

**National Blood-borne Virus and
Sexually Transmissible Infections**
Surveillance and Monitoring Report, 2013

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National Blood-borne Virus and Sexually Transmissible Infections Surveillance and Monitoring Report, 2013



prepared by

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The Kirby Institute

in collaboration with

**National BBV and STI Surveillance Subcommittee
of Communicable Diseases Network Australia**

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Preface

Welcome to the *National Blood-borne Virus and Sexually Transmissible Infections Surveillance and Monitoring Report 2013*.

This is the second report providing an account of progress against the goals and objectives of Australia's national blood-borne virus (BBV) and sexual transmissible infections (STI) strategies. It is also the last report to be produced within the life of the current national strategies.

In April 2010, Australia's federal, state and territory health ministers endorsed new national strategies for human immunodeficiency virus (HIV), STI, hepatitis B and hepatitis C together with a new National Aboriginal and Torres Strait Islander BBV and STI Strategy. The five national strategies cover the period 2010 – 2013.

For the first time, each of these national strategies includes specific measurable indicators against each of the strategy objectives. In 2011, the Communicable Diseases Network Australia (CDNA) developed and released the *National BBV and STI Surveillance and Monitoring Plan* that provides the data specifications for each of these indicators.

For each of the highest priority objectives of the national strategies, this report presents data describing the nature and magnitude of the challenge, and the level of progress being made in response.

The report provides important intelligence and insights into the challenges of BBV and STI response and control in Australia. It provides measurement of the effectiveness of our national response and highlights areas requiring additional attention. As the last report under the current national strategies, it has a particular focus on achievements over the entire 2010 – 2013 period.

Executive Summary

In April 2010, a suite of National Strategies for the prevention and management of hepatitis B, hepatitis C, Human Immunodeficiency Virus (HIV), and sexually transmissible infections (STIs), including in Aboriginal and Torres Strait Islander communities were endorsed by the Australian Health Ministers' Conference.

The aims of these National Strategies are to:

- Reduce the transmission of HIV, STIs, hepatitis B and hepatitis C;
- Reduce the morbidity, mortality and personal and social impacts they cause.

This report presents available data that align with indicators associated with monitoring progress against these goals. Objectives and summaries of progress are summarised in the tables below for each of the National Strategies.

Hepatitis B Strategy, 2010 – 2013

Objective	Progress
Reduce hepatitis B infections	Although the hepatitis B vaccination program is successfully reaching coverage of over 90% among infants, there are still an estimated 1 770 cases of hepatitis B occurring annually. The modelled estimate of hepatitis B incidence in Australia has remained relatively stable over the period of the national strategies.
Reduce the proportion of people with chronic hepatitis B who have not been diagnosed	Available evidence for estimating the extent of undiagnosed chronic hepatitis B infection is relatively weak, but suggests that there has not been a substantial change in the level of undiagnosed infections over the past four years. Estimates suggest approximately 44% of chronically infected hepatitis B cases are undiagnosed.
Improve the health and wellbeing of people with chronic hepatitis B	No rigorous data are currently available for monitoring the health and wellbeing of people with chronic hepatitis B.

Hepatitis C Strategy, 2010 – 2013

Objective	Progress
<p>Reduce the incidence of hepatitis C</p>	<p>The weak evidence available suggests that hepatitis C incidence is stable to decreasing over the time frame of the national strategies.</p>
<p>Increase access to new injecting equipment through needle and syringe programs</p>	<p>Around one in six PWID who participate in the ANSPS continue to report recent receptive syringe sharing, a proportion that has remained relatively stable during the life of the national strategies. National needle and syringe distribution data indicate an increase in the number of units distributed over the same time frame. However, population-based coverage of needles and syringes is not well known.</p>
<p>Reduce the burden of disease attributed to chronic hepatitis C</p>	<p>Currently, limited rigorous data are systematically collated to allow comprehensive monitoring of hepatitis C-related burden of disease. Modelled estimates suggest that hepatitis C-related burden of disease, including advanced liver disease, is high and has increased over the period of the national strategies, but this data is based on an out-dated model.</p>
<p>Increase access to clinical care for people with chronic hepatitis C</p>	<p>Data suggest that the number of people receiving antiviral therapy for chronic hepatitis C has declined over the past four years. This is likely due to people deferring treatment in anticipation of the next generation of hepatitis C drugs. However, other evidence shows that the proportion of chronically infected people receiving hepatitis C treatment is low at only 10 – 12%.</p>
<p>Reduce hepatitis C-related stigma and discrimination in healthcare settings</p>	<p>No data are available on hepatitis C-related stigma and discrimination.</p>

HIV Strategy, 2010 – 2013

Objective	Progress
<p>Reduce the incidence of HIV</p>	<p>There is reasonably strong evidence that HIV incidence across Australia has increased over the lifetime of the national strategies.</p>
<p>Reduce the risk behaviours associated with the transmission of HIV</p>	<p>Sexual behavioural risk, measured through the Gay Community Periodic Surveys by reports of unprotected anal intercourse with casual partners, was stable at about 22% between 2009 and 2012 with a suggestion of an increase. Some of this increase is likely to reflect serosorting between men. The extent of sharing of used syringes by people who inject drugs seen through needle and syringe programs is about 13 – 16% and has not changed over the life of the national strategies.</p>
<p>Increase the proportion of people living with HIV on treatments with undetectable viral load</p>	<p>There has been a steady increase in the number of people dispensed antiretroviral treatment for HIV infection over the period of the national strategies. However, the estimated proportion (52%) of people living with HIV infection who were dispensed antiretroviral treatment does not appear to have changed over this period, or may have even declined. The extent of viral suppression among people on antiretroviral therapy (ART) has increased over this period to ~85%.</p>
<p>Decrease the number of people with undiagnosed HIV infection</p>	<p>There is inconclusive evidence about trends in undiagnosed HIV infections with some indications that the number and proportion of people with undiagnosed HIV infection may have increased between 2009 and 2012.</p>
<p>Improve the quality of life of people living with HIV</p>	<p>Perceived quality of life of people living with HIV appears to have been stable over the past four years, with close to three-quarters reporting their health as 'good' or 'excellent'.</p>

Sexually Transmissible Infections Strategy, 2010 – 2013

Objective	Progress
Reduce the incidence of gonorrhoea	Gonorrhoea is a two-pronged epidemic: among MSM in urban areas and among young Aboriginal people in remote areas. Uncertainties over trends in gonorrhoea testing make notification data a poor indicator for incidence. However, the available evidence for gonorrhoea incidence suggests that incidence has increased for men who have sex with men over the past four years.
Reduce the incidence of infectious syphilis	Notification data suggest that syphilis has increased in men who have sex with men has increased since 2010. It is unclear whether this increase will continue or whether it indicates stabilisation at the post epidemic notification rate.
Reduce the incidence of chlamydia	Chlamydia notifications have increased substantially, in alignment with increased testing. The available evidence for chlamydia incidence is weak, but suggestive that incidence has been stable or slightly increasing over the past four years. Positivity levels increased in Aboriginal and Torres Strait Islander people and young heterosexual women, and lesser amounts in other priority groups. The proportion of chlamydia tests that were positive has remained stable since 2008.
Increase testing for chlamydia among priority populations	There has been a continued increase in the rate of chlamydia testing among young people aged 15 – 24 years in Australia over the period of the national strategies with up to 14% of young people tested in 2012. STI testing among MSM has remained stable over the same time period.
Increase young people's knowledge of STI	There are no data available at this time.
Incorporate STI-related prevention and treatment into broader health reforms	There is evidence that STI treatment and prevention has become integrated into broader healthcare to some extent. The proportion of chlamydia tests carried out for every general practice (GP) consultation has increased over the period of the national strategies from 7.9 to 11.6 tests per 100 GP visits.

