



AIDS in King County

SUMMARY: Although the number of newly diagnosed AIDS cases in King County has declined since 1993 and the number of AIDS deaths has dropped since 1995 (see Figure 4 below), AIDS continues to have a major impact on the health of King County. Of 7,172 persons diagnosed with AIDS as of 9/30/2005, over 4,061 had died. After the 1993 change in the AIDS case definition and the introduction of highly active antiretroviral therapy (HAART) about 3 years later, opportunistic illnesses (OIs) have declined in incidence and in importance as AIDS-defining events. Deaths declined rapidly beginning in 1996 with the introduction of HAART. Because AIDS deaths have declined more rapidly than AIDS diagnoses, the number of King County residents living with AIDS continues to rise. There are currently about 250 AIDS diagnoses and 100 deaths each year.

WHAT IS AIDS? Acquired Immunodeficiency Syndrome (AIDS) is caused by the Human Immunodeficiency Virus (HIV). When AIDS was first recognized in 1981, the cause was unknown. In 1983 HIV was identified as the virus that causes AIDS, and by 1985 a blood test was available, allowing infection with HIV to be identified in persons who had not developed AIDS. Everyone who has AIDS also has HIV. Only after the acquired HIV infection has caused severe immune deficiency, as shown by special lab tests or certain opportunistic illnesses (OIs), is a patient diagnosed with AIDS.

SEATTLE AREA NATIONAL RANKING: The latest published Centers for Disease Control and Prevention AIDS data¹ show that among 119 metropolitan areas of one-half million population or higher in 2004, the Seattle metropolitan statistical area (MSA) ranked 21st in the cumulative number and 53rd in the annual rate of reported AIDS cases for 2004 nationally. The Seattle MSA AIDS rate during 2004 was 11.6 cases per 100,000 population, relative to an overall case rate of 18.9 for all metropolitan areas with more than a half million people.

Nationally, the five highest 2004 AIDS case rates per 100,000 population were in New York City (56.7), Miami FL (53.8), Washington DC (40.3), San Francisco CA (33.5), and Newark, NJ (33.4). In comparison to the Seattle MSA rate of 11.6, the Tacoma MSA had a rate of 5.0, while the Portland OR MSA rate was 10.5 in 2004.

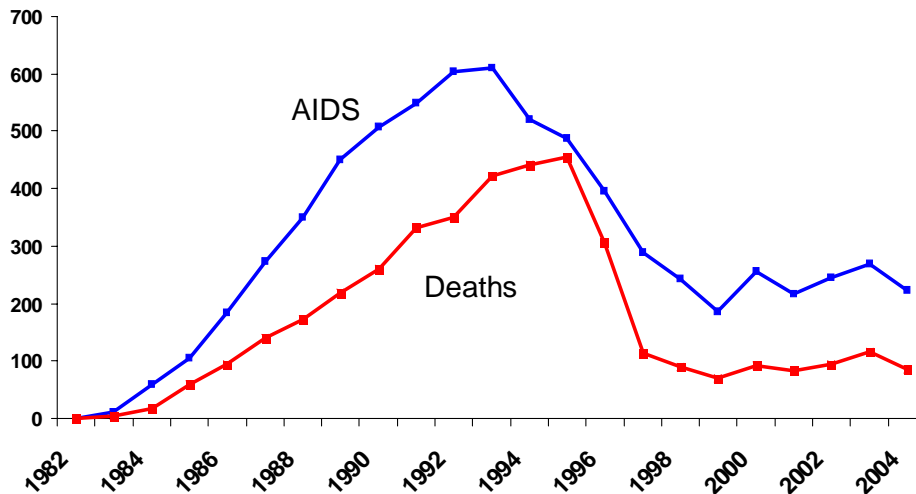
Cases among the Seattle MSA make up a decreasing proportion of total U.S. cases as the epidemic becomes more rural. Seattle accounted for 1.01% of the U.S. total at the end of 1992, 0.95% at the end of 1996, and 0.84% at the end of 2004.

