

## Geographical differences in uptake of HIV prevention among gay and bisexual men in Australia

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**Background:** Geographic shifts in HIV diagnoses in Australia have been observed among gay and bisexual men (GBM), with larger declines occurring in inner capital city suburbs, suggesting the need for geographically-contextualised understandings of HIV prevention.

**Methods:** Using national Gay Community Periodic Survey data (2018-19), we used logistic regression to examine differences in HIV prevention outcomes (HIV testing, PrEP, viral suppression, condom use, and 'combination prevention coverage', i.e. condoms, viral suppression or PrEP) between men living in capital city postcodes where >5% of men identify as gay ('gay postcodes'), other capital city postcodes (OCC), and regional/rural/remote postcodes (RRR). Models controlled for condomless anal intercourse with casual partners (CLAIC), age, state, country of birth, and recruitment site. We report adjusted odds ratios (aOR), 95% confidence intervals (CI), and p-values.

**Results:** We included 9,845 respondents. Median age was 34, 70.8% were Australian-born, 87.0% identified as gay; 83.0% were HIV-negative, 6.6% HIV-positive, and 10.4% HIV-status-unknown. Overall, 35.0% (n=3446) lived in gay postcodes, 52.6% (n=5179) in OCC, and 12.4% (n=1220) in RRR. Among GBM reporting CLAIC: 93.7% in gay postcodes were tested for HIV in the last 12 months compared to 89.4% in OCC (aOR=0.66, 95%CI=0.49-0.88, p=0.005) and 81.9% in RRR (aOR=0.39, 95%CI=0.27-0.56, p<0.001); PrEP was used by 65.4% in gay postcodes, 50.0% in OCC (aOR=0.54, 95%CI=0.46-0.63, p<0.001) and 42.3% in RRR (aOR=0.40, 95%CI=0.32-0.52, p<0.001). There were no geographic differences in viral suppression in HIV-positive men or condom use by men having casual sex. Among men having casual sex, combination prevention coverage was 78.6% in gay postcodes, compared to 72.6% in OCC (aOR=0.57, 95%CI=0.49-0.66, p<0.001) and 69.1% in RRR (aOR=0.47, 95%CI=0.38-0.59, p<0.001).

**Conclusion:** Geographic disparities in HIV prevention among GBM suggest a new way of targeting prevention interventions. Greater efforts are needed to link GBM in suburban and regional locations to HIV testing and PrEP.

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