Aboriginal and Torres Strait Islander Strategy, 2010 – 2013

Objective	Progress
Reduce hepatitis B infections	Vaccination coverage for hepatitis B has been high and stable among Aboriginal and Torres Strait Islander infants at over 90% for children at 24 months of age for the past four years.
Work towards eliminating infectious syphilis in Aboriginal and Torres Strait Islander people	The incidence of syphilis in the Aboriginal and Torres Strait Islander population is four times greater than in the non-Indigenous population. There have been periodic outbreaks in remote communities during the life of the national strategies.
Decrease the proportion of HIV and hepatitis C infection caused by injecting drug use	A high proportion (13%) of Aboriginal and Torres Strait Islander people diagnosed with HIV infection were exposed to HIV through injecting drug use compared to non-Indigenous Australians (2%). However, there are substantial differences between jurisdictions and this proportion appears to have declined between 2009 and 2012. Relevant data are not available for hepatitis C.
Increase the level of testing and treatment of sexually active 15-30 year olds	No data are available on STI testing and treatment levels among young sexually active Aboriginal and Torres Strait Islander people.
Improve Aboriginal and Torres Strait Islander people's knowledge of STIs and BBVs	No data are available on knowledge of STIs and blood borne viruses (BBVs) among Aboriginal and Torres Strait Islander people.
Increase the number of Aboriginal and Torres Strait Islander peoples receiving treatment for HIV, hepatitis C and hepatitis B	Data for treatment coverage of HIV, chronic hepatitis C and chronic hepatitis B among Aboriginal and Torres Strait Islander people are currently unavailable.
Implement a national accreditation scheme for Aboriginal and Torres Strait Islander sexual health workers	A national accreditation scheme for Aboriginal and Torres Strait Islander sexual health workers is not yet implemented.

Background

On 22 April 2010, the Australian Health Ministers' Conference endorsed a suite of National Strategies for the prevention and management of HIV, STIs, hepatitis B and hepatitis C, including in Aboriginal and Torres Strait Islander communities. The National Strategies are:

- Sixth National HIV Strategy 2010 – 2013
- Second National Sexually Transmissible Infections Strategy 2010 – 2013
- Third National Hepatitis C Strategy 2010 – 2013
- National Hepatitis B Strategy 2010 – 2013
- Third National Aboriginal and Torres Strait Islander Blood Borne Viruses and Sexually Transmissible Infections Strategy 2010 – 2013.

The aims of these National Strategies are to reduce the transmission of HIV, STIs, hepatitis B and hepatitis C, and to reduce the morbidity, mortality and personal and social impacts they cause. Each of the National Strategies outlines a set of indicators for monitoring progress towards reaching these goals. The development of a Surveillance and Monitoring Plan for reporting against these indicators was identified in the National Strategies as a key step in the implementation process.

The development of the National BBV and STI Surveillance and Monitoring Plan was led by a steering committee under the auspices of the Communicable Diseases Network Australia (CDNA), a standing committee of the Australian Health Protection Principal Committee (AHPPC), and has become a supporting document to the National Strategies for BBV and STI. The formal process consisted of these key actions:

- Consultation with key national policy and surveillance organisations from all jurisdictions;
- Establishment of the National BBV and STI Surveillance and Monitoring Plan Steering Committee, which reported to CDNA. The Steering Committee included experts from all jurisdictions and from a range of backgrounds including researchers, policy officers, surveillance officers, and other stakeholders (see Acknowledgements).
- Establishment of five area-specific working groups (one for each of the National Strategies) that made recommendations of how to measure the indicators for the five National Strategies, and identified potential barriers and resource burdens for measuring each indicator. Recommendations were made to vary some of the indicators in the National Strategies to make them more relevant and feasible.
- The working groups, Steering Committee and other stakeholders met at a national workshop in April 2011. The purpose of the workshop was to prioritise data collection for each of the indicators, review the resource burden of the proposed measures, and to discuss implementation, reporting and governance of the National BBV and STI Surveillance and Monitoring Plan.
- The Plan was reviewed and endorsed by the Steering Committee Executive, working group chairs, CDNA, AHPPC, the Blood Borne Viruses and Sexually Transmissible Infections Sub-Committee (BBVSS) of the then Australian Population Health Development Principal Committee (APHDPC).

The Kirby Institute, University of New South Wales, has responsibility for producing reports according to the National BBV and STI Surveillance and Monitoring Plan over the life of the National Strategies. This second report was produced by a Surveillance and Evaluation Internal Working Group of the Kirby Institute (see Acknowledgements). This is the last to be released during the 2010 – 2013 National Strategies for BBV and STI. The National BBV and STI Surveillance and Monitoring Plan Steering Committee and the National Blood Borne Virus and Sexually Transmissible Infection Surveillance Sub-Committee of CDNA (see Acknowledgements) also oversee this report and provide advice to CDNA on the ongoing priorities for implementation of the National BBV and STI Surveillance and Monitoring Plan based on indicator priorities and resource burden of data collection.

The indicators presented in this report are drawn directly from the five National BBV and STI Strategies and provide information about how Australia is progressing in controlling BBVs and STIs in terms of risk behaviours and incidence of infection and disease morbidity as well as quality of life, including the personal and social impacts of these infections. However, the indicators do not represent a comprehensive set of data that measures all aspects of the BBV and STI

'landscape' in Australia. What is not well-represented in the Surveillance and Monitoring Plan is the myriad of social factors and complex human behaviours that underlie the transmission of BBVs and STIs, or the clinical environments in which BBV and STI testing and treatment takes place. An understanding of these factors is crucial to the national response to BBVs and STIs.

The data presented in this report represent the best data identified and currently available which align to indicators for monitoring progress against the objectives of the National Strategies. The data presented in this report have been collected by a range of organisations and from different populations. Many of the data sources are imperfect but provide a means to draw qualitative and some quantitative conclusions. Some data components identified in the National BBV and STI Surveillance and Monitoring Plan rely on the establishment of new surveillance systems, new models or data linkage between existing data sets. Some of the data sources identified in the Plan do not have recurrent funding and some new priority data collections will only proceed if new resources are made available. In some cases, multiple organisations may have the capacity to develop and implement the surveillance system, should resources become available.

Australia has been relatively successful in containing epidemics of blood-borne viral and sexually transmissible infections compared to many other high-income countries. However, continued vigilance and action is required to reduce escalating rates of some infections and to maintain decreasing trends for others. The successful Australian 'partnership model' which was established in response to the HIV/AIDS epidemic and now covers policy and program activities associated with HIV, viral hepatitis and sexually transmissible infections must continue to work together. This model brings together government, community, clinicians, researchers and health sector workforce organisations to ensure that all aspects of the response are working together and that all perspectives, across multiple disciplines, are able to inform each other.

Leadership of the response to blood-borne viral and sexually transmissible infections in Australia is provided by the Australian government which works through the Australian Health Ministers Advisory Council (AHMAC) and its sub-committees to facilitate national policy formulation and coordination. The Australian government also seeks advice through the Ministerial Advisory Committee for Blood Borne Viruses and Sexually Transmissible Infections (MACBBVS) and other advisory groups. Based on evidence presented in this report, these groups work in the context of funding arrangements for the health system to reshape existing policies and programs and surveillance systems or to extend them where possible in order to have maximal success of achieving the objectives of the National Strategies.

The National BBV & STI Surveillance Subcommittee of CDNA undertakes regular review of the data sources for the indicators highlighted in these reports. The Subcommittee makes recommendations to CDNA if there are changes or alterations to data sources and following changes to the National Strategies.

Hepatitis B

As of the end of 2012, it is estimated that ~207 000 (170 000-245 000) people in Australia were living with hepatitis B infection (HBsAg positive); that is, an overall prevalence of ~1% in the adult population. However, certain populations have much higher hepatitis B prevalence, notably, people who inject drugs (2.5-7.5%), Indigenous Australians (3.1-8.9%), people born in Southeast Asia (3.9-23.7%), and HIV-positive men who have sex with men (1.9-7.2%). An estimated 383 (295-624) deaths were attributable to chronic hepatitis B in Australia in 2012.