King County has the highest AIDS rate among all Washington counties. One-third of the Washington population resides in King County, but almost two-thirds of all AIDS cases resided in King County at the time of AIDS diagnosis. Within King County the AIDS rate is highest in Seattle.

AIDS DIAGNOSES AND DEATHS OVER TIME: As of September 30, 2005, 7,172 King Co. residents have been diagnosed with AIDS and 4,061 (57%) have died. New diagnoses of AIDS peaked in 1993 at 611, declined through 1999, and has been stable at about 250 cases each year since 2000 (see Figure 4). The number of AIDS deaths peaked in 1995 at 455 deaths, but declined to about 100 deaths annually 1997 through 2004.

The dramatic decline in deaths and delays in progression to AIDS are primarily due to wide-spread introduction of highly active antiretroviral therapy, or HAART. In addition, effective prevention for opportunistic infections (such as *Pneumocystis pneumonia*), better monitoring of HIV progression (such as by assays of HIV viral load), and sustained efforts to prevent HIV transmission may also have contributed to decreases in numbers of AIDS diagnoses and deaths.

Figure 4: New AIDS Cases and Deaths; King County, 1982-2004



AIDS case and death numbers have been roughly level since 1997 (rather than declining further), probably for several reasons. Some people do not receive effective treatments, because HIV status is identified too late in the course of HIV disease for optimal treatment, because of problems accessing treatment, or because patients refuse treatment. Other treatment failures are due to problems with taking the medicines, adverse side effects, or the development of HIV strains resistant to currently available antiretroviral drugs. Finally, as people with long-standing HIV infection age, they die more frequently of conditions unrelated to their HIV infection. Figure 4 includes all deaths of persons diagnosed with HIV, regardless of the cause of death.

While both new AIDS diagnoses and deaths numbers have declined, more King County residents than ever are living with AIDS. In recent years, there have been an average 250 new AIDS diagnoses and 100 deaths per year, resulting in increasing number of persons living with AIDS. For example, there were fewer than 100 King County residents living with AIDS in 1984, over 2,000 living with AIDS in 1994, and over 3,000 living with AIDS in 2004.

As a result of delayed progression of HIV to AIDS, the age of persons first diagnosed with AIDS has shifted toward older age groups and the average age is gradually increasing. From 1993 through 2004 the percentage of AIDS cases diagnosed among persons less than 30 years of age declined from 19% to 11%. During the same period, the percentage of diagnosed cases among persons aged 40 years or more increased from 34% to 52%.

KING COUNTY RESIDENTS CURRENTLY LIVING WITH AIDS:

- Of the estimated 8,400 King County residents currently living with HIV, about one-third (3,111) are known to have been diagnosed and reported with AIDS. The remaining two-thirds have HIV infection but have not developed AIDS.
- Although 29% of the State's population resides in King County, 62% of the State's AIDS cases are King County residents.

- Eighty-two percent of those living with AIDS in King County live in the city of Seattle.
- Three-quarters of King County cases were 30-49 years old at the time of AIDS diagnosis. 98% were 20-59 years of age at the time of diagnosis.
- Five people currently living with AIDS in King County were under 13 years at the time of diagnosis, and all were infected perinatally. An additional five people were age 13-19 at the time of AIDS diagnosis, including one MSM, one MSM-IDU, one with heterosexual-acquired infection, one infected through receipt of blood products, and one with an unknown source of transmission.
- King County residents of color are disproportionately affected by AIDS. Blacks constitute only 5.4% of the population, but represent 16% of those currently living with AIDS. Likewise, Hispanics represent about 5.5% of the population but comprise 10% of those currently living with AIDS.
- Males constitute 90% (2,810) of King County residents currently living with AIDS.

LEADING CAUSES OF DEATH (Figures 5 and 6):

HIV infection has dropped dramatically as a leading cause of death among young men in King County. From 1989 to 1996 HIV was the leading cause of death, but dropped to the 5th leading cause in 2002 behind accidents, cancers, suicide, and heart disease². HIV infection has remained a relatively low cause of death for young women in King County. While overall HIV mortality has dropped, nearly half of HIV deaths now occur among persons over age 45.

