Identifying gaps in achieving the elimination of HIV among gay, bisexual, and other men who have sex with men in Australia

THE GAPS PROJECT REPORT

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Data sources:

HIV is a notifiable disease in each state/territory health jurisdiction in Australia. All new HIV diagnoses are reported by doctors and laboratories to state/territory health authorities. Relevant data for these notification are forwarded to the Kirby Institute for collation and analysis. The database where HIV notifications are stored is referred to as the National HIV Registry. The National HIV Registry is currently managed by Jonathan King, with oversight by Skye McGregor. Original analyses of HIV Registry data designed for this report were conducted by Eithandee Aung.

The Gay Communiy Periodic Surveys investigators are: Martin Holt, Limin Mao, and Timothy Broady, Centre for Social Research in Health; Garrett Prestage, Benjamin Bavinton, and Curtis Chan, Kirby Institute. Original analyses of Gay Community Periodic Survey data designed for this report were conducted by Eithandee Aung.

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CONTENTS

ABBREVIATIONS

ABS	Australian Bureau of Statistics
ACCESS	Australian Collaboration for Coordinated Enhanced Sentinel Surveillance
AIDS	acquired immunodeficiency syndrome
ART	antiretroviral therapy
CALD	culturally and linguistically diverse
CLAIC	condomless anal intercourse with casual partners
GBMSM	gay, bisexual, and other who have sex with men
GCPS	Gay Community Periodic Surveys
HIV	human immunodeficiency virus
MSM	men who have sex with men
PBS	Pharmaceutical Benefits Scheme
PEP	post-exposure prophylaxis
PLHIV	people living with HIV
PrEP	pre-exposure prophylaxis
STI	sexually transmissible infection
TasP	treatment as prevention
TGD	trans and gender diverse
UVL	undetectable viral load

EXECUTIVE SUMMARY

This report identifies gaps on the pathway in achieving the elimination of HIV transmission among GBMSM in Australia, through collating and analysing surveillance and behavioural data collected from multiple sources for the period between 2009 and 2018. These data sources include the National HIV Registry, the Gay Community Periodic Surveys (GCPS), and the Australian Collaboration for Coordinated Enhanced Sentinel Surveillance (ACCESS) system. This report provides a detailed summary on national trends in HIV diagnoses, testing, treatment uptake, PrEP uptake and behavioural risk reduction. We looked specifically at disparities in these trends and gaps in the data among sub-groups of the GBMSM population, based mainly on country of birth, age, and location of residence. The project did not attempt to exhaustively examine every gap in the HIV prevention response; the aim was to use these three existing data sources to explore gaps in a set of HIV prevention-related indicators.

Between 2009 and 2018, there was a 10% decline in the number of HIV notifications among GBMSM in Australia, with HIV notifications increasing until 2014 before declining by 29% between 2014 and 2018. Newly acquired diagnoses (infections acquired in the last 12 months) declined by 50% in GBMSM between 2014 and 2018. These reductions have occurred alongside increases in HIV testing, HIV treatment and undetectable viral load, and in pre-exposure prophylaxis (PrEP) use. In addition, there have been declines in the proportion of GBMSM having anal intercourse with casual partners that is not protected by condoms, PrEP or undetectable viral load. However, underlying these overall successes in HIV prevention, disparities have emerged.

Region of birth: Between 2016 and 2018, HIV notifications in Australian-born GBMSM declined by 33%, but there was only a 13% decline in overseas-born GBMSM. The smaller reduction among overseas-born GBMSM has been largely driven by a sustained rise in infections classified as 'non-newly acquired' and late. In 2018, there were more late diagnoses among overseas-born GBMSM than Australian-born GBMSM for the first time. These late diagnoses were most likely acquired prior to arrival in Australia, suggesting the need for concentrated efforts to link newly arrived GBMSM to HIV testing and treatment. For overseas-born GBMSM who identify as gay, linkage to gay community is likely to be important in HIV prevention. In ACCESS and the GCPS, which are data sources of clinic- and gay community-connected men respectively, levels of HIV testing, treatment, and PrEP use by overseas-born GBM appear high. Further research to understand the barriers to testing in this sub-group is a priority.

Location of residence: HIV diagnoses decreased by 37% in capital city postcodes with a high proportion of gay-identifying men (hereafter called 'gay capital city postcodes'), compared to only 6% in other capital city postcodes and an increase of 59% in regional, rural, or remote postcodes. Newly acquired diagnoses in gay capital city postcodes declined by a dramatic 72% between 2012 and 2018 compared with a 33% decline between 2012 and 2018 for other capital city postcodes. GBMSM living in gay capital city postcodes had higher HIV testing rates and PrEP use. It is imperative that HIV testing and PrEP are made more accessible to men living outside of the inner suburbs of the capital cities.

Age: HIV diagnoses declined by 41% between 2009 and 2018 among men aged 35 to 55 years. Overall, there has been no decline across the entire period in the other age groups, although in recent years since 2016, there have been decreases in men aged 26 to 55 years and men aged 25 years and under. There has been no decrease in men aged 56 years and older. Late diagnoses have increased in men aged 35 and younger and in men aged older than 56. Men aged 56 years and older had the lowest rates of HIV testing, and there is evidence of lower PrEP uptake in both men aged less than 25 years and in men

aged 56 years and older. Concerningly, both the GCPS and ACCESS point to lower ART uptake among younger men. It is critical that young men are linked to HIV testing and prevention services soon after (or even before) they commence sexual activity. When diagnosed, special efforts may be needed to connect younger men into ART and ongoing HIV care. There is also a need for targeted HIV testing and PrEP efforts in older men.

Implications for policy and programming: Greater efforts and attention are needed in several areas, including:

- Faster linkage to HIV testing for newly arrived overseas-born GBMSM
- Culturally sensitive and/or specific services and health promotion for overseas-born and culturally and linguistically diverse GBMSM
- Better access to gay-friendly HIV testing and PrEP services outside of the inner city suburbs of Australia's capital cities
- Targeted approaches toward HIV testing, PrEP and HIV treatment for younger GBMSM, and targeted HIV testing and PrEP efforts in older men
- Greater inclusion of overseas-born and culturally diverse men, non-gay-identifying men, younger men, and men living outside of inner city 'gay' areas in HIV behavioural surveillance and prevention research
- More effective inclusion of trans and gender diverse people in HIV surveillance, behavioural surveillance, and HIV prevention research
- Continued efforts to increase PrEP uptake, rapid HIV treatment initiation, and HIV testing across all GBMSM subgroups

As Australia continues to make significant gains in driving down the number of HIV infections, there is an opportunity for GBMSM born overseas, living outside of inner city 'gay' areas, and who are under 26 years or older than 55 years to be better engaged with HIV prevention and testing. The success of engaging all GBMSM in HIV prevention and ensuring that no sub-groups are left behind will underpin Australia's success in achieving the goal of the virtual elimination of HIV transmission. We must sustain current prevention efforts, while also increasing efforts targeting specific sub-groups.

1

INTRODUCTION

The Eighth National HIV Strategy 2018-2022 outlines Australia's concerted and sustained efforts in responding to the HIV epidemic and sets the target of virtual elimination of HIV transmission [1]. Recent research evidence suggests that this goal is achievable. Effective antiretroviral treatment (ART) resulting in undetectable viral load (UVL) reduces the rate of onwards HIV transmission to effectively zero, which is known as 'treatment as prevention (TasP) or 'Undetectable = Untransmittable (U=U)'. Furthermore, HIV pre-exposure prophylaxis (PrEP) reduces the risk of acquiring HIV in adherent HIV-negative people by more than 95% [2-6]. Combined with traditional methods of prevention (such as condoms or the provision of sterile injecting equipment), these advances provide Australia with an exciting opportunity to move towards the virtual elimination of HIV transmission.

Australia's existing approaches to HIV testing, treatment, and prevention have already been effective. Across Australia, substantial resources have been committed in both community-based and clinic settings to increasing HIV testing uptake among key populations and high-risk groups [7-9]. In the last five years, Australia has seen substantial increases in ART use among diagnosed people living with HIV (PLHIV). By the end of 2018, 89% of diagnosed PLHIV were receiving ART and 95% of those on ART had UVL [10]. Between 2016 and 2018, large-scale PrEP implementation trials in New South Wales (NSW), Victoria, Queensland, Western Australia, South Australia, Tasmania, and the Australian Capital Territory enrolled around 17,000 high-risk HIV-negative people, mostly gay, bisexual and other men who have sex with men (GBMSM). This was achieved through active support by local community-based organisations. These trials showed that rapid rollout of PrEP was feasible and effective in reducing HIV transmission at a population level, and had wide support within at-risk communities, particularly gay communities [11]. PrEP was listed on the Australian Pharmaceutical Benefit Scheme (PBS) in April 2018. The increases in HIV testing, treatment and PrEP roll-out have been accompanied by a substantial decline in HIV diagnoses among GBMSM in Australia [10].

Issues of access and equity to appropriate prevention and treatment strategies remain and there is increasing concern that specific priority populations do not have optimal levels of access to HIV prevention. In NSW, it has been reported that the reductions in HIV diagnoses are concentrated among Australian-born GBMSM, and diagnoses have not yet declined in Asian-born GBMSM [12, 13].

There is a significant need to identify gaps in Australia's HIV prevention efforts among GBMSM to recognise specific subgroups that may be at risk of being left behind. *The Gaps Project* aimed to identify these gaps by collating surveillance and behavioural data from key national and state sources on HIV testing, ART uptake, PrEP uptake, behavioural risk reduction and HIV surveillance data.

This report draws together relevant data from three key sources: the National HIV Registry, the Gay Community Periodic Surveys (GCPS), and the Australian Collaboration for Coordinated Enhanced Sentinel Surveillance (ACCESS). By combining these data sources, this report outlines trends in HIV diagnoses and HIV prevention in various sub-groups within the GBMSM population in Australia. It is intended to be a reference document for organisations and individuals interested in the occurrence and prevention of HIV among this priority population.

The main findings of the report are presented as text, supported by figures. All data outlined in the report are exclusively among the GBMSM population and are for the decade from the beginning of 2009 to the end of 2018 unless specified otherwise. Surveillance data contained in this report are provisional and subject to future revision.

2

METHODOLOGY

2.1 The National HIV Registry

HIV is a notifiable disease in each Australian state and territory, meaning that all new HIV diagnoses must be reported by doctors and laboratories to state and territory health authorities. These data are then forwarded to the Kirby Institute for collation on the National HIV Registry and analysis of national trends in HIV infection. The National HIV Registry was established in 1990 and incorporated data from 1985 onwards, with new data variables being added over time. The procedures used for national HIV surveillance of newly-diagnosed HIV infections, henceforth referred to as notifications, are described elsewhere [14].

This report uses several key terms to stratify the national HIV notifications data. First, a 'newly acquired diagnosis' (sometimes referred to as 'newly-acquired HIV' or 'HIV diagnoses with evidence of early infection') is defined as new HIV diagnoses with evidence of a negative or indeterminate HIV antibody test or reported symptoms consistent with primary HIV infection (seroconversion illness) within the previous 12 months. Information on the date of the last negative or indeterminate test or date of onset of primary HIV has been routinely sought from each state/territory health jurisdiction since 1991. Second, a 'non-newly acquired diagnosis' is defined as a diagnosis of primary HIV (seroconversion illness) with no evidence of a negative or indeterminate HIV antibody test within the previous 12 months. Third, CD4+ T-cell count at HIV diagnosis can provide an indication of how long a person has had HIV before being diagnosed. The CD4+ T-cell count is above 500 cells/μL in most people without HIV and declines on average by 50 to 100 cells/μL per year in people with HIV [15]. 'Late HIV diagnosis' is defined as new HIV diagnoses with a CD4+ T-cell count of less than 350 cells/μL. HIV notifications classified as newly-acquired are excluded from late or advanced diagnoses categorisation even when they occur with a CD4+ cell count of less than 350 cells/μL. This is due to the potential for large variations in CD4+ T-cell counts around the time of seroconversion.

Information on country of birth has been reported by all jurisdictions since 2002. Information on date of arrival in Australia and likely place of acquisition has been reported by all jurisdictions since 2014. Data quality has improved over time; a year of arrival was reported for 83% of notifications among overseas-born GBMSM in 2018 compared to 46% in 2014. For this reason, we report trends from 2016 to 2018 for year of arrival.

Data from the National HIV Registry were used for the following indicators:

- Number of GBMSM diagnosed with HIV infection for the first time in Australia.
- Number of GBMSM diagnosed with evidence of newly acquired HIV infection.
- Number of GBMSM diagnosed with no evidence of newly acquired or late diagnosis.
- Number of GBMSM diagnosed with evidence of late diagnosis.
- Length of time since migration to Australia prior to HIV diagnosis among overseas-born men.
- Likely place of acquisition of HIV infection.

2.2 The Gay Community Periodic Surveys (GCPS)

The Gay Community Periodic Surveys (GCPS) are conducted annually or biennially using time-location sampling in seven states and territories to recruit GBMSM at gay venues, events, sex-on-premises venues and clinics. Face-to-face recruitment is undertaken by trained staff who invite men to self-complete a paper questionnaire. In most cities from 2014 onwards, face-to-face recruitment occurs over two weekends, followed by a week of online recruitment driven by paid Facebook advertising. In Tasmania, recruitment occurs solely online. In the most recent years, online recruitment accounts for approximately one-quarter of the GCPS sample. Community-based organisations are central to promotion and recruitment in each round. The GCPS is coordinated by the Centre for Social Research in Health, UNSW Sydney, in partnership with the Kirby Institute, UNSW Sydney. Details of the GCPS and associated methodology have been described elsewhere [16, 17].

Data from the GCPS were used for the following indicators:

- Proportion of HIV-negative men who have had an HIV test and number of HIV tests within the previous 12 months.
- Proportion of HIV-positive men on HIV treatment.
- Proportion of HIV-positive men on HIV treatment who have an undetectable viral load.
- PrEP awareness, eligibility and use among all HIV-negative men and men reporting condomless anal intercourse with casual partners in the previous six months (CLAIC).
- Sexual risk behaviour.

2.3 The Australian Collaboration for Coordinated Enhanced Sentinel Surveillance (ACCESS)

ACCESS is a national sexual health sentinel surveillance network that routinely collects de-identified demographic, testing, diagnosis, and treatment data from public sexual health services, private general practice (GP) clinics with high caseloads of GBMSM, and laboratories across Australia. It monitors the sexual health of high-risk populations including GBMSM, injecting drug users, Aboriginal and Torres Strait Islander people, sex workers, and young people. The project is managed collaboratively between the Kirby Institute, the Burnet Institute, and the National Reference Laboratory. In total, ACCESS collects data from over 110 health services, pharmacies and laboratories. Details of ACCESS have been described elsewhere [18, 19].

ACCESS data were used for the following indicators:

- Proportion of HIV-negative men tested for HIV in the previous 12 months.
- Proportion of HIV-positive men on HIV treatment.
- Proportion of HIV-positive men on HIV treatment who have an undetectable viral load.

2.4 Data Stratifications

Region of birth

For region of birth, we used categories reflecting recent migration patterns into Australia and trends in HIV notifications [20]. We categorised countries of birth into the following regions of birth:

- Australia
- High-income English-speaking countries[1]
- Europe[2]

[1]New Zealand, United Kingdom, Ireland, Wales, United States of America and Canada.
[2]Russia is included as part of Europe.

- Asia[3]
- Latin America and Caribbean
- Other[4]
- Not reported.

Information on country of birth is collected on HIV notification forms and from sexual health clinics within ACCESS but is not captured consistently from ACCESS GP services. In the GCPS, prior to 2019 information on specific country of birth was not collected. Instead, participants stated their ethnicity and from 2012 whether they were born in Australia or overseas. From this information we assigned a country of birth for each participant from 2012 onwards, and these were then categorised into the above regions of birth. While there may have been some misclassification of country of birth due to using this indirect method, an analysis of the 2019 GCPS data indicated that the indirect method was 90-95% accurate as compared to the participants' directly stated country of birth.

Year since arrival to Australia

For individuals born overseas, year of arrival to Australia has been collected in the national HIV notifications forms since 2014. Using this information and date of HIV diagnosis, we were able to determine how long a person had been living in Australia prior to their diagnosis.

Location of residence

Information is available on postcode-level estimates of population size and prevalence of gay and lesbian people in Australia [21]. Based on this information and data from the Australian Bureau of Statistics on Significant Urban Areas, categories combining population size and prevalence of gay men were created for analyses. Each postcode in Australia was classified into the following categories:

- 'Gay capital city postcodes' – any Australian capital city postcodes in which more than 5% of the male residents identify as gay
- 'Other capital city postcodes' – all capital city postcodes where less than 5% of male residents identify as gay
- Regional, rural, or remote – all non-capital city postcodes
- Missing or unknown – missing postcodes, PO boxes, and other postcodes (i.e. prisons, military bases, remote territories/islands).

For analyses stratified by postcode, unless specified, the second and third categories are combined into 'Other postcodes'. Postcode of residence is recorded in all three data sources.

Age

Preliminary analyses on age were reported using 10-year ranges (<18, 18-25, 26-35, 36-45, 46-55, 56-65, and >65 years). Based on the trends observed from this analysis and literature on HIV notifications among young and older GBMSM [22], the following age groups were subsequently used for analyses unless otherwise specified:

- 25 years or under
- 26 to 35 years old
- 36 to 55 years old
- 56 years or older.

Aboriginal and Torres Strait Islander Status

Information on Aboriginal and Torres Strait Islander status is collected on HIV notification forms in all jurisdictions. Individuals can be classified as of Aboriginal origin, Torres Strait Islander origin, both, or neither. In this report, individuals who are of Aboriginal origin, Torres Strait Islander origin, or both are classified as having Aboriginal and Torres Strait Islander status.

[3]Includes North-East Asia, South-East Asia, South Asia and Central Asia.
[4]Sub-Saharan Africa, Middle East and Northern Africa and the Pacific and Oceania.
[5]ABS data blocks: CG_POSTCODE_2017_SUA_2016; SUA_PopSize_2007-2017

PrEP awareness

Information on PrEP awareness has been collected in the GCPS since 2014. Participants were asked 'What do you know about pre-exposure prophylaxis (PrEP)?' and given the response options: 'It's available now', 'It will be available in the future', or 'I've never heard about it'. Participants who selected 'It's available now' were considered to be aware of PrEP, while participants who selected either 'It will be available in the future' or 'I've never heard about it' were considered not to be aware of PrEP.

PrEP eligibility

For the purpose of this report, when using GCPS data, individuals were classified as eligible for PrEP if they engaged in any CLAIC in the previous six months [23]. Definitions of PrEP eligibility or suitability have changed over time. Therefore, we chose CLAIC in the previous six months as a marker of risk that has been measured consistently over time.

High risk classification for HIV testing

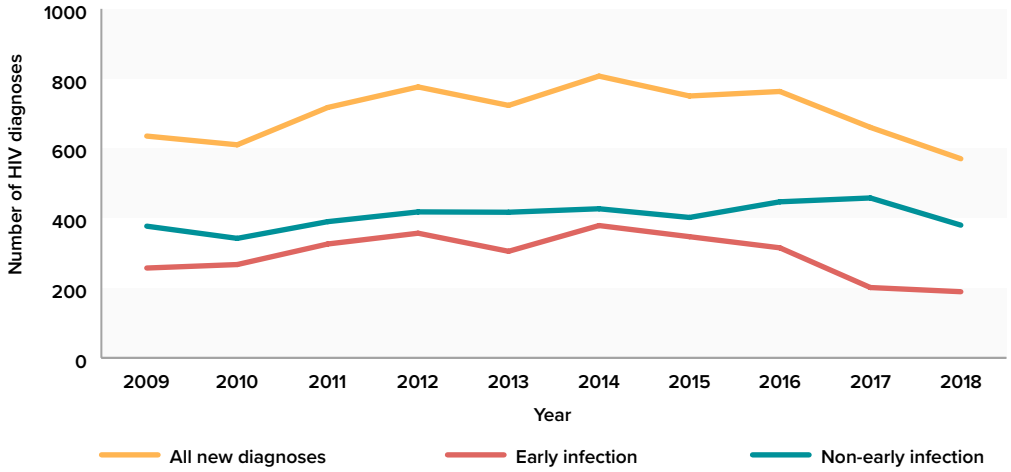
The 2014 Australian HIV/STI testing guidelines recommended annual HIV testing for all sexually active GBMSM, and up to four tests per year for 'high-risk' GBMSM. This includes GBMSM who had any condomless anal intercourse with a casual male partner (CLAIC), had more than ten sexual partners, had group sex, or used drugs for the purpose of sex in the previous six months [24]. These guidelines were recently updated to recommend quarterly testing for all GBMSM [25]. The term 'high-risk' is being used here to refer to higher risk of HIV and STIs, as per the guidelines. It should be noted that when an individual classified as high-risk is on PrEP, they are not at high-risk for HIV but only for STIs.

3

RESULTS:
HIV DIAGNOSES

3.1 All new diagnoses

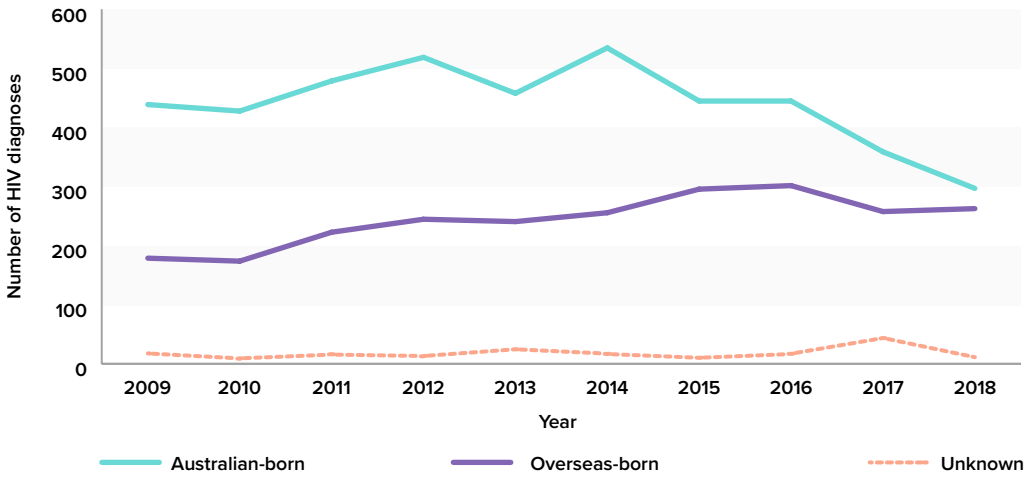
3.1.1 Notifications of HIV infection among GBMSM in Australia: National HIV Registry 2009-2018



Between 2009 to 2018, there was a 10% decrease in HIV notifications among GBMSM in Australia (from 636 to 571). HIV notifications peaked in 2014 (808) and have since declined by 29%. Newly acquired diagnoses (infections acquired in the last 12 months) declined by 50% between 2014 and 2018 (380 to 190) while non-newly acquired diagnoses remained stable over the previous 10 years.

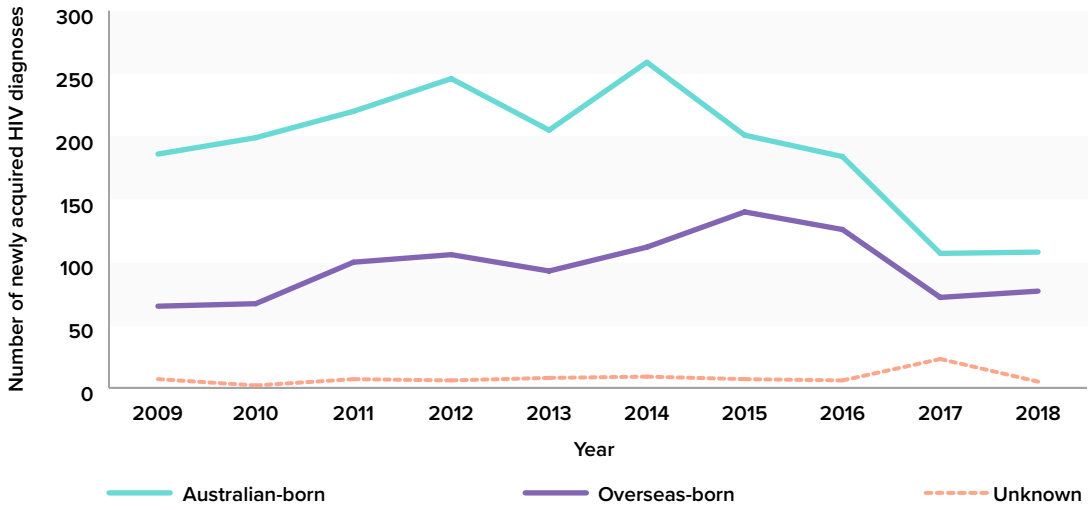
3.2 Region of birth

3.2.1 Notifications of HIV infection among GBMSM by place of birth: National HIV Registry 2009-2018



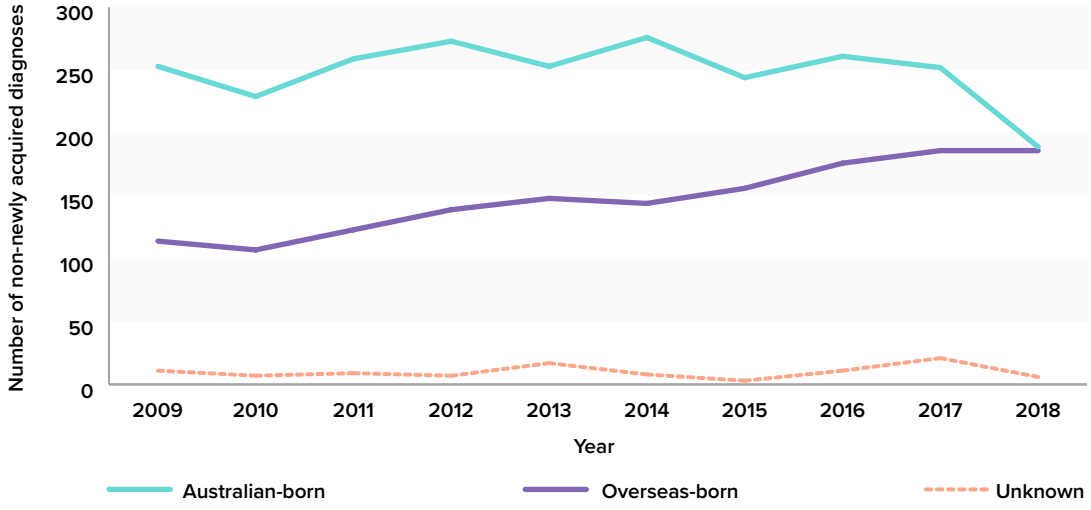
In 2018, of the 571 HIV notifications among GBMSM, 52% (297) were born in Australia while 46% (263) were born overseas. HIV notifications in Australian-born GBMSM remained stable between 2009 and 2016 followed by a sharp 33% decline between 2016 and 2018 (445 to 297). In contrast, notifications in overseas-born GBMSM increased by 65% between 2009 to 2015 (179 to 296) and remained stable between 2015 and 2018.