The National hepatitis B Strategy 2010 – 2013 identified three specific objectives, with associated indicators:

1. Reduce hepatitis B infections

- Incidence of hepatitis B
- Coverage of hepatitis B vaccination at 12 and 24 months

2. Reduce the proportion of people with chronic hepatitis B who have not been diagnosed

- Estimated proportion of people with chronic hepatitis B who have not been diagnosed
- Notifications of newly acquired and unspecified hepatitis
- Proportion of people who die from hepatocellular carcinoma within 12 months of hepatitis B diagnosis

3. To improve the health and wellbeing of people with chronic hepatitis B

- Proportion of people with chronic hepatitis B who are screened 6 monthly for hepatocellular carcinoma
- Proportion of hepatocellular carcinoma attributable to hepatitis B
- Proportion of people with chronic hepatitis B dispensed drugs for hepatitis B infection through the Highly Specialised Drugs Program

Reduce hepatitis B infections

The need to continue to prevent new infections is a major issue relating to hepatitis B in Australia. Given that a large proportion of incident hepatitis B infections are asymptomatic, the ideal but unfeasible measure would be serial serological testing of all people to document seroconversion to anti-HBc positivity on an annual basis to document all infections occurring in the population^[1-3]. Other approaches used internationally include active identification of newly acquired infections as opposed to passive surveillance, particularly in priority populations at higher risk of infection^[4]; seroprevalence surveys with mathematical modelling to estimate incidence of infection; and large-scale population serosurveys, such as the Australian Needle and Syringe Program Survey (ANSPS) for people who inject drugs in which anti-HBc positivity could be measured, again with modelling to estimate incidence of infection within this population. These are all limited by costs, and also difficulties in distinguishing infections acquired in adulthood from those acquired earlier in life, particularly among people from high prevalence countries. With available resources, Australia's estimate of incident hepatitis B infections involves the use of a simple multiplying factor applied to notifications made to the National Notifiable Diseases Surveillance System (NNDSS) and mathematical models to estimate incident infections. The uncertainty regarding the multiplier for Australia or components of the Australian population leaves mathematical modelling as the recommended methodology.

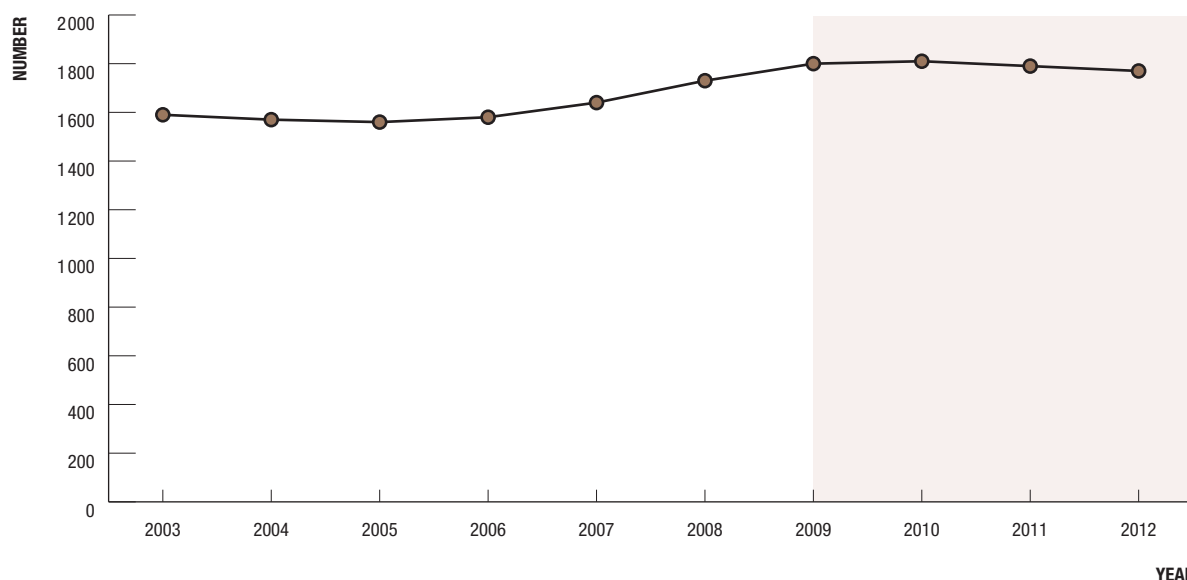
Incidence of hepatitis B

The estimates presented were derived from a deterministic compartmental mathematical model of hepatitis B virus infection in the Australian population from 1951-2050 developed by the Victorian Infectious Diseases Reference Laboratory and Australasian Society for HIV Medicine Hepatitis B Epidemiology Mapping Project. Using the Census method, attributing prevalence of chronic hepatitis B prevalence by country of birth and also by Aboriginal and Torres Strait Islander status, applied to the Australian population data provided in the 2011 Census^[5]. The model was parameterised using a wide range of data sources including the ABS, existing mathematical models, surveillance notifications, epidemiological research and clinical studies. Important factors such as migration, attributable and all-cause mortality, the ageing of the population, the variable natural history of chronic HBV infection and the impact of vaccination were all incorporated.

Model construction included sensitivity analyses around critical parameters such as the force of infection (FoI) and migration estimates. Model outcomes have been validated using a range of external data, particularly national and Victorian serosurvey results. These were not used to parameterise the model to allow independent comparison with modelled outcomes, and the 2nd National Serosurvey^[6] was also incorporated in generating a plausible range around estimates of hepatitis B prevalence from the model.

The modelled incidence of hepatitis B in Australia showed a marginal decline between 2010 and 2012, with a median estimate of 1770 incident cases of hepatitis B occurring in 2012. This figure is approximately ten times the number of incident hepatitis B infections reported to the National Notifiable Diseases Surveillance System for that year (Figure 1). The Hepatitis B National BBV and STI Surveillance and Monitoring Plan Working Group recommended the establishment of a Hepatitis B Estimates and Projections Working Group to refine the mathematical modelling estimates.

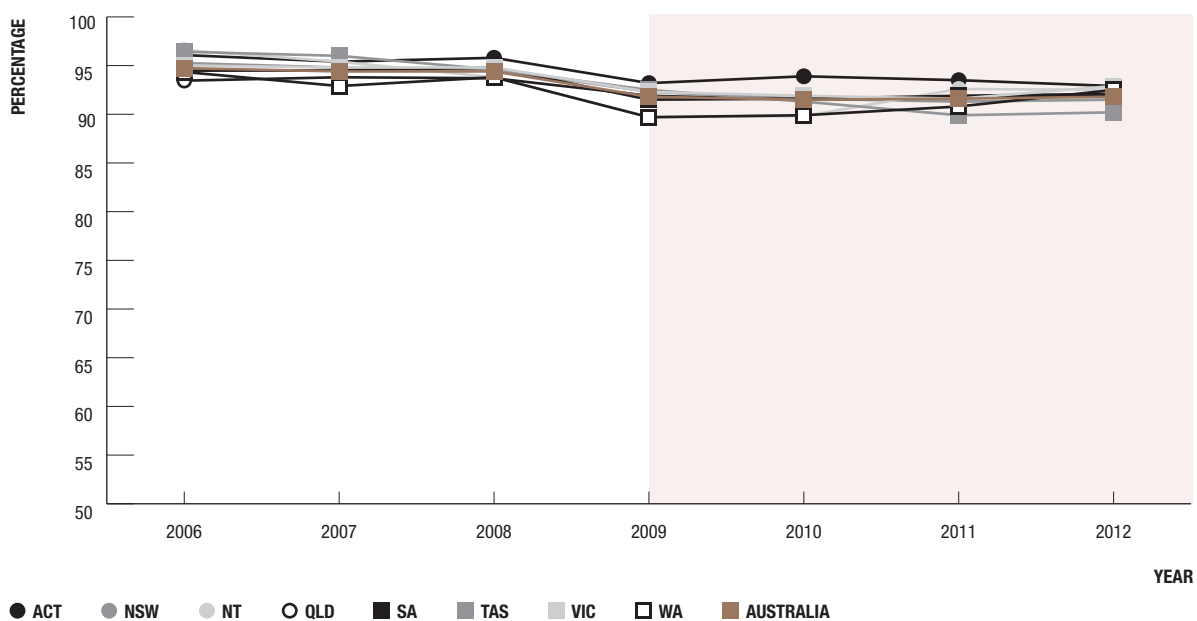
Figure 1 Model-based estimate of hepatitis B incidence in Australia, 2003 – 2012



Coverage of hepatitis B vaccination at 12 and 24 months

Vaccination is the most effective means of preventing the transmission of hepatitis B. Effective implementation of the vaccination program will provide the most substantial long term health impacts, due to the inverse relationship between age at initial infection and risk of progression to chronic infection. Ideally, a national register of vaccinations that records all vaccine doses administered in all age groups would be used to calculate vaccine coverage. A national register would have captured catch-up immunisation programs for 11 – 12 year olds undertaken nationally from 1997 that are likely to be the cause of decreases in local transmission in recent years, and priority populations targeted for adult vaccination in many jurisdictions. Providing incentives for immunisation may increase vaccination uptake and make it possible to reduce hepatitis B infections in these populations^[7]. Hepatitis B immunisation coverage among infants at both 12 and 24 months of age is excellent across every State and Territory, over 90% (Figure 2). This level has decreased slightly from about 95% between 2006 – 2008 to 91% between 2009 – 2012, which is likely due to change of the algorithm used to calculate hepatitis B coverage in late 2009.

