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People fifty years or older now account for the majority of AIDS cases in San Francisco, California, 2010

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People aged 50 and older are an increasing proportion of the population of persons living with AIDS (PLWA) in the USA. We used San Francisco's population-based HIV/AIDS surveillance registry to examine trends in the age distribution of people diagnosed and living with AIDS in San Francisco, California. AIDS case reporting is highly complete. Death ascertainment is complete through 2009 and 95% complete for 2010. At the end of 2010, 9796 persons were living with AIDS in San Francisco. Of these, more than half (5112 or 52%) were 50-years old or older. This proportion has steadily increased since 1990 in San Francisco. Our data also indicate that age at AIDS diagnosis has increased in San Francisco during the years 1990–2010. The proportion of PLWA who are aged 50 years or older is now a majority among PLWA in San Francisco. We believe that San Francisco is the first local jurisdiction in the USA to reach this milestone. The growing population of older persons with AIDS presents new challenges for research, medical care and support services.

Keywords: HIV/AIDS; surveillance; aging; persons living with AIDS; PLWA

Introduction

Since HIV emerged as a major epidemic in the USA in the 1980s, the number of older persons living with HIV infection and AIDS has grown. This trend has been attributed to both increased use of anti-retroviral therapy, responsible for mortality declines and longer delay between HIV and AIDS, and to newly diagnosed infections in older adults (Brooks, Buchacz, Gebo, & Mermin, 2012; Nguyen & Holodniy, 2008). As people with HIV are older when they progress to AIDS and live longer with AIDS, the proportion of persons living with AIDS (PLWA) who are aged 50 years or older continues to grow.

Using routinely collected HIV/AIDS surveillance data, we examined trends in the age distribution of people diagnosed and living with AIDS in San Francisco, California.

Methods

Persons with AIDS are reported to the San Francisco Department of Public Health HIV/AIDS case registry primarily through active surveillance activities in which health department personnel review medical records. Medical records are reviewed at the medical facility where the patient was initially diagnosed and at other healthcare facilities in San Francisco where the patient is known to have received care. Reviews of the completeness of AIDS case reporting are conducted annually and have consistently found

reporting to be highly complete (SFDPH, 2011). Deaths among reported cases are continually updated through data linkage with local death certificates, California Vital Statistics records, the National Death Index (NDI), and the US Social Security Administration (SSA). The NDI and California Vital Statistics matches are complete through 2009, while the SSA match is complete through 2010. Information collected on each AIDS case includes demographic and risk characteristics, opportunistic illnesses, the date of the patient's first positive HIV test, and dates and results of first and subsequent viral load and CD4 tests.

From San Francisco's HIV/AIDS case registry (cases reported through 31 May 2012), we selected cases that met the Centers for Disease Control and Prevention (CDC) surveillance definition of AIDS (CDC, 1992) who resided in San Francisco at the time of HIV or AIDS diagnosis, and who were diagnosed with AIDS on or before 31 December 2010. We calculated the proportion of PLWA aged 50 years old or older by the end of each year from 1990 to 2010. We examined the age distribution among PLWA during these years. We also calculated the annual number of new AIDS cases diagnosed in 1990–2010 as well as the annual mean and median AIDS diagnosis age at the beginning of each decade. We compared the gender, race/ethnicity, and risk characteristics of PLWA aged 50 years or older versus PLWA younger than 50 years old at the end of 2010.

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No statistical tests were performed for these comparisons because our data were for the population of all reported PLWA in San Francisco rather than for a sample. All analyses were conducted using SAS version 9.2 software (SAS Institute Inc., Cary, North Carolina).

We calculated the proportion of PLWA for the USA (50 states and Washington, DC) using data reported in the national HIV/AIDS Surveillance Reports (CDC, 2005–2010). We used the most recent data published for each calendar year that was available (2001–2009).

