Two Decades of HIV/AIDS in Hawaii: Contrast with National Trends

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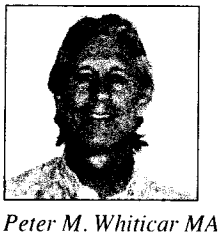

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Abstract

This paper describes the HIV/AIDS epidemic in Hawaii. Data indicate gradual but steady changes in characteristics of infected populations. Most significant are increases in cases among Asian Pacific Islanders, women, heterosexuals and younger age groups. Early harm reduction measures and low incidence among injection drug users relative to other parts of the US may have played a significant role in containing the epidemic.

Introduction

In the early stages of the HIV/AIDS epidemic, the characteristics of cases diagnosed in Hawaii were similar to the rest of the United States.[1] Over the course of the epidemic, however, the characteristics of populations infected with HIV/AIDS in Hawaii have diverged from national trends. The distinct trends in Hawaii have been shaped by national policies and medical advances as well as by local factors such as State STD/HIV prevention programs, Hawaii's ethnic composition, and risk behavior within the population.

This paper describes the characteristics of persons reported to the Hawaii State Department of Health and participants in the Hawaii Sero-positivity and Medical Management (HSPAMM) program over time. Changes in the gender, age, ethnicity and exposure category of the affected populations over time are documented. Data on other sexually transmitted diseases (STDs) which shed light on risk behavior that may impact the incidence of HIV are also included. The aim of this descriptive epidemiological review is to increase awareness and understanding in the medical community of the continuing threat of HIV/AIDS in Hawaii.

Methods

Epidemiologic data from the STD/AIDS Prevention Branch, Hawaii State Department of Health (DOH) are used to document AIDS. Data on all AIDS cases diagnosed in Hawaii have been collected by the HIV/AIDS Surveillance Program since 1983.

Further data on HIV were obtained from the DOH's HSPAMM program. From 1989 to November 2004 HSPAMM has enrolled 2,875 HIV/AIDS infected individuals for clinical monitoring. In order to try to understand more recent patterns of infection, only the 2,076 HSPAMM clients who were infected with HIV but did not have CD4 levels below 200 or an AIDS defining disease prior to or at enrollment are included in this study. HSPAMM participation is voluntary and thus may not be representative of the HIV infected population in Hawaii. HSPAMM participants include Hawaii residents whose HIV status was diagnosed elsewhere, in contrast to the AIDS data which excludes such cases.

The DOH STD Prevention Program collects data on chlamydia, gonorrhea and syphilis. These are reportable diseases.

Results

The incidence of AIDS diagnosed in Hawaii increased rapidly from the early 1980s to peak at 296 cases in 1993. Incidence declined rapidly from 1994 to 1997 then leveled off. Three exogenous factors influenced the pattern of incidence. In 1993 the Center for Disease Control expanded the definition of AIDS, resulting in many cases diagnosed that particular year that would have otherwise been diagnosed in subsequent years. In 1996 the use of highly active anti-retroviral therapy (HAART) began to reduce HIV/AIDS morbidity, mortality and progression to AIDS. Before 1996, the AIDS data largely reflected HIV incidence with the lengthy time lag required for disease progression. Since HAART has become available, the AIDS data also reflect access to treatment and treatment failures. The increase seen in 1998 is a result of new State regulations requiring laboratories to report low CD4 results.

Gender

AIDS cases in Hawaii have been predominantly male. Among women, 214 cases were diagnosed from 1982 to 2003, representing 7.5% of all cases reported. Over time, however, women have accounted for an increasing percentage of new AIDS diagnoses, reaching 12.1% in the most recent five year period (1999-2003). HSPAMM data for HIV infected cli-

ents without AIDS at the time of enrollment indicate a similar increase in women from 8.4% among all enrolled since 1989 to 10.9% among clients enrolled from 2000-2004.