Figure 2 Hepatitis B immunisation coverage at 12 months, 2006 – 2012, by year and State/Territory



Summary:

Although the hepatitis B vaccination program is successfully reaching over 90% of infants, there are still an estimated 1 770 cases of hepatitis B occurring annually. The modelled estimate of hepatitis B incidence in Australia has remained relatively stable over the period of the national strategies.

Reduce the proportion of people with chronic hepatitis B who have not been diagnosed

Monitoring and treatment when appropriate of chronic hepatitis B infection is critical to prevent the long term sequelae; liver cirrhosis, liver failure and hepatocellular carcinoma. The greatest burden of hepatitis B is borne by people with chronic infection. Many of these individuals will have become infected at birth and many are unaware of their infection. Late diagnosis of hepatitis B infection has a significant impact on mortality and morbidity. Therefore, it is important to reduce the proportion of people with chronic hepatitis B who have not been diagnosed.

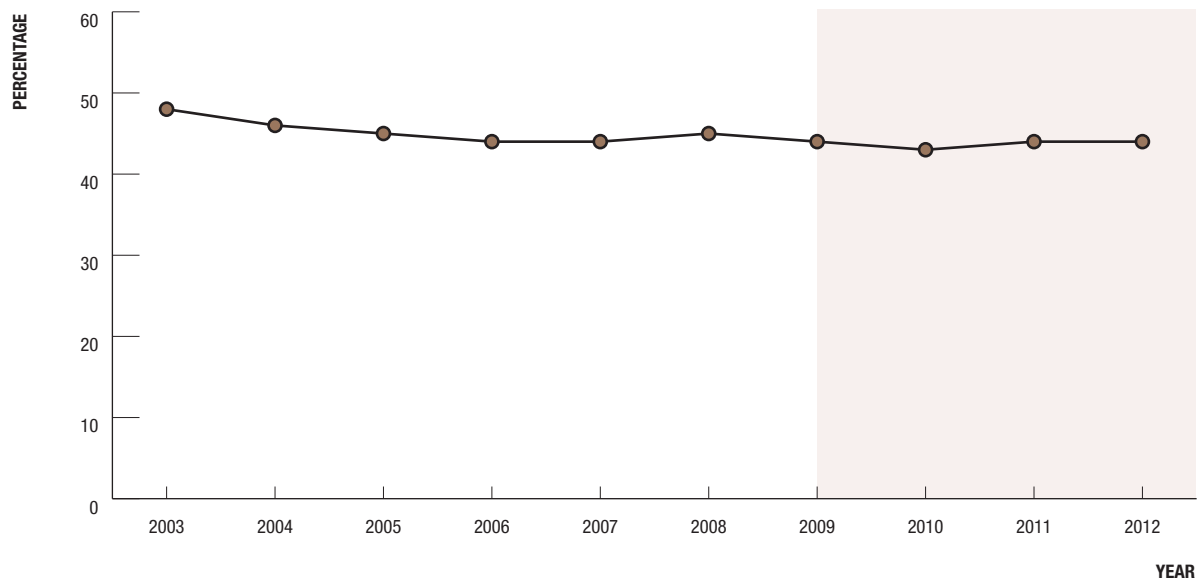
Estimated proportion of people with chronic hepatitis B who have not been diagnosed

Although large-scale population surveys with serologic testing, including testing of all those entering the population through migration or birth, would constitute the gold standard approach for estimating the true prevalence of hepatitis B infection, this is not currently feasible in Australia. Instead, estimates of undiagnosed infections are currently based on modelling estimates. Although the total number of chronically infected people who are diagnosed can be approximated (particularly in the last 10-15 years for most States and Territories) from the number of unspecified hepatitis B notifications, there is far less certainty about the denominator – the true number of people living with chronic hepatitis B infection in Australia. Regardless, the gap between the number of notifications identified as newly acquired and unspecified hepatitis B cases provide an indication of the extent of undiagnosed chronic hepatitis B infection.

Notifications of newly acquired and unspecified hepatitis

The hepatitis B model suggests that an estimated 44% of Australians living with chronic hepatitis B remained undiagnosed in 2012 (Figure 3). This estimate remained relatively stable over the past four years.

Figure 3 Model-based estimate of the proportion of people with chronic hepatitis B who have not been diagnosed in Australia, 2003 – 2012



Notification data are available for all jurisdictions, with enhanced data collection for newly acquired infections (country of birth, Aboriginal or Torres Strait Islander status) in some jurisdictions. Trends in rates of newly acquired hepatitis B were steadily declining among people in younger age groups over the past 10 years across all jurisdictions (Figure 4) and both sexes, but notification rates have recently stabilised. However, the rate of hepatitis B infection in people aged younger than 40 years were declining, showing the effect of immunisation programs, but those in people aged older than 40 years had stabilised. The stable pattern may reflect either rate of testing and/or levels of immigration from countries where there is a higher prevalence of hepatitis B. If the increase in notifications is due to changes to immigration patterns, this may also have the effect of increasing the pool of people with undiagnosed chronic infection.

Figure 4 Trends in newly acquired hepatitis B infection, 2003 – 2012, by year and (A) sex; (B) age group

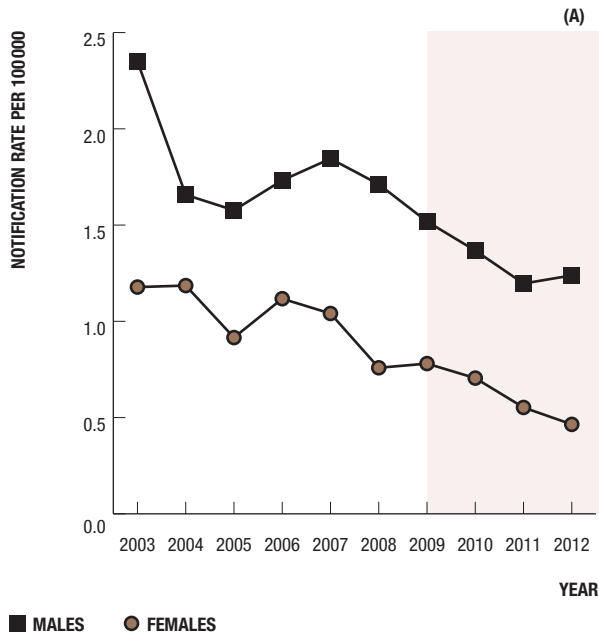
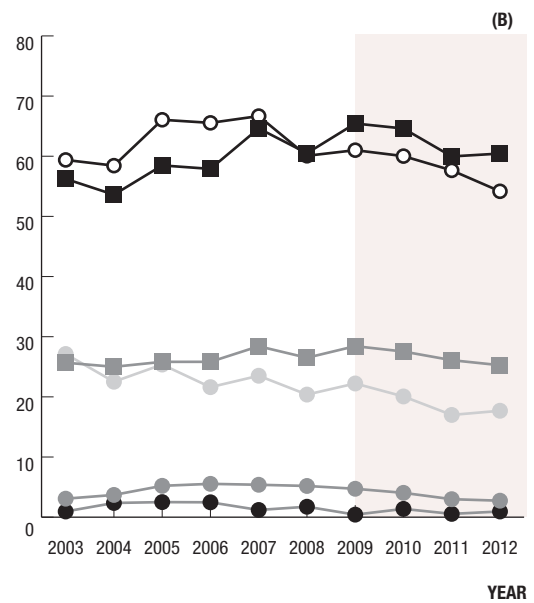
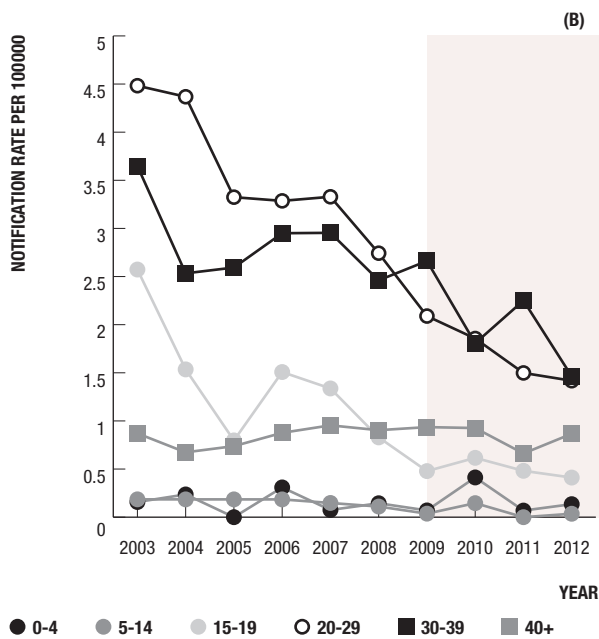
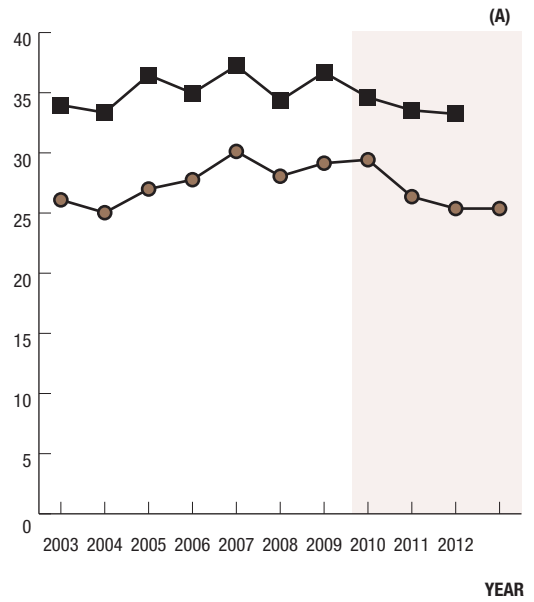