Results

At the end of 2010, there were 9796 PLWA in San Francisco. Of these, 5112 (52%) were 50 years old or older. The proportion of PLWA in San Francisco who were aged 50 or older steadily increased between 1990 and 2010 from 10% (437) in 1990, 14% (900) in 1995, 24% (1851) in 2000, and 38% (3330) in 2005 to 52% (5112) in 2010 (Figure 1). In the USA, the

proportion of PLWA aged 50 years or older also increased each year from 20% in 2001 to 39% in 2009, the last year for which data were available (CDC, 2005–2010).

From 1990 to 2010, the annual number of AIDS diagnoses in San Francisco declined from 2047 in 1990 to 331 in 2010, yet, the age at AIDS diagnosis increased (Figure 1). In 1990, 10% of the people diagnosed with AIDS in San Francisco were aged 50 years or older, compared to 28% in 2010. The mean age at diagnosis for those diagnosed in 1990 was 38.7 years (median 38 years) compared to a mean age of 42.2 years (median 42 years) in 2010.

Between 1990 and 2010, the age distribution among PLWA in San Francisco shifted to older age groups. In 1990 the median age of PLWA was 38 years, nearly half (48%) of PLWA were aged 35–44, and 90% of PLWA were under the age of 50. By contrast, in 2010, the median age of PLWA was 50, only 21% of PLWA were aged 35–44, and the proportion of PLWA under the age of 50 had decreased to 48% (Figure 2).

