State-Level Estimates of HIV Incidence, Prevalence, and Undiagnosed Infections

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OBJECTIVES

To assess trends in HIV incidence, prevalence, and undiagnosed infections among adults and adolescents for each state, the District of Columbia, and nationally for 2008-2014.

METHODS

Data source: National HIV Surveillance System

Study population: Persons aged 13 years and older

Statistical analysis: HIV case surveillance data and the first CD4 value after diagnosis were used to estimate the distribution of delay from infection to diagnosis based on a well characterized CD4 depletion model. The distribution of delay was used to estimate HIV incidence (includes diagnosed and undiagnosed infections). HIV incidence data, combined with information on cumulative numbers of diagnoses and deaths, were used to estimate HIV prevalence (persons living with diagnosed and undiagnosed infections). Estimated HIV prevalence and the number of persons living with diagnosed HIV infection were used to estimate the number and percentage of undiagnosed infections. Estimated annual percentage changes (EAPCs) were calculated for each outcome and considered significant if the p-value was <0.05.

RESULTS

United States:

In 2014, states located in the south accounted for 50% of annual HIV infections, 45% of persons living with HIV, and 50% of undiagnosed HIV infections.

The burden of HIV infection and health outcomes for people living with HIV vary widely across the United States.

Prior to the analysis, states with less than 100 HIV diagnoses per year were excluded.

Dividing the states into geographic regions, the South accounted for 45% of HIV diagnoses, 40% of persons living with HIV, and 45% of undiagnosed HIV infections.

Increases in HIV prevalence are likely due to improvements in HIV treatment.

Conclusions:

The method using the first CD4 count after HIV diagnosis to measure the progression of HIV disease can be readily applied to surveillance data to produce national and jurisdiction-level estimates of HIV incidence, prevalence, and undiagnosed infection.

Public health officials in the south and states with high percentages of undiagnosed infection may consider tailoring HIV prevention and testing initiatives to their unique environments.

REFERENCES