Figure 5 Trends in hepatitis B infection, 2003 – 2012, by year and (A) sex; (B) age group



Proportion of people who die from hepatocellular carcinoma within 12 months of hepatitis B diagnosis

The proportion of people who die from hepatocellular carcinoma (HCC) within 12 months of hepatitis B diagnosis is also an indicator of failure to identify and effectively treat chronic hepatitis B. HCC outcome is likely to be worse if it is detected late and symptomatically in someone not known to have chronic hepatitis B, rather than through routine monitoring in someone known to have risk factors for chronic hepatitis B infection. Reporting against this indicator is currently not possible.

Summary:

Available evidence for estimating the extent of undiagnosed chronic hepatitis B infection is relatively weak, but suggests that there has not been a substantial change in the level of undiagnosed infections over the past four years. Estimates suggest approximately 44% of chronically infected hepatitis B cases are undiagnosed.

Improve the health and wellbeing of people with chronic hepatitis B

HCC is one of the major adverse outcomes of chronic hepatitis B infection. Therefore, the number of new hepatitis B-related cases of HCC is an important measure of the hepatitis B disease burden. Increasing the number of people accessing clinical management is imperative to reducing the burden of hepatitis B. Improving the health of people with chronic hepatitis B includes clinical management through antiviral therapy and regular long-term monitoring, including for the development of HCC.

Proportion of people with chronic hepatitis B who are screened 6 monthly for hepatocellular carcinoma

Regular monitoring, every six months, for HCC among people with chronic hepatitis B enables appropriate clinical care and management. Currently there are no systems nor agreed clinical data set in place for determining the number of people with chronic hepatitis B who meet the criteria for screening who are screened every six months for HCC.

Proportion of people with chronic hepatitis B dispensed drugs for hepatitis B infection through the Highly Specialised Drugs Program

The proportion of people with chronic hepatitis B dispensed drugs for hepatitis B infection through the Highly Specialised Drugs (HSD) program is an indication of the extent of access to appropriate therapy. This indicator involves a numerator of number of people receiving therapy and a denominator of the number of people with chronic hepatitis B eligible for antiviral therapy, which can be estimated using modelling. The treatment data available for hepatitis B has serious limitations which make it unsuitable for use as part of this indicator at this time.

Repeated nationally representative serosurveys of samples of convenience could assist to estimate prevalence of chronic hepatitis B and coupled with mathematical modelling could be implemented to allow projection of prevalence estimates into the future, and to explore trends in the proportion of Australians estimated to be chronically infected with hepatitis B who are being dispensed antiviral medications under the HSD program. Current model-based estimates suggest that there will be a marked increase in the number of hepatitis B-induced liver cancer cases and deaths attributable to hepatitis B under current treatment patterns.

Summary:

No rigorous data are currently available for monitoring the health and wellbeing of people with chronic hepatitis B.



Hepatitis C

An estimated 310 000 people living in Australia in 2012 had been exposed to the hepatitis C virus, approximately 230 000 of whom were living with chronic infection^[9]. Notifications of newly acquired hepatitis C diagnoses to the National Notifiable Diseases Surveillance System in 2012 indicated that hepatitis C transmission continued to occur at the highest rate among adults aged 20-29 years, primarily those with a history of injecting drug use.

The Third National hepatitis C Strategy 2010 – 2013 identified five specific objectives, with associated indicators:

1. Reduce the incidence of hepatitis C

- Annual incidence of hepatitis C in people who inject drugs

2. Increase access to new injecting equipment through needle and syringe programs

- Per capita rate of needles and syringes distributed in the public and pharmacy sector in the previous calendar year
- Proportion of all injections by people who inject drugs in which a new needle and syringe was used in the previous calendar year
- Proportion of people who inject drugs reporting re-using another person's used needle and syringe in the previous month

3. Reduce the burden of disease attributed to chronic hepatitis C

- Estimated number of people with hepatitis C infection by stage of liver disease
- Self-reported health status by people with hepatitis C

4. Increase access to clinical care for people with chronic hepatitis C

- Proportion of people with chronic hepatitis C dispensed drugs for their infection through the Highly Specialised Drugs Program in the previous calendar year

5. Reduce hepatitis C-related stigma and discrimination in healthcare settings

- Proportion of people with hepatitis C who report discrimination in healthcare settings

Reduce the incidence of hepatitis C

The primary risk exposure for hepatitis C acquisition in high-income countries is exposure to contaminated blood during injecting drug use^[10]. Hepatitis C incidence is most accurately measured among prospective cohorts of people at risk of infection – namely, people who inject drugs (PWID) - who are documented as hepatitis C antibody and ribonucleic acid (RNA) negative at entry and are followed up at regular intervals to document their hepatitis C status (viraemia and antibody), thereby tracking seroconversions to derive an annual incidence rate based on the observed number of person years at risk.

