(57)	4,057	(43)

¹ Cases through 1997 and reported by 7/98; not adjusted for reporting delay² Percent of Washington state cases (column %)³ Percent of individual county's cases (row %)

D. POPULATION TABLES

King County population by gender and race, 1998

Location	Race/ethnicity	Total Pop.	Male Pop.	Female Pop.
King County	TOTAL	1,671,733	831,538	840,195
King County	White (non-Hispanic)	1,319,771	655,738	664,033
King County	Black (non-Hispanic)	92,445	46,887	45,558
King County	Am Ind/AK Native	17,621	8,600	9,021
King County	Asian/PI	174,084	85,100	88,984
King County	Hispanic	67,812	35,213	32,599
Seattle	TOTAL	538,926	266,042	272,884
Seattle	White (non-Hispanic)	365,400	179,333	186,067
Seattle	Black (non-Hispanic)	59,516	29,921	29,595
Seattle	Am Ind/AK Native	6,841	3,333	3,508
Seattle	Asian/PI	81,087	39,721	41,366
Seattle	Hispanic	26,082	13,734	12,348
KC-Seattle ²	TOTAL	1,132,807	565,496	567,311
KC-Seattle ²	White (non-Hispanic)	954,371	476,405	477,966
KC-Seattle ²	Black (non-Hispanic)	32,929	16,966	15,963
KC-Seattle ²	Am Ind/AK Native	10,780	5,267	5,513
KC-Seattle ²	Asian/PI	92,997	45,379	47,618
KC-Seattle ²	Hispanic	41,730	21,479	20,251

King County population by gender and age, 1998

AGE IN YEARS										
PLACE	Total pop.	0-9	10-14	15-19	20-24	25-29	30-39	40-49	50-59	60-99
King Co.										
TOTAL	1,671,733	227,651	116,950	107,309	93,035	111,732	295,524	299,518	186,545	233,469
Males	831,538	116,599	59,620	54,578	46,993	57,383	149,745	151,924	93,584	101,112
Females	840,195	111,052	57,330	52,731	46,042	54,349	145,779	147,594	92,961	132,357
Seattle										
TOTAL	538,926	59,220	28,961	29,397	32,680	40,806	106,223	93,739	54,744	93,156
Males	266,042	30,058	14,522	14,730	16,744	21,189	54,787	48,392	27,511	38,109
Females	272,884	29,162	14,439	14,667	15,936	19,617	51,436	45,347	27,233	55,047
KC-Seattle¹										
TOTAL	1,132,807	168,431	87,989	77,912	60,355	70,926	189,301	205,779	131,801	140,313
Males	565,496	86,541	45,098	39,848	30,249	36,194	94,958	103,532	66,073	63,003
Females	567,311	81,890	42,891	38,064	30,106	34,732	94,343	102,247	65,728	77,310

King County population by health planning area and race/ethnicity¹, 1998

Health Planning Area	TOTAL	White (non-Hispanic)	Black (non-Hispanic)	Am Ind/ Ak Native	Asian/PI	Hispanic
SEATTLE						
Central	50,491	25,256	15,626	862	5,605	3,142
North Central	90,162	75,111	4,783	864	6,096	3,308
North of Canal	169,802	139,398	4,348	1,976	17,599	6,481
North Seattle	59,723	44,441	2,420	703	9,205	2,954
SE Seattle	90,358	22,720	27,576	1,257	33,089	5,716
W Seattle	78,390	58,474	4,763	1,179	9,493	4,481
SUBTOTAL	538,926	365,400	59,516	6,841	81,087	26,082
NON-SEATTLE						
Auburn	102,116	88,365	1,800	2,366	5,501	4,084
Bellevue	79,391	64,445	2,040	281	9,822	2,803
Bothell/Woodinville	72,220	65,513	767	412	3,595	1,933
Burien /Highline	84,883	69,455	4,063	1,078	6,103	4,184
E/NE County	35,199	32,859	177	384	721	1,058
Eastgate/Issaquah	85,511	74,054	1,130	302	8,037	1,988
Federal Way	84,449	67,301	4,003	705	8,471	3,969
Kent	90,679	74,701	3,586	811	7,355	4,226
Kirkland/Redmond	155,241	135,274	2,628	804	11,581	4,954
Mercer Island	21,740	18,344	394	54	2,625	323
N County	70,151	57,798	1,055	538	8,502	2,258
Renton	87,597	71,429	4,176	845	8,099	3,048
SE County	85,008	78,443	966	900	2,304	2,395
Vashon	10,949	10,245	67	101	283	253
White Center/Skyway	67,673	46,145	6,077	1,199	9,998	4,254
SUBTOTAL	1,132,807	954,371	32,929	10,780	92,997	41,730
KING COUNTY TOTAL	1,671,733	1,319,771	92,445	17,621	174,084	67,812

¹In this table, race categories (White (non-Hispanic), Black (non-Hispanic), Am Ind/AkNative, Asian/PI, and Hispanic) are mutually exclusive

E. HIV/AIDS Epidemiology Information Resources

Public Health - Seattle & King County HIV/AIDS Epidemiology Program: (206) 296-4645

Public Health - Seattle & King County AIDS Project resource library: (206) 296-4649

Public Health - Seattle & King County AIDS STD/HIV Project hotline: (206) 205-7837

Public Health - Seattle & King County Web homepage: <http://www.metrokc.gov/health>

See Sexual Health section

Washington State Dept. of Health AIDS Hotline: 1-800-272-AIDS (2437)

CDC National AIDS hotline:

1-800-342-AIDS (2437)

1-800-344-SIDA (7432) (Spanish)

1-800-243-7889 (Deaf access)

CDC National AIDS Clearinghouse 1-800-458-5231 or 1-301-217-0023

CDC HIV/AIDS Web homepage: http://www.cdc.gov/nchstp/hiv_aids/dhap.htm

HIV/AIDS Surveillance Report, CDC (semiannual)—National Clearinghouse or CDC Web homepage

University of California, San Francisco HIV InSite: <http://hivinsite.ucsf.edu/insite>

World Health Organization (WHO) HIV/AIDS Statistics: <http://www.who.int/emc/diseases/hiv>