Modeling HIV Prevalence Estimates in California: Using the Workbook Method

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Background
Health departments typically depend on HIV/AIDS Reporting Surveillance to monitor the HIV/AIDS epidemic. New HIV estimation software permits systematic estimation of concentrated epidemics. The goal of this study was to estimate HIV prevalence among men and women aged 15-49 years in California.

Methods:
The WorkUNAIDS Workbook Method was used to estimate and project adult HIV prevalence based on population-level and gender-specific HIV prevalence estimates for MSM, HIV-UNAIDS and self-identified cases. This method, as described in attached articles, and the outcome of a statewide meeting of HIV/AIDS experts, is used. The California Office of AIDS was selected for this project due to the high prevalence and population size of HIV/AIDS cases in California. The CCHS (California Health Care Survey) is used to estimate the population size of HIV/AIDS cases in California. The CCHS Office of AIDS, numbers of HIV-positive men and women were estimated for each age group and then aggregated. Low and high HIV prevalence estimates were calculated.

HIV/AIDS Estimation Workbook: Overview
Developed by UNAIDS and WHO
- MS Excel Spreadsheets
- Available at: www.unaids.org
- For low or concentrated HIV/AIDS epidemic
- Combines estimates for populations at higher risk (PHR) and populations at lower risk (PLR) to produce an overall estimate of adult prevalence

California HIV/AIDS Estimates
- Calculated for inclusion in a broader US-Mexico Border Epidemiologic Profile
- Workbook inputs from existing and various data sources and included in Workbook spreadsheets (Table 1)
- U.S. Census data utilized for CA population
- Population and HIV prevalence estimates for various CA risk groups obtained from literature and consensus report.

Table 1. Workbook: State of California Populations at Higher Risk (PHR)*
- Population inputs: U.S. Census Bureau
- Given the inputs highlighted above, high and low risk population sizes, and high and low HIV prevalence estimates for each group, Workbook calculates the overall HIV prevalence estimates for the State of California (Table 3).

*Risk Population and Prevalence Input (i.e., data) Sources
- HIV-UNAIDS: CDHS Office of AIDS Consensus Report (2001) and Friedman et al (J. Urban Health, 2001); cross-checked with CA HIV counselors and testing rates

Workbook calculates overall HIV Prevalence
- Given the inputs highlighted above, high and low risk population sizes and high and low HIV prevalence estimates for each group, Workbook calculates the overall HIV prevalence estimates for the State of California (Table 3).

Table 2. Workbook: State of California Populations at Lower Risk (PLR)**
- Nearly 18 million adults aged 15-49 lived in California in 2000
- The estimated number of persons living with HIV in California was 59,578 (95% CI 49,049 to 71,006) and 1,882,700 (95% CI 1,738,608 to 2,026,804) with 15,005 (95% CI 13,335 to 16,675), respectively from what has been observed elsewhere.
- Estimates for low risk populations may be limited in some regions as local data inputs may be limited.

Table 3. Workbook: Total No. of Estimated Adults living with HIV in California
- Spectrum is useful to derive estimates of the number of adults and children living with HIV, HIV incidence and mortality

Workbook Consistency Checks
- Workbook computes population estimates, subgrouped by gender, age, and risk groups. Consistency checks include: CDC demographic profile, HIV prevalence estimates, and population size.

Table 4. Workbook Consistency Checks
- Consistency checks include: CDC demographic profile, HIV prevalence estimates, and population size.
- The consistency checks are used to verify the accuracy of the estimated population estimates for HIV,

Potential Sources for Data Inputs
- Census data
- Peer reviewed literature
- Gray literature (e.g., gov. reports)
- Consensus meetings and reports
- Unmet needs estimation
- Special studies data
- Surveillance data
- HIV counseling and testing data
- Population-based surveys
- Statewide telephone surveys

Conclusions:
- HIV prevalence estimates for California, using the WorkUNAIDS Workbook Method, provide an enhanced understanding of the HIV/AIDS epidemic.
- Estimation techniques are used to partially meet this need and reports that do not yet document methodology may be required to assess accuracy.
- A unique advantage of the estimation software is that it provides the opportunity for update and track trends. Further exploration of the forecasting tools is needed.

Questions:
- Website for UNAIDS: www.unaids.org
- Website for CDC: www.cdc.gov
- California Department of Public Health / Office of AIDS: www.cahd.ca.gov
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