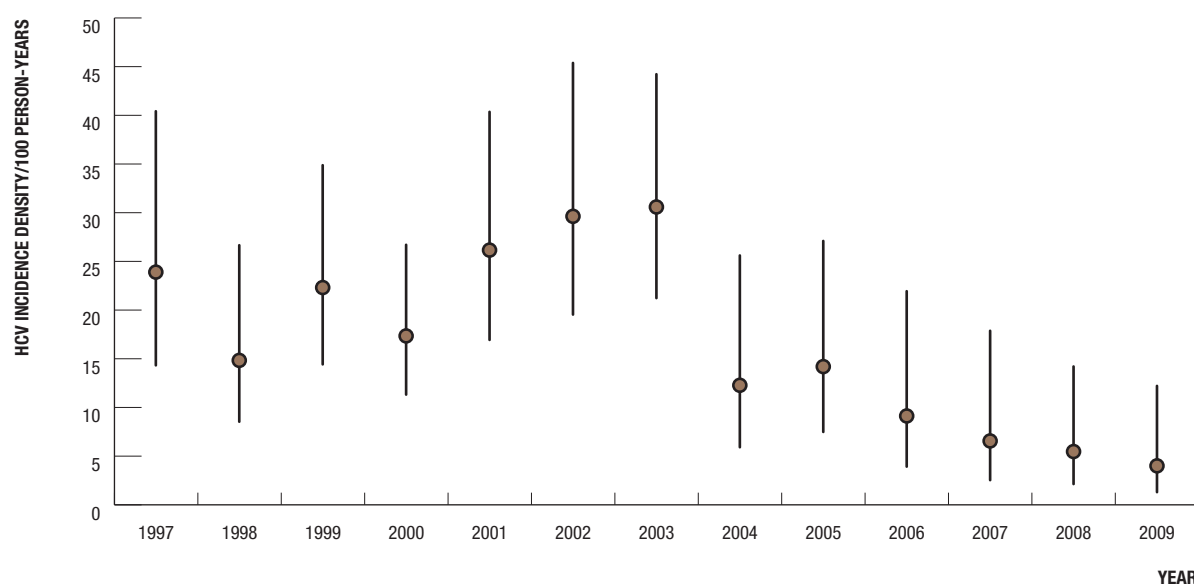
Annual incidence of hepatitis C in people who inject drugs

Other data sources can be used to monitor hepatitis C incidence but have limitations. In particular, the existing passive surveillance system, in which cases of newly acquired hepatitis C infection are notified to NNDSS, fails to capture a large proportion of new infections. Hepatitis C diagnoses may be classified as newly acquired if evidence of acquisition in the 24 months preceding diagnosis is available. However, few notifications (~3-4%) have sufficient supporting data to definitively classify cases in this manner. Significant increased resourcing would be required to identify cases of newly acquired hepatitis C, including high rates of screening of at risk people and rigorous follow-up to identify incident hepatitis C cases in all jurisdictions with limited expected yield.

Conducted annually since 1995, the ANSPS is a serial cross-sectional seroprevalence survey of clients attending needle and syringe programs (NSP) nationally which uses dried blood spots (DBS) for serological testing to derive annual estimates of HIV and hepatitis C antibody prevalence and associated risk behaviour. The representativeness of ANSPS participants relative to the broader populations of NSP clients has been demonstrated^[11].

Groups in the UK ^[12] and France ^[13] have recently demonstrated the feasibility of DBS as an alternative to serum specimens for quantifying hepatitis C RNA and genotyping the hepatitis C virus. While specimens are collected annually as part of the ANSPS and held by the Kirby Institute there are currently no resources available to support hepatitis C RNA testing of ANSPS specimens. Annual estimates of hepatitis C incidence derived by linking serological results of repeat responders showed a decline in incidence density from 30.8 per 100 person-years in 2003 to 4.0 in 2009 (Figure 6) ^[14]. This decline matches other available information on hepatitis C incidence such as hepatitis C notifications among people aged 15 – 19, which showed a similar pattern of decline that has now stabilised at a lower rate ^[9].

Figure 6 HCV incidence density among repeat Australian Needle and Syringe Program Survey respondents by year, 1997 – 2009

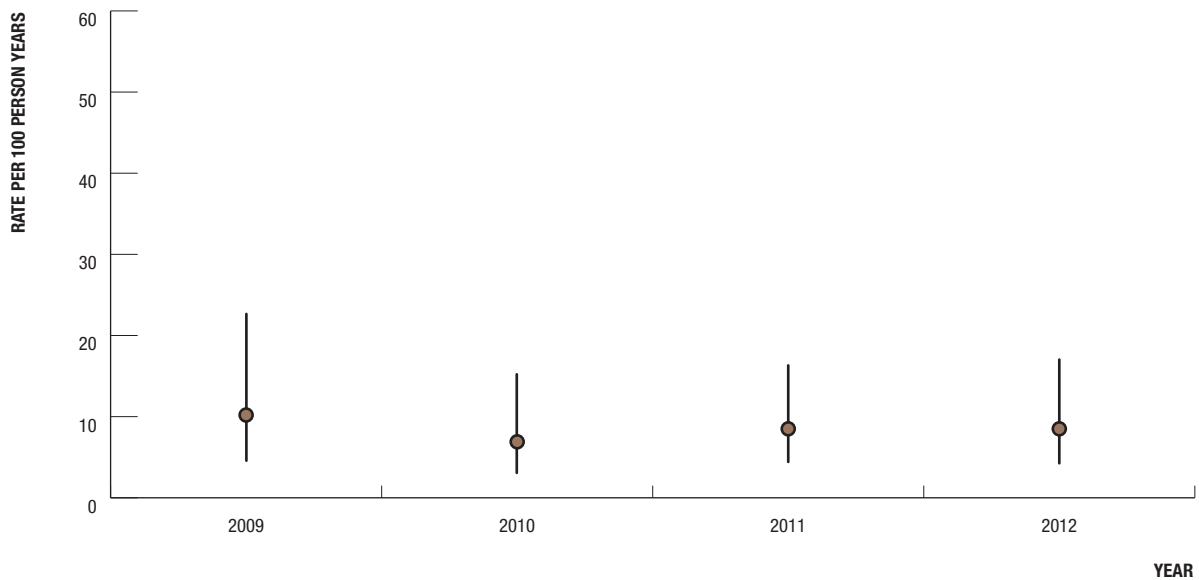


Annual incidence of hepatitis C in people who inject drugs – cohort studies

Two Australian prospective cohorts of PWID are currently maintained via (i) the NSW Hepatitis C Incidence and Transmission – community (HITS-c) study ^[15]; HITS-c is a prospective observational study of PWID who are hepatitis C antibody and RNA negative. Participants are tested for hepatitis C antibody and RNA every six months and incidence of primary hepatitis C infection is calculated among people completing at least one follow-up visit since enrolment, with date of infection estimated as the mid-point between the last negative and the first positive test for cases where antibody is detected. For cases where seroconversion is based on the presence of RNA in the absence of antibody, the estimated date of infection is four weeks prior to RNA detection.

Annual incidence levels documented by the two studies are depicted Figure 7. The HITS-c cohort incidence was relatively low and stable at 6 – 8 – 10.2/100 PY over 2009 – 2012. Estimates derived from the HITS-c cohort are substantially lower than those derived from previous Australian prospective cohort studies, which ranged up to 45.8/100 (95% CI 35.6-58.8) person years among PWID in South-West Sydney in 1999 – 2002 ^[16].

Figure 7 Annual incidence of hepatitis C in PWID enrolled in prospective observational studies: (a) HITS-c (Sydney), 2009 – 2012



Summary:

The weak evidence available suggests that hepatitis C incidence has been stable to decreasing over the time frame of the national strategies, particularly among PWID.

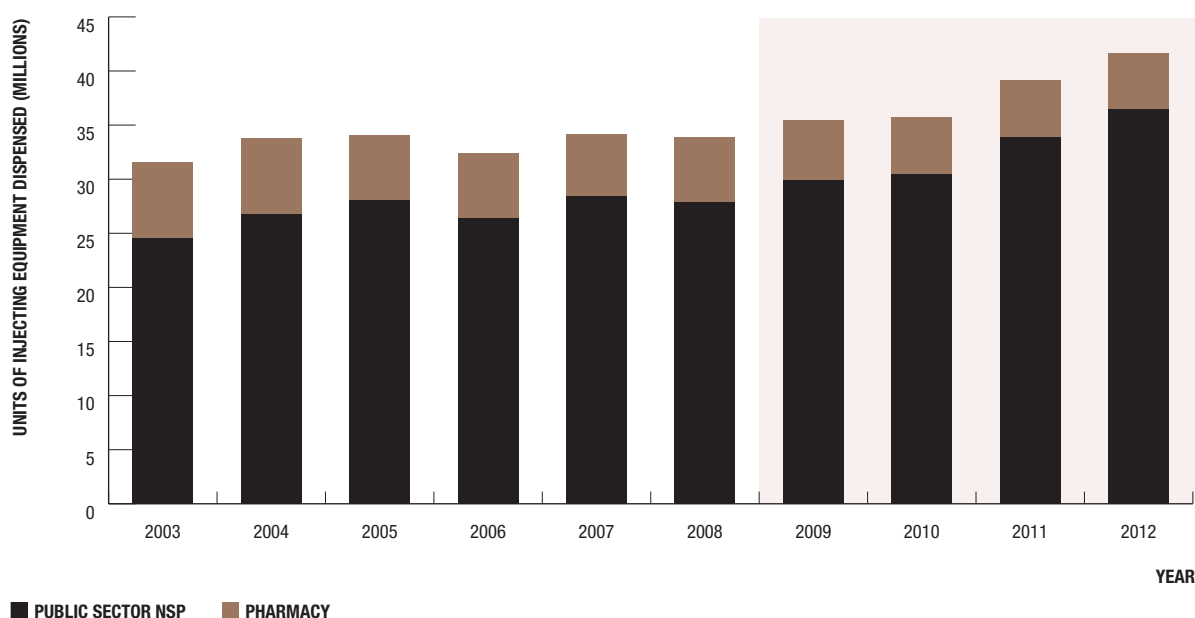
Increase access to new injecting equipment through needle and syringe programs