Age

The greatest numbers of AIDS diagnoses are seen among people aged 35-44 (41.4%), followed by people aged 25-34 (29.6%) and those aged 45-54 (19%). Fewer cases are seen among those over age 54 (6.6%) and those under age 25 (3.4%). Untreated HIV may take a decade to progress to AIDS, therefore the age of AIDS diagnosis lags behind actual HIV infection. With improvements in care and treatment there are fewer AIDS diagnoses, and the time period between HIV infection and AIDS is increased. This amplifies the trend seen over time of increasing age of AIDS diagnosis.

Women with an AIDS diagnosis are younger than their male counterparts. Of women with an AIDS diagnosis 9.3% were under age 25 versus 2.9% of men. Similarly, 33.2% of women diagnosed were aged 25-34 versus 29.3% of men. This age difference has been consistent over time.

Ethnicity

From 1982 to 2003 Caucasians accounted for 61.8% of AIDS diagnosis in Hawaii, followed by Asian/Pacific Islanders (APIs) other than Hawaiians who account for 16.8%. This latter group includes Japanese, Filipinos, Chinese and others of Asian or Pacific descent. Hawaiians account for 10.8% of Hawaii AIDS cases. Small proportions of cases are seen among Hispanics (5.3%), African Americans (4.5%) and others (0.9%). The small proportion of African Americans reflects their small total population in Hawaii rather than their rate of diagnosis, which is the highest of all ethnic groups in recent years.

The proportion of cases that are Caucasian has decreased over time to 52.6% of cases in the most recent five-year period. However, the proportion of cases still exceeds the 31.4% of Caucasians found in the total 2000 population (2000 census data is redistributed according to the 1990 Data Acquisition Methodology to maintain comparable categories). The proportion of API cases (excluding Hawaiians) has increased to 19.8%, though it still falls far below their 57.3% proportion of total population in 2000. The proportion of cases among Hawaiians has increased over time to 13.2%, which exceeds their population (8.6%). Hawaiians have the third highest rate of diagnosis in the 1999-2003 period.

HSPAMM data for HIV infected clients without AIDS at the time of enrollment are consistent with the AIDS data. There is a decrease among Caucasians from 62.2% among all enrolled since 1989 to 56.9% among clients enrolled from 2000-2004. In the same

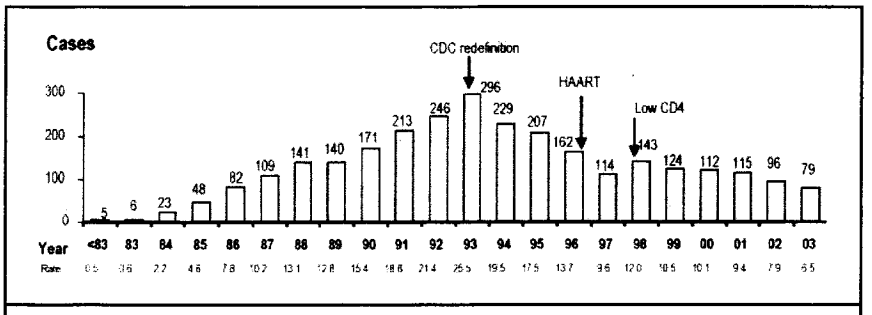

Figure 1.— Hawaii AIDS Incidence by Year of Diagnosis and Rate per 100,000 Population, N=2,871

