Correspondence

Is differential access to prevention distorting HIV epidemiology in Australia?

Biomedical prevention has changed the epidemiology of HIV in gay and bisexual men (GBM) in Australia.\(^1\) HIV testing, treatment, and pre-exposure prophylaxis (PrEP) are supported by Medicare, a highly accessible universal health-care system.\(^2\) However, temporary migrants and international students cannot access Medicare, and by 2017 they were four times more likely than their local peers to be diagnosed with incident HIV infection.\(^3\)

Melbourne Sexual Health Centre (MSHC) is the largest HIV testing and treatment centre in Melbourne, Australia’s second largest city. We analysed HIV subtype among newly diagnosed GBM at MSHC who were born or resident in Australia for 5 years or longer to determine if changes over time support our hypothesis that differential health-care access was influencing HIV epidemiology.

Genotyping is done as standard of care in all new diagnoses to record HIV subtype and mutations that confer drug resistance (the clinical purpose of the test). HIV-1 subtype assignment was based on the pol sequence, which spanned the entire protease gene and codons 1–246 of the reverse transcriptase region. Subtype assignment was confirmed by submitting sequences to the Los Alamos database and the NCBI HIV genotyping tool. HIV in GBM in Australia has been typically type B.\(^3\)

In 2013, 3747 long-term-resident GBM had 5758 HIV tests, of which 52 were positive; by 2017, 5600 men had 11,027 tests, of which 28 were positive. Of those diagnosed HIV positive, the proportion born outside Australia was 40.4% (21/52) in 2013 and 39.3% (11/28) in 2017 \((p_{\text{trend}}=0.996)\). The proportion of new diagnoses in long-term resident GBM with non-B subtype infection increased from 8.5\% \((4/47)\) to 34.6\% \((9/26; p_{\text{trend}}<0.001)\) over this period (figure). Over the same time the proportion of newly arrived overseas-born with non-B subtype infection remained high: from 50.0\% \((4/8)\) to 69.6\% \((16/23; p_{\text{trend}}=0.088)\).

Phylogenetic and network analyses are needed to further investigate the molecular epidemiology. The hypothesis that best supports these data is that the subtype-B epidemic has been selectively and effectively suppressed with the rapid scale-up HIV treatment coverage since 2013, and, more recently, PrEP, both of which have achieved high coverage in long-term resident and Australian born men who previously have been more likely to be exposed to subtype B virus.

In the era of biomedical HIV prevention, the risk of HIV infection in GBM is determined by whether a person is taking PrEP and by the prevalence of untreated and undiagnosed HIV infection among his sexual partners. We believe that differential access to testing, treatment, and PrEP is resulting in higher transmission and delayed viral suppression in newly arrived GBM and a failure to suppress the non-B subtype epidemic in this population. In turn, this has led to this observed increase in non-B subtypes among newly diagnosed long-term resident GBM. To control HIV in the entire population, Australia should extend the interventions known to prevent HIV infection to the entire population.

EFPC reports grants from Merck, outside the submitted work. All other authors declare no competing interests.

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