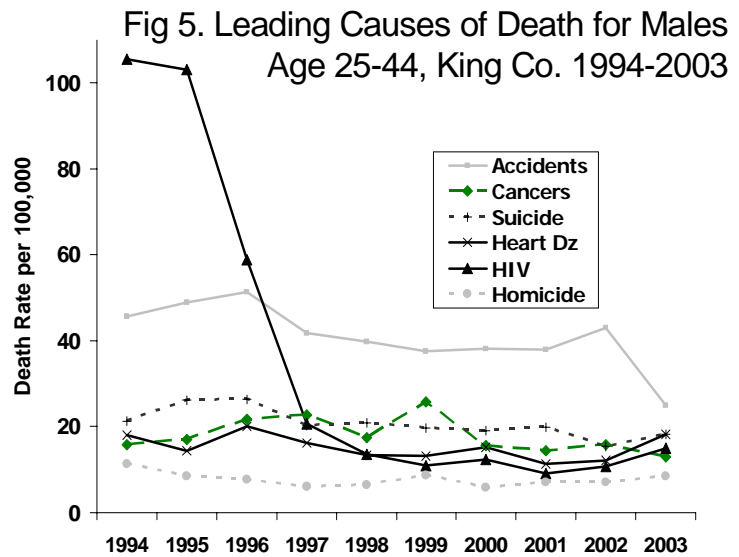
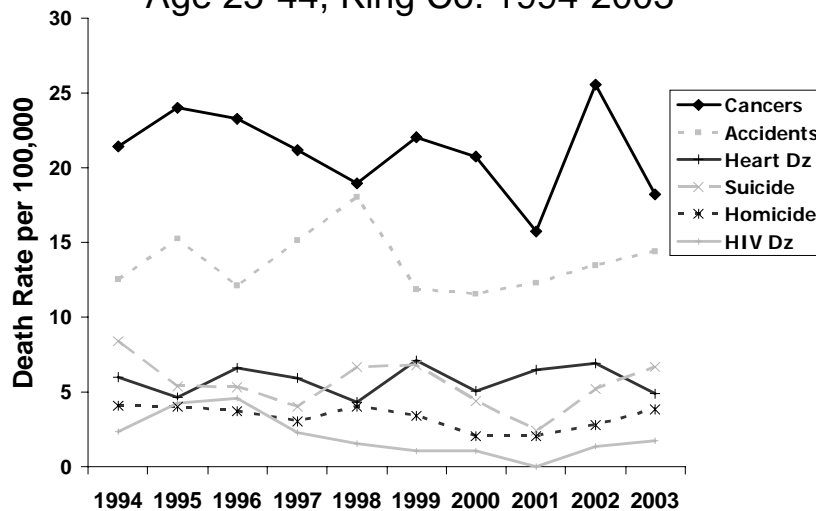


Fig 6. Leading Causes of Death in Females Age 25-44, King Co. 1994-2003



AIDS-RELATED OPPORTUNISTIC ILLNESSES: The case definition for AIDS has been modified several times as understanding of the syndrome has improved. The definition now includes any one of 26 opportunistic illnesses (OIs) that occur predominantly as a result of destruction of the immune system, and also includes direct laboratory evidence of that immune suppression even before development of disease. The occurrence of an OI reflects two or more missed opportunities for prevention. These missed opportunities include failure to prevent HIV infection initially, failure of providing adequate HAART therapy to prevent disease progression, and for some OIs (notably *Pneumocystis pneumonia* [PCP] and *Mycobacterium avium* complex [MAC]) failure to provide adequate OI prophylaxis. Some OIs occur more frequently in men who have sex with men (MSM) and others are more frequent among injection drug users (IDUs) and/or women. OIs have declined markedly in incidence (both locally and nationally) since the introduction of HAART.

