CAN THE BED-CEIA HIV INCIDENCE ASSAY IMPROVE OUR ABILITY TO TRACK PROGRESS TOWARDS ELIMINATION IN AUSTRALIA?

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Background
Measuring HIV incidence is important to understand patterns of transmission and help evaluate the impact of prevention activities. In Australia, the BED capture enzyme immunoassay (BED-CEIA) was implemented in selected laboratories across Australia to improve ascertainment of incident cases. The aim of this study was to assess the public health surveillance utility of incidence testing using BED-CEIA.

Methods
The study population included people newly diagnosed with HIV in Australia between 2006 and 2016 in which a BED-CEIA test was conducted. We compared the proportions of HIV notifications classified as newly acquired (infection acquired in ≤12 months) through the national surveillance definition versus incident infections classified by the BED-CEIA as being acquired in the previous 6 months and analysed key characteristics associated with these classifications, including exposure category, region of birth and gender.

Results
Of 1,544 matched BED-CEIA and notification pairs available, 36.4% (562/1544) were classified as newly acquired in surveillance, and 45.9% (708/1544) as incident infections using BED-CEIA. There were significant differences between the two methods by exposure categories; male-to-male sex (44.7% in surveillance versus 51.9% in BED-CEIA) and heterosexual sex (13.5% versus 29.1%). There were also differences by gender; males (38.6% in surveillance versus 47.3% in BED-CEIA) and females (14.7% versus 32.2%), and by region of birth in the male-to-male sex exposure category, greatest in men born in Asia (37.5% vs 46.4%), and other region (48.2% versus 58.3%) compared with Oceania (Australia and New Zealand) (46.5% versus 51.9%).

Conclusion
While routine surveillance data provide a practical measure of recent HIV infection, our analysis demonstrates the potential utility of incidence testing data, but further assessment is required. The benefit of incidence testing will vary according to the characteristics of individuals being diagnosed with HIV and, in particular, their testing behaviours.

Disclosure of Interest Statement:
The Kirby Institute receives funding from the Australian Government Department of Health and is affiliated with the Faculty of Medicine, UNSW Sydney. No pharmaceutical grants were received in the development of this study