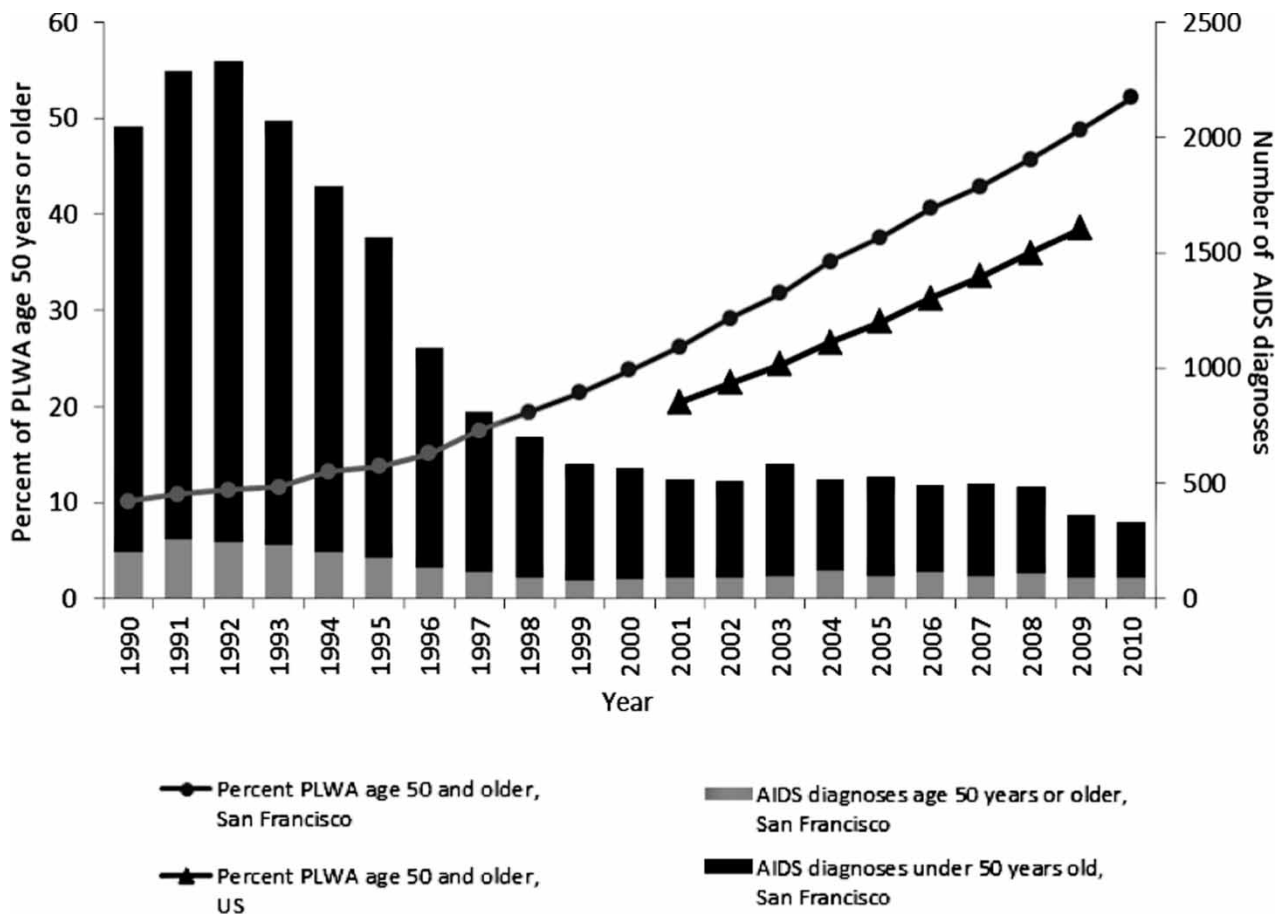


Figure 1. The percent of PLWA aged 50 years or older and number of AIDS diagnoses, 1990–2010, San Francisco and the USA. Source: Centers for Disease Control and Prevention (2005–2010).

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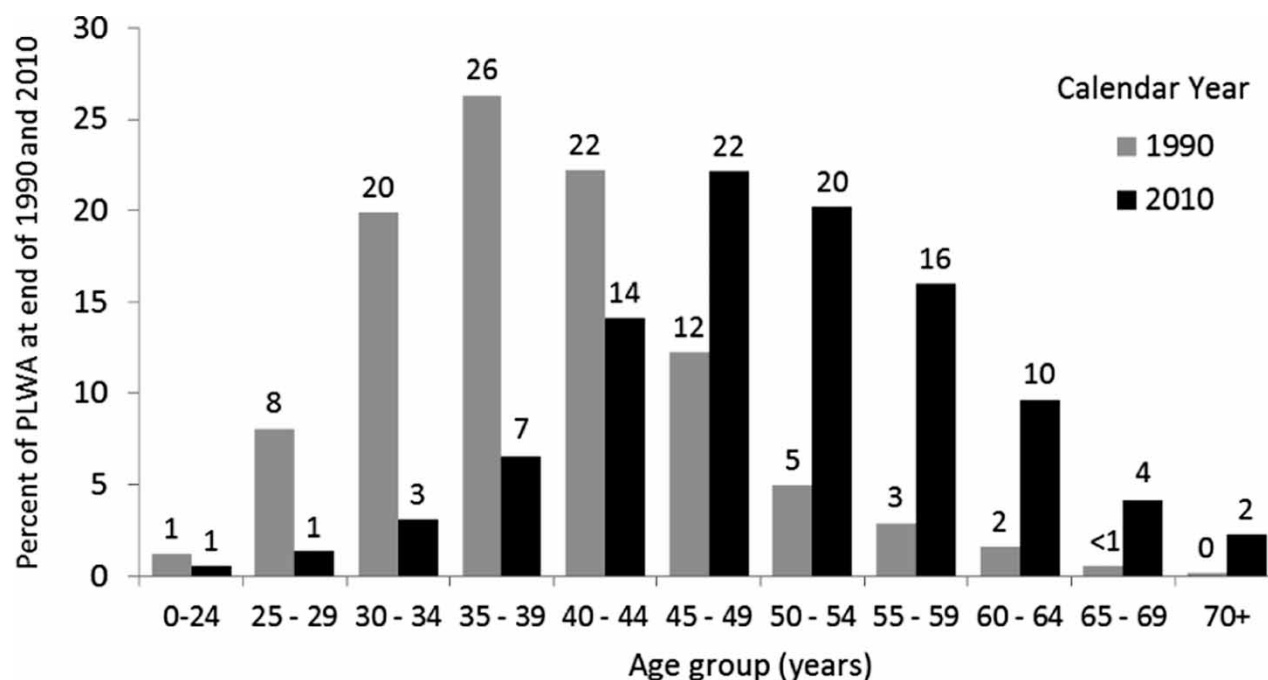


Figure 2. The age distribution among PLWA at the end of 1990 and 2010, San Francisco.