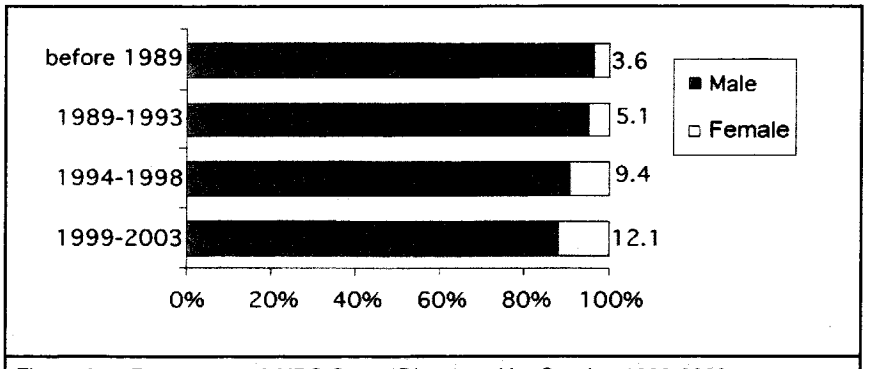

Figure 2.— Percentage of AIDS Cases Diagnosed by Gender, 1982-2003

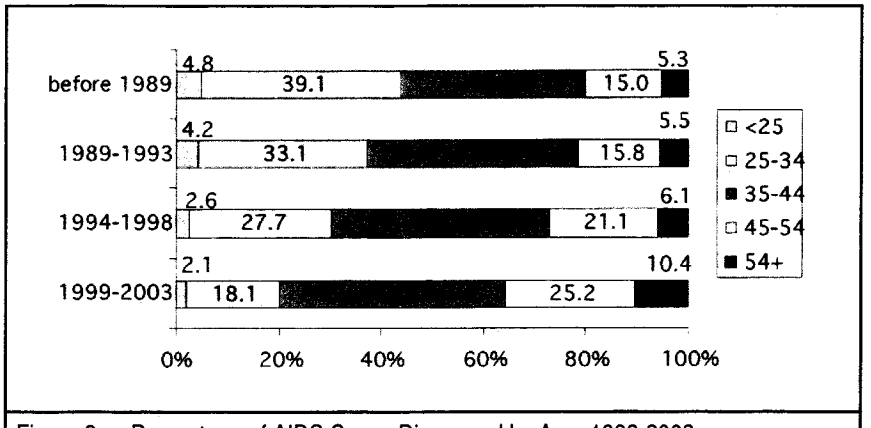

Figure 3.— Percentage of AIDS Cases Diagnosed by Age, 1982-2003

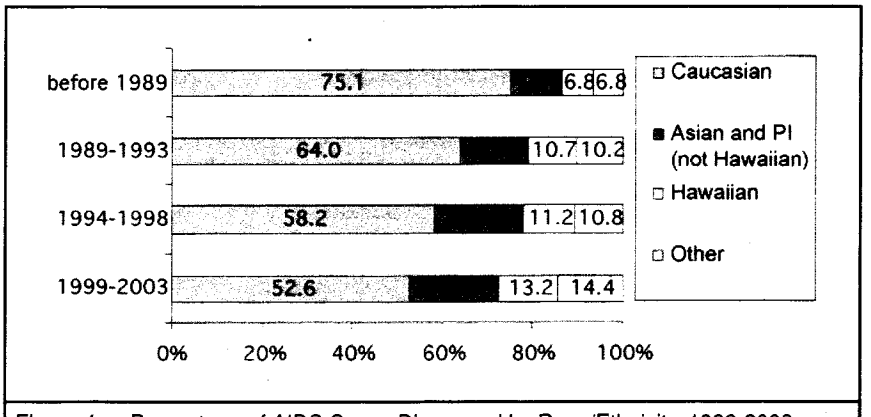

Figure 4.— Percentage of AIDS Cases Diagnosed by Race/Ethnicity, 1982-2003

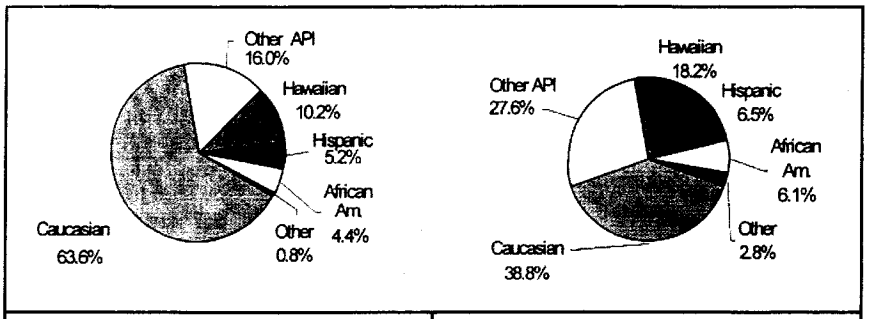

Figure 5.— Male AIDS Cases by Ethnicity, 1982-2003, N=2,657

Figure 6.—Female AIDS Cases by Ethnicity, 1982-2003, N=2,657

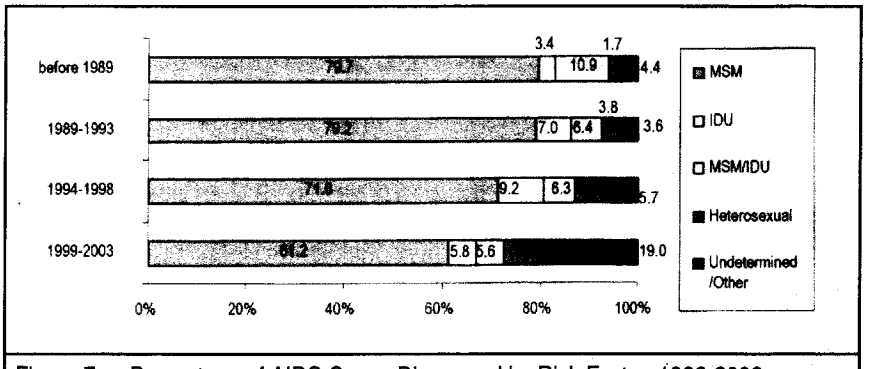

Figure 7.— Percentage of AIDS Cases Diagnosed by Risk Factor, 1982-2003

time periods API clients have increased slightly from 23.7% of all enrollees to 25.2% in the last five year period.

AIDS impacts men and women among the various ethnic groups differently due to differences in risk factors. The most prevalent ethnic group among men is Caucasian at 63.6%, while for women Caucasian is the second most prevalent ethnic group at 38.8%. Among women the predominant ethnic group is API (including Hawaiian) with 45.8% of cases, compared to 26.2% of male cases that are API. Hawaiians make up 18.2% of cases among women, compared to 10.2% of cases among men.

Risk Factors for HIV Infection

The majority of AIDS cases diagnosed in Hawaii report men who have sex with men (MSM) as a risk factor. 73.6% have MSM alone as a risk factor, while an additional 6.9% have risk exposure through both MSM and injection drug use (IDU). Exposure through IDU alone accounts for 6.9% of cases. Male heterosexual exposure accounts for 2.0% of male cases. The risk factor for the remaining 5% is undetermined. Heterosexual exposure reported by women accounts for 47.7% of female cases and is the most common risk factor for women. The remainder of female infections are split fairly evenly between IDU and unknown/other risk factors.

Over time the proportion of cases attributed to MSM and to both MSM and IDU have declined. Cases reporting IDU exposure increased gradually but have declined in the last 5 year period. Heterosexual cases have increased but the rate of increase has slowed in the last 5 year period. Unfortunately, incomplete data resulting in a sharp increase in cases of undetermined risk make recent declines in all risk categories unreliable. The increase in cases of undetermined risk factors over time does not indicate any change in the quality of data collected, merely that there has been less time for the Department of Health to verify and fill in this missing data.

HSPAMM data for HIV infected clients without AIDS at the time of enrollment also show declines in the MSM group from 71.4% of all enrolled since 1989 to 67.9% of clients enrolled from 2000-2004. Those exposed to risk through MSM and IDU declined from 8.0% of all cases to 4.5% of cases in the last five year period. Those exposed to risk through IDU alone also experienced slight declines in the proportion of cases they account for. The heterosexual exposure group increased the proportion of cases it accounts for, going from 9.5% of all cases enrolled to 13.5% in the last 5 year period. The proportion of cases with undetermined risk increased but remains low, 3.3% among all cases compared to 5.6% in the most recent period.

