Incidence of HIV Infection and Census Tract Poverty Level in Massachusetts – An Update to Results from Early in the Epidemic (CSTE Pilot Project)

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Background: The Massachusetts Department of Public Health (MDPH) has examined disparities in the incidence of HIV infection as part of the CSTE Pilot Project to Analyze Public Health Data for Health Disparities by Socioeconomic Status Using Census Tract Poverty Level. In 2000, we published results of an analysis which identified increased rates of AIDS among those residing in economically deprived neighborhoods. This project primarily updates the analysis of socioeconomic status conducted early in the epidemic.

Methods: Using US census tract data and population counts and MDPH HIV/AIDS surveillance data, we evaluated annual and cumulative incidence (incident infection in 2001-2010) of HIV infection in Massachusetts. Geocoding was performed using ArcGIS. The data were stratified by age, sex, race/ethnicity, disease stage, CD4 count, and census tract poverty level to study trends over time for those reported with HIV infection in our state.

Results: There were 8,362 cases of HIV infection reported from 2001 through 2010. Fourteen percent of cases (1,158) were homeless, incarcerated, or had missing address information. Of the remaining 7,204 domiciled residents, 92% were successfully geocoded (n=6,663). The racial distribution was: <1% American Indian/Alaskan Native, 2% Asian (non-Hispanic), 33% Black (non-Hispanic), 25% Hispanic, <1% Other/Unknown, and 39% White (non-Hispanic). Among those with incident HIV infection from 2001 through 2010, 42% resided in census tracts where ≥20% of persons were below the poverty line (2,833/6,663). Among those reported to have AIDS, 44% resided in census tracts where ≥20% of persons were below the poverty line (1,590/3,639). The annual incidence of HIV infection was highest each year in those census tracts with the most individuals living below the poverty line. The cumulative incidence of HIV infection was nearly eight times higher among those in the census tract where ≥20% of the population was below poverty (261 per 100,000) than among those in census tracks where <5% of the population was below poverty (34 per 100,000). Disparities in rates were evident within categories of race and Hispanic ethnicity. However, those residing in the poorest census tracts (≥40% living below the poverty line) had the greatest decrease in annual incidence over the study period (from 52 per 100,000 in 2001 to 28 per 100,000 in 2010).

Conclusions: This study quantifies the continuing impact of HIV/AIDS on lower socioeconomic communities. While the rate of HIV incidence in our state has declined overall, even among those in the census tracts with the highest proportion of people living below the poverty line, disparities in HIV with respect to SES remain evident.