With the AIDS case definition changed in 1993 to include severe immunosuppression, most diagnoses of AIDS no longer include an OI. To follow trends in OIs, data from the Adult/Adolescent Spectrum of HIV-related Diseases (ASD) project were used. ASD was a dynamic longitudinal cohort medical record review project collecting data at 9 King County medical facilities. A sample of people with HIV infection were followed from 1990 or first presentation at a participating site through 2003, death, or loss to follow-up. Data on demographic characteristics, treatments, and diagnoses of OIs and other HIV-related conditions were collected. An average of 1555 people were followed in the cohort each year, including 1138 living with AIDS. ASD has followed about 40% of people reported to HIV/AIDS surveillance and living with HIV 1990 through 2003.

EPISODIC OPPORTUNISTIC ILLNESSES: PCP (*Pneumocystis pneumonia*) and esophageal candidiasis rates have declined sharply since the advent of HAART in 1996 (Figure 7). PCP is frequently the initial AIDS-defining event and may indicate late diagnoses of HIV. Esophageal candidiasis is an important OI in women and IDUs. The decline in chronic herpes simplex infection preceded the HAART era and reflects more effective treatment of herpes.

Fig. 7. Incidence of *pneumocystis pneumonia* (PCP), esophageal candidiasis, and chronic herpes from ASD Seattle, King County 1990 – 2003.

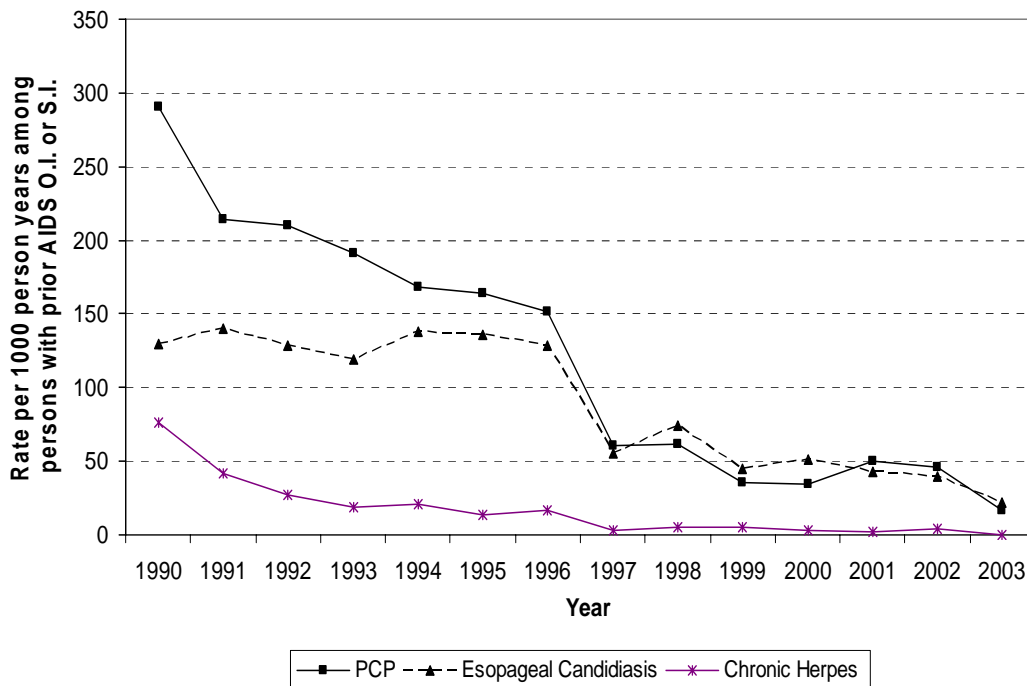


Fig. 8. Incidence of tuberculosis (TB) and recurrent pneumonia from ASD, Seattle, King County 1990 – 2003.