The number of needles and syringes distributed in Australia over the past decade increased slightly from ~32 million to ~42 million. Saturation of demand for sterile needles and syringes has not been reached ^[17]. Strategies for improving coverage include expansion of opening hours and the establishment of new NSP outlets as well as relaxation of restrictions on the quantity and range of syringes freely available to NSP clients, the removal of impediments to allow secondary exchange by PWID, and the installation of additional needle and syringe vending machines. Recent research suggest that increasing access to sterile injecting equipment could result in significant reductions in hepatitis C incidence among PWID, averting considerable morbidity and mortality and decreasing associated costs ^[17].

Rate of needles and syringes distributed in the previous calendar year

Indicators of access to sterile injecting equipment through Australia’s public and pharmacy NSPs – that is, the per capita rate of needles and syringes distributed to people who inject drugs - are not available (see below). National needle and syringe distribution data, collated by the Kirby Institute for the first time in 2012 – 2013, indicate that the number of units of injecting equipment distributed increased from about 32 million in 2003 to 42 million in 2012 (Figure 8). Most units are distributed through public sector NSP.

Figure 8 National distribution of needles and syringes, 2003 – 2012



A calculation of the *per capita rate* of needles and syringes distributed also requires an estimation of the size of the population of PWID. The Hepatitis C National BBV and STI Surveillance and Monitoring Plan Working Group recommended that the Hepatitis C Virus Projections Working Group ^[18] be reconvened and, inter alia, construct population size estimations. Currently, no data can be reported against this indicator.

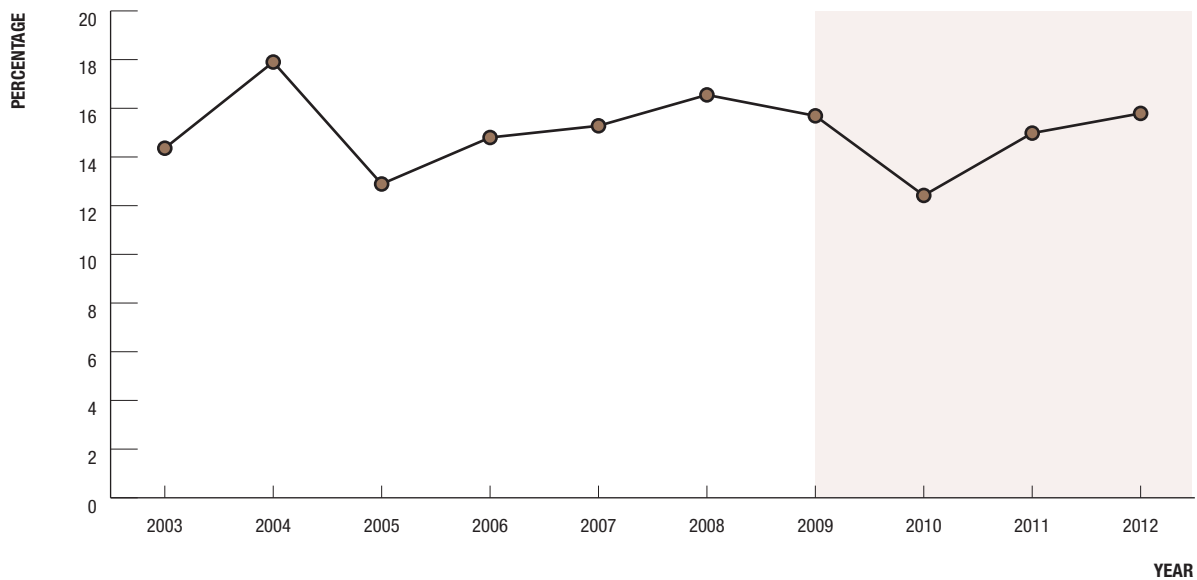
Proportion of all injections by people who inject drugs in which a new needle and syringe was used in the previous calendar year

Needle and syringe coverage is a measure of injecting episodes for which sterile needle and syringes were available. Population-based measures of sterile needle and syringe coverage typically refer to population reach or population access, whereas individual coverage measures typically refer to ‘dosage’ of an intervention ^[19]. In recent years, an alternative mechanism to calculate individual coverage has been proposed, involving calculating the proportion of injections ‘covered’ by a new needle and syringe for each individual ^[20].

Proportion of people who inject drugs reporting re-using another person’s used needle and syringe in the previous month

Each year, the ANSPS ^[21] documents the proportion of participants who report re-using another person’s used syringe in the month preceding the survey (Figure 9). In all years between 2003 and 2010, comparable minorities (12%-18%) of ANSPS samples reported receptive needle and syringe sharing (RSS) in the preceding month. Although relatively little variation has been observed in this indicator during the last decade, it is noteworthy that in 1995 (the first year in which the ANSPS was conducted), 29% of participants reported recent RSS (data not shown). However, the data depicted in Figure 8 suggests that the decline has stabilised, with around one in six ANSPS participants each year continuing to report recent re-use of another person’s used needle and syringe.

Figure 9 Proportion of ANSPS participants who reported re-using another person's used syringe in the preceding month, 2003 – 2012



Summary:

Around one in six PWID who participate in the ANSPS continue to report recent receptive syringe sharing, a proportion that has remained relatively stable during the life of the national strategies. National needle and syringe distribution data indicate an increase in the number of units distributed over the same time frame. However, population-based coverage of needles and syringes is not well known.

Reduce the burden of disease attributed to chronic hepatitis C

To plan appropriate clinical care and treatment responses to the hepatitis C epidemic, accurate estimates of the rates of hepatitis C infection and its sequelae are essential. The epidemiology of hepatitis C in Australia, combined with the natural history of hepatitis C infection, suggests that hepatitis C-related burden of disease, including advanced liver disease, is likely to increase markedly over the coming years ^[18].

There are numerous challenges to the assessment of hepatitis C-related burden of disease. Affected populations, such as PWID, Aboriginal and Torres Strait Islander people and migrant populations, may have difficulty accessing clinics and receiving routine clinical services, including referral to specialist care. This is related to both the marginalisation of the primary affected populations and barriers associated with structures and models of care, including the predominance of liver clinics located in tertiary hospital rather than primary care settings ^[22]. The largely asymptomatic nature of acute hepatitis C infection and early-stage disease progression means that hepatitis C infection and early disease progression may go undiagnosed. There is no national surveillance system for hepatitis C-related presentations at specialist clinics; this would involve collating indicators of disease progression including fibroscan™, liver biopsy or other measures, as well as recording treatment uptake by treatment type and linking this to resultant outcomes.

Estimated number of people with hepatitis C infection by stage of liver disease

Key indicators of the burden of chronic hepatitis C infection include estimates of the number of people living with chronic infection by stage of liver disease, including those with chronic hepatitis C infection with stage F0/1 liver disease; those with chronic hepatitis C infection with stage F2/3 liver disease; and those living with hepatitis C-related cirrhosis. Estimates of the number of people living with hepatitis C infection by stage of liver disease are currently obtained through mathematical modelling, which suggests that there is a high and increasing burden of hepatitis C-related morbidity in Australia (Table 1). The Hepatitis C National BBV and STI Surveillance and Monitoring Plan Working Group recommended that these estimates be updated by a reformed Hepatitis C Virus Projections Working Group ^[18].