HIV Infection in IDU

Hawaii does have a population of long-term heavy ID users who have persistent risk behavior that could transmit HIV. However, early on in the epidemic Hawaii enjoyed political support and state funding for harm reduction activities such as needle exchange and education among IDUs. The Community Health Outreach Worker (CHOW) Project started working with peer educators in 1989. In 1990 the Sterile Syringe Exchange Program was started. These programs, with collaboration from the Department of Health, exchange needles (424,116 needles in 2004), provide counseling, education, and HIV testing with mobile vans on four islands.[2] A total of 14,325 individuals cited IDU as a risk factor at the anonymous HIV counseling and testing sites over time. Of this self defined risk group tested in 1988, 3.7% were HIV positive. However after prevention programs went into operation, HIV infection rates among IDUs tested declined steadily to 0.9% in 1992. Since that time, rates at testing sites have fluctuated between 1.3% and 0.3%.[3]

Men who are both IDUs and MSM have the potential to become infected by different groups and to spread infections across groups. A small study of men who are IDUs and MSM found high rates of HIV infection and extremely risky behavior in this group. In some cases they traded unsafe sex for drugs and in others had unsafe sex despite their known HIV+ status because drugs clouded their decisions or they had no access to condoms in correctional facilities.[4]

Related Trends in Other Sexually Transmitted Diseases (STDs)

Incidence of STDs indicates risk behavior that may impact the HIV/AIDS epidemic. In Hawaii syphilis, like AIDS, is a disease that has afflicted the MSM population disproportionately. The incidence of syphilis declined sharply in the 1980's and remained at extremely low levels during the 1990s. After six

years with less than 2 male cases of syphilis on average per year, there were 35 male cases in the 2001-2003 period. The resurgence of syphilis since 2001 is of concern. Recent syphilis cases with MSM as a risk factor include individuals with HIV co-infections.

Gonorrhea which affects both MSM and heterosexuals, has followed a similar trend with steady declines upset by a resurgence since 1999. Gonorrhea affects young people disproportionately. Among female cases from 1996 to 2001, 83.8% occurred under the age of 30 and just over half were APIs.

Chlamydia rates for the State of Hawaii have also risen rapidly since 1997 with rates of 440.2 per 100,000 in 2003. Only two states had higher rates.[5] Like Gonorrhea, Chlamydia is concentrated among young people and for females, in the API population. Among women with Chlamydia infection from 1996 to 2001, 64.6% were aged 15-24. During the same period, 64.5% of male cases were aged 20-29. Of female Chlamydia cases with known ethnicity, 75% were API.

Discussion

Two decades ago, the majority of AIDS cases in the United States were found among Caucasian MSM. Nationally, in the combined years of 2002 and 2003, the proportion of AIDS cases diagnosed among MSM decreased to 41.4% while heterosexual and IDU transmission increased to 30.2% and 22.4% respectively. Women, most of who are infected heterosexually, accounted for 26.2% of cases reported in 2002-2003. The proportion of cases who are Caucasians decreased nationally in 2002-2003 to 28.6% while African Americans and Hispanics increased to 49.5% and 19.9% of cases respectively.[6]