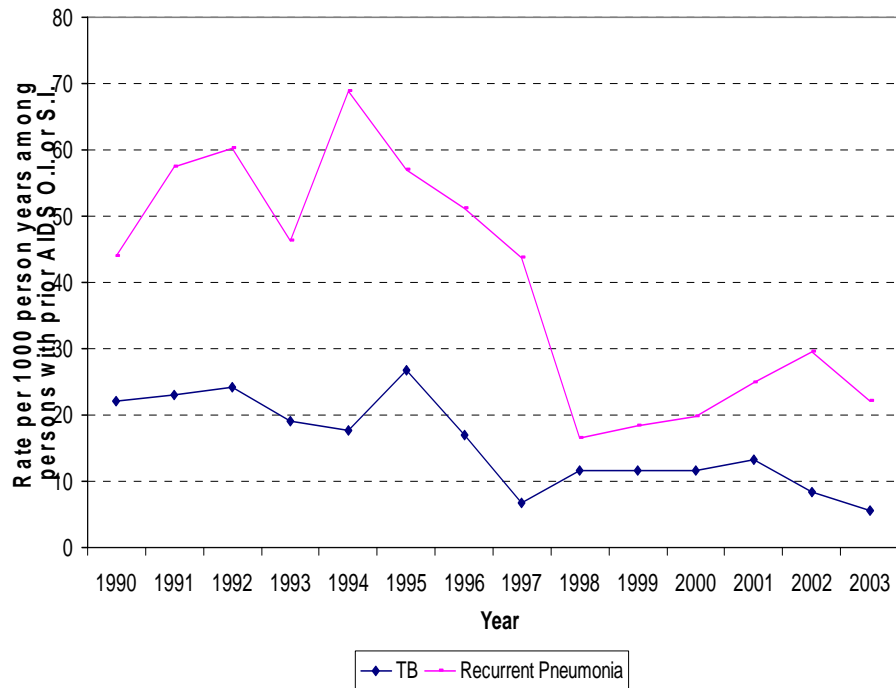
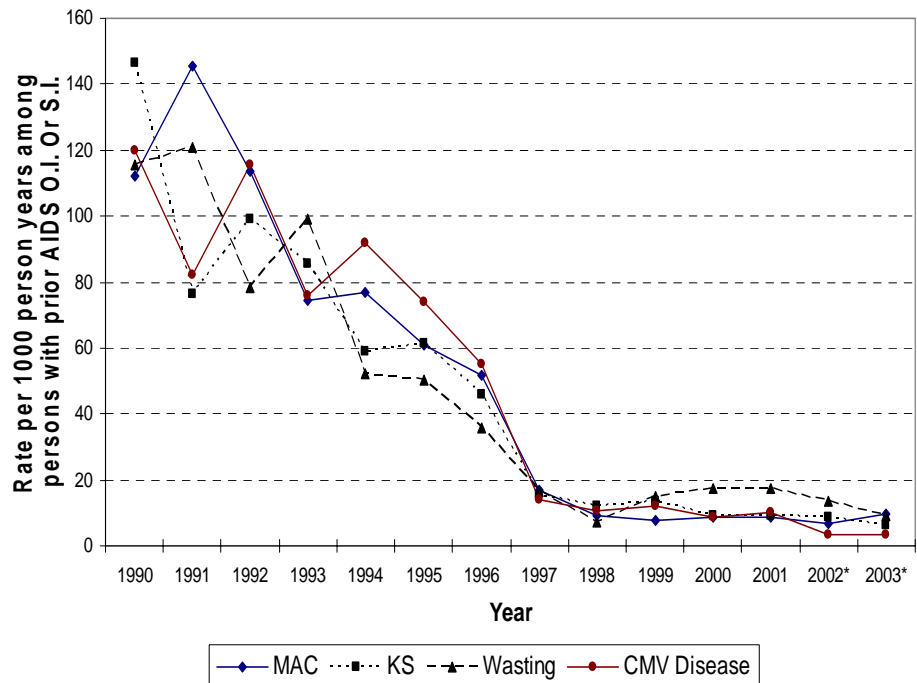


Figure 8 shows striking declines in tuberculosis-- both pulmonary and extrapulmonary -- such as miliary or peritoneal) and recurrent pneumonia. TB is another OI that has specific preventive therapy possible, like PCP and MAC. Both of these episodic OIs are more common in IDUs than in MSM.