3.2.2 Notifications of newly acquired diagnoses among GBMSM by place of birth: National HIV Registry 2009-2018



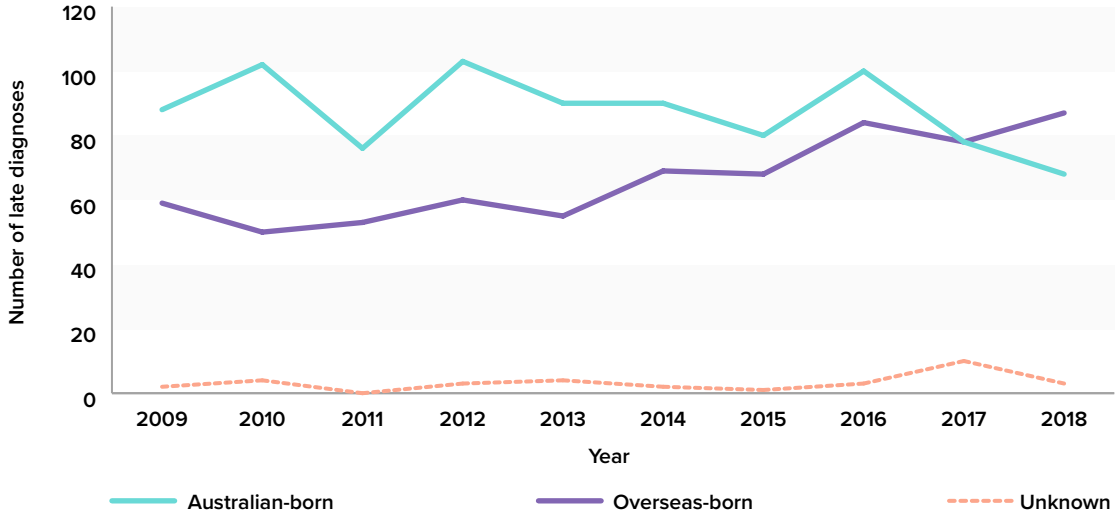
In Australian-born GBMSM, newly acquired diagnoses increased by 39% between 2009 and 2014 (186 to 259 notifications), and then declined by 59% to 107 notifications in 2017. There was no further decrease between 2017 and 2018. In overseas-born GBMSM, newly acquired diagnoses increased by 115% between 2009 and 2015 (65 to 140 notifications), and then declined by 49% to 72 notifications in 2017. There was no further decrease after 2017.

3.2.3 Notifications of non-newly acquired diagnoses among GBMSM by place of birth: National HIV Registry 2009-2018



Non-newly acquired HIV infections in Australian-born GBMSM remained stable between 2009 and 2017, and then declined by 25% between 2017 and 2018 (252 to 189 notifications). In contrast, non-early HIV infections in overseas-born GBMSM increased by 63% between 2009 and 2018 (144 to 186 notifications).

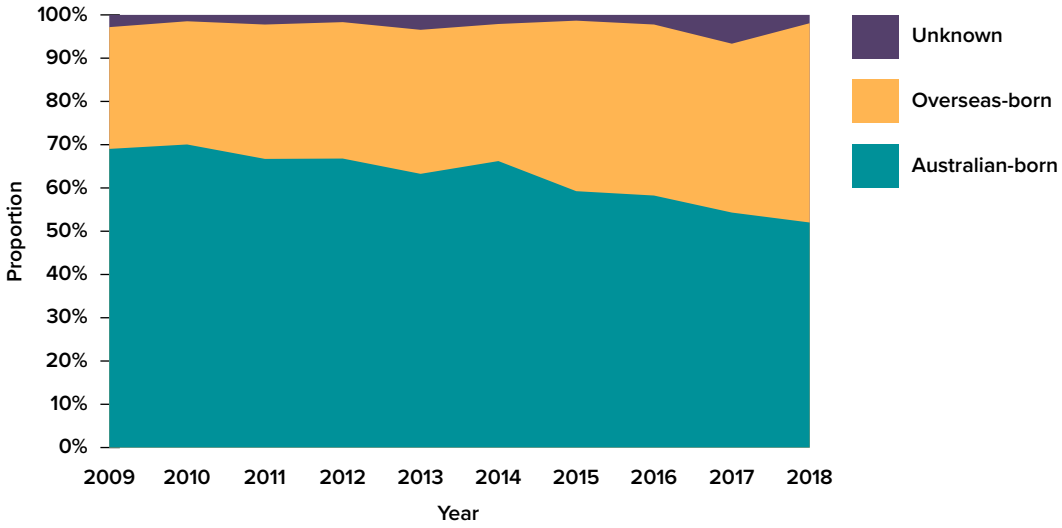
3.2.4 Notifications of late diagnoses among GBMSM by place of birth: National HIV Registry 2009-2018



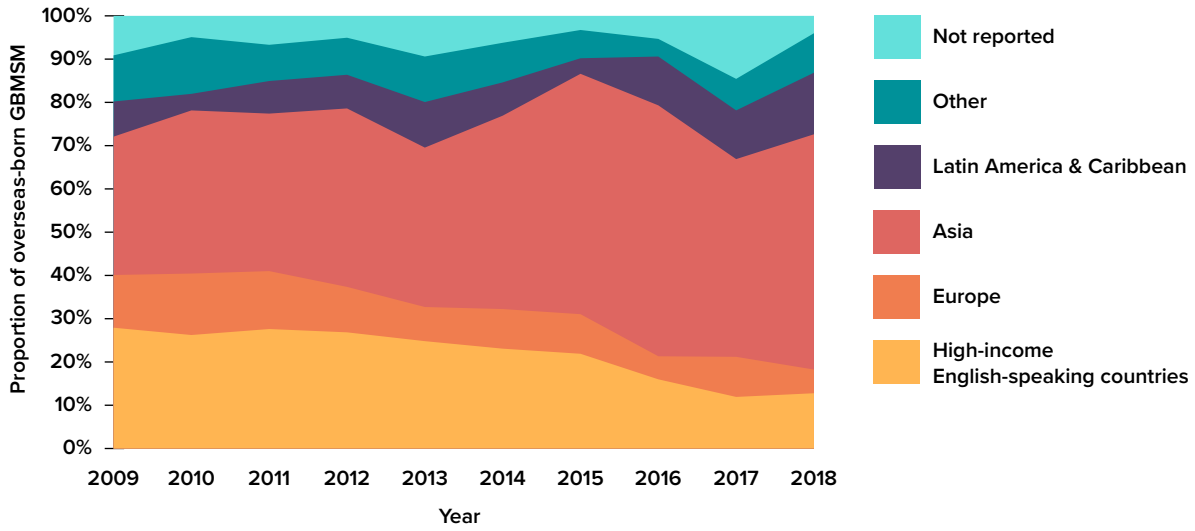
Overall, notifications of late diagnosis remained relatively stable between 2009 and 2018 (149 to 158). Between 2009 and 2018, late HIV notifications in Australian-born GBMSM declined by 28% (88 to 68), while late notifications in overseas-born GBMSM increased by 47% (50 to 87). In 2018, for the first time, the number of late diagnoses was greater in overseas-born GBMSM (87 notifications) than Australian-born GBMSM (68 notifications). Furthermore, in 2018, 55% of the late diagnoses were in overseas-born GBMSM, while 43% were in Australian-born GBMSM.

3.2.5 Proportion of HIV infections (A) by Australian-born and overseas-born GBMSM and (B) by region of birth among overseas-born GBMSM: National HIV Registry 2009-2018

(A)



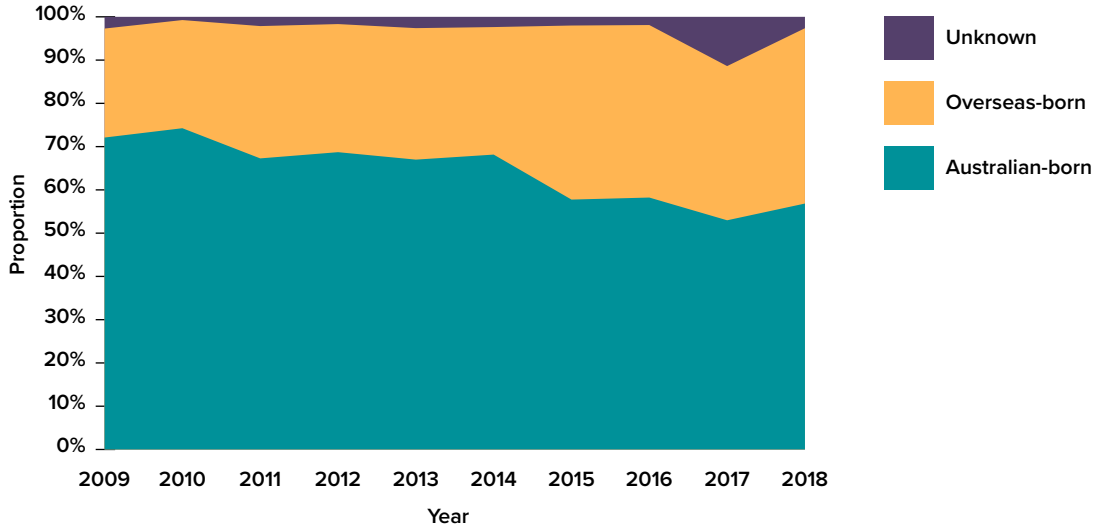
(B)



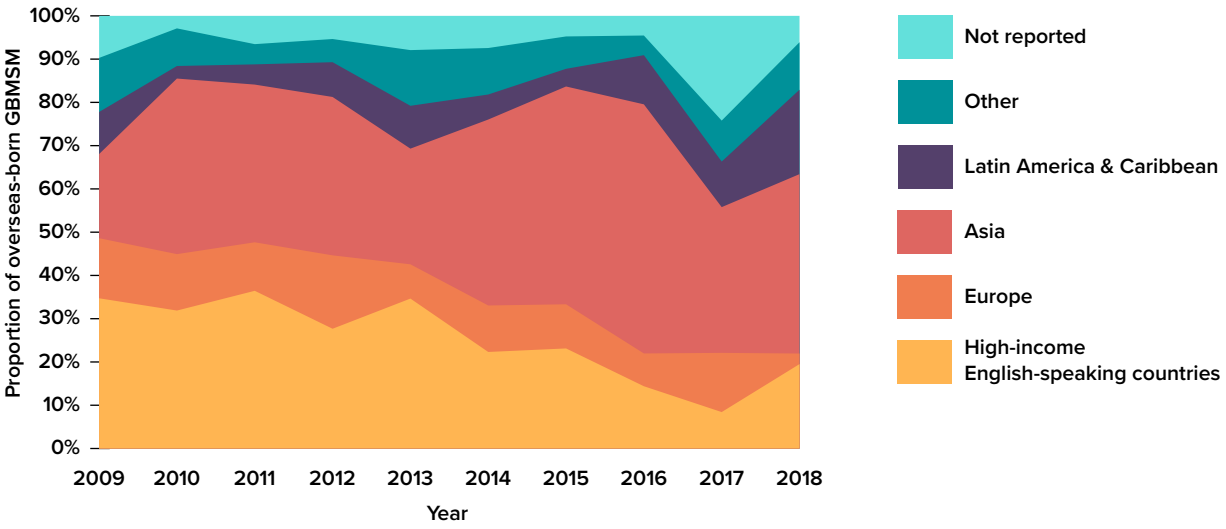
Among new HIV diagnoses in GBMSM, there was an increase in the proportion of overseas-born GBMSM diagnosed with HIV from 28% in 2009 (179 notifications) to 46% in 2018 (263 notifications). Among new HIV diagnoses in overseas-born GBMSM, there was an increase in the proportion of those born in Asia from 32% in 2009 (63 notifications) to 54% in 2018 (149 notifications). HIV notifications among those born in Latin America and the Caribbean increased from 8% in 2009 (16 notification) to 14% in 2018 (39 notifications). Notifications among those born in high-income English-speaking countries declined from 28% in 2009 (55) to 13% in 2018 (35). Notifications from those born in Europe declined from 12% in 2009 (24) to 5% in 2018 (15). Among GBMSM from other regions (sub-Saharan Africa, Middle East and Northern Africa, and the Pacific and Oceania), there was a small decline from 12% (21 notifications) in 2009 to 10% (25 notifications) in 2018. The proportion of notifications who did not report region of birth decreased from 10% (18) in 2009 to 4% (11) in 2018.

3.2.6 Proportion of newly acquired HIV infection (A) by Australian-born and overseas-born GBMSM and (B) by region of birth among overseas-born GBMSM: National HIV Registry 2009-2018

(A)



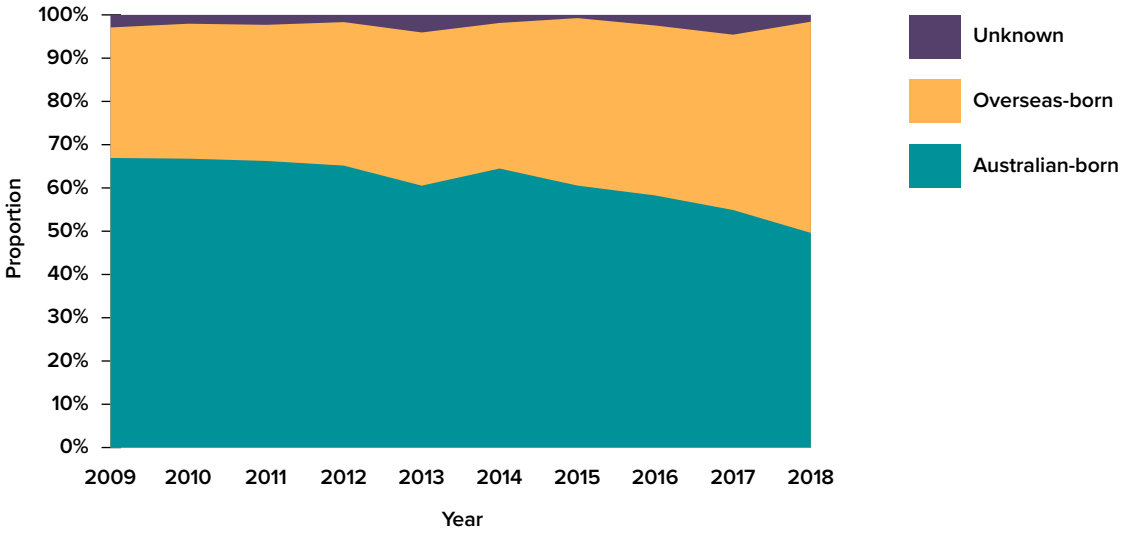
(B)



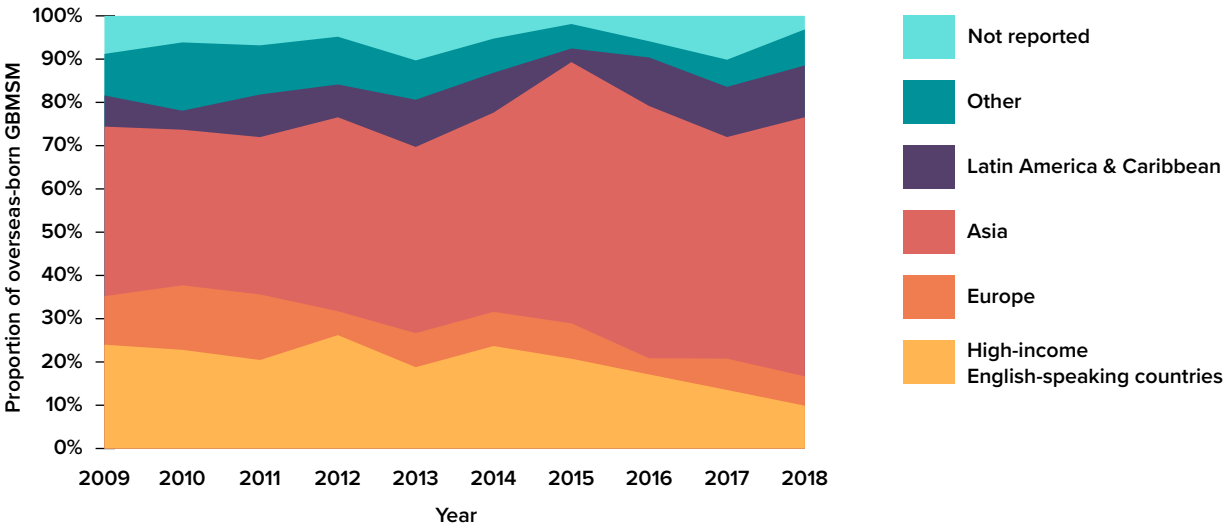
In 2018, 41% (82 notifications) of newly acquired diagnoses were among men born overseas, increasing from 25% in 2009. Of those born overseas, the highest proportion (41%, 34 notifications) were born in Asia, increasing from 19% in 2009 (14 notifications). Between 2009 and 2018, newly acquired diagnoses among those born in Latin America and the Caribbean increased from 10% (7 notifications) to 20% (25 notifications). Meanwhile, new acquired diagnoses among those born in high-income, English-speaking countries declined from 35% (25 notifications) to 20% (16 notifications) and newly acquired diagnoses from those born in Europe declined from 14% (25 notifications) to 2% (2 notifications). In 2018, 11% of newly acquired diagnoses (9 notifications) were in GBMSM born in other regions (sub-Saharan Africa, Middle East and Northern Africa, and the Pacific and Oceania) and 6% (5 notifications) did not have region of birth reported.

3.2.7 Proportion of non-newly acquired diagnoses (A) by Australian-born and overseas-born GBMSM and (B) by region of birth among overseas-born GBMSM: National HIV Registry 2009-2018

(A)



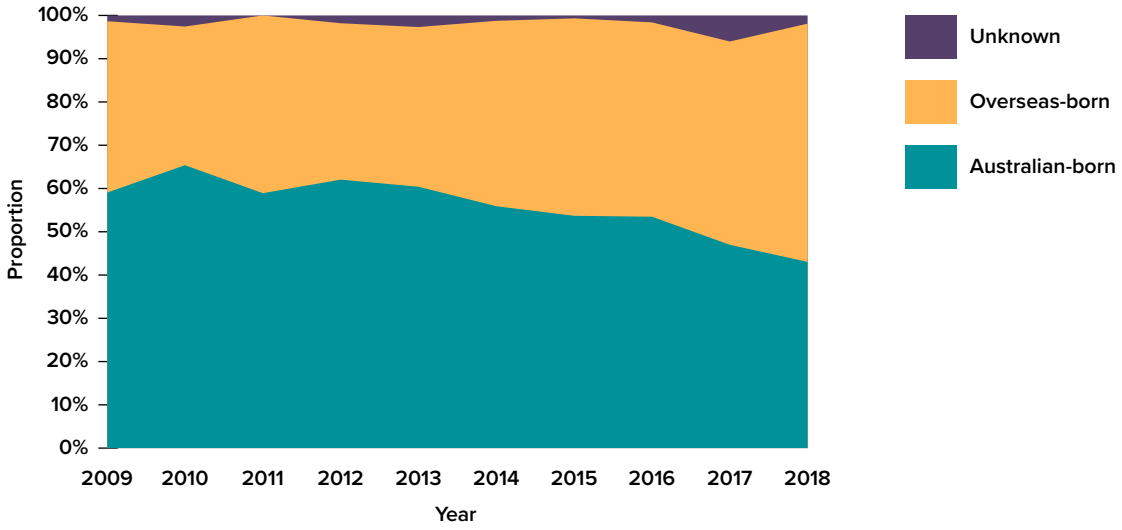
(B)



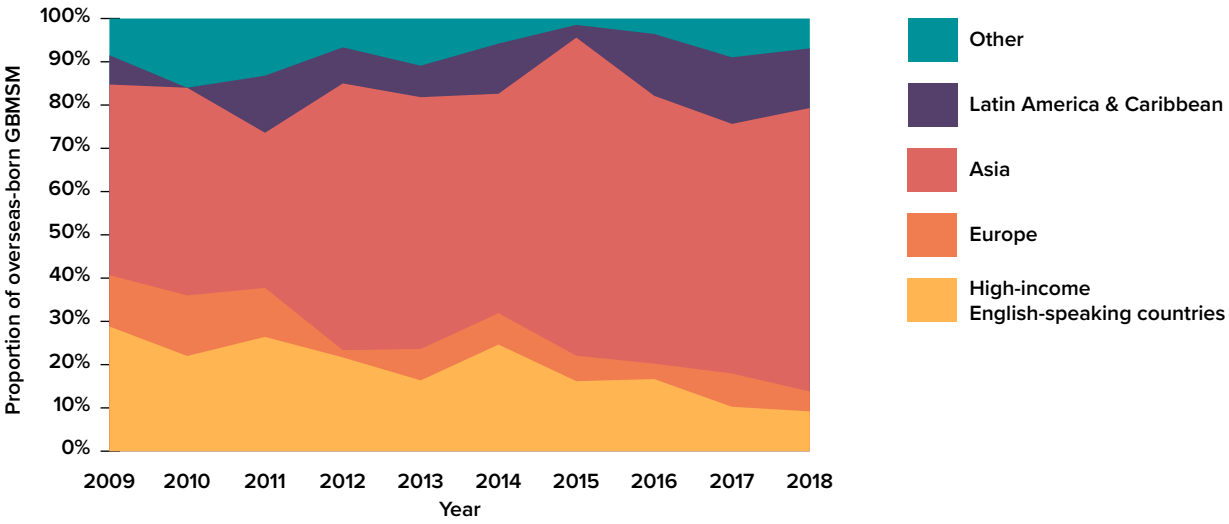
There was an increase in the proportion of overseas-born GBMSM among non-newly acquired diagnoses from 30% in 2009 (49 notifications) to 49% in 2018 (192 notifications). Among non-newly acquired diagnoses in overseas-born GBMSM, there was an increase in the proportion of those born in Asia from 39% in 2009 (49 notifications) to 60% in 2018 (115 notifications). Non-newly acquired diagnoses among those born in Latin America and the Caribbean increased from 7% in 2009 (9 notifications) to 12% in 2018 (23 notifications). Non-newly acquired diagnoses among those born in high-income English-speaking countries declined from 24% in 2009 (30 notifications) to 10% in 2018 (19 notifications). The total number of non-newly acquired among those born in Europe remained stable between 2009 and 2018 (14 to 13 notifications) but decreased proportionally to the overall overseas-born notifications from 11% in 2009 to 7% in 2018. In 2018, 8% of non-newly acquired diagnoses (16 notifications) were in GBMSM born in other (sub-Saharan Africa, Middle East and Northern Africa, and the Pacific and Oceania) and 3% (6 notifications) did not have region of birth reported.

3.2.8 Proportion of late diagnoses (A) by Australian-born and overseas-born GBMSM and (B) by region of birth among overseas-born GBMSM: National HIV Registry 2009-2018

(A)



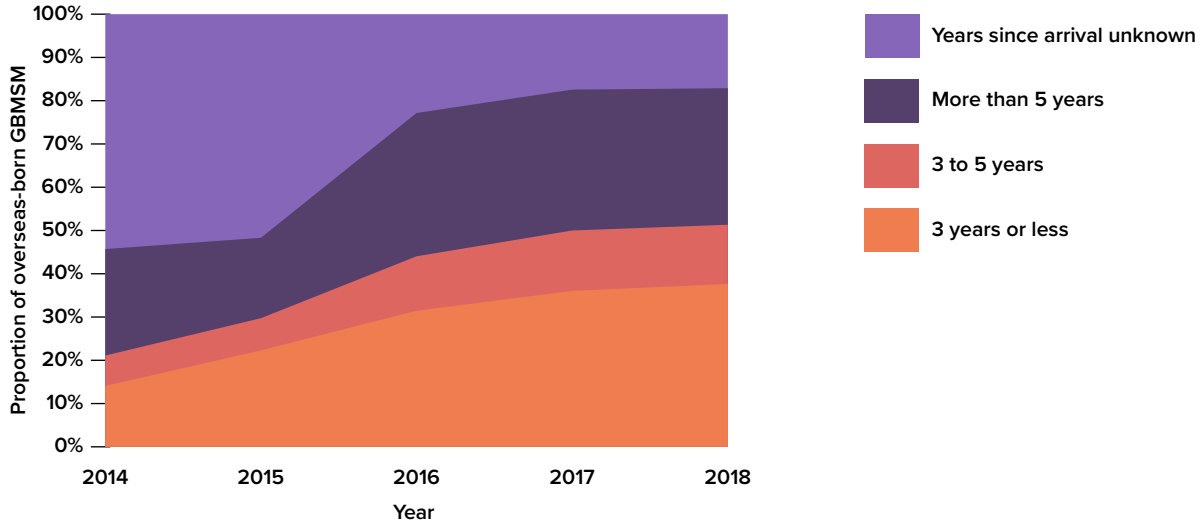
(B)



The proportion of late diagnoses among overseas-born GBMSM increased from 40% in 2009 (59 notifications) to 55% in 2018 (87 notifications). Among the late diagnoses in overseas-born GBMSM, there was an increase in the proportion of those born in Asia from 44% in 2009 (26 notifications) to 66% in 2018 (57 notifications). Late diagnoses among those born in Latin America and the Caribbean also increased: from 7% (4 notifications) to 14% (12 notifications). The proportions of late diagnoses among those born in high-income English-speaking countries and Europe declined.