Relative other parts of the nation, Hawaii has experienced much slower change in the characteristics of infected people. Men who have sex with men still comprise the majority of cases, 58.9% diagnosed in 2002-2003. Women have steadily increased as a proportion of cases but account for only 12.0% of diagnosed cases in 2002-2003. The proportion of IDU cases has actually declined in recent years to 5.1% in 2002-2003. Heterosexual transmission accounted for 6.3% of diagnoses, fluctuating only slightly over the last decade. Caucasians still account for a disproportionately high numbers of AIDS cases at 40.0% in 2002-2003 (total proportion of total population in 2000 was 31.4%). The proportion of cases among Asian Pacific Islanders (APIs) has been rising steadily over time to 40.6% in 2002-2003, though they still account for a disproportionately small number of cases for their 65.9% population in the State. Among APIs, only the Hawaiians account for a larger share of total AIDS cases (13.1%) than the proportion of their population (8.6%). Figures are based on redistributed 2000 Census data.[7]

Rates of AIDS infection attributable to IDU in Hawaii are very low relative to national figures. HIV infection rates among IDUs tested at counseling and testing sites have hovered around 1% for more than a decade in Hawaii. This is far less than the 16% of self identified IDUs testing positive in 1990 at HIV counseling and testing centers in 28 project areas nationwide funded by CDC.[8] State policy to support early intervention within the IDU population may have contributed to this low IDU rate. An international study of 81 cities concluded that needle exchange programs lead to lower infection among IDUs, while the absence of such a program is associated with steady increases in infection rates.[9] A study of five cities with IDU populations where HIV prevalence among the general population remained low found that they, like Hawaii, initiated needle exchange and community outreach to IDUs when levels of HIV infection were still low.[10] Early interventions targeting IDUs may have reduced the spread of HIV from IDUs to other populations in Hawaii.

Another factor which may have moderated the spread of HIV in Hawaii is the widespread access to care. Effective medication with HAART reduces the viral load and the infectivity of HIV positive patients. Availability of medical care can be attributed to State laws regulating provision of health insurance,[11] an active and adequately-funded AIDS drug assistance program, and various State and community programs to extend medical care and treatment to the uninsured and underinsured. In 2001, a total of 1,527 HIV positive clients participated in at least one subsidized state program providing either drugs, laboratory monitoring, continued health insurance, medical care or social services. During that same year 1,236 people were living with AIDS and an unknown number were infected with HIV but not AIDS.[2]

Demographic changes in people infected with HIV/AIDS in Hawaii have been moderate relative to national trends. However, from the perspective of those providing care and services, the demographic changes in Hawaii in recent years are significant.

The increase in infections among API presents new concerns for meeting the needs of people living with AIDS. Increasing cultural and socioeconomic distance between health care providers and clients can affect the quality of care received.[12] One study of 519 HIV positive people in Hawaii found lower income levels to be strongly associated with progression to AIDS or death.[13] During the period 1996-2001 APIs comprised 40.3% of persons dying of AIDS though they made up only 23.6% of people living with AIDS.[7] This may be associated with access to care as well as the challenges in adhering to HAART therapy.

Increases in other STDs indicates increased risk-taking behavior which could fuel a resurgence in HIV infections in Hawaii. Recent increases in Hawaii in STDs among MSM, including those infected with HIV, mirrors trends in other cities in the United States.[14] Not only do STDs serve as a marker of increased sexual risk, but biologically their presence greatly increases the chances both of acquiring HIV, and of spreading HIV if infected.

While young heterosexuals in Hawaii have low incidence of AIDS to date, high levels of STDs and reports of multiple partners[7] reflects ongoing risk behavior that puts these people at higher risk for HIV transmission. Once introduced, HIV could spread readily in these populations. The need to provide youth with human sexuality education and STD/HIV prevention services can be most successful met through the combined efforts of families, schools, communities and both public and private health care providers.

While rates of AIDS diagnoses are fairly stable, advances in treatment have resulted in dramatically reduced AIDS mortality and an ever increasing population of people living with HIV/AIDS. In Hawaii, prevention programs will need to strengthen services to this increasing number of individuals living with HIV/AIDS to help reduce transmission to others. Similarly, care providers must expand and diversify their services to a larger, more diverse population in need of support and medical treatment.

*See **HIV/AIDS**, p. 168*

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