In 2010, PLWA aged 50 or older had similar gender, race/ethnicity, and risk characteristics compared to those younger than 50. However, PLWA aged 50 or older were more likely to be white (69%) and men who have sex with men (MSM; 75%) compared to PLWA under 50 years old (56% white, 68% MSM). PLWA under 50 years old were more likely to be Hispanic (22%) and MSM and injection drug users (MSM-IDU; 19%) compared with older PLWA (12% Hispanic, 13% MSM-IDU).

Discussion

Between 1990 and 2010, the population of PLWA in the USA aged. At the end of 2010, more than half of PLWA in San Francisco were 50 years old or older. We believe that San Francisco is the first local jurisdiction to have reached this milestone.

Our data indicated that fewer AIDS cases were diagnosed in San Francisco in recent years compared to the early years of the epidemic. Furthermore, age at AIDS diagnosis increased markedly from 1990 to 2010. Both of these changes in AIDS diagnosis were likely to have been the result of anti-retroviral therapy among HIV-positive people and the consequent lengthening of time from HIV infection to AIDS diagnosis.

Anti-retroviral therapy among AIDS patients has also led to dramatic reductions in AIDS mortality. Improvements in survival after AIDS diagnosis both locally and nationally have been well documented

(CDC, 2005–2010; Schwarcz, Hsu, Vittinghoff, & Katz, 2000; Vittinghoff et al., 1999) and are likely to have a strong and continued impact on the older age distribution among PLWA.

One limitation of our data is that death records for San Francisco AIDS cases are not yet complete through 2010. The most recent matches to the NDI and to the death index for the State of California included deaths through 2009. However, death ascertainment for 2010 does include local vital statistics records as well as deaths reported to the SSA. In recent years, the NDI and California Vital Statistics matches together have identified only a small fraction of total annual deaths among San Francisco cases (<5% in 2009). Therefore, we are confident that the data presented for 2010 are, nonetheless, very accurate.

San Francisco differs from many other US health jurisdictions in having a large population of MSM, who make up the majority of PLWA. In addition, San Francisco's treatment guidelines have been progressive relative to national guidelines (DHHS, 2009) and have recommended treatment initiation early in the course of HIV disease (Russell, 2010). Furthermore, treatment for HIV/AIDS is widely accessible in San Francisco. As a result, treatment uptake has been early and widespread among San Francisco HIV/AIDS patients (Hsu, Vittinghoff, Katz, & Schwarcz, 2001; SFDPH, 2011). Although generalization to other health jurisdictions is limited by these differences, the national trend in proportions of PLWA aged 50 years or older follows a similar

trajectory to San Francisco's. Given increasing age at AIDS diagnosis, increasing survival among PLWA and the continued endemic state of HIV, this trend in aging in PLWA is likely to continue.

Aging of the HIV/AIDS epidemic has also been observed elsewhere. In California and the USA, the proportion of PLWA aged 50 years or older increased to 39% by 2009 (CDC, 2002, 2010; CDPH, 2012). In the USA, AIDS diagnoses among persons aged 45 and older increased by 19% between 1998 and 2010. Similar increasing trends in diagnoses have been observed in Europe and Brazil (Carvalho & Camara, 2012; WHO, 2010) while in Australia, this proportion of older diagnoses has been stable (Kirby Institute, 2011). However, HIV/AIDS data on older adults in other world regions are scarce, and deriving trends is difficult.

The aging of PLWA creates new health concerns for communities caring for AIDS patients. Older people with HIV/AIDS face both HIV/AIDS-related and age-related co-morbidities, such as hypertension, chronic pain, hepatitis, and arthritis, which are associated with poorer physical, mental, and social well-being (Balderson et al., 2012). A National Institutes of Health-commissioned HIV and aging working group has emphasized the need for research on the interaction of age and HIV infection and also on the necessity for increased community support, caregivers, and systems infrastructure (High et al., 2012). The aging nature of the HIV/AIDS epidemic is significant and will continue given current trends in older age at diagnosis and declining deaths.

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