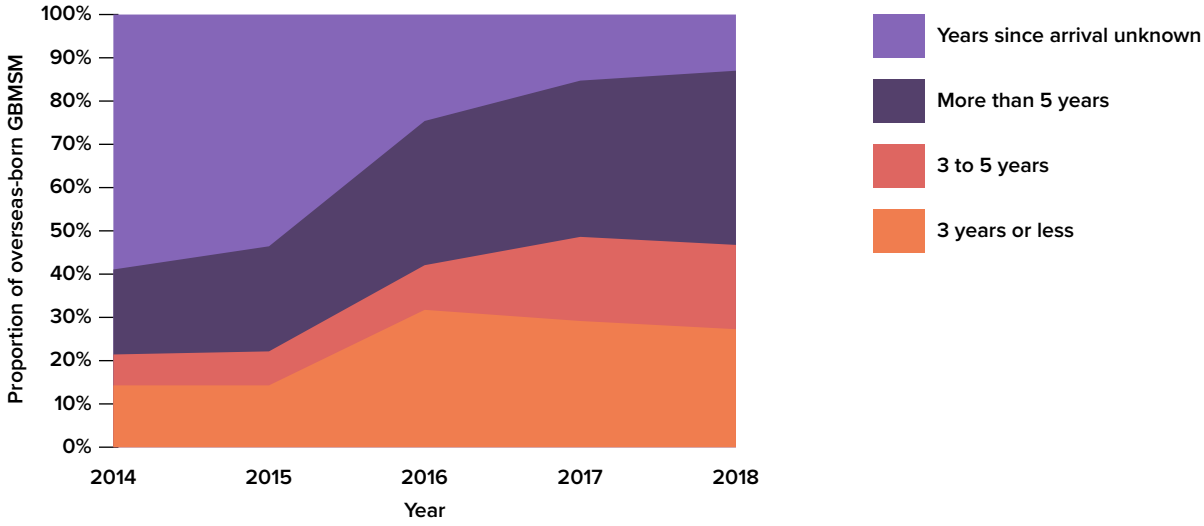
3.3 Years since arrival in Australia

3.3.1 Proportion of HIV diagnoses among overseas-born GBMSM by years since first long-term arrival in Australia: National HIV Registry 2014-2018



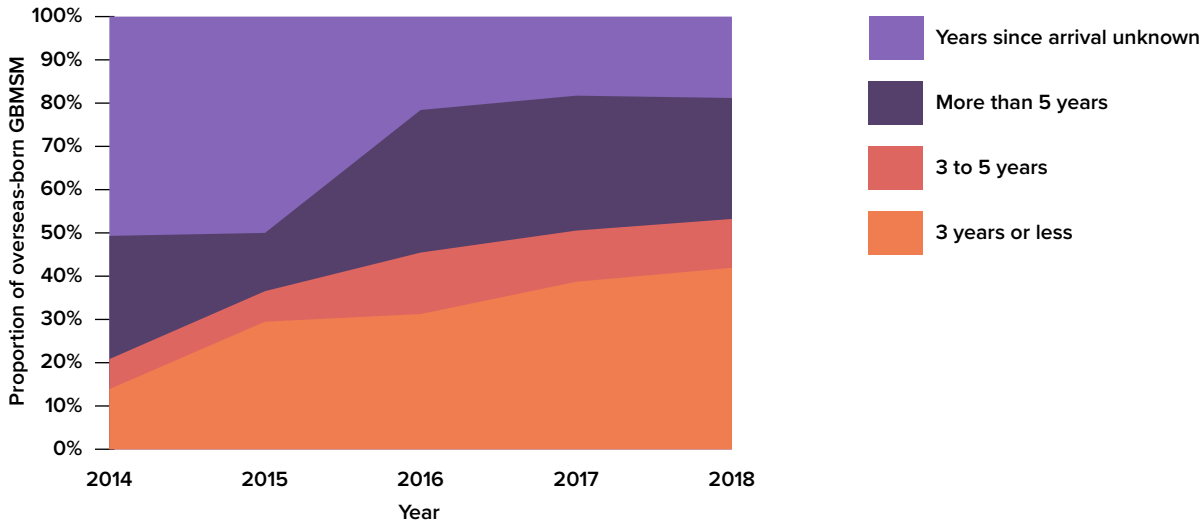
In 2018, the highest proportion (38%) of HIV notifications was among overseas-born men who had resided in Australia for less than three years (99 notifications), an increase from 31% in 2016 (95 notifications), followed by those living in Australia for 5 years or more (32%, 83 notifications) and those living in Australia for 3-5 years (14%, 36 notifications). For 45 cases (17%), year of arrival in Australia was unknown.

3.3.2 Proportion of newly acquired diagnoses among overseas-born GBMSM by years since first long-term arrival in Australia: National HIV Registry 2014-2018



In 2018, of the HIV notifications in overseas-born men, 29% (77) were diagnosed with evidence of newly acquired infection (Figure 1.2.2). There was a decrease in the proportion of overseas-born GBMSM with newly acquired diagnoses who have resided in Australia for less than 3 years from 32% in 2016 (40 notifications) to 27% in 2018 (21 notifications). There was an increase in the proportion who have resided in Australia for 3-5 years from 10% in 2016 (13 notifications) to 19% in 2018 (15 notifications). There was an increase in the proportion who have resided in Australia for more than 5 years from 33% in 2016 (42 notifications) to 40% in 2018 (31 notifications). Years since arrival in Australia was unknown for 13% of overseas-born GBMSM diagnosed with newly acquired diagnoses (10 notifications) in 2018.

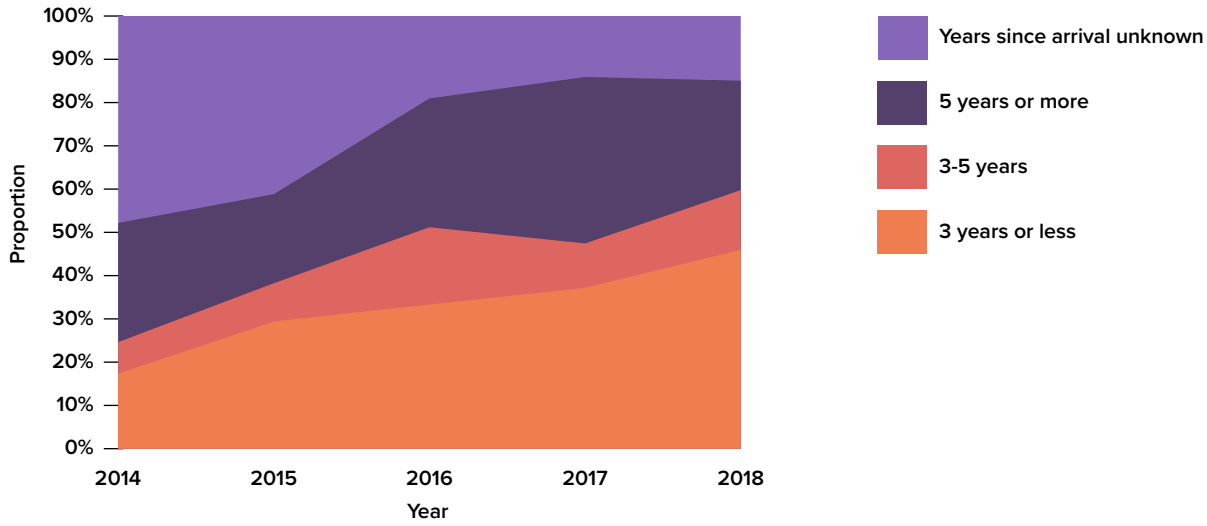
3.3.3 Proportion of non-newly acquired diagnoses among overseas-born GBMSM by years since first long-term arrival in Australia: National HIV Registry 2014-2018



In 2018, of the HIV notifications in overseas-born men, 49% (186) were diagnosed with non-newly acquired diagnoses (Figure 3.2.3). There was an increase in the proportion of overseas-born GBMSM with non-newly acquired diagnoses who have resided in Australia for less than 3 years from 31% in 2016 (55 notifications) to 42% in 2018 (78 notifications). There was a decrease in the proportion who have resided in Australia for 3-5 years from 14% in 2016 (25 notifications) to 11% in 2018 (21 notifications). There was

a decrease in the proportion who have resided in Australia for more than 5 years from 33% in 2016 (58 notifications) to 28% in 2018 (52 notifications). Years since arrival in Australia was unknown for 19% of overseas-born GBMSM diagnosed with non-newly acquired diagnoses (35 notifications).

3.3.4 Proportion of late diagnoses among overseas-born GBMSM by years since first long-term arrival in Australia: National HIV Registry 2014-2018

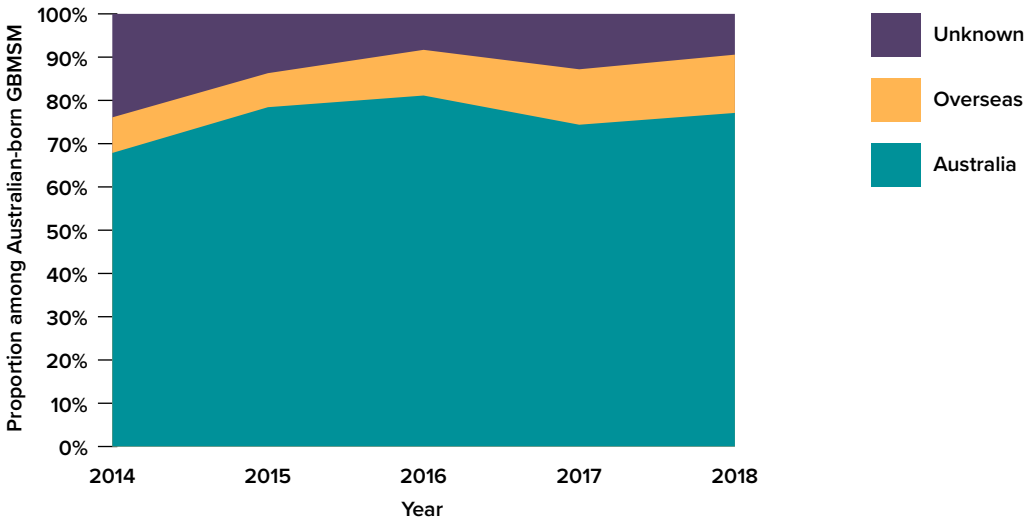


In 2018, of the HIV notifications in overseas-born men, 33% (87 notifications) were diagnosed with late infection (Figure 3.2.4). There was an increase in the proportion of overseas-born GBMSM with late diagnoses who have resided in Australia for less than 3 years from 33% in 2016 (28 notifications) to 46% in 2018 (40 notifications). There was a decrease in the proportion who have resided in Australia for 3-5 years from 18% in 2016 (15 notifications) to 14% in 2018 (12 notifications). There was a decrease in the proportion who have resided in Australia for more than 5 years from 30% in 2016 (25 notifications) to 25% in 2018 (22 notifications). Years since arrival in Australia was unknown for 15% of overseas-born GBMSM diagnosed with non-newly acquired diagnoses(13 notifications) in 2018.

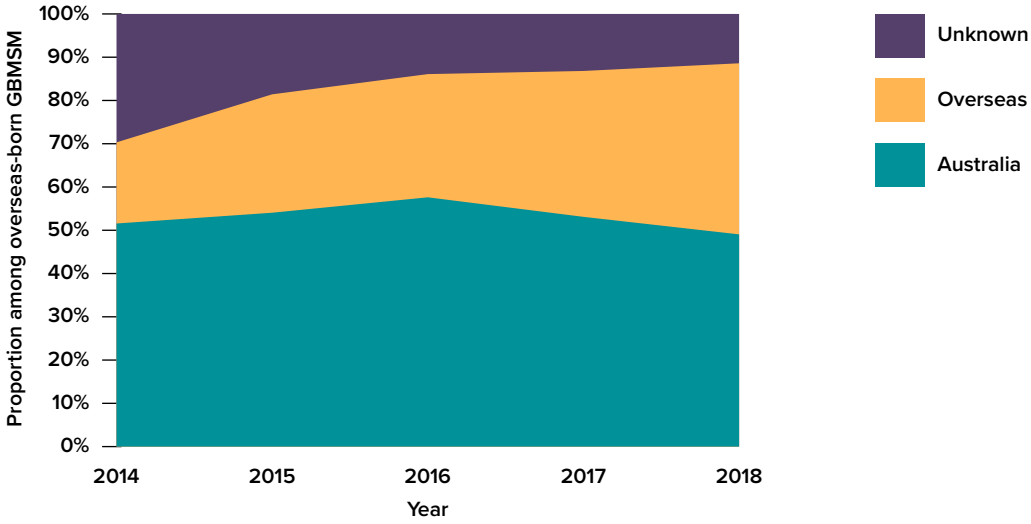
3.4 Likely place of acquisition

Monitoring the likely place of HIV acquisition can provide information to assist understanding of the potential influence of travel and migration on HIV diagnosis trends. The known trajectory of CD4+ T-cell count and time of arrival among those born overseas can also be used to estimate the proportion of infections acquired before arriving in Australia. Since 2014, notifications of new HIV diagnoses included the likely place of HIV acquisition reported by the clinician (i.e. acquired in Australia, acquired overseas, or place of acquisition unknown).

3.4.1 Proportion of HIV infection among Australian-born GBMSM by likely place of acquisition: National HIV Registry 2014-2018



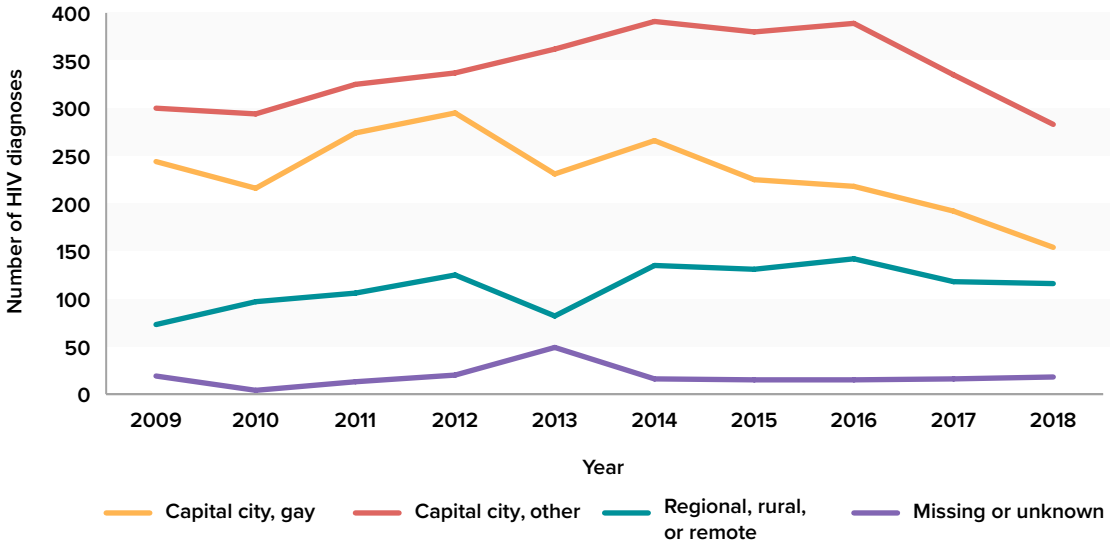
3.4.2 Proportion of HIV infection among overseas-born GBMSM by likely place of acquisition: National HIV Registry 2014-2018



Among Australian-born GBMSM newly diagnosed with HIV, there was an increase in the proportion who likely acquired HIV infection in Australia from 68% in 2014 (363 notifications) to 77% in 2018 (229 notifications). There was also an increase in the proportion who likely acquired HIV infection overseas from 8% in 2014 (44 notifications) to 13% in 2018 (40 notifications). Among overseas-born GBMSM newly diagnosed with HIV, there was a decrease in the proportion who likely acquired HIV infection in Australia from 52% in 2014 (132 notifications) to 49% in 2018 (129 notifications). There was an increase in the proportion who likely acquired HIV infection overseas from 19% in 2014 (48 notifications) to 40% in 2018 (104 notifications).

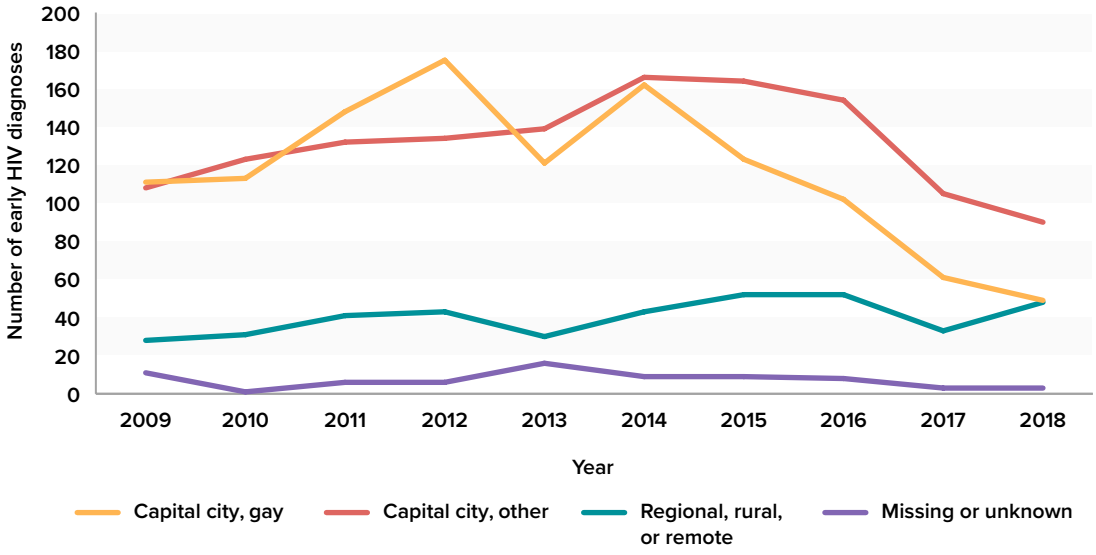
3.5 Location of residence

3.5.1 Notifications of HIV infection among GBMSM by location of residence: National HIV Registry 2009-2018



The number of HIV notifications among GBMSM living in gay capital city postcodes increased by 21% from 2009 to 2012 (244 to 295) followed by a 37% decline in 2018 (295 to 154). HIV notifications among GBMSM living in other capital city postcodes ('capital city, other') increased by 30% from 2009 to 2016 (300 to 389 notifications) followed by a 27% decline in 2018 (389 to 283). HIV notifications among GBMSM living in regional, rural, or remote postcodes increased by 60% between 2009 and 2018 (73 to 116). The number of HIV notifications with an unknown or missing postcode of residence has remained small and constant over the previous 10 years.

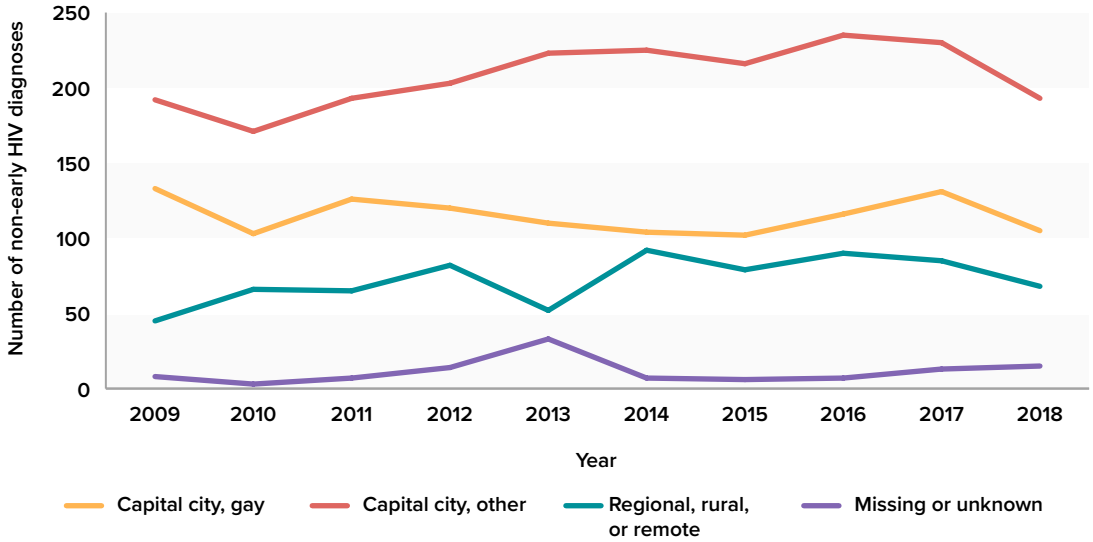
3.5.2 Notifications of newly acquired diagnoses among GBMSM by location of residence: National HIV Registry 2009-2018



Newly acquired diagnoses among GBMSM living in capital city gay postcodes declined dramatically by 72% from 2012 to 2018 (175 to 49 notifications). Between 2014 and 2018, newly acquired diagnoses among

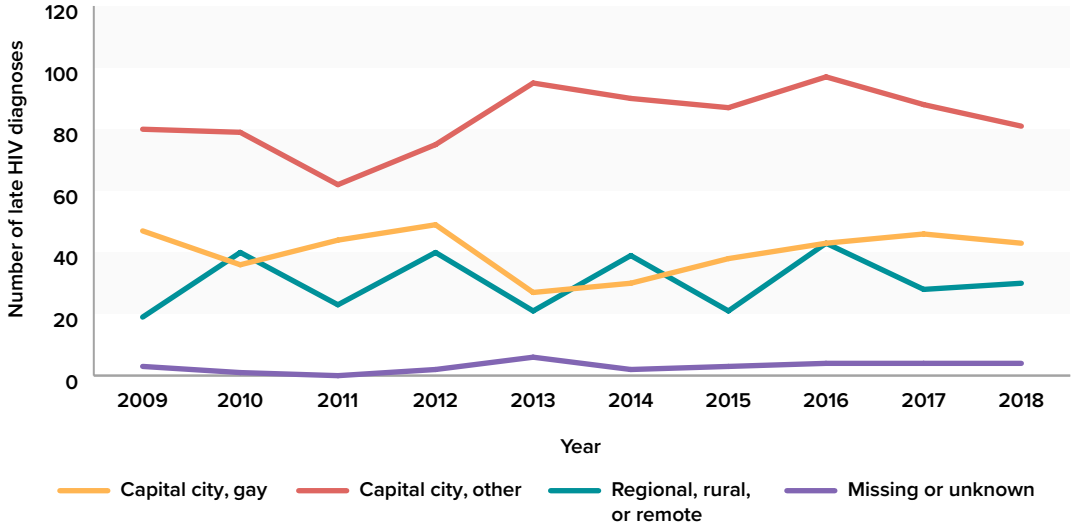
GBMSM living in other capital city postcodes declined by 46% (166 to 90 notifications). Notifications among those living in regional, rural, or remote postcodes increased by 71% over the 10-year period (28 to 48).

3.5.3 Notifications of non-newly acquired diagnoses among GBMSM by location of residence: National HIV Registry 2009-2018



Non-newly acquired diagnoses among GBMSM that lived in capital city gay postcodes declined by 21% between 2009 and 2018 (133 to 105 notifications) while non-newly acquired diagnoses among GBMSM living in other capital city postcodes increased steadily by 20% until 2017 (192 to 230 notifications) and then declined by 16% to 193 notifications in 2018. There has been a 51% increase in the number of HIV notifications for GBMSM living in regional, rural, or remote postcodes (45 to 68 notifications).

3.5.4 Notifications of late HIV diagnoses among GBMSM by location of residence: National HIV Registry 2009-2018

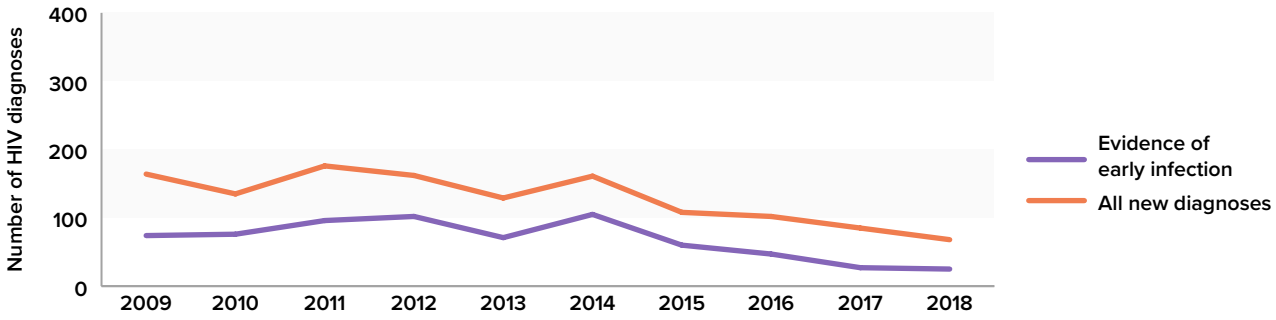


Between 2009 and 2018, the number of GBMSM notified with late diagnoses that were in gay capital city and other capital city postcodes has fluctuated but, overall, remained relatively constant. The number of GBMSM notified with late diagnoses that were living in regional, rural, or remote postcodes has fluctuated yearly but over the 10-year period 2009-2018 has increased by 58% (19 to 30 notifications).

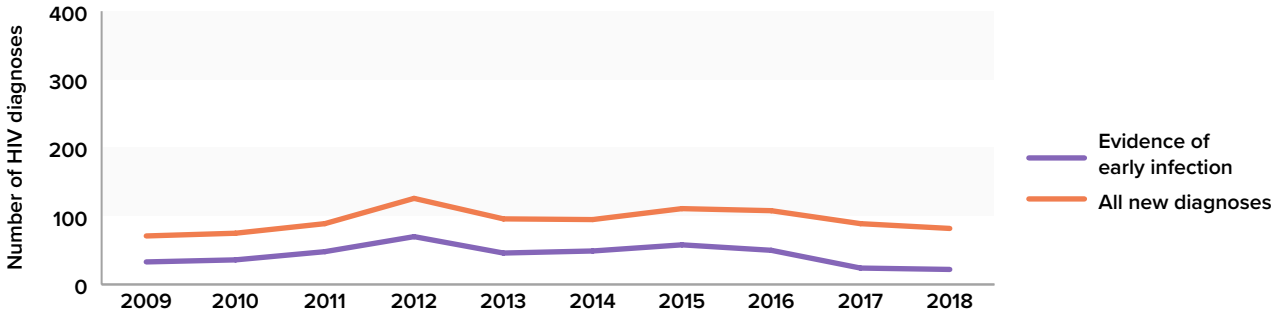
3.6 Region of birth and location of residence

3.6.1-4 Region of birth and location of residence by HIV infection type: National HIV Registry 2009-2018

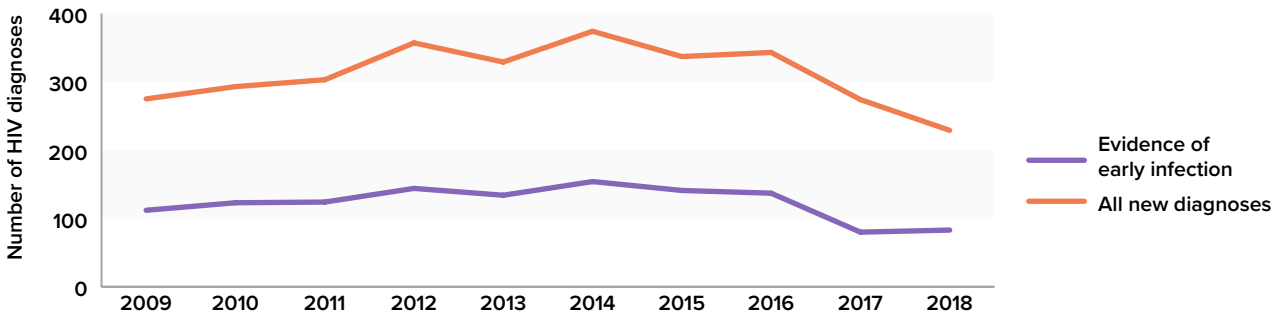
1. Australian-born GBMSM living in gay capital city postcodes by notification type: HIV Registry 2009-2018



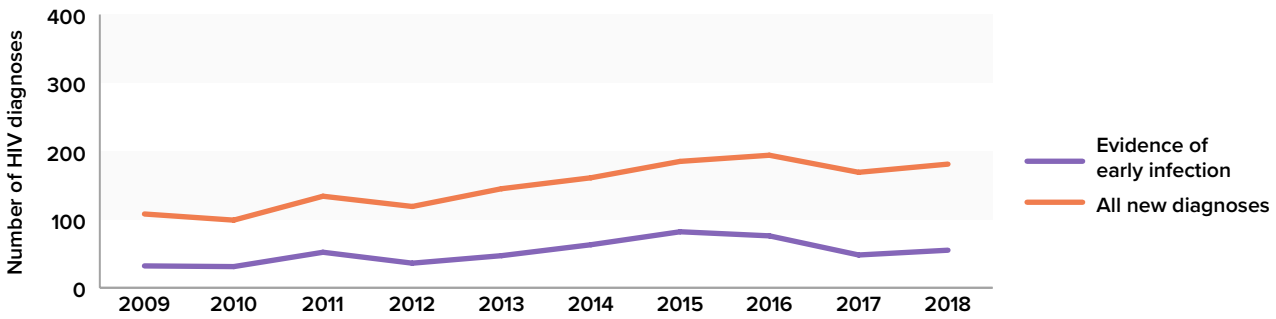
2. Overseas-born GBMSM living in gay capital city postcodes by notification type: HIV Registry 2009-2018



3. Australian-born GBMSM living in other postcodes by notification type: HIV Registry 2009-2018



3. Australian-born GBMSM living in other postcodes by notification type: HIV Registry 2009-2018



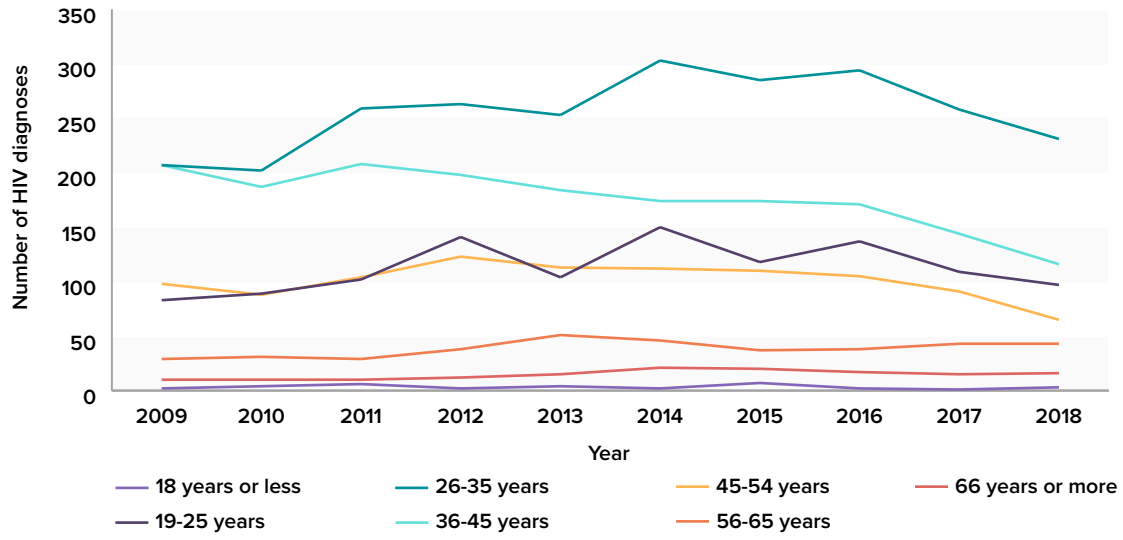
We examined the relationship between region of birth and location of residence in trends in HIV notifications.

