

ACCOUNTING FOR BIOMEDICAL HIV PREVENTION IN MEASURING HIV RISK: AN ANALYSIS OF NATIONAL HIV DIAGNOSES AND BEHAVIOURAL SURVEILLANCE AMONG MEN WHO HAVE SEX WITH MEN IN AUSTRALIA 2012-2022

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Background:

Condomless sex has been a standard measure of risk in behavioural HIV research and monitoring. However, as pre-exposure prophylaxis (PrEP) uptake and undetectable viral load (UVL) as prevention increase among gay, bisexual, and other men who have sex with men (GBMSM), relying on condomless anal intercourse with casual partners (CLAIC) as an indicator of HIV risk may be misleading in our endeavour to ending HIV.

Methods:

Engagement in any CLAIC, use of biomedical prevention (PrEP or UVL), and higher-risk CLAIC (i.e. CLAIC without PrEP or UVL) in the last 6 months was assessed using in national, repeated, cross-sectional surveys of GBMSM conducted at venues, events and online during 2012-22. Trends were assessed using logistic regression. Any CLAIC and higher-risk CLAIC were correlated with publicly available diagnoses data over the same period among GBMSM.

Results:

Among 54,297 participants who reported casual sex, the proportion reporting any CLAIC increased from 34.4% in 2012 to 67.3% in 2022 (OR=1.17, 95%CI=1.17-1.18, $p<0.001$) but those reporting higher-risk CLAIC decreased from 33.1% to 21.5% (OR=0.94, 95%CI=0.93-0.95, $p<0.001$) as use of biomedical prevention increased from 8.9% to 56.6% (OR=1.36, 95%CI=1.36-1.37, $p<0.001$). HIV diagnoses among GBMSM decreased by 59.5% from 780 in 2012 to 316 in 2022. Any CLAIC was negatively correlated with HIV diagnoses ($r=-0.92$, $p<0.001$) but higher-risk CLAIC was positively correlated with HIV diagnoses ($r=0.93$, $p<0.001$).

Conclusions:

This analysis demonstrates the limitations of focusing on condomless sex in isolation, as our findings counterintuitively showed any condomless sex was associated with decreasing HIV diagnoses. Factoring PrEP and UVL into HIV behavioural risk measures produces more valid results and is predictive of HIV diagnoses in the expected direction. HIV research should standardise measuring biomedical prevention alongside condom use, as condom use in isolation among GBMSM may be less accurate for assessing HIV risk.

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