Table 1 Estimated average number of people living with hepatitis C infection by year and stage of liver disease, 2008 – 2012 (plausible ranges are provided for 2012 only)

Characteristic	2008	2009	2010	2011	2012
Total hepatitis C prevalence	284 000	291 000	297 000	304 000	310 000 (239 000 – 391 000)
Exposed to hepatitis C but not chronically infected	72 100	74 000	76 000	77 300	80 000 (60 800 – 99 200)
Chronic hepatitis C infection with stage F0/1 liver disease	162 000	165 000	168 000	170 900	173 500 (132 000 – 215 000)
Chronic hepatitis C infection with stage F2/3 liver disease	44 000	46 000	48 000	49 500	51 500 (39 100 – 63 700)
Living with hepatitis C-related cirrhosis	5 700	5 920	6 100	6 300	6 500 (4 550 – 8 450)
Hepatitis C-related liver failure	229	237	245	253	260 (182 – 338)
Hepatitis C-related hepatocellular carcinoma	115	118	122	127	132 (92 – 172)

Self-reported health status by people with hepatitis C

The second indicator of hepatitis C-related burden of disease is the self-reported health status of people living with chronic infection. Self reported health measures multiple health domains, including the physical, psychological, social and functional. The self reported nature of such an indicator and the broad domains that it covers provide an important subjective assessment of the impact of hepatitis C on the lived experiences of those affected. There are currently, however, no data collections available to adequately measure this indicator.

Summary:

Currently, limited rigorous data are systematically collated to allow comprehensive monitoring of hepatitis C-related burden of disease. Modelled estimates suggest that hepatitis C-related burden of disease, including advanced liver disease, is high and has increased over the period of the national strategies, but this data is based on an outdated model. There are currently no data collections available to adequately measure self-reported health status among people living with chronic hepatitis C infection.

Increase access to clinical care for people with chronic hepatitis C

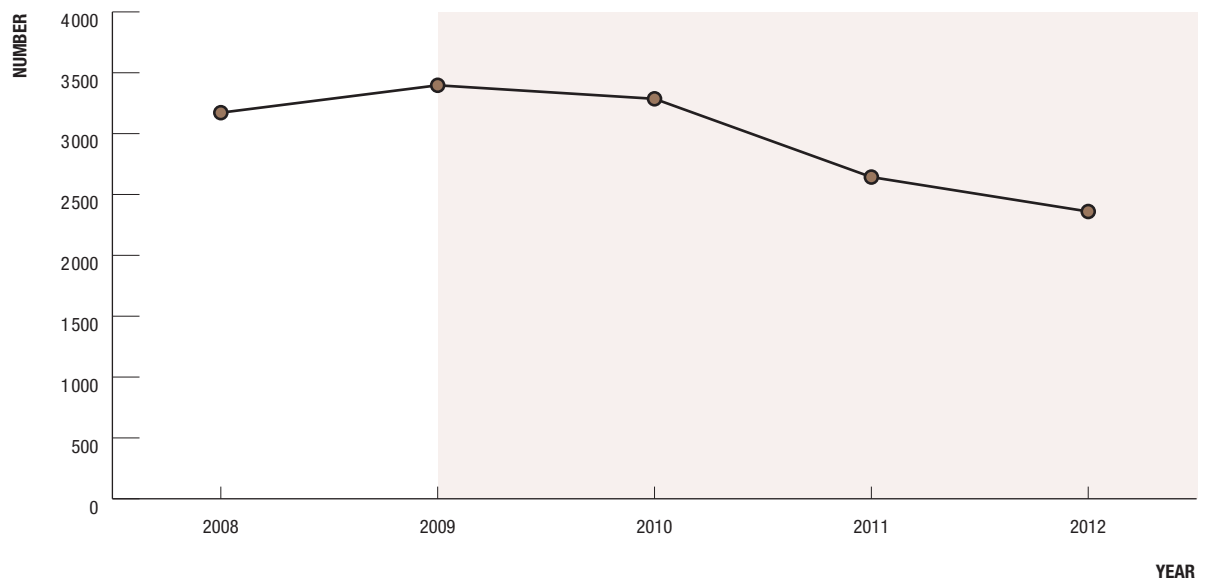
In 2006, the Hepatitis C Virus Projections Working Group ^[23] estimated that under current combination antiviral treatment scenarios, the numbers of people living with chronic hepatitis C infection and more advanced stage F2/3 liver disease or cirrhosis would increase approximately 40% by 2015. Projections suggested that to decrease the numbers of people living with chronic hepatitis C and stage F2/3 liver disease or cirrhosis, at least a tripling of the number of people receiving antiviral therapy would be required.

Proportion of people with chronic hepatitis C dispensed drugs for their infection through the Highly Specialised Drugs Program in the previous calendar year

The proportion of people with chronic hepatitis C dispensed drugs to treat their infection is an important indicator to estimate current treatment coverage and the extent of unmet need for hepatitis C treatment, and to inform the development and refinement of models of care to reduce barriers to treatment among some populations. Monitoring this indicator over time will also help evaluate the effectiveness of interventions or changes in policy and practice designed to facilitate treatment access and improve treatment coverage.

The number of people dispensed antiviral therapy for chronic hepatitis C infection is obtained from the HSD Program. Figure 10 displays the number of people dispensed drugs for hepatitis C infection through the HSD Program. The number of people living with chronic hepatitis C for whom treatment would be indicated (the denominator of the indicated proportion) cannot currently be robustly determined. The numerator data (Figure 10) indicate that access to antiviral therapy for chronic hepatitis C reached a peak of 3 397 people in 2009 and has since fallen to 2 360 in 2012. This decline may be due to people putting off treatment in anticipation of the new generation of hepatitis C drugs and the large number of patients being treated in phase II/III clinical trials over the past 2 – 3 years. Historically the proportion of chronically infected people receiving hepatitis C treatment has been very low (based on denominators inferred from Table 1). A further challenge is to establish consensus in relation to who should be recommended for treatment. The new hepatitis C drugs are expected to make treatment easier to tolerate and more effective, but at an additional cost. There is also no systematically recorded data available to determine the characteristics of those receiving treatment to identify potential gaps in the delivery of specialist treatment services to sub-populations of those with chronic hepatitis C. For example, from 2008-2010 only 10-12% of PWID participating in the ANSPS report a history of antiviral treatment ^[21, 24].

Figure 10 Number of people dispensed drugs for hepatitis C infection through the HSD Program, 2008 – 2012



Summary:

Data suggest the number of people receiving antiviral therapy for chronic hepatitis C has declined over the past four years. This is likely due to people deferring treatment in anticipation of the next generation of hepatitis C drugs. Other evidence indicates that the proportion of chronically infected people receiving hepatitis C treatment is low at only 10 - 12%.

Reduce hepatitis C-related stigma and discrimination in healthcare settings

Proportion of people with hepatitis C who report discrimination in healthcare settings

Many PWID are reluctant to access health care from conventional providers for reasons which include the stigma and discrimination perceived by this group within healthcare settings ^[25]. Accessible and acceptable health care is nevertheless essential for this group, including the subpopulation of PWID diagnosed with chronic hepatitis C infection, many of whom report poor health and low levels of wellbeing ^[26]. Access to health care has the potential to reduce the personal and social impact of hepatitis C; to support reductions in hepatitis C transmission; to maximise affected people's access to hepatitis C treatment and support; and to inform the nature and scope of interventions aimed at reducing hepatitis C-related stigma and discrimination within health care settings ^[27]. However, in order to facilitate access, barriers to access need to be reduced or removed entirely, including the barrier constituted by perceived discrimination. Currently no routine data collections exist from which robust and comparable indicators can be derived of stigma and discrimination among people living with chronic hepatitis C infection.

Many challenges are inherent in the assessment of stigma and discrimination. These include the difficulties of operationalising stigma and discrimination and developing reliable measures that are understood by study participants. The Centre for Social Research in Health (CSRH) has recently developed two questionnaires that ask about the experiences of people with HIV who endure stigma and discrimination, especially in health care settings. These have been tested for reliability and have demonstrated face validity but the construct of the validity requires confirmation.

Although it is possible to measure indicators of discrimination, the confounding of injecting drug use with hepatitis C infection means that it is difficult to attribute the aetiology of stigma and discrimination. The NSW Anti-Discrimination Board Enquiry into hepatitis C Related Discrimination ^[28] found that discrimination against people living with hepatitis C