First, when looking at overall new HIV diagnoses, diagnoses among Australian-born GBMSM living in gay capital postcodes declined by 59% between 2009 and 2018 (164 to 68 notifications), whereas diagnoses among overseas-born living in gay capital city postcodes increased by 16% (71 to 82 notifications). Diagnoses in Australian-born GBMSM living in other postcodes initially increased between 2009 and 2014 then declined, showing an overall decrease of 17% (275 to 229 diagnoses. By contrast, diagnoses in overseas-born GBMSM in other postcodes increased by 68% between 2009 and 2018 (108 to 181 notifications). The decrease in diagnoses in Australian-born GBMSM really started in 2014 for those in gay capital city postcodes and in 2016 for those in other postcodes.

Second, newly acquired diagnoses declined by 66% (74 to 25 notifications) among Australian-born GBMSM living in gay postcodes, declined by 33% (33 to 22 notifications) among overseas-born GBMSM in gay postcodes, and declined by 26% (112 to 83 notifications) among Australian-born GBMSM in other postcodes. However, they increased by 72% (32 to 55 notifications) among overseas-born GBMSM in other postcodes.

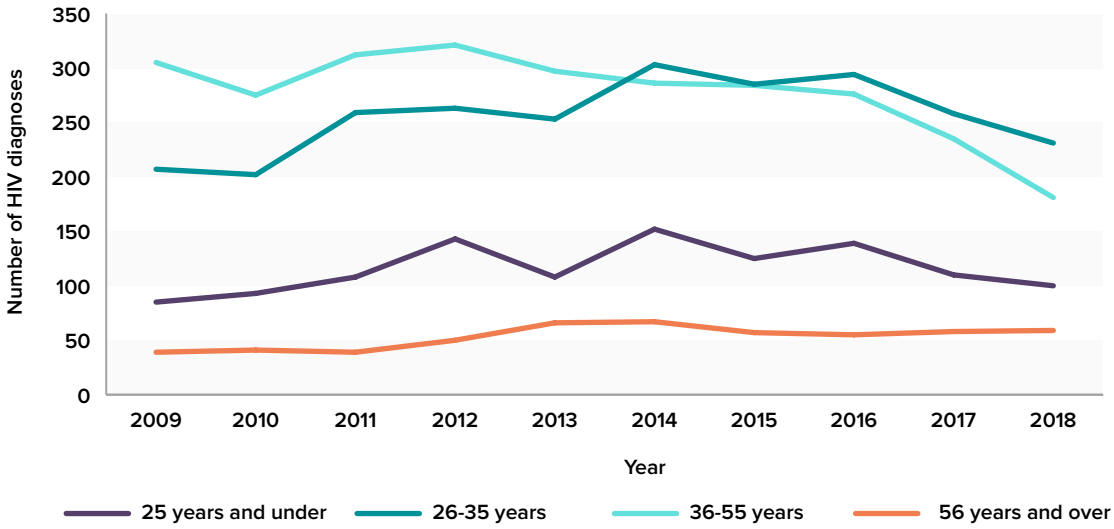
3.7 Age

3.7.1 Notifications of HIV infection among GBMSM in Australia by 10-year age group: National HIV Registry 2009-2018



Trends in HIV notifications have differed by age group between 2009 and 2018. Notifications in people 18 and under, aged 56 to 65 years, and those aged 66 years or older have remained relatively stable over the 10-year period. Notifications in those aged 36 to 45 years have declined by 44% from 2009 to 2018 (207 to 116) and for people 45 to 54 years old, notifications have declined by 34% from 2009 to 2018 (98 to 65 notifications). From 2009 to 2018, there has been a 12% increase in HIV notifications in people 26 to 35 years old (207 to 231) and a 15% increase in 19 to 25-year-olds (83 to 97). Based on these trends, we subsequently report on HIV notifications using the following four age groups: 25 years and under, 26 to 35 years, 36 to 55 years, and 56 years and over.

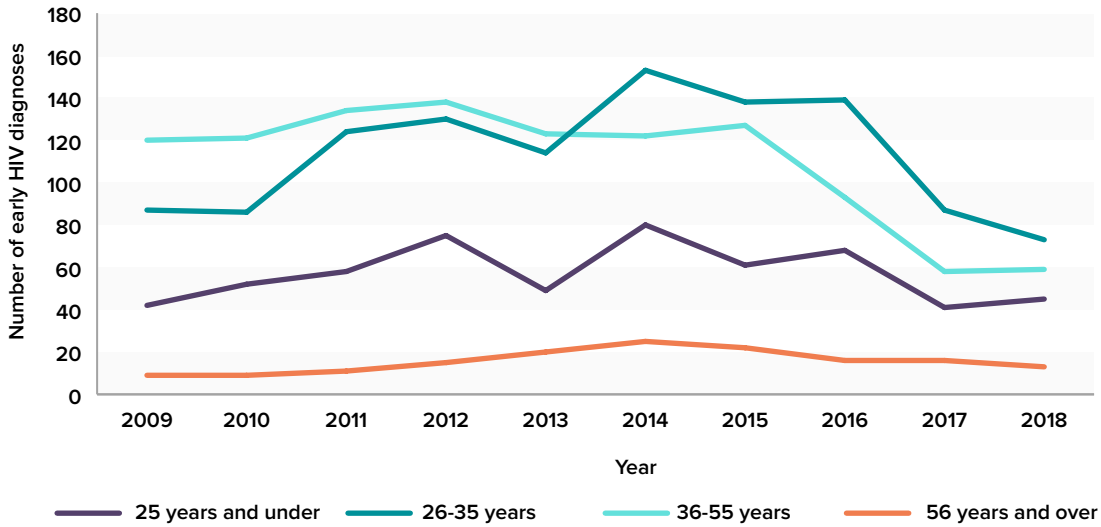
3.7.2 Notifications of HIV infection among GBMSM by age group: National HIV Registry 2009-2018



Between 2009 and 2018, HIV notifications in the age group 36-55 years declined by 41% (305 to 181 notifications) while notifications in the age group 56 years and over remained relatively stable with a slight upward trend (39 to 59). Meanwhile, between 2009 and 2014, HIV notifications increased by 46%

in men aged 26-35 years (207 to 303 notifications) followed by a 24% decline to 2018 (303 to 231). HIV notifications also increased by 79% in men aged 25 years and under between 2009 and 2014 (85 to 152) followed by a 34% decline in 2018 (from 152 to 100).

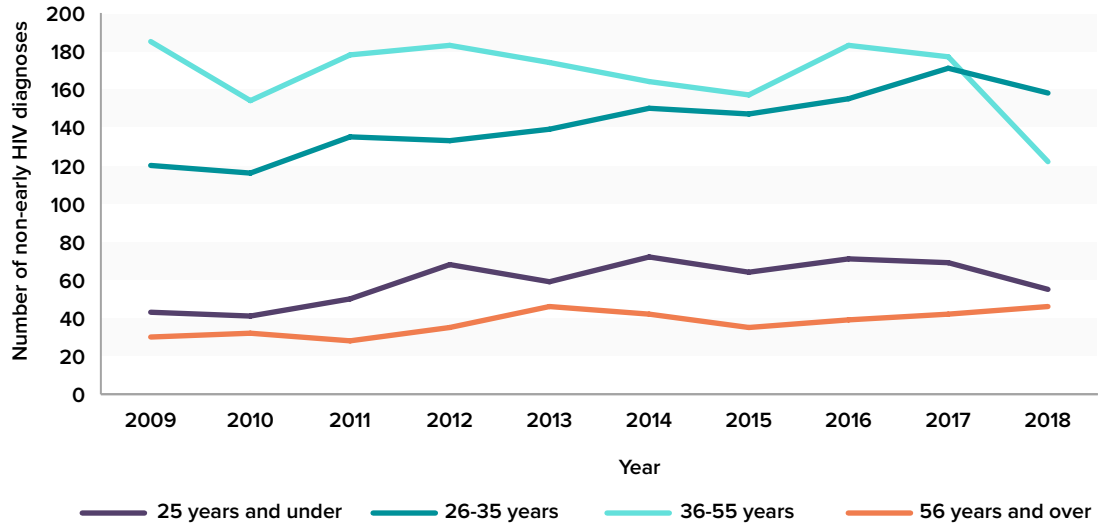
3.7.3 Notifications of newly acquired diagnoses among GBMSM by age group: National HIV Registry 2009-2018



The overall decline in new HIV notifications observed among GBMSM aged 36-55 years old has been driven by the reductions in newly acquired diagnoses in this age group. Newly acquired diagnoses in the 36-55 years age group has declined by 58% from a peak in 2012 (138 notifications) to the lowest number in 2017 (58 notifications) with no further change between 2017 and 2018. Newly acquired diagnosesin the age group 26-35 years peaked in 2014 (153 notifications) and declined by 52% in 2018 (73 notifications). Newly acquired diagnoses in the age group 25 years and under peaked in 2014 (80 notifications), followed

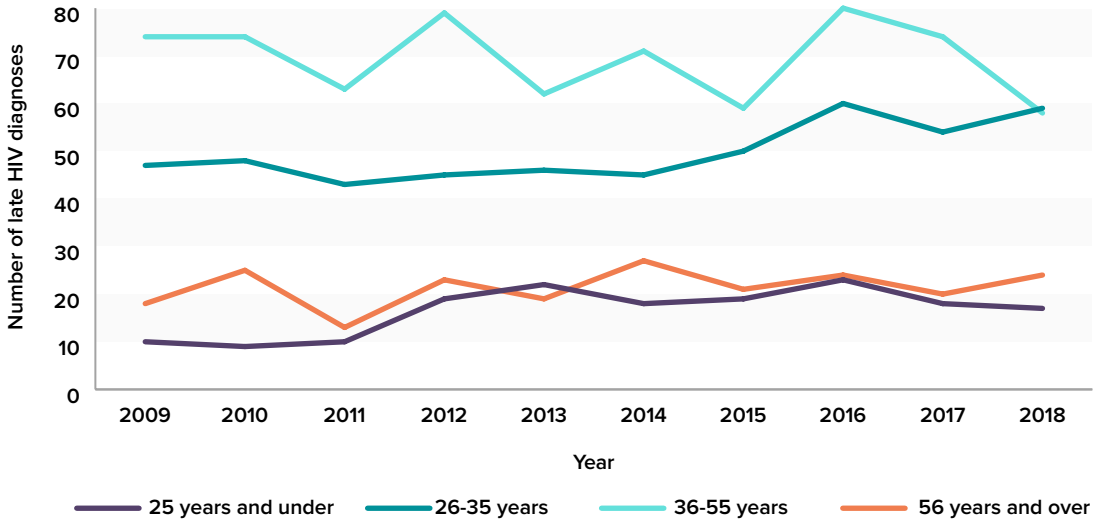
by a 44% decline in 2018 (80 to 45 notifications). In the age group 56 years and over, newly acquired diagnoses also peaked in 2014.

3.7.4 Notifications of non-newly acquired diagnoses among GBMSM by age group: National HIV Registry 2009-2018



Between 2009 and 2017, non-newly acquired diagnoses in the age group 36-55 years remained stable (185 to 177 notifications) and then sharply declined by 31% to 122 notifications in 2018. Between 2009 and 2018, non-newly acquired diagnoses increased by 32% in the age group 26-35 years (120 to 158 notifications), 28% in the age group 25 years and under (43 to 55 notifications) and by 53% in the age group 56 years and over (30 to 46 notifications).

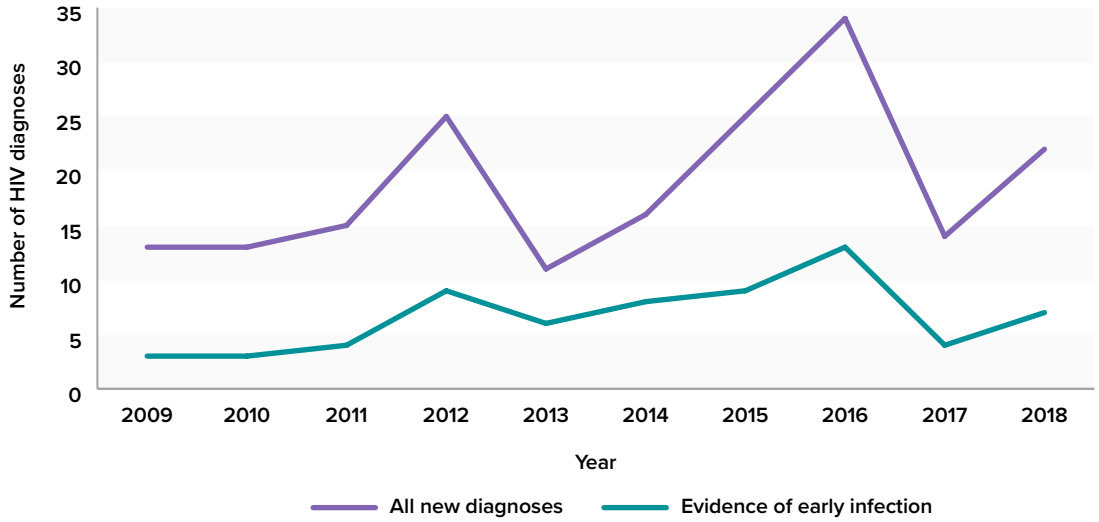
3.7.5 Notifications of late HIV infection among GBMSM by age group: National HIV Registry 2009-2018



Between 2009 and 2018, late HIV infections in the age group 36-55 years declined by 22% (74 to 58 notifications) but increased by 26% in the age group 26-35 years (47 to 59 notifications), 33% in the age group 56 years and over (18 to 24 notifications) and by 70% in the age group 25 years and under (10 to 17 notifications).

3.8 Aboriginal and Torres Strait Islander Status

3.8.1. Notifications of HIV infection among Aboriginal and Torres Strait Islander GBMSM in Australia: National HIV Registry 2009-2018



Between 2009 and 2018, the number of HIV notifications among Aboriginal and Torres Strait Islander GBMSM has remained low from 13 in 2009 to 22 in 2018 with a peak of 34 in 2016. Newly acquired diagnoses with evidence of early infection remained low from 3 in 2009 to 7 in 2018. Due to low numbers of HIV notifications among Aboriginal and Torres Strait Islander GBMSM and fluctuation in this period, it is difficult to interpret trends or conduct further analyses.

Previous evidence suggests that HIV notifications are increasing in Aboriginal and Torres Strait Islander populations [26]. However, a significantly lower proportion of diagnoses in Aboriginal and Torres Strait Islander population are linked to male-to-male sex compared to non-Indigenous populations [26]. This may explain why this data on Aboriginal and Torres Strait Islander GBMSM do not show clear trends.

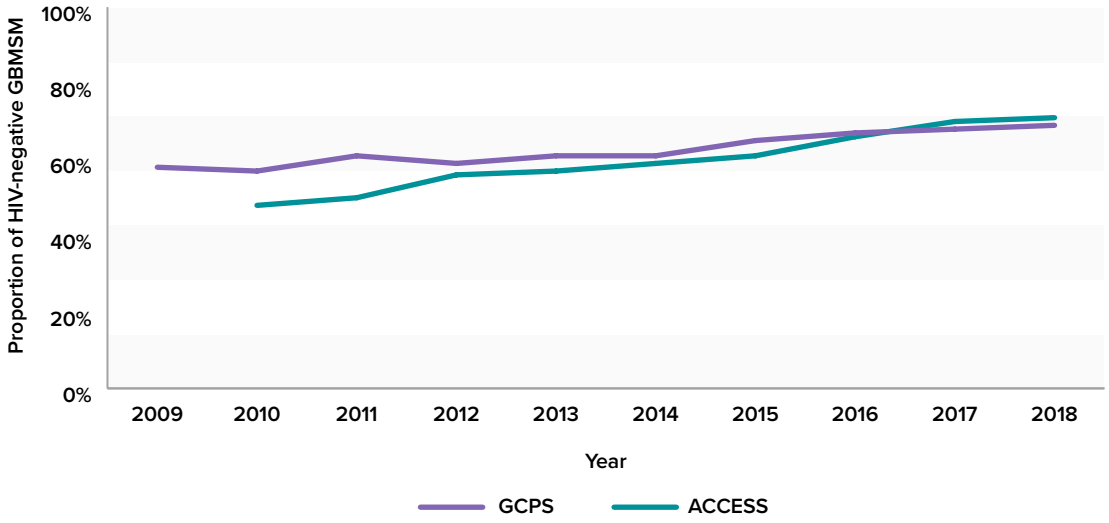
4

RESULTS:
HIV TESTING

The 2014 national HIV and STI testing guidelines recommended HIV testing in several contexts and for priority populations [24]. All sexually active men who have sex with men are recommended to test for HIV every 12 months, or up to four times per year for men at higher risk. As mentioned in the methodology section, the national testing guidelines have since been updated [25].

4.1 Tested in previous 12 months

4.1.1 Proportion of HIV-negative GBMSM tested for HIV in the previous 12 months: ACCESS and GCPS 2009-2018

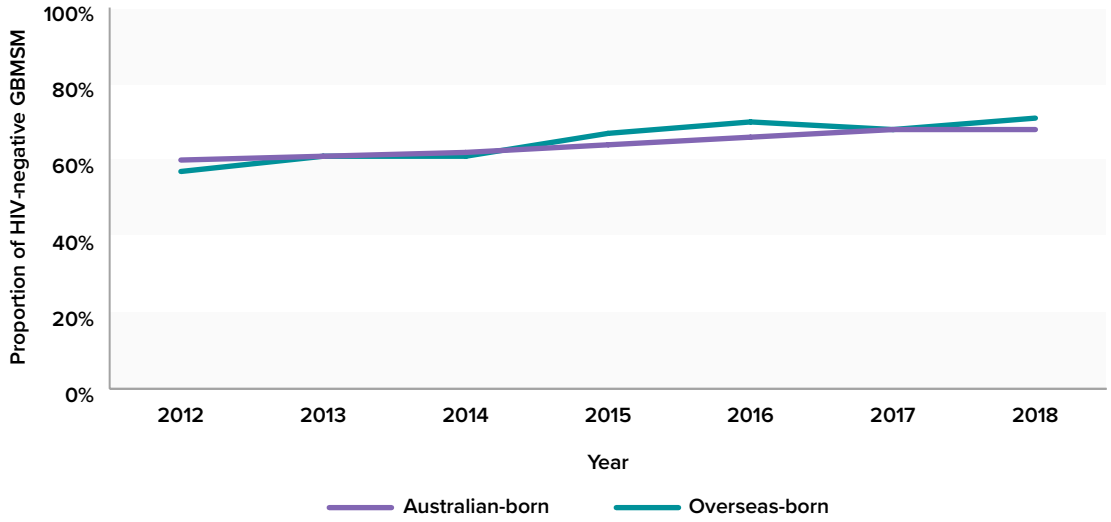


There was an increase in the proportion of HIV-negative GBMSM in the GCPS who self-reported having had an HIV test in the previous 12 months from 58% in 2009 to 69% in 2018. Similarly, there was an increase in the proportion of HIV-negative GBMSM in ACCESS who reported as having had an HIV test in the previous 12 months from 48% in 2010 to 71% in 2018.[6]

[6]ACCESS data is incomplete for 2009.

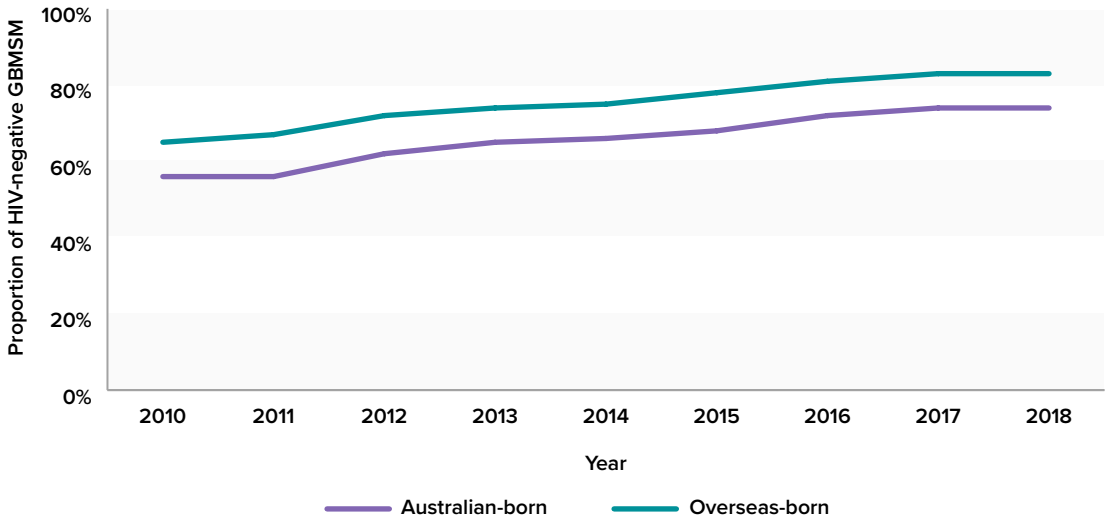
4.2 Region of birth

4.2.1 Proportion of HIV-negative GBMSM tested for HIV in the previous 12 months by place of birth: GCPS 2012-2018[7]



In the GCPS, the proportion of Australian-born GBMSM who had an HIV test in the previous 12 months increased from 60% in 2012 to 68% in 2018, while the proportion among overseas-born GBMSM increased from 57% in 2012 to 71% in 2018.

4.2.2 Proportion of HIV-negative GBMSM tested for HIV in the previous 12 months by place of birth: ACCESS 2010-2018



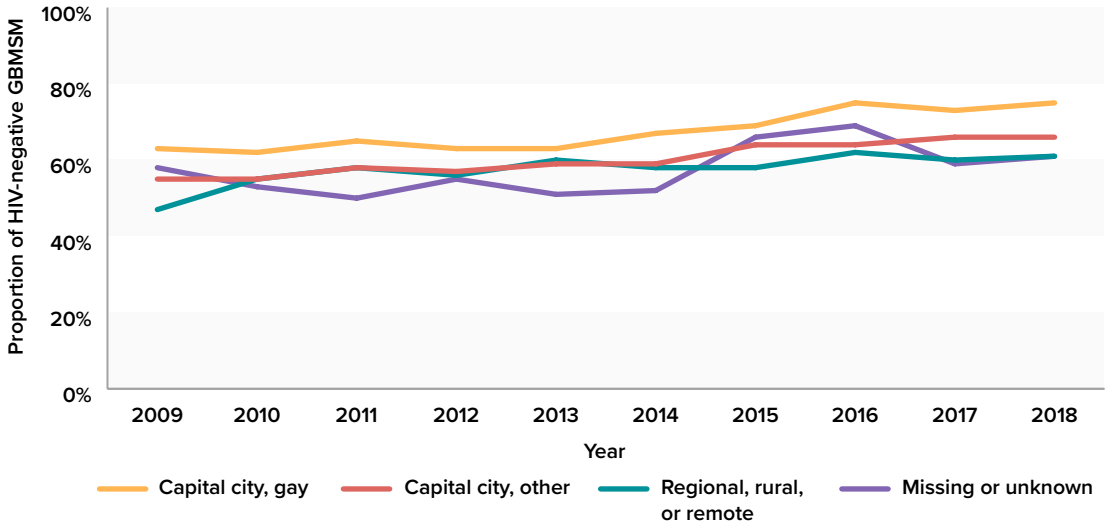
Between 2010 and 2018, ACCESS data showed that the proportion of GBMSM having had an HIV test in the previous 12 months was consistently higher among overseas-born men, increasing from 65% to 83%, compared to Australian-born GBMSM (56% to 74%).

Both ACCESS and GCPS data showed increasing levels of HIV testing, with ACCESS (a clinical data source) showing a higher rate of increase. At present, it is unclear why overseas-born GBMSM were more likely to have been tested in the last 12 months at ACCESS sites, whereas no region of birth differences were apparent in GCPS data.

