

3.5. Two Methods for Estimating HIV Prevalence

It is not known precisely how many people are infected with HIV. Current systems for testing and reporting HIV do not present a complete picture of HIV infection. For this reason, researchers rely on more complete data sets--like AIDS reports--in conjunction with statistical formulae to approximate HIV prevalence. The annual incidence of HIV cases, that is, new cases, in the US is projected to be between 40,000 and 60,000--a figure approximating the annual number of AIDS deaths.³⁸ The statistical methods used to estimate national levels of HIV infection are complex and require large numbers, limiting their application to individual states. CDC suggests that states and smaller areas use the following simple methods to make estimates of HIV prevalence and short-term projections of AIDS trends.

3.5.1. Extrapolation from National Projections of HIV Infection

This method estimates area HIV prevalence by multiplying the national prevalence by the proportion of cases the area has contributed to the national AIDS surveillance system. It couples NIH estimates of national seroprevalence with data gathered by CDC on each state's contribution to the national AIDS case load. The logic is as follows: an estimated 630,000 to 900,000 Americans are infected with HIV. Using CDC-generated figures (lower than TDH figures due to differences in definition of Tennessee residence), Tennessee accounted for 1.2% (897/74180)³⁹ of all U.S. AIDS cases reported in 1995. If Tennessee also accounts for 1.2% of all HIV cases nationwide, then there are 7,560-10,800 cases of HIV in Tennessee.

This calculation rests on two major assumptions--that the rate of new infections has remained fairly constant over the last decade and that estimates of national seroprevalence are themselves accurate. The proportions of U.S. AIDS cases that were reported in Tennessee were 0.9% in 1994 and 1.2% in 1995. This proportion is rising and may continue to rise. If so, then this method will probably underestimate seroprevalence in Tennessee. It is especially likely to underestimate HIV in Tennessee if Tennessee is at a different stage in the epidemic curve than large states like New York, California and Florida where cases are falling, rather than rising as in Tennessee.

3.5.2. Estimates from the Survey of Childbearing Women

A second method for estimating overall seroprevalence uses data from the National Survey of Childbearing Women (CBW). This survey provides relatively reliable

³⁸ **AIDS Alert**; January 1996:9 (based on 1993 NIH report).

³⁹ This figure is different than CDC figures on 1995 Tennessee AIDS cases because of differences in requirements for Tennessee residence. As suggested by the CDC, the figure used is based on cases diagnosed during that year (adjusted for reporting delays), rather than on cases reported during that year. Denominator data are based on figures compiled by the CDC as reported in the 1995 HIV/AIDS Annual Report. CDC figures are based on REPORTED cases for that year.