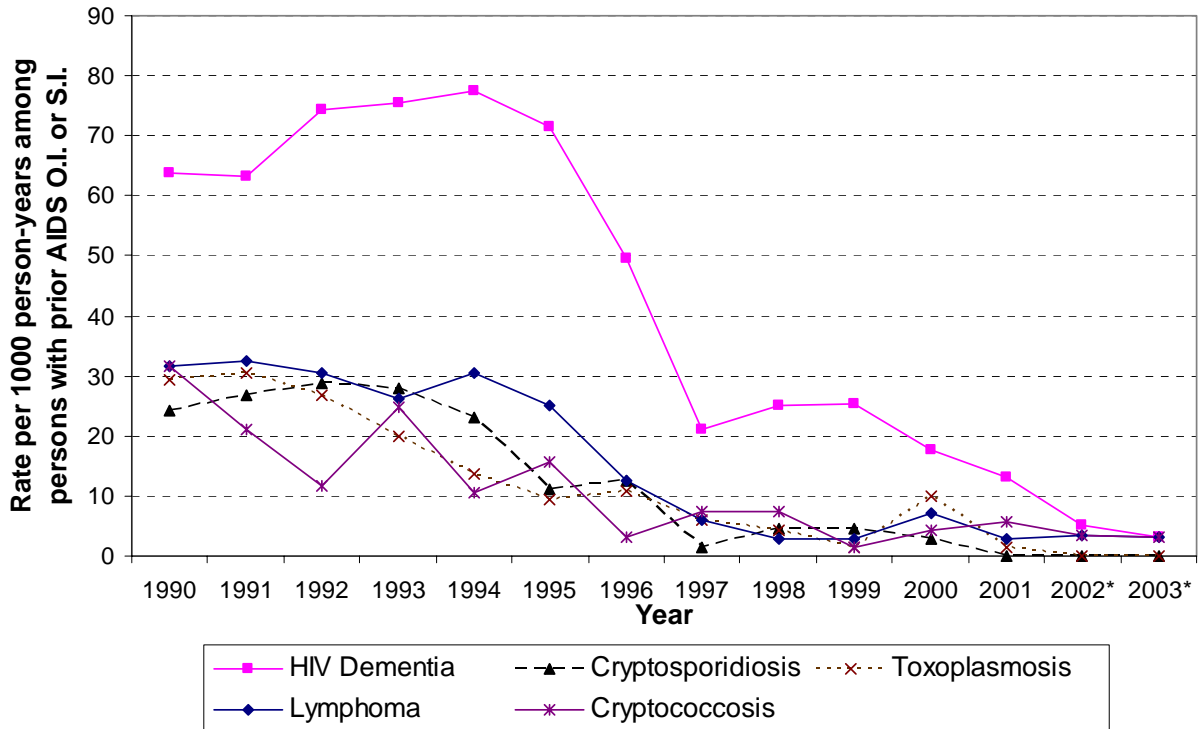
Fig. 9. Incidence of mycobacterium avium complex (MAC), Kaposi's sarcoma, wasting syndrome, and cytomegalovirus disease from ASD, Seattle King County 1990 – 2003.

CHRONIC OPPORTUNISTIC ILLNESSES: In Figure 9, rates of *Mycobacterium avium* complex (MAC, also called MAI), Kaposi's sarcoma (KS), HIV wasting syndrome, and CMV disease (including CMV retinitis) fall sharply starting in 1990, and plateau after 1996. KS is more common among MSM than other HIV-infected persons. MAC typically only occurs in the most immunocompromised persons, at very late-stage AIDS.



Further declines in the incidence of 5 more OIs are illustrated in the graph below. Of these, HIV dementia has shown the most dramatic decline during the HAART era.

Fig. 10. Incidence of HIV dementia, AIDS-defining lymphomas, cryptosporidiosis, cryptococcosis, and toxoplasmosis from ASD, Seattle, King County 1990 – 2003.



1. Centers for Disease Control and Prevention. HIV/AIDS Surveillance Report. 2004. Vol 16. Atlanta: US Department of Health and Human Services, Centers for Disease Control and Prevention; 2005.

2. King County Registrar / VISTA System