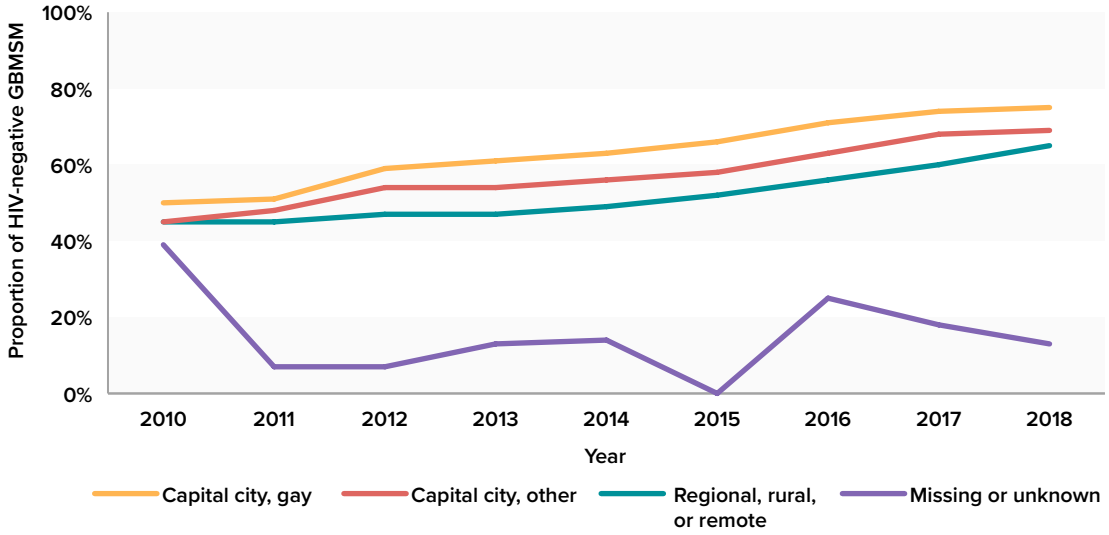
[7]Information on country of birth in the Gay Community Periodic Surveys is available from 2012 onwards.

4.3 Location of residence

4.3.1 Proportion of HIV-negative GBMSM tested for HIV in the previous 12 months by location of residence: GCPS 2009-2018



4.3.2 Proportion of HIV-negative GBMSM tested for HIV in the previous 12 months by location of residence: ACCESS 2009-2018



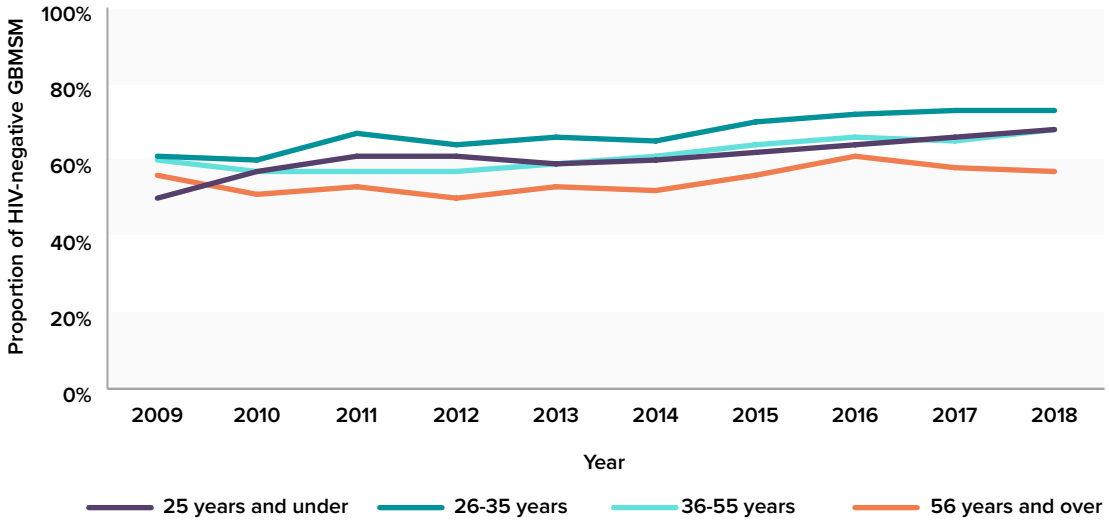
In the GCPS, the proportion of GBMSM living in gay capital city postcodes who reported having had an HIV test in the previous 12 months increased from 63% in 2009 to 75% in 2018. Testing in GBMSM living in other capital city postcodes increased from 55% in 2009 to 66% in 2018, and GBMSM living in regional, rural, or remote postcodes increased from 47% to 61%.

A similar trend was found in the ACCESS data. Between 2010 and 2018, the proportion of GBMSM living in gay capital city postcodes who had an HIV test in the previous 12 months increased from 50% to 75%. Testing in GBMSM living in other capital city postcodes increased from 45% in 2010 to 69% in 2018 and GBMSM living in regional, rural, or remote postcodes increased from 45% to 65%.

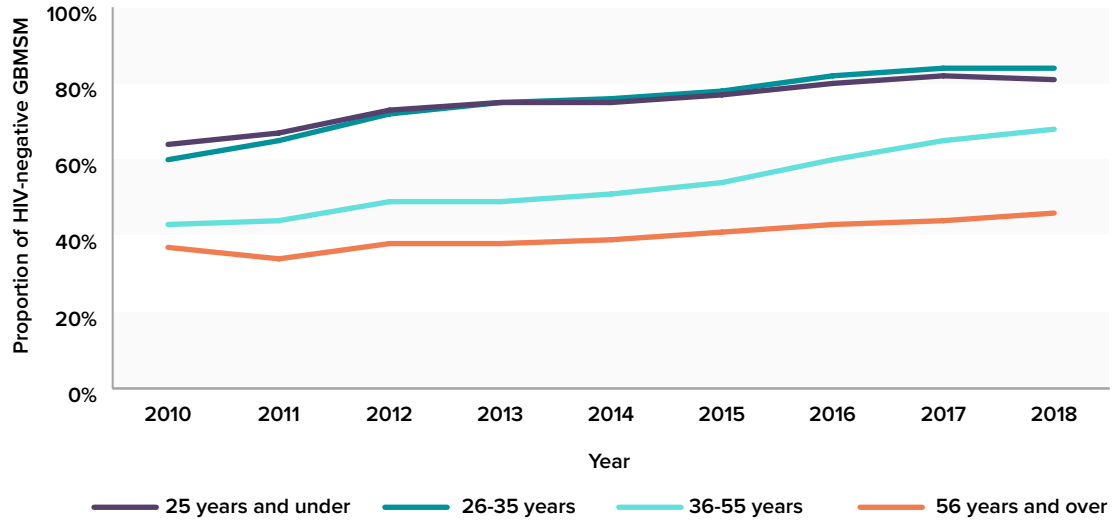
In both the GCPS and ACCESS, testing increased in all postcode groups over time and was consistently higher in GBMSM living in gay capital city postcodes.

4.4 Age

4.4.1 Proportion of HIV-negative GBMSM tested for HIV in the previous 12 months by age group: GCPS 2009-2018



4.4.2 Proportion of HIV-negative GBMSM tested for HIV in the previous 12 months by age group: ACCESS 2010-2018

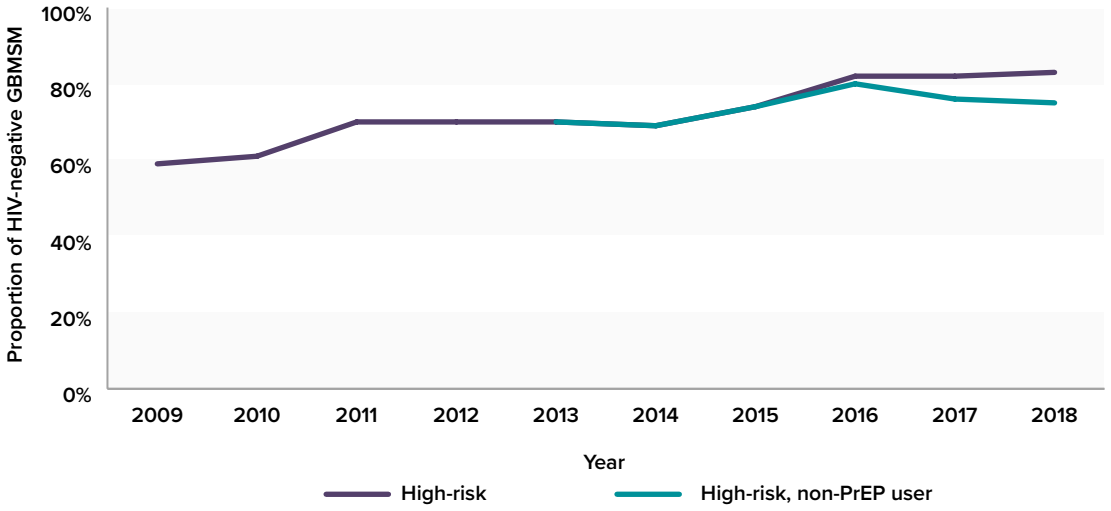


Between 2009 and 2018, the proportion of GBMSM in the GCPS aged 26-35 years who had an HIV test in the previous 12 months increased from 61% to 73%, while for GBMSM aged 25 years and younger the proportion of those tested in the previous 12 months increased from 50% to 68%. Increases were also seen over the same period in GBMSM aged 36-55 years from 60% to 68%, and GBMSM aged 56 years and older from 56% to 67%.

In ACCESS, between 2010 and 2018, the proportion of GBMSM aged 25 years and younger who had an HIV test in the previous 12 months increased from 64% to 81%, while proportions tested also increased in GBMSM aged 26-35 years (from 60% to 84%), 36-55 years (from 43% to 68%) and 55 years or older (from 37% to 46%).

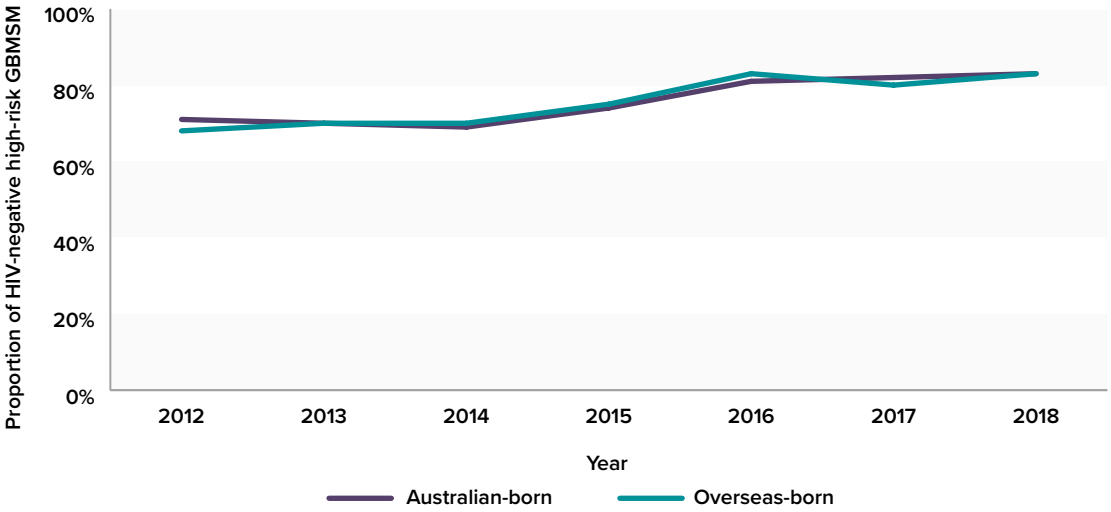
4.5 Risk type

4.5.1 Proportion of HIV-negative GBMSM tested for HIV in the previous 12 months by risk type: GCPS 2009-2018



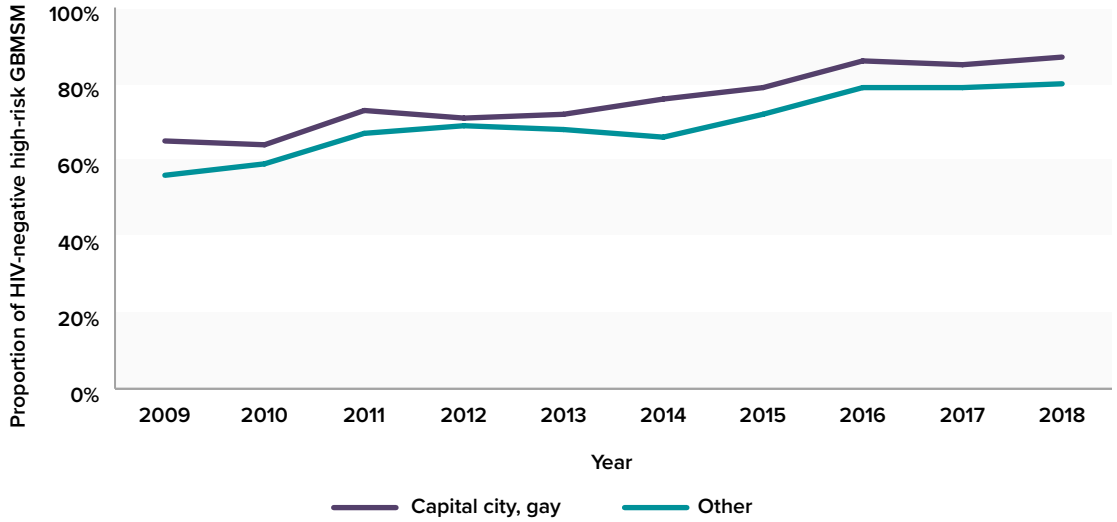
Among men classified as 'high-risk' for HIV testing (i.e. CLAIC, more than 10 sexual partners, group sex, or drug use for the purposes of sex in the last six months), there was an increase in the proportion who had an HIV test in the previous 12 months regardless of PrEP use from 59% in 2009 to 82% in 2016. However, since 2016, as PrEP became available through implementation trials, the proportion of high-risk men not on PrEP who had an HIV test in the previous 12 months decreased from 80% in 2016 to 75% by 2018. This indicator demonstrates the importance of disaggregating by PrEP use when examining HIV testing frequency [7].

4.5.2 Proportion of HIV-negative high-risk GBMSM tested for HIV in the previous 12 months by region of birth: GCPS 2012-2018



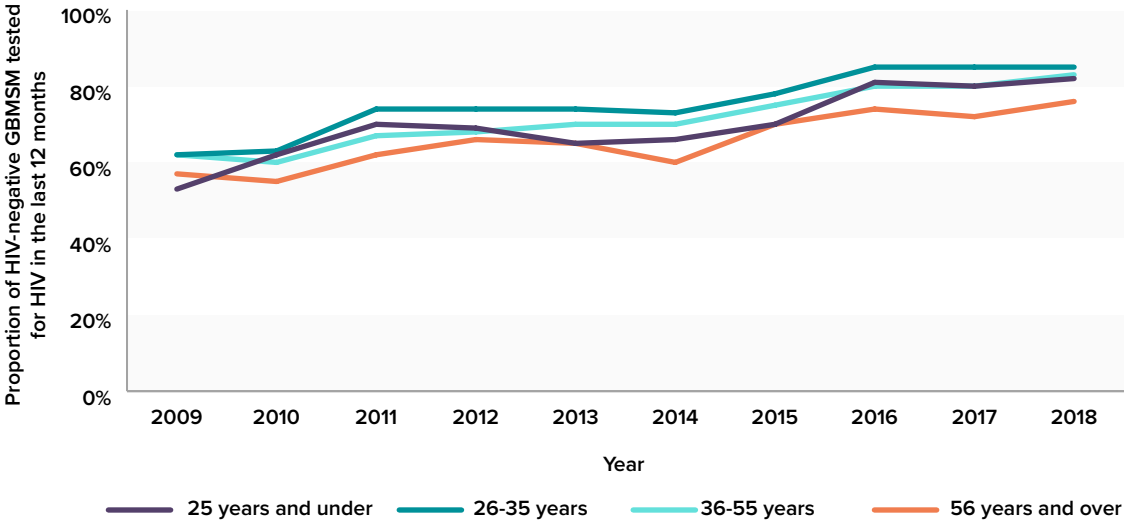
Between 2012 and 2018, there was no difference between the proportions of high-risk HIV-negative men who had an HIV test in the previous 12 months when stratified by region of birth but both groups had increased testing from 68-71% in 2012 to 83% in 2018.

4.5.3 Proportion of HIV-negative high-risk GBMSM tested for HIV in the previous 12 months by location of residence: GCPS 2009-2018[8]



Between 2009 and 2018, the proportion of high-risk HIV-negative GBMSM living in gay capital city postcodes who had an HIV test in the previous 12 months increased from 65% to 87% and for those living in other postcodes, the proportion increased from 56% to 80%. Over time, a consistently higher proportion of high-risk HIV-negative GBMSM living in gay capital city postcodes had a test in the previous 12 months compared to those living it other postcodes.

4.5.4 Proportion of high-risk HIV-negative GBMSM tested for HIV in the previous 12 months by age group: GCPS 2009-2018



Between 2009 and 2018, the proportion of high-risk HIV-negative GBMSM who had an HIV test in the previous 12 months increased in all age groups, from 53% to 82% in those 25 years and under, 62% to 85% in the age group 26-35 years, 62% to 83% in the age group 36-55 years, and 57% to 76% in the age group 56 years and over. HIV testing in the previous 12 months was consistently lowest among those ages 56 years and over, and highest among those aged 26-35 years.

[8]The categories 'Capital city, other', 'Regional, rural, or remote', and 'Missing or unknown' are combined to 'Other' as there were no differences between these three groups.

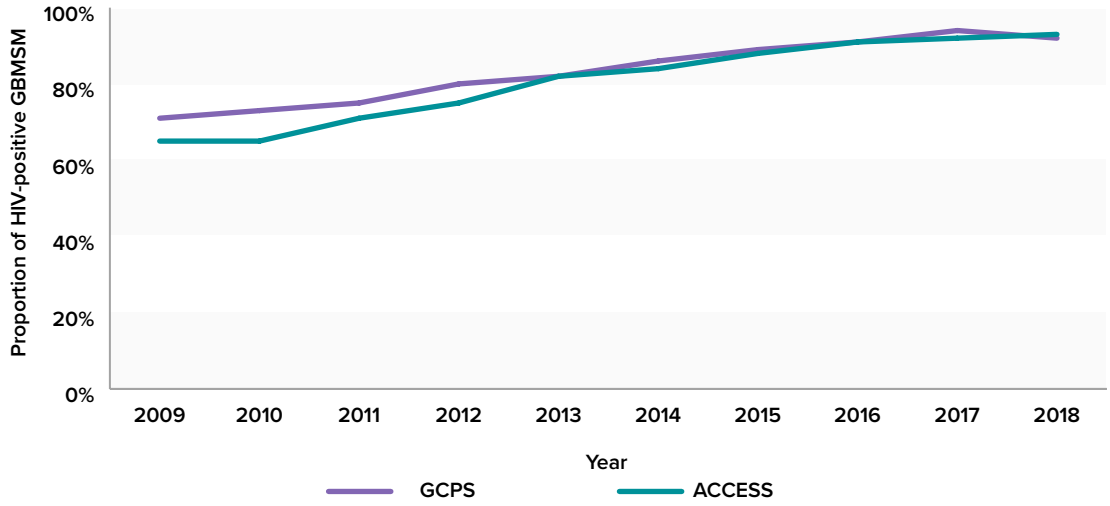
5

RESULTS:
HIV TREATMENT

5.1 Antiretroviral therapy and undetectable viral load

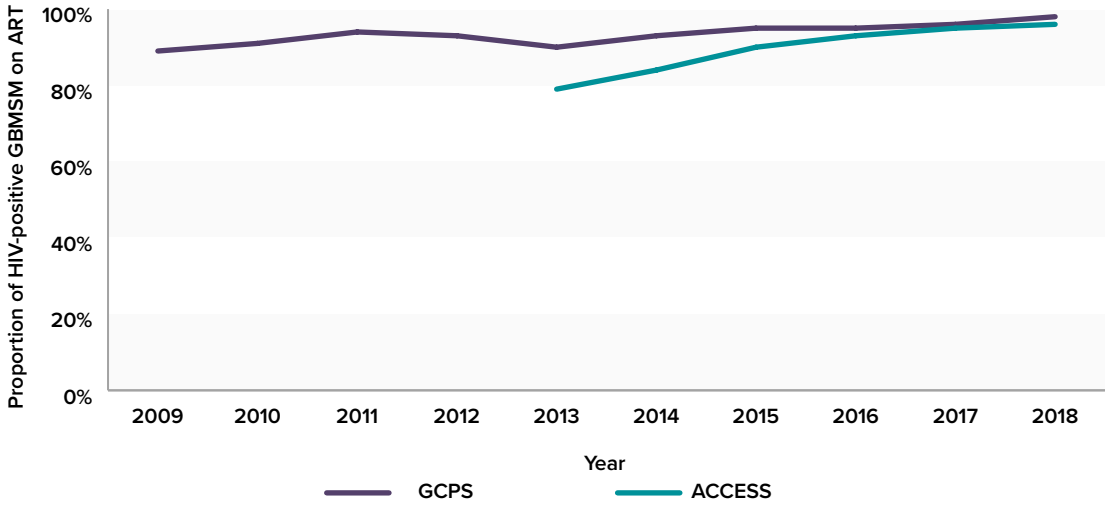
UNAIDS has set targets for HIV diagnosis and treatment by the year 2020: 90% of all people living with HIV to be diagnosed, 90% of all people diagnosed with HIV to be on antiretroviral therapy, and 90% of all people receiving antiretroviral therapy to have suppressed viral load [27]. Australia is on track to achieving these targets. In 2018, 90% of people living with HIV in Australia were diagnosed, 89% of whom were receiving treatment, and 95% of whom were virally suppressed [14]. The Eighth National HIV Strategy 2018-2022 aims to achieve the 95-95-95 targets by 2022 [1].

5.1.1 Proportion of HIV-positive GBMSM on ART: GCPS and ACCESS 2009-2018



Between 2009 and 2018, the proportion of HIV-positive GBMSM participating in the GCPS who were on antiretroviral therapy (ART) increased from 71% to 91%, while in ACCESS the proportion increased from 65% to 93%. It is important to note that HIV treatment and management guidelines have changed in Australia over this period of time. At the beginning of the period, there were CD4+ T-cell count thresholds for ART initiation, whereas from 2015 onwards, these thresholds were removed and immediate HIV treatment was recommended for all PLHIV [28].

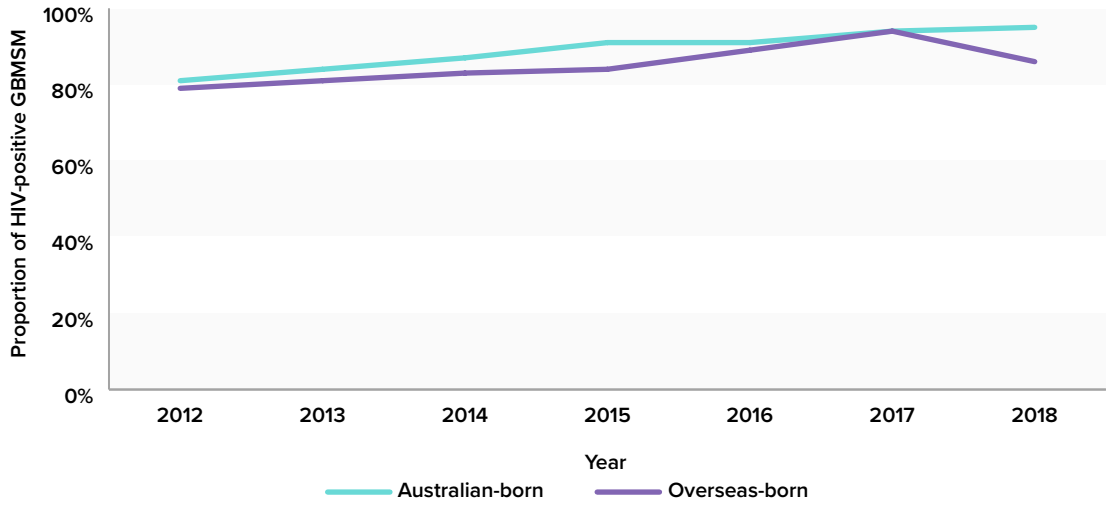
5.1.2 Proportion of HIV-positive GBMSM on ART and with undetectable viral load (UVL): GCPS and ACCESS 2009-2018[9]



In the GCPS, the proportion of the HIV-positive GBMSM on ART who had a UVL increased from 89% in 2009 to 98% in 2018. In ACCESS, the proportion of HIV-positive GBMSM on ART with UVL increased from 79% in 2013 to 96% in 2018.

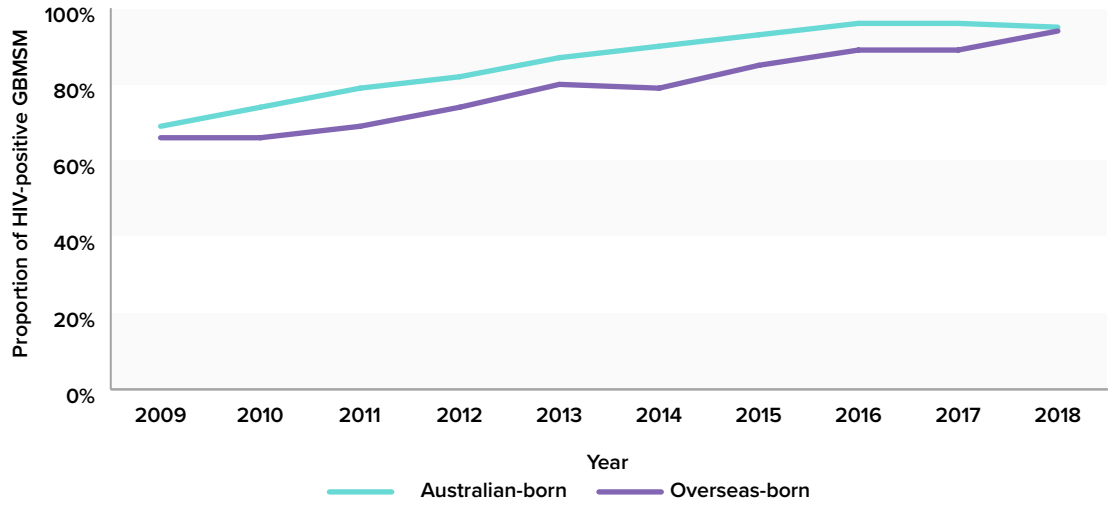
5.2 Region of birth

5.2.1 Proportion of HIV-positive GBMSM on ART by place of birth: GCPS 2012-2018



[9]ACCESS data before 2013 on proportion of HIV-positive GBMSM on ART with UVL are missing or incomplete.

5.2.2 Proportion of HIV-positive GBMSM on ART by place of birth: ACCESS 2009-2018

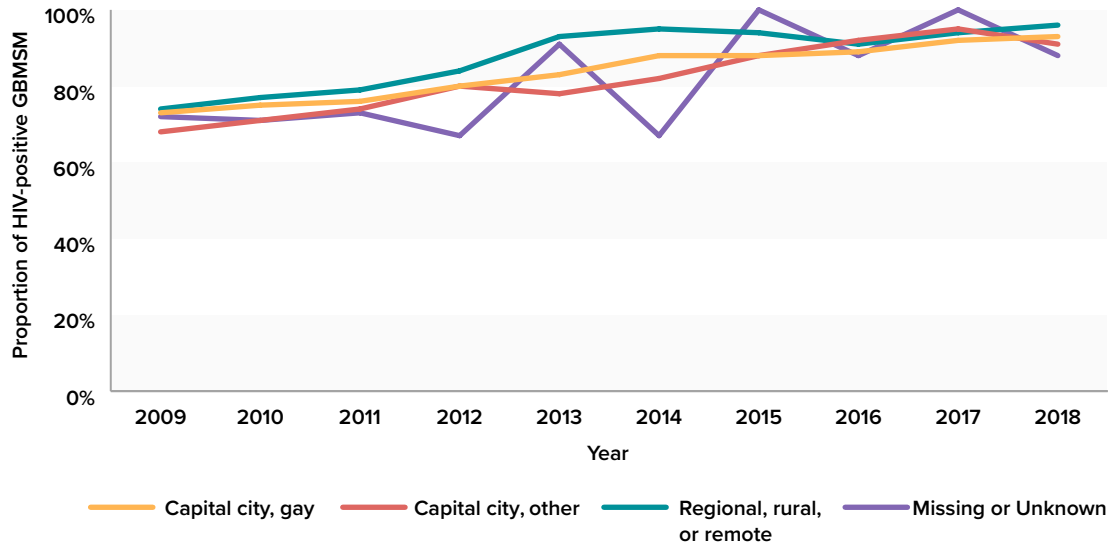


In 2018, 95% of Australian-born HIV-positive GBMSM in the GCPS were on ART, an increase from 81% in 2012. Between 2012 and 2017, the proportion of overseas-born HIV-positive GBMSM on ART increased from 79% to 94%, before declining to 86% in 2018. Among HIV-positive GBMSM on ART, 98% of men were virally suppressed and there was no difference in viral suppression when stratified by region of birth (data not shown).

In ACCESS, between 2009 and 2017, a higher proportion of Australian-born HIV-positive GBMSM were on ART (an increase from 69% to 96%) compared to overseas-born HIV-positive GBMSM (an increase from 66% to 89%). By 2018, a similar proportion in both groups were on ART (95% for Australian-born and 94% for overseas-born). Among HIV-positive GBMSM on ART, 95-96% of men were virally suppressed with no difference in viral suppression when stratified by region of birth (data not shown).

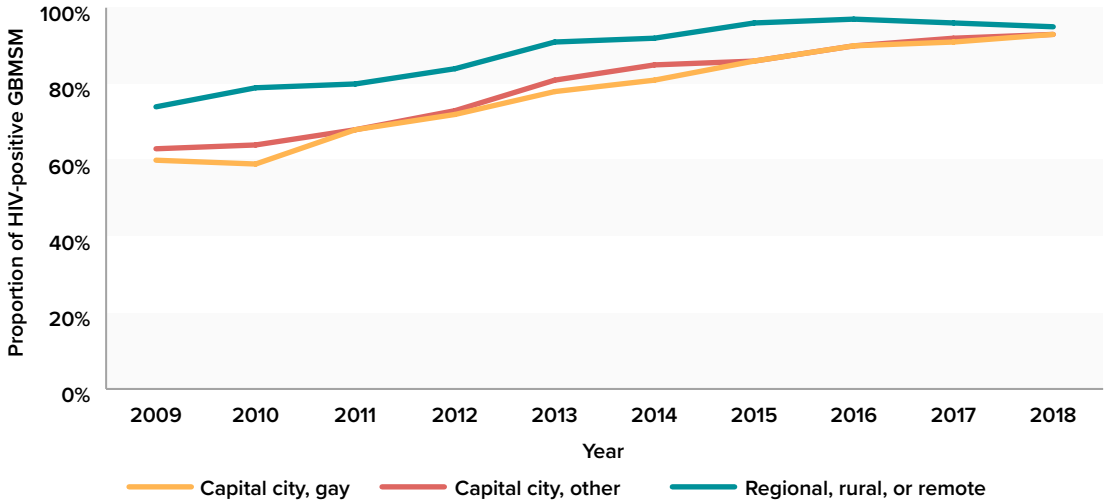
5.3 Location of residence

5.3.1 Proportion of HIV-positive GBMSM on ART by location of residence: GCPS 2009-2018



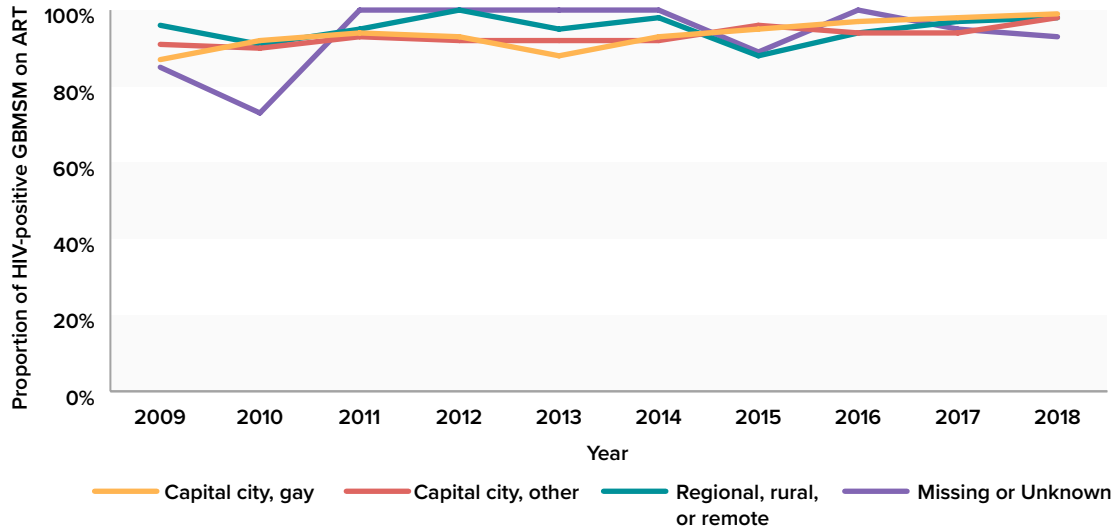
In the GCPS, between 2009 and 2018, the proportion of HIV-positive GBMSM on ART increased in all postcode groups. There was limited difference in the proportion of men on ART when stratified by place of residence, except between 2012 and 2015 when more HIV-positive GBMSM living in regional, rural, or remote postcodes (84% to 94%) reported being on ART compared to those living in gay and other capital city postcodes (80% to 88%).

5.3.2 Proportion of HIV-positive men on ART by location of residence: ACCESS 2009-2018



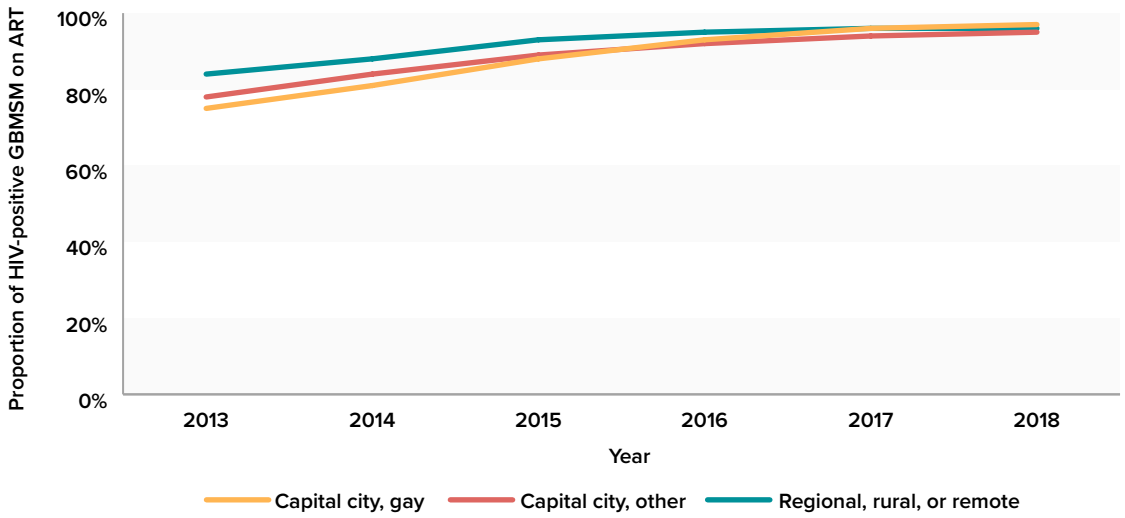
In ACCESS before 2018, a higher proportion of HIV-positive GBMSM were on ART in regional, rural, or remote areas compared with capital city areas. There was an increase in ART coverage for this group from 74% in 2009 to 95% in 2018. By 2018 a similar level was attained among those in gay capital city postcodes and those living in other capital city postcodes where the proportions on ART increased at a greater rate since 2009 (from 60-63% to 93%).

5.3.3 Proportion of HIV-positive GBMSM on ART with UVL by location of residence: GCPS 2009-2018



In the GCPS, between 2009 and 2018, there were no differences in the proportion of HIV-positive GBMSM on ART with UVL when stratified by location of residence, with all postcode groups reporting a consistently high percentage of men with viral suppression. In 2018, the proportion of HIV-positive GBMSM on ART with UVL was 99% in men living in capital city, gay suburbs and 98% in men living in both capital city, other suburbs, and regional, rural, or remote areas.

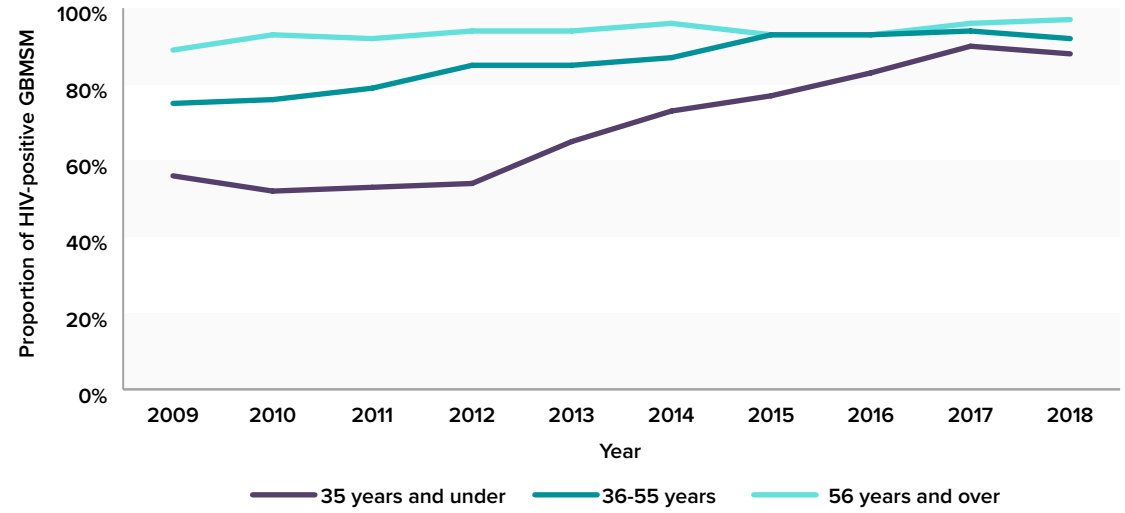
5.3.4 Proportion of HIV positive men on ART with UVL by location of residence: ACCESS 2013-2018



In ACCESS, between 2013 and 2016, there was a higher proportion of HIV-positive GBMSM on ART with viral suppression living in regional, rural, or remote postcodes compared with those living in capital city areas. Between 2013 and 2018, there was no difference in the proportion of HIV-positive GBMSM on ART with UVL between those living in gay capital city postcodes and other capital city postcodes, and these proportions increased over time (75-78% to 95-97%).

5.4 Age

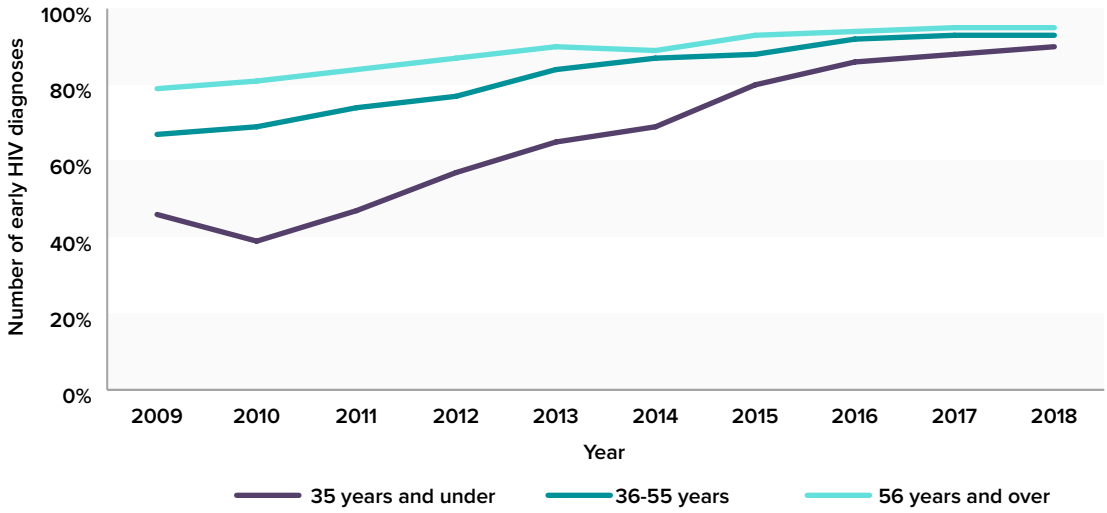
5.4.1 Proportion of HIV-positive GBMSM on ART by age group: GCPS 2009-2018[10]



In the GCPS between 2009 and 2018, the proportion of HIV-positive GBMSM on ART increased from 74% to 97% for men aged 56 years and older, 75% to 92% for men aged 36-55 years, and 56% to 88% for men aged 35 years and under. The biggest change was observed in men aged 35 years and under, where the proportion of HIV-positive GBMSM on ART remained unchanged until 2012 and then increased steadily. While there was also an increase in men aged 36-55 years and 56 years and over, the proportion of HIV-positive GBMSM on ART was already high in these two age groups meaning increase over time was less dramatic.

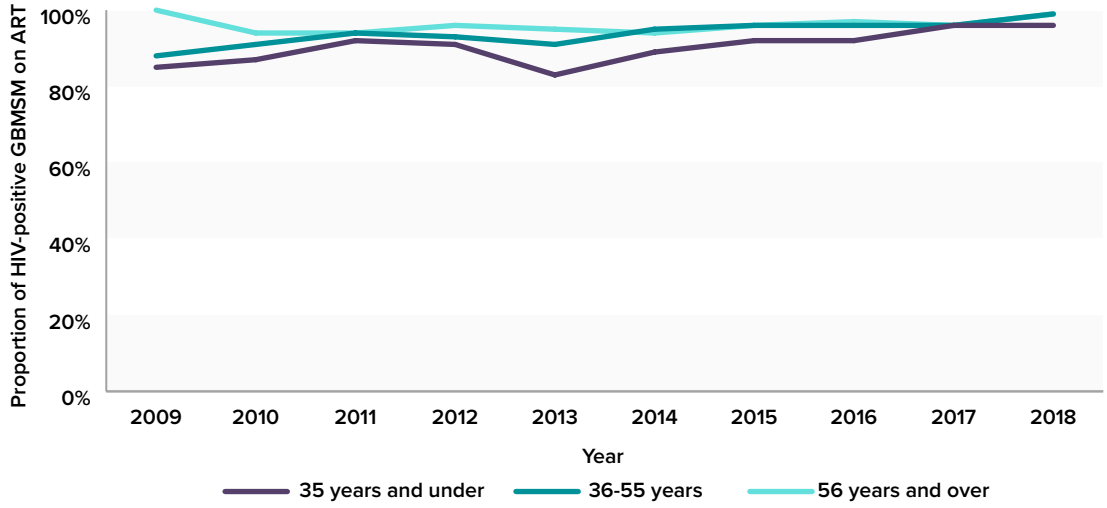
[10]The age groups '25 years and under' and '36-55 years' were combined due to the low total number of men 25 years and under on ART in the GCPS.

5.4.2 Proportion of HIV-positive GBMSM on ART by age group: ACCESS 2009-2018[11]



A similar trend was observed in ACCESS. Between 2009 and 2018, the biggest change was observed in HIV-positive GBMSM aged 35 years and younger, in whom the proportion on ART increased from 46% to 90%. There was also an increase in the proportion on ART among men aged 36-55 years (66% to 93%) and 56 years and over (79% to 95%) but the change over time was less dramatic.

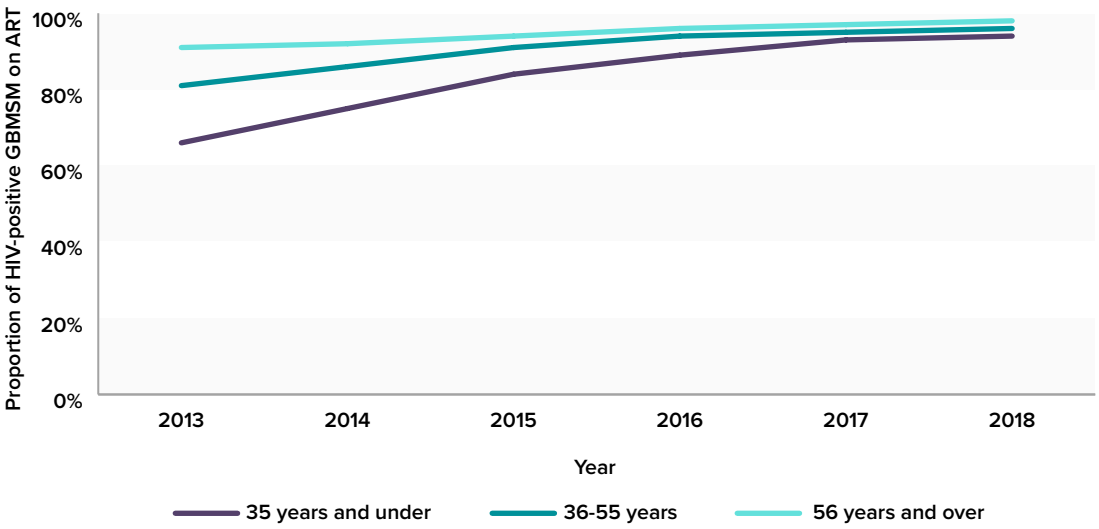
5.4.3 Proportion of HIV-positive GBMSM on ART with UVL by age group: GCPS 2009-2018[10]



In the GCPS, between 2009 and 2018, the proportion of HIV-positive GBMSM on ART who reported having an undetectable viral load remained high for men aged 56 years and older (100% to 99%) and increased for men aged 35 years and under (85% to 96%) and 36-55 years (88% to 99%).

[11]The age groups '25 years and under' and '36-55 years' were combined due to the low total number of men 25 years and under on ART in ACCESS.

5.4.4 Proportion of HIV-positive GBMSM on ART with UVL by age group: ACCESS 2013-2018[11]



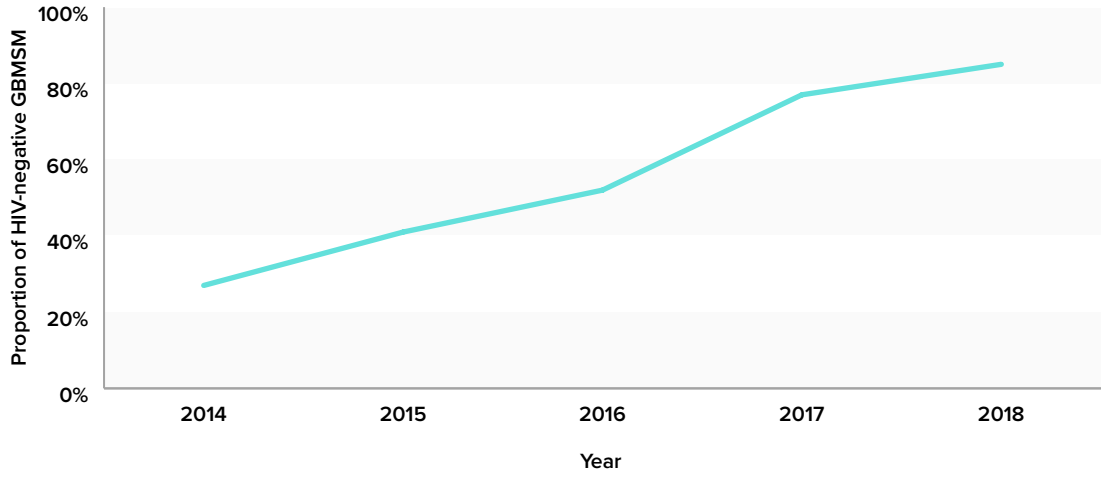
In ACCESS, between 2013 and 2018, the proportion of HIV-positive GBMSM on ART with UVL increased from 66% to 94% in men aged 35 years or younger, 81% to 96% in men aged 36-55 years, and 91% to 98% in men aged 56 years and over.

6

RESULTS:
HIV PREVENTION

6.1 PrEP awareness

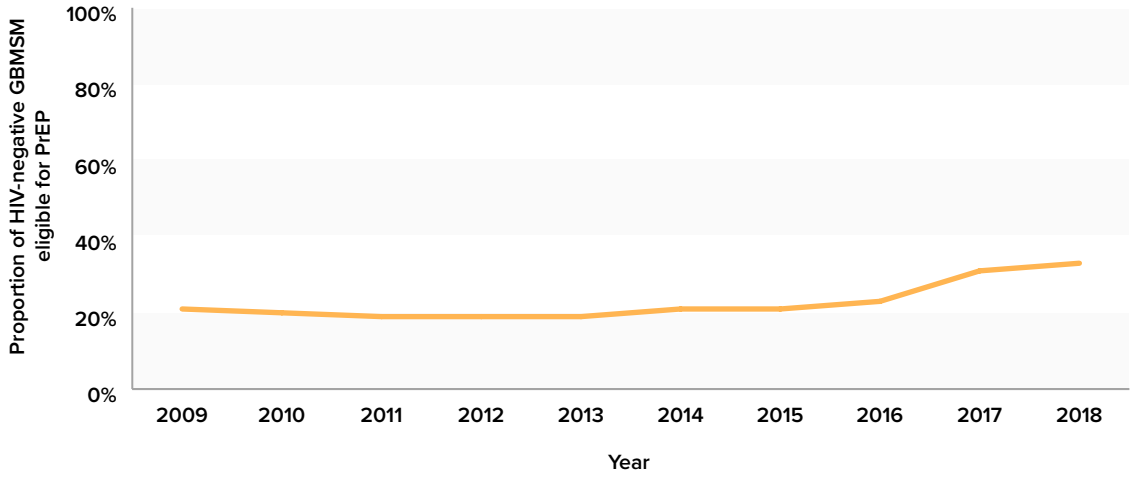
6.1.1 Proportion of HIV-negative GBMSM aware of PrEP: GCPS 2014-2018



Between 2014 and 2018, PrEP awareness among GBMSM participating in the GCPS increased from 27% to 85%. There was no difference in PrEP awareness when stratified by region of birth, location of residence, or age group (data not shown). In 2018, PrEP awareness was higher among GBMSM reporting CLAIC in the previous six months (91%) compared to GBMSM reporting no CLAIC in the previous six months (83%).

6.2 PrEP eligibility

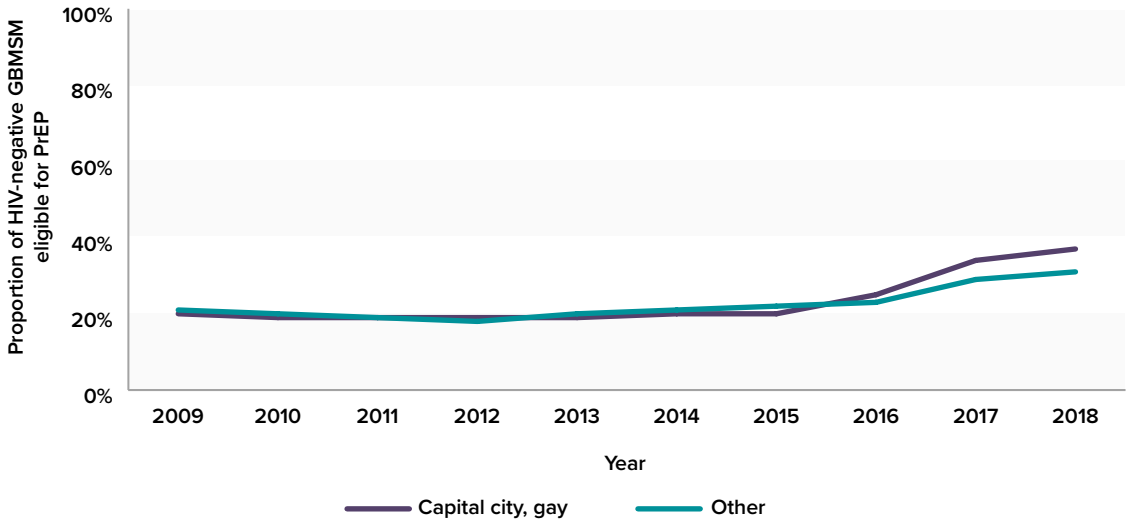
6.2.1 Proportion of HIV-negative GBMSM eligible for PrEP: GCPS 2009-2018[12]



[12]PrEP eligibility here is defined as having had any condomless anal intercourse in the past six months with casual partners (CLAIC).

In the GCPS, the proportion of HIV-negative GBMSM eligible for PrEP increased from 21% in 2009 to 33% in 2018. However, the recent increase in PrEP eligibility was largely driven by PrEP users themselves who typically use condoms less often. For example, between 2013 and 2018, PrEP eligibility among men who were not on PrEP only increased from 19% to 24%.

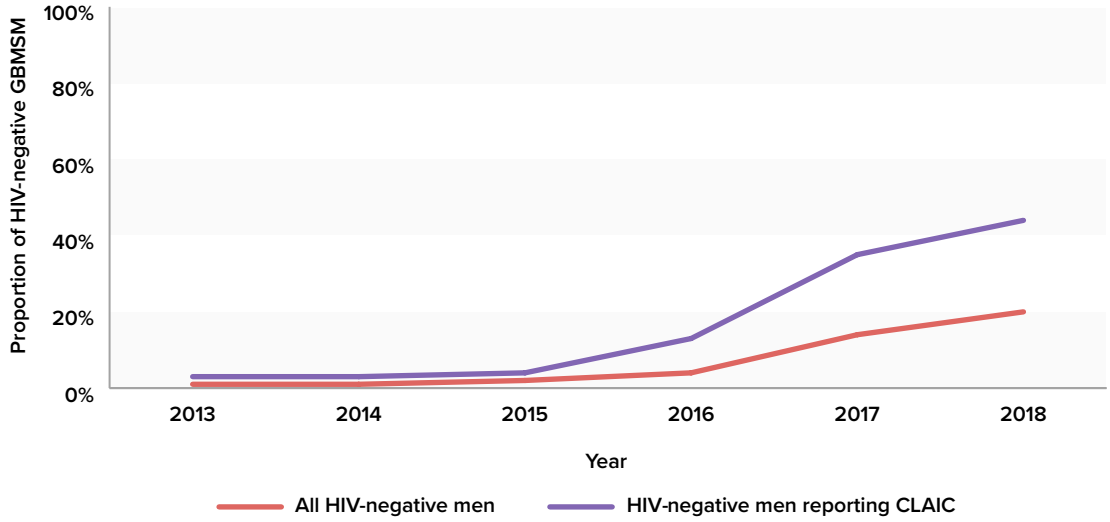
6.2.2 Proportion of HIV-negative GBMSM eligible for PrEP by location of residence: GCPS 2009-2018[13]



There was a higher proportion of GBMSM living in gay capital city postcodes who were eligible for PrEP, which increased from 20% in 2015 to 37% in 2018. For GBMSM living in other postcodes, there was a smaller increase in the proportion eligible for PrEP over time (20% in 2015 to 31% in 2018). There was no difference in PrEP eligibility when stratified by region of birth or age groups (data not shown).

6.3 PrEP use

6.3.1 Proportion of HIV-negative GBMSM on PrEP in the last six months by CLAIC: GCPS 2013-2018



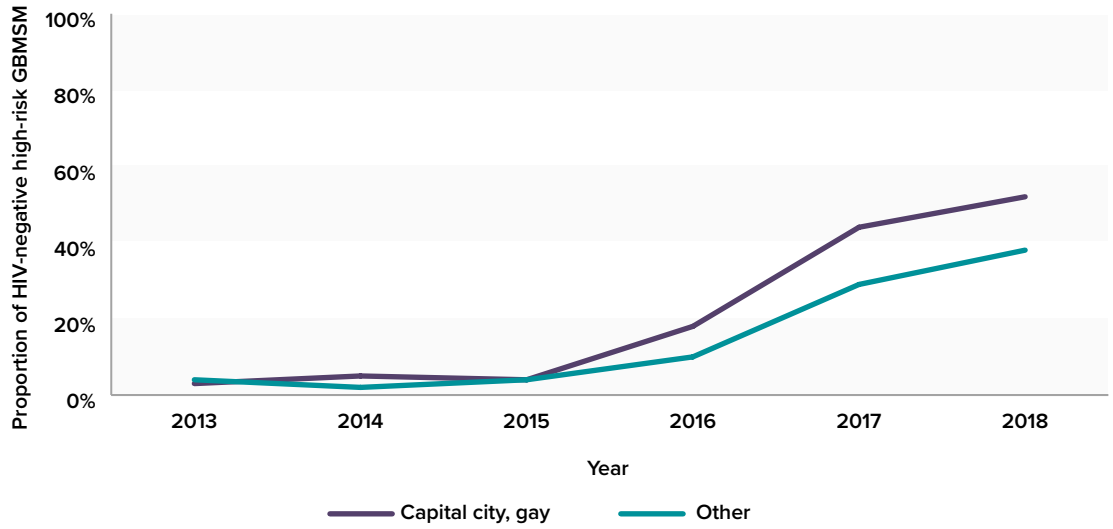
The proportion of HIV-negative GBMSM using PrEP in the last six months increased from 2% in 2015 to 20% in 2018. This increase was bigger in GBMSM who reported CLAIC in the past six months where

[13]The categories 'Capital city, other', 'Regional, rural, or remote', and 'Missing or unknown' are combined to 'Other' as there were no differences between these three groups.

the proportion using PrEP increased dramatically from 4% in 2015 to 44% in 2018. The biggest increase occurred between 2016 and 2017, and the trend was sustained by a smaller increase in 2018.

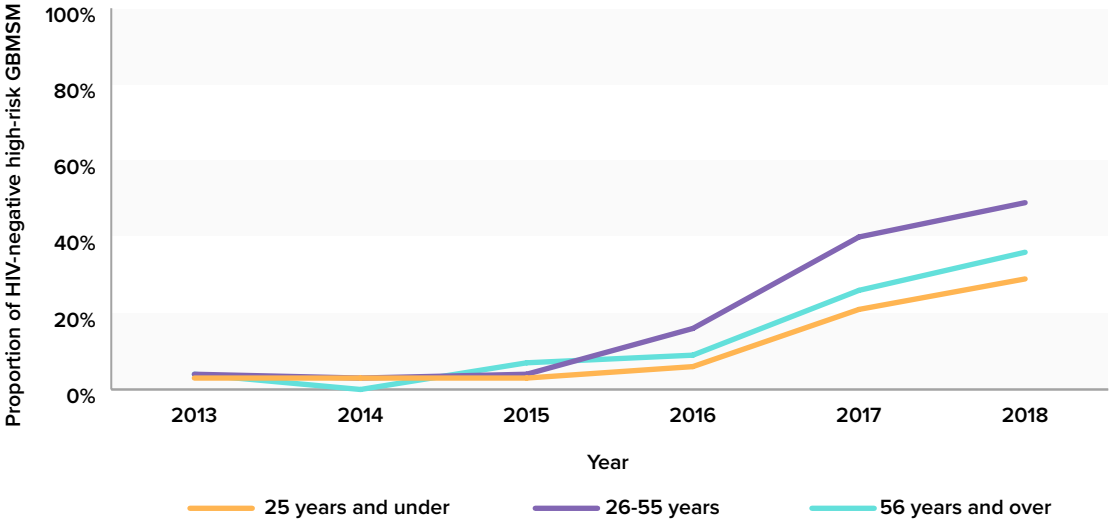
During the period 2013 to 2018, there was no reported difference in PrEP use between Australian-born GBMSM and overseas-born GBMSM (data not shown).

6.3.2 Proportion of HIV-negative GBMSM who reported CLAIC and were on PrEP in the last six months by location of residence: GCPS 2013-2018[14]



Between 2015 and 2018, the proportion of HIV-negative GBMSM reporting CLAIC living in gay capital city postcodes who used PrEP in the last six months increased from 4% to 52%. PrEP use also increased in those living outside of gay postcodes, but at a lower rate from 4% to 38%.

6.3.3 Proportion of HIV-negative GBMSM who reported CLAIC and on PrEP in the last six months, by age group: GCPS 2013-2018[15]



Between 2015 and 2018, the proportion of HIV-negative GBMSM reporting CLAIC and who used PrEP in the last six months increased from 4% to 49% in men aged 26-55 years, 7% to 36% in men aged 56 years and over and 3% to 29% in men aged 25 years and younger.

[14]The categories 'Capital city, other', 'Regional, rural, or remote', and 'Missing or unknown' are combined to 'Other' as there were no differences between these three groups.

[15]The age groups '26-35 years' and '36-55 years' are combined as initial analyses showed no difference between these groups.

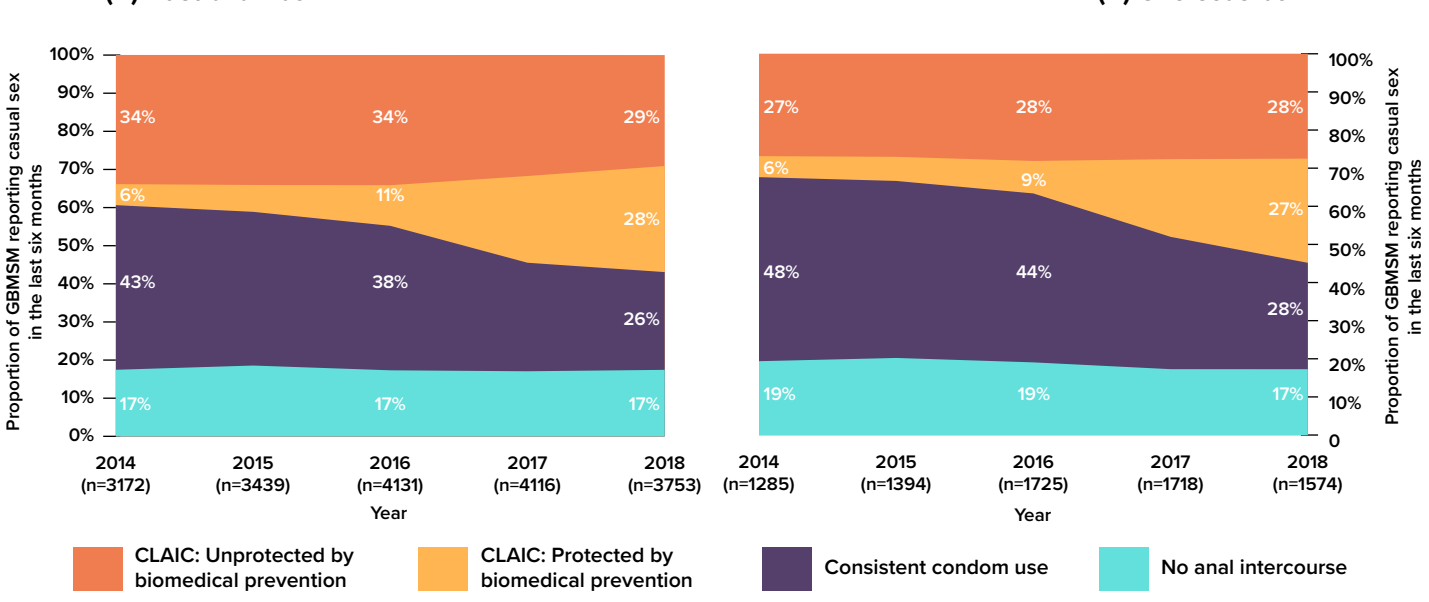
6.4 Sexual Behaviour

The GCPS collects information on the types of sex GBMSM have had in the previous six months, including asking separate anal intercourse questions for regular (i.e. boyfriends, husbands, 'fuckbuddies') and casual partners. We used the questions about casual partners to classify participants into different categories of risk:

- No anal intercourse with casual partners in the last six months.
- Consistent condom use with all casual partners in the last six months.
- CLAIC protected by biomedical prevention (respondents were placed into this category if they were HIV-positive on ART with UVL, or HIV-negative on PrEP).
- CLAIC unprotected by biomedical prevention (respondents were placed into this category if they were HIV-negative, untested or had unknown HIV status and were not on PrEP, or if they were HIV-positive and not on ART or had detectable viral load).

In this risk schema, updated from the traditional risk indicator of 'any CLAIC with casual partners' [16, 29], only the latter category is considered 'unsafe sex'. However, due to increases in biomedical prevention (viral suppression and PrEP), it is worth noting that the HIV risk associated with CLAIC is lower than before these prevention strategies were widely used. Of course, it should be noted that condomless sex is still a high risk practice for the transmission of other STIs and that reduced condom use at the population-level may have impacts on STI epidemics.

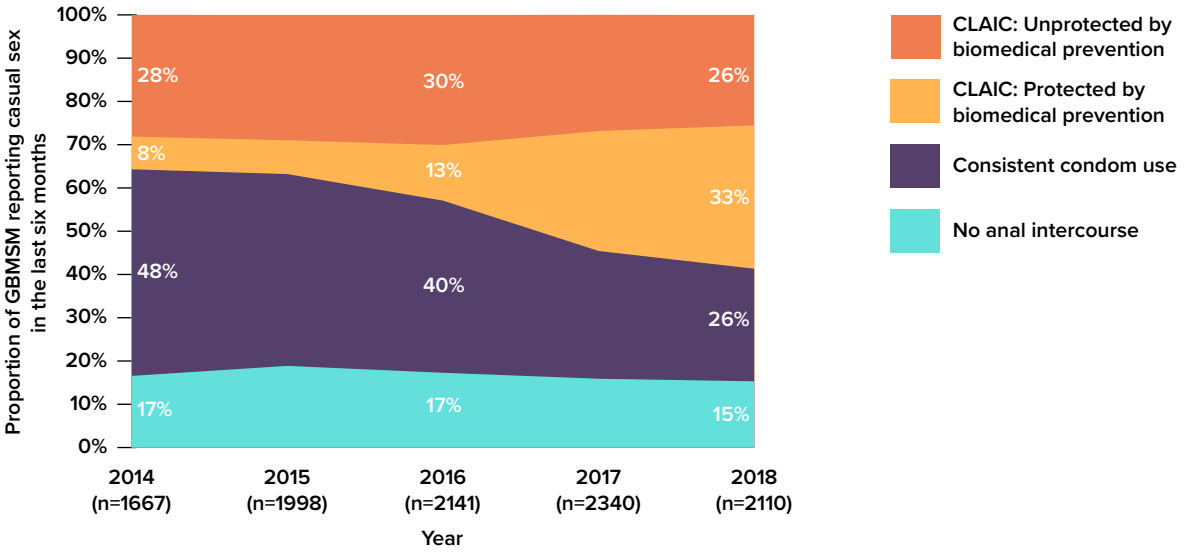
6.4.1 Sexual risk behaviour among (A) Australian-born and (B) overseas-born GBMSM reporting casual sex in the last six months: GCPS 2014-2018



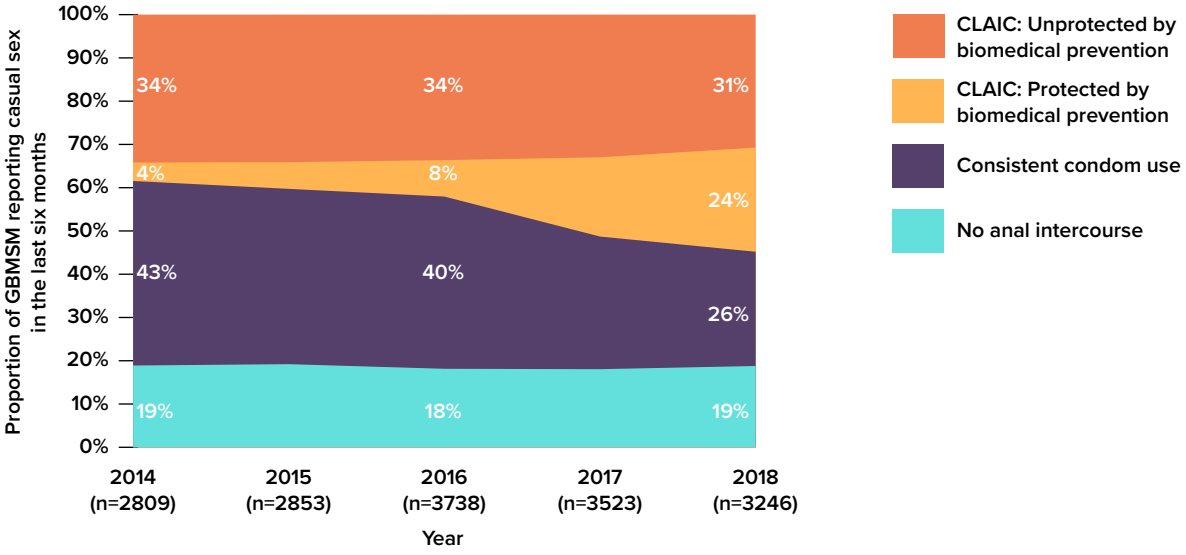
Between 2014 and 2018, there was a small decline in the proportion of Australian-born GBMSM reporting unprotected CLAIC in the last six months (34% to 29%) but there was no change for overseas-born GBMSM who reported unprotected CLAIC (although at 27-28%, overseas-born men were less likely to report unprotected CLAIC across the entire 2014-18 period). The proportion reporting protected CLAIC increased from 11% in 2016 to 28% in 2018 in Australian-born GBMSM and 9% to 27% in overseas-born GBMSM. Overseas-born GBMSM reported higher consistent condom use.

6.4.2 Sexual risk behaviour among GBMSM living in (A) gay capital city and (B) other postcodes reporting casual sex in the last six months: GCPS 2014-2018

(A) Gay capital city postcodes



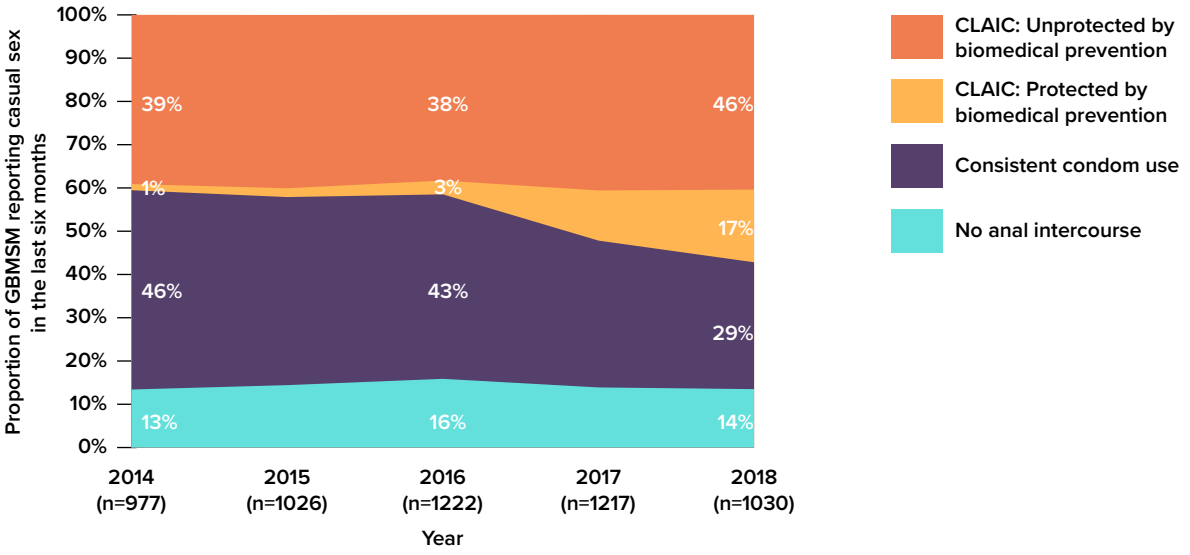
(B) Other postcodes



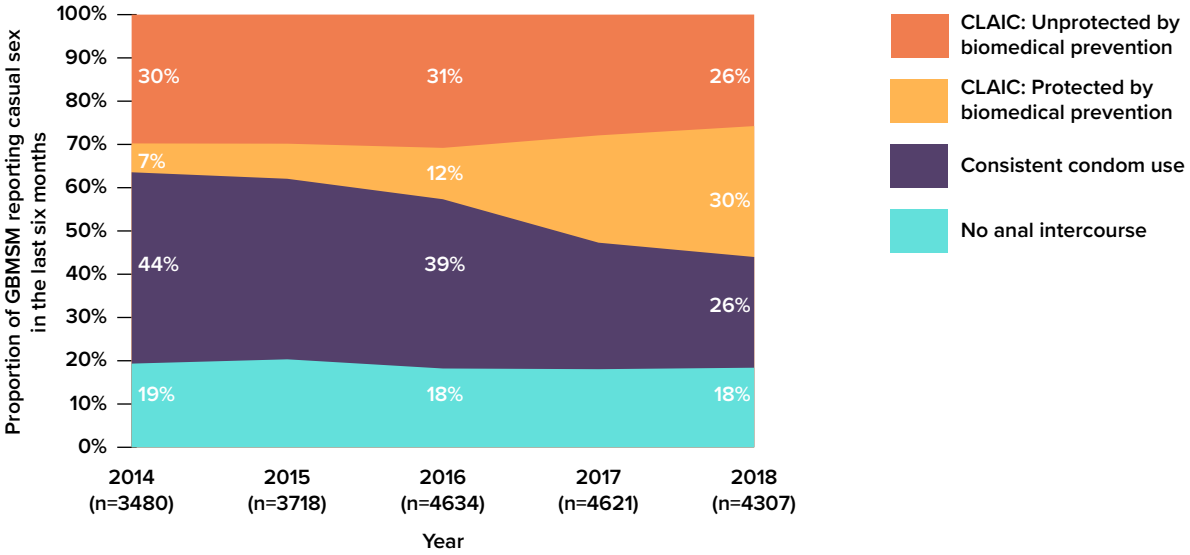
Between 2016 and 2018, there was a small declines in both GBMSM living in gay capital postcodes (30% to 26%) and other postcodes (34% to 31%) reporting unprotected CLAIC in the last six months. In the whole 2014-2018 period the proportion of men living outside of gay capital city postcodes reporting unprotected CLAIC was higher than those living in gay capital city postcodes. By contrast, the proportion of GBMSM reporting protected CLAIC was consistently larger and increased more among in those living in gay capital city postcodes (13% to 33%) compared to those living in other postcodes (8% to 24%). Both groups reported similar rates of consistent condom use and there was limited change in the proportions reporting no anal intercourse.

6.4.3 Sexual risk behaviour among (A) younger and (B) older GBMSM reporting casual sex in the last six months: GCPS 2014-2018

(A) 25 years and under



(B) 26 years and over



Between 2016 and 2018, there was a small increase in the proportion of GBMSM aged 25 years and under reporting unprotected CLAIC in the last six months (38% to 40%) but this declined among GBMSM aged 26 years and older (31% to 26%). However, it is important to note that in the entire 2014-2018 period, the proportion of younger men reporting unprotected CLAIC was higher than older men and substantially by 2018 (40% compared to 26%). Older men reported higher protected CLAIC (12% in 2016 to 30% in 2018) and lower consistent condom use (39% to 26%). By constrast, younger men reported lower protected CLAIC (3% to 17%) and higher consistent condom use (43% to 29%). The reasons for these differences between younger older men warrant further investigation.

7

GAPS IN AND REPRESENTATIVENESS OF THE DATA SOURCES

Since the establishment of the National HIV Registry, the GCPS, and ACCESS in 1992, 1996, and 2008 respectively, the scope of information collected has expanded and the accuracy of data reported has improved significantly. These improvements have helped guide the success of the national HIV response. However, there remains some key gaps in the epidemiological and behavioural data collected in these data sources relating to analyses presented in this report. This section outlines key missing data from the National HIV Registry, GCPS, and ACCESS and provides a commentary on the representativeness of the data sources are and how some of these gaps present a challenge to the interpretation of the data.

7.1 Missing data

Information on likely place of HIV acquisition and year of arrival to Australia for those born overseas has been included in the National HIV Registry since 2014. Over time the proportion of missing data for these variables has improved significantly, reducing from 26.1% missing data for likely place of HIV acquisition in the first year of inclusion to 11.9% in 2018 and for year of arrival to Australia from 21.4% to 11.5%. As overseas-born GBMSM make up an increasing proportion of new HIV notifications, continuing to improve how these data are reported will guide a nuanced HIV response that can be tailored towards priority sub-groups among GBMSM in Australia.

Information on participants' ethnicity (used to determine country of birth), postcode, and age has been included in the GCPS since before the period examined in this report. The proportion of missing data on these variables has been fairly low for a sustained period and has improved further over time. Items on PrEP use and knowledge have been included since 2013 and 2014, respectively, when PrEP first became available.

ACCESS is a sentinel surveillance network that was designed to strategically select sites with a high caseload of GBMSM, such as sexual health clinics or GP clinics with large numbers of GBMSM patients. Data from ACCESS is not always representative of the general population and may have missed GBMSM attending general practices or other services that do not see a high proportion of GBMSM. Additionally, NSW and Victoria have disproportionately high representations in the data because an estimated 60-70% of sites within ACCESS are in these states. Data is anonymously linked between sites so there is the possibility of incorrect linkages between patients visiting multiple sites. However, testing of this has indicated that this is accurate within 98% confidence.

7.2 The 'GBMSM' category

We have used the term 'GBMSM' in this report as an umbrella category encompassing men who explicitly self-identify as gay or bisexual as well as men who have sex with men who may either have other non-

heterosexual identities (such as 'queer'), identify as heterosexual, or do not label their sexualities. Sexual identity and sexual behaviour indicators are not collected or reported in a consistent way across the datasets examined in this report. The National HIV Registry focuses on sexual risk exposure as it relates to behaviour and does not consider sexual identity. Likewise, ACCESS typically identifies men who have sex with men via testing variables (such as rectal STI tests) or other variables, without reference to sexual identity. By contrast, the GCPS focuses almost exclusively on gay community-attached gay and bisexual men. The prevention needs of these different categories of men are likely to be very different and recognising this will be important to achieving the elimination of HIV transmission.

7.3 Trans and gender diverse people

There is inconsistency in how information on sex at birth and current gender identity are collected in the HIV notification forms across health jurisdictions. Between 2009 and 2018, there were 31 HIV notifications among trans and gender diverse (TGD) people of which 19 notifications were classified as being acquired through male-to-male sexual risk exposure, 11 through non-male-to-male sexual risk exposure, and one unknown risk exposure. This may be an underrepresentation due to incomplete and inconsistent data collection on gender identity. The national system and some jurisdictions have already taken steps to improve how information about gender is collected which will increase capacity to properly monitor and respond to HIV trends in TGD people [30].

The GCPS included a question on current gender identity from 2015 onwards (with the response options 'male', 'trans male', and 'intersex male'). This was updated in 2018 in line with recommendations from community organisations and trans advocates to ask about sex assigned at birth ('male' and 'female') and current gender identity ('male', 'female', 'non-binary', and 'other'). This allowed the GCPS to better capture experiences of trans and gender diversity. However, as a behavioural surveillance system explicitly targeted toward gay men, it does not aim to specifically recruit TGD people except trans gay men. The surveys ask only about male sex partners and these questions do not differentiate between cis and trans male partners.

Electronic medical record systems used by ACCESS typically do not capture gender diversity well. Although clinicians may identify TGD patients, data entry of gender information is not always accurate or adequately captured, and likely underreports HIV notifications among TGD people.

In addition to underreporting, it has historically been common practice to combine TGD people and GBMSM in health strategies, services, and program delivery across Australia. This is problematic as it conflates gender diversity, sexual identity, and sexual behaviour. Most TGD people are not GBMSM, and most GBMSM are cisgender men. It is important to recognise that TGD and GBMSM have different needs for improving their health and wellbeing, and also often have unique barriers to accessing care [31].

7.4 Cultural and linguistic diversity

Over the past 10 years, overseas-born GBMSM have made up an increasing proportion of HIV notifications in Australia (46% in 2018) but our understanding of the factors contributing to this trend remains limited and inconclusive. It is widely recognised that migrants face additional barriers to accessing HIV services and prevention including language barriers, financial costs, fear of legal and visa consequences, and stigma [32]. This problem is exacerbated in temporary migrants, such as international students, who are more likely to experience these barriers, particularly concerning legal and visa issues. Differences in cultural values and attitude towards HIV are also likely to play a role in how overseas-born GBMSM engage with HIV prevention and may also apply to Australian-born culturally and linguistically diverse (CALD) populations.

Public clinics within ACCESS and the National HIV Registry record country of birth comprehensively. However, clinics do not consistently record language spoken at home or ethnicity, which is further complicated as there are no standard classifications. Therefore, there are limits to information available through ACCESS and the National HIV Registry. This may be due to a range of factors including missing data, incorrect data entry, time constraints within consultations, or disparities in reporting requirements between private and public clinics. It is possible to infer some information about an individual's culture from their country of birth. However, ethnicity and language spoken at home can provide further nuanced information. Language spoken at home is collected on the HIV notification forms, but it is not well-completed. Thus, we did not include it in this report. An additional important issue for consideration is the question of the extent of cultural diversity within Australian-born GBMSM diagnosed with HIV. Currently, there is no accurate way to assess what proportion of new HIV diagnoses are in Anglo-Australian and CALD GBMSM, or how trends in these groups have changed over time. The ability to disaggregate the Australian-born GBMSM by CALD status may highlight important disparities.

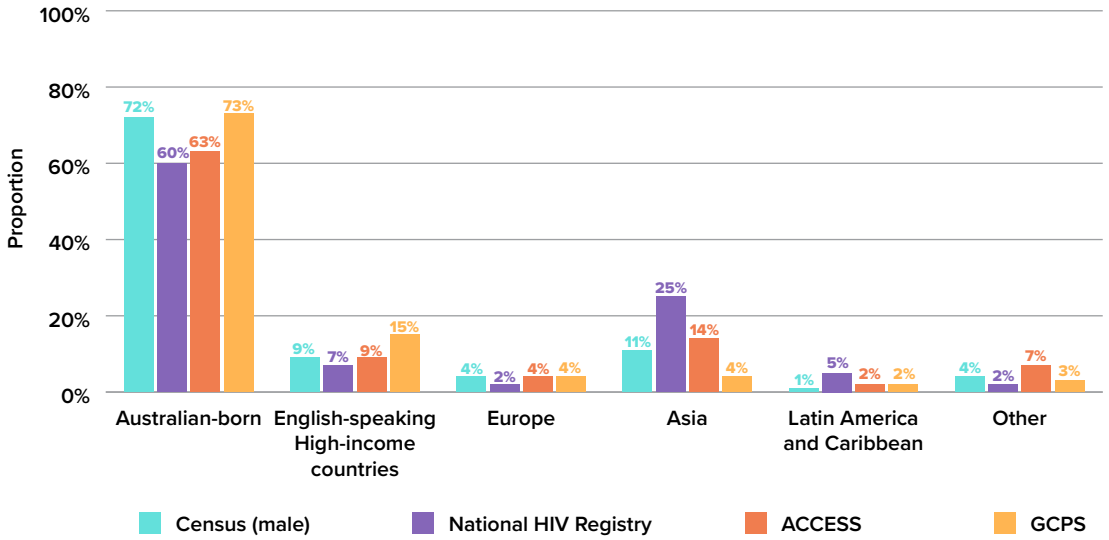
By contrast, as mentioned in the methodology section, until recently the GCPS did not ask about country of birth beyond Australia versus overseas, but has collected free-text ethnicity responses for many years. To address this problem, the GCPS was updated in 2019 to allow overseas-born participants to write in their specific country of birth and to indicate how many years they have lived in Australia. These new data will not only allow more accurate comparisons by region of birth, but will also for the first time allow analyses by recency of arrival in Australia. However, as noted in the results sections above, the GCPS often does not pick up major differences between Australian-born and overseas-born GBMSM. This is likely because the overseas-born GBMSM who participate in the GCPS are already connected to gay social networks. Consequently, the GCPS may not represent the full range of overseas-born men recently diagnosed with HIV, many of whom may be disconnected from gay social networks.

7.5 Representativeness of data sources

It is challenging to assess the representativeness of HIV-related data sources, as there is currently no way to accurately determine the size, geographical spread, or detailed characteristics of every GBMSM in Australia. For sentinel surveillance systems such as ACCESS and behavioural surveillance systems such as the GCPS, there is also the question of whether to strive toward representativeness compared to the overall estimated population of GBMSM (which is already poorly characterised in Australia) or representativeness compared to the profile of GBMSM who are most at risk of HIV infection, and who are thus represented in HIV notifications. In the case of behavioural surveillance, the international recommendations are to specifically target those at highest risk rather than everyone in a population or subpopulation [33, 34], and this is consistent with the aims of the GCPS. A challenge arises when the sub-groups most at risk change, as has been the case in Australia over the last decade. While the GCPS successfully targets and recruits GBMSM who are connected to gay social networks, events and venues, it is difficult to determine whether those who choose to participate are different to those who choose not to participate. Systems such as ACCESS face a similar problem as ACCESS can only include individuals who are connected to a clinic and have sought healthcare. These individuals may be quite different to those who do not attend clinics at all or who attend clinics outside of the ACCESS network. Furthermore, an increasing number of new HIV notifications are being captured by non HIV-specialist GPs that may not be captured in systems like ACCESS.

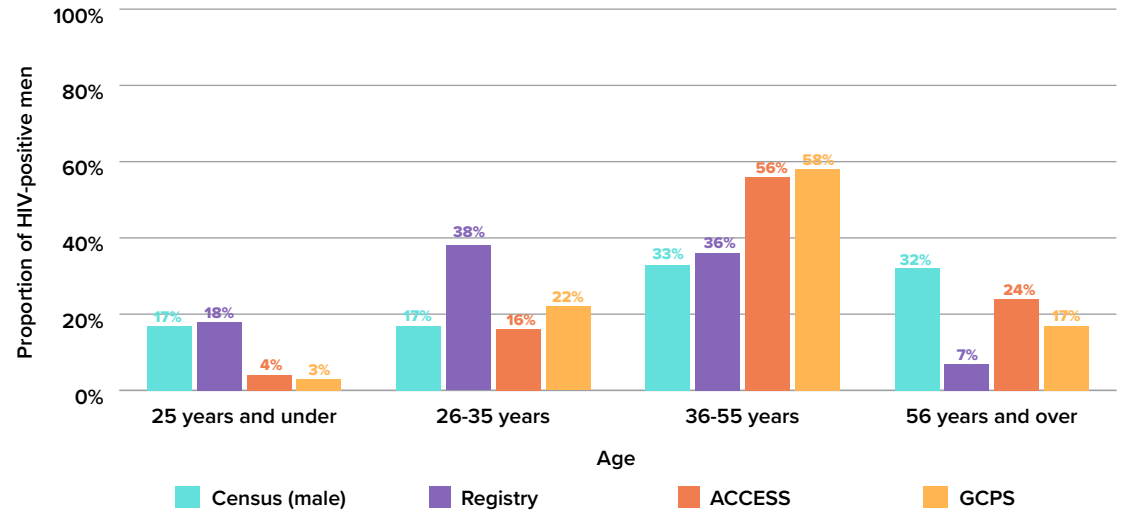
To examine some of these issues, we compared the proportion of HIV-positive men in the three primary data sources used in this report to population estimates derived from males in the 2016 Australian Census. While we recognise that males in the 2016 Australian Census are unlikely to have the same characteristics or profile of all GBMSM or GBMSM at highest risk of HIV, the following graphs may be useful to see how the data sources compare.

7.4.1 Data sources compared to the Estimated Male Resident Population by region of birth: 2016[17]



While the proportion of Australian-born GBMSM in the GCPS was similar to the Australian-born adult men in the general population, they made up a smaller proportion in the National HIV Registry and ACCESS. GBMSM from high-income English-speaking countries were overrepresented in the GCPS (15%) compared to the Census, the National HIV Registry and ACCESS (7-9%). By contrast, while 25% of GBMSM in the National HIV Registry were Asian-born, they comprised only 14% in ACCESS and 4% in the GCPS. However, it should also be noted that there have been several rounds of a behavioural survey targeted specifically to Asian gay and bisexual men conducted in NSW and nationally [35]. This may have had the effect of diverting Asian men from the GCPS to the population-specific study in jurisdictions in which both studies were operating, including in 2016.

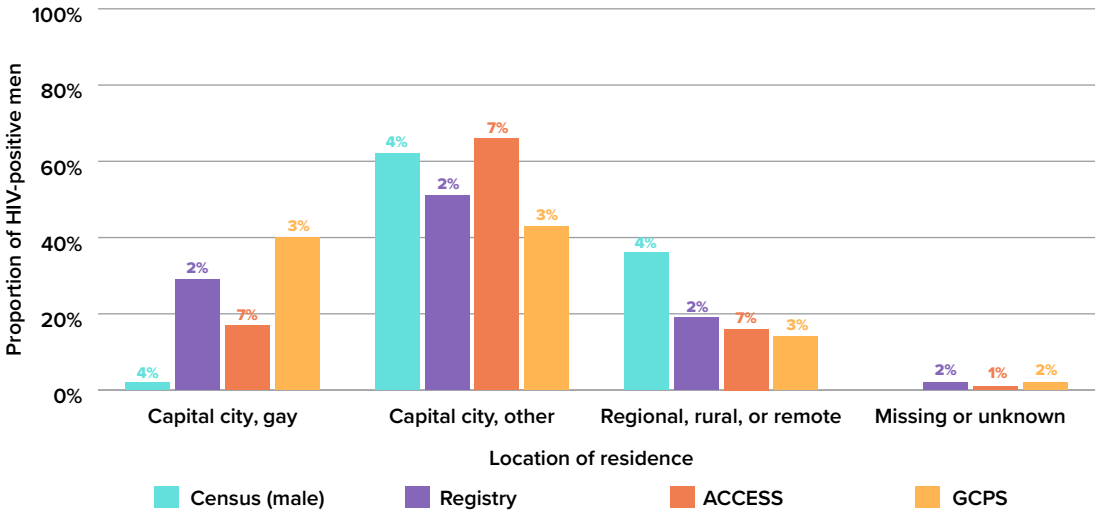
7.4.2 Data sources compared to the Estimated Male Resident Population by age group: 2016[17, 18]



Despite making up 18% of the HIV notifications among GBMSM in 2016 and 17% of all adult men, there were far fewer HIV-positive GBMSM aged 25 years and under in ACCESS (4%) and the GCPS (3%). Similarly, GBMSM in the age group 26-35 years made up over a third of the HIV notifications (38%) but much lower proportions were seen in the Census, ACCESS and GCPS. By contrast, the majority of HIV-positive GBMSM in ACCESS and the GCPS were aged 36-55 years and 56 years and over, but these age groups comprised less than half of the HIV notifications.

[17]ABS Data: Estimated Male Resident Population, country of birth, age, and sex at 30 June 1996 to 2018.
[18]Data on age from the ABS is reported in five-years groupings. As a result, the following age groups were used: 15-24, 25-34, 35-54, 55 or more

7.4.3 Data sources compared to the Estimated Male Resident Population by postcode of residence: 2016[19]



Unsurprisingly, a small proportion of adult men in the 2016 Census lived in gay capital city postcodes; this is one of the important ways in which the population of GBMSM in Australia differs from the population of adult men. The majority of HIV-positive GBMSM in the GCPS lived in gay capital city (40%) or other capital city postcodes (43%) in 2016, and this was closest to the profile of National HIV Registry notifications (29% and 51% respectively), followed by ACCESS (17% and 66% respectively). This is to be expected as recruitment for GCPS occurs mostly in capital cities at gay venues, events, sex-on-premises venues, and clinics. HIV-positive GBMSM living in other capital city postcodes accounted for two-thirds (66%) of the proportion in ACCESS but is slightly lower in the National HIV Registry (51%) and the GCPS (43%).

[19]No missing or unknown postcodes reported in the 2016 Australian Census data.

8 CONCLUSION

In the ten-year period between 2009 and 2018, there was an overall 10% decline in the number of HIV notifications among gay, bisexual and other men who have sex with men (GBMSM) in Australia. However, since the peak of 808 diagnoses in 2014, they have declined by 25%, and sharply from 2016 onwards. This recent sharp decline in HIV notifications is likely due to the introduction and scale-up of PrEP through large-scale implementation trials that began in 2016 in several Australian states and territories, building on a solid base of increasing HIV treatment and HIV testing. In this report, we have provided evidence of the diversity in trends hidden behind the overall numbers, and have shown that these trends are not uniform across all GBMSM sub-groups.

8.1 Region of birth

While HIV notifications have declined among GBMSM over the past ten years there are disparities by different regions of birth. Between 2009 and 2016, new HIV diagnoses in Australian-born GBMSM remained stable but increased in overseas-born GBMSM. Since 2016, diagnoses in Australian-born GBMSM have declined by 33%, yet only a 13% decline was observed for GBMSM born overseas. There have been similar declines in newly acquired diagnoses between both groups, but a sustained rise in non-newly acquired diagnoses and late diagnoses in overseas-born GBMSM have contributed to an overall smaller reduction in HIV diagnoses among this group.

Newly arrived overseas-born GBMSM are presenting less frequently with newly acquired diagnoses (27% in 2018) but more often with non-newly acquired (42% in 2018) or late HIV diagnoses (46% in 2018). Those with late diagnoses have most likely been infected with HIV more than four years prior, so it is likely that these GBMSM arrived in Australia with HIV infection. These trends suggest that these GBMSM, particularly those from Asia and Latin America, may not be getting tested soon after they arrive in Australia. Reducing barriers to HIV testing and linkage to care for overseas-born GBMSM will require further research and a range of interventions. HIV testing and earlier diagnosis has the benefits of improving the health of those with HIV, reducing the risk of onwards transmission, and linking HIV-negative men to PrEP. Future work may seek to further disaggregate large regions, such as Asia, to sub-regions (e.g. South-East Asia, Central Asia, and so on) to examine subregional differences.

In these data sources, overseas-born GBMSM had similar or higher rates of HIV testing, treatment, and viral suppression compared to Australian-GBMSM, which may suggest that once overseas-born GBMSM are engaged with services or with the gay community, there are fewer disparities in testing and retention in care based on region of birth. Given that ACCESS only includes individuals who present to clinics, and that the GCPS primarily recruits men attached to the gay community, the rates of HIV testing, treatment, and viral suppression may be different in those GBMSM who are less connected to clinics or community.

8.2 Location of residence

Trends in HIV notifications differed based on place of residence among GBMSM in Australia with declines in gay capital city postcodes occurring over a longer period while declines in other capital city postcodes

occurring only in recent years. New HIV diagnoses among GBMSM living in gay capital city postcodes peaked in 2012 and then steadily decreased, particularly in newly acquired diagnoses. By contrast, diagnoses in GBMSM living in other capital city postcodes and regional, rural, or remote postcodes continued to increase until 2016 before declining, but at a much lower rate to those living in gay capital city postcodes (27% decline between 2016 and 2018). Newly acquired diagnoses in gay capital city postcodes declined by a dramatic 72% between 2012 and 2018 compared with a 33% decline between 2012 and 2018 for other capital city postcodes.

GBMSM living in gay capital city postcodes have higher rates of HIV testing, PrEP eligibility, and PrEP use, and are more likely to report using biomedical HIV prevention when having condomless anal intercourse with a casual partner ('protected CLAIC'). As the GCPS recruits GBMSM at gay venues, events, sex-on-premises venues, and clinics that are more concentrated in inner city metropolitan areas, it captures men who are more likely to be engaged with gay social networks and thus exposed to HIV prevention messages. Similarly, ACCESS captures GBMSM who are attending sexual health clinics or GP clinics with a high caseload of GBMSM, many of which are also concentrated in inner city metropolitan areas.

These data suggest that GBMSM living outside of the capital city gay postcodes must be targeted with increased HIV prevention efforts, including improvements to PrEP accessibility and HIV testing. In particular, it is concerning to see that there has been an increase in diagnoses and newly acquired diagnoses among men in non-gay postcodes who are born overseas. A greater understanding of what has driven lower PrEP uptake and HIV testing in the non-gay areas would be helpful. At this stage, while geographic differences in the data are clear, we do not know what truly drives them (for example: connection to gay community, socio-economic factors, access to services and HIV education, and so on). Furthermore, it is equally important that the successes being achieved in the inner-capital city suburbs be strengthened and maintained. Although we may currently be on the way to 'micro-elimination' of HIV transmission among GBMSM (especially Australian-born GBMSM) in these suburbs, a loss of focus in these areas could see a resurgence. Furthermore, efforts within these inner-city areas must take account of the disparities in region of birth.

8.3 Age

The biggest decline in the number of HIV notifications have been observed among GBMSM aged 36-55 years, with a steady decrease since 2012. For GBMSM aged 35 years and under, the number of HIV notifications continued to increase until 2014 before declining by a smaller amount. Declines in these groups have largely been due to reductions in newly acquired diagnoses. Non-newly acquired and late diagnoses have steadily increased in all age groups except GBMSM aged 36-55 years. While newly acquired diagnoses in younger men have declined, an increasing proportion of younger men are presenting with non-newly acquired and late diagnoses, most likely driven by diagnoses in the overseas-born. The number of HIV notifications in those aged 56 years and over have been relatively stable between 2009 and 2018 but with a slight upwards trend.

Similar to the trends observed in overseas-born GBMSM, ACCESS and the GCPS showed that testing rates for younger men were similar to other age groups – but again, this may be because fewer younger men who are disconnected to clinics and gay community may be present in these data sources. Importantly, despite a strong focus on earlier HIV treatment for all since 2015, younger GBMSM were less likely to be on ART and have viral suppression. Further research is needed to understand why this may be occurring. Younger men also reported a higher proportion of unprotected CLAIC, primarily due to lower PrEP uptake. HIV testing was lowest in men aged 56 years and older.

Priorities for future action include: recruiting more younger men into research studies to determine the representativeness of HIV testing data; targeted HIV testing programs aimed at older men (and potentially younger men); and increased efforts to make PrEP more accessible to younger and older higher risk men.

8.4 Implications for policy and programming

The analyses in this report highlight the need for greater efforts and attention in several areas, including:

- Faster linkage to HIV testing for newly arrived overseas-born GBMSM
- Culturally sensitive and/or specific services and health promotion for overseas-born and culturally and linguistically diverse GBMSM
- Better access to gay-friendly HIV testing and PrEP services outside of the inner city suburbs of Australia's capital cities
- Targeted approaches toward HIV testing, PrEP and HIV treatment for younger GBMSM, and targeted HIV testing and PrEP efforts in older men
- Greater inclusion of overseas-born and culturally diverse men, non-gay-identifying men, younger men, and men living outside of inner city 'gay' areas in HIV behavioural surveillance and prevention research
- More effective inclusion of trans and gender diverse people in HIV surveillance, behavioural surveillance, and HIV prevention research
- Continued efforts to increase PrEP uptake, rapid HIV treatment initiation, and HIV testing across all GBMSM subgroups.

8.5 Concluding remarks

Australia is experiencing substantial successes in HIV prevention, due to high testing and treatment coverage as well as strong uptake of PrEP. This report has highlighted several important disparities in HIV diagnoses and key HIV prevention outcomes among some subpopulations of GBMSM. It is important to note, of course, that this report has not comprehensively explored every gap in the Australian HIV prevention response and that there are other important gaps requiring attention, such as the need for increased funding. In any case, the HIV prevention response will need to engage with a wider range of providers and organisations to achieve better outcomes and reduce the gaps we have identified in the diagnoses trends, PrEP uptake, HIV testing, and ART (among younger men). We must sustain current prevention efforts, while also increasing efforts targeting overseas-born GBMSM, older and younger GBMSM, and those living outside of gay capital city postcodes.

9

REFERENCES

1. Australian Government Department of Health, *Eight National HIV Strategy 2018-2022*. 2018.

2. Cohen, M.S., et al., Prevention of HIV-1 Infection with Early Antiretroviral Therapy. N Engl J Med, 2011. **365**(6): p. 493-505.

3. Grant, R.M., et al., *Preexposure Chemoprophylaxis for HIV Prevention in Men Who Have Sex with Men.* N Engl J Med, 2010. **363**(27): p. 2587-2599.

4. Bavinton, B.R., et al., *Viral suppression and HIV transmission in serodiscordant male couples: an international, prospective, observational, cohort study.* Lancet HIV, 2018. **5**(8): p. e438-e447.

5. Rodger, A.J., et al., *Risk of HIV transmission through condomless sex in serodifferent gay couples with the HIV-positive partner taking suppressive antiretroviral therapy (PARTNER): final results of a multicentre, prospective, observational study.* Lancet, 2019. **393**(10189): p. 2428-2438.

6. McCormack, S., et al., *Pre-exposure prophylaxis to prevent the acquisition of HIV-1 infection (PROUD): effectiveness results from the pilot phase of a pragmatic open-label randomised trial*. Lancet, 2016. **387**(10013): p. 53-60.

7. Bavinton, B.R., et al., *Increases in HIV Testing Frequency in Australian Gay and Bisexual Men are Concentrated Among PrEP Users: An Analysis of Australian Behavioural Surveillance Data, 2013–2018.* AIDS Behav, 2020.

8. Keen, P., et al., *Rapid HIV testing increases testing frequency among gay and bisexual men: a controlled before-after study.* Sex Health, 2019. **16**(2): p. 172-179.

9. Jamil, M.S., et al., *Effect of availability of HIV self-testing on HIV testing frequency in gay and bisexual men at high risk of infection (FORTH): a waiting-list randomised controlled trial.* Lancet HIV, 2017. **4**(6): p. e241-e250.

10. The Kirby Institute, *Australia's Annual Report Card: HIV, hepatitis and STIs in Australia* 2019 [cited 2020 06 May]; Available from: https://data.kirby.unsw.edu.au/hiv.

11. Grulich, A.E., et al., *Population-level effectiveness of rapid, targeted, high-coverage roll-out of HIV pre-exposure prophylaxis in men who have sex with men: the EPIC-NSW prospective cohort study.* Lancet HIV, 2018. **5**(11): p. e629-e637.

12. NSW Ministry of Health, *NSW HIV Surveillance Data Reports: Second Quater Data Report 2019.* 2019 [cited 2019 28 October]; Available from: https://www.health.nsw.gov.au/endinghiv/Publications/q2-2019-nsw-hiv-data-report.pdf.

13. Medland, N.A., et al., *Incident HIV infection has fallen rapidly in men who have sex with men in Melbourne, Australia (2013-2017) but not in the newly-arrived Asian-born.* BMC Infect Dis, 2018. **18**(1): p. 410.

14. The Kirby Institute, *HIV, viral hepatitis and sexually transmissible infections in Australia: Annual surveillance report 2018* 2018 [cited 2019 28 October]; Available from: https://kirby.unsw.edu.au/sites/default/files/kirby/report/KI_Annual-Surveillance-Report-2018.pdf.

15. Wolbers, M., et al., *Pretreatment CD4 cell slope and progression to AIDS or death in HIV-infected patients initiating antiretroviral therapy--the CASCADE collaboration: a collaboration of 23 cohort studies.* PLoS Medicine, 2010. **7**(2): p. e1000239-e1000239.

16. Holt, M., et al., *Adapting behavioural surveillance to antiretroviral-based HIV prevention: reviewing and anticipating trends in the Australian Gay Community Periodic Surveys.* Sex Health, 2017. **14**(1): p. 72-79.

17. Zablotska, I.B., et al., *Behavioural surveillance among gay men in Australia: methods, findings and policy implications for the prevention of HIV and other sexually transmissible infections.* Sex Health, 2011. **8**(3): p. 272-9.

18. Guy, R.J., et al., *A new national Chlamydia Sentinel Surveillance System in Australia: evaluation of the first stage of implementation.* Commun Dis Intell Q Rep, 2010. **34**(3): p. 319-28.

19. Callander, D., et al., *Monitoring the Control of Sexually Transmissible Infections and Blood-Borne Viruses: Protocol for the Australian Collaboration for Coordinated Enhanced Sentinel Surveillance (ACCESS).* JMIR Res Protoc, 2018. **7**(11): p. e11028.

20. Australian Government Department of Home Affairs*, A.G. Visa Statistics: Migration Program* 2019 [cited 2020 12 May]; Available from: https://www.homeaffairs.gov.au/research-and-statistics/statistics/visa-statistics/live/migration-program.

21. Callander, D., et al., *Australian 'gayborhoods' and 'lesborhoods': a new method for estimating the number and prevalence of adult gay men and lesbian women living in each Australian postcode.* Int J Geogr Inf Sci, 2020: p. 1-17.

22. Centers for Disease Control and Prevention, *HIV Surveillance Report*, 2017. 2018 [cited 2019 28 October]; vol. 29:[Available from:https://www.cdc.gov/hiv/pdf/library/reports/surveillance/cdc-hiv-surveillance-report-2017-vol-29.pdf.

23. Australasian Society for HIV, Viral Hepatitis and Sexual Health Medicine, *PrEP Guidelines Update. Prevent HIV by Prescribing PrEP.* 2020 [cited 2020 08 May]; Available from: https://ashm.org.au/resources/hiv-resources-list/prep-guidelines-2019/.

24. Templeton, D.J., et al., *Australian sexually transmissible infection and HIV testing guidelines for asymptomatic men who have sex with men 2014: a review of the evidence.* Sex Health, 2014. **11**(3): p. 217-29.

25. STIs in Gay Men Action Group (STIGMA), *Australian STI & HIV Testing Guidelines 2019 for Asymptomatic MSM* 2019 [cited 2019 28 October]; Available from: https://stipu.nsw.gov.au/stigma/stihiv-testing-guidelines-for-msm/.

26. The Kirby institute, *Bloodborne viral and sexually transmissible infections in Aboriginal and Torres Strait Islander people: Annual surveillance report 2018.* 2018, Kirby Institute, UNSW Sydney: Sydney, Australia.

27. UNAIDS, *Fast-track: Ending the AIDS epidemic by 2030.* 2014, UNAIDS: Geneva, Switzerland.

28. Australasian Society for HIV, Viral Hepatitis and Sexual Health Medicine, *Australian commentary on the US Department of Health and Human Services (DHHS) guidelines for the use of antiretroviral agents in HIV-1-infected adults and adolescents.* 2015, Australasian Society for HIV, Viral Hepatitis and Sexual Health Medicine: Sydney, Australia.

29. Holt, M., et al., *Community-level changes in condom use and uptake of HIV pre-exposure prophylaxis by gay and bisexual men in Melbourne and Sydney, Australia: Results of repeated behavioural surveillance in 2013–17*. Lancet HIV, 2018. **5**(8): p. e448-e556.

30. Callander D, et al, *The 2018 Australian Trans and Gender Diverse Sexual Health Survey: Report of Findings.* 2019, The Kirby Institute: UNSW Sydney: Sydney, Australia

31. ACON, *A Blueprint For Improving The Health and Wellbeing of the Trans and Gender Diverse Community in NSW.* 2019: AIDS Council of New South Wales, Sydney, Australia

32. Blondell, S.J., et al., *Barriers and Facilitators to HIV Testing in Migrants in High-Income Countries: A Systematic Review.* AIDS Behav, 2015. **19**(11): p. 2012-2024.

33. Rehle, T., et al., *Second-generation HIV surveillance: better data for decision-making.* Bull World Health Organ, 2004. **82**(2): p. 121-7.

34. UNAIDS/WHO, *Guidelines for second generation HIV surveillance.* 2000.

35. Wong, T., et al., *2018 Sydney Gay Asian Men Survey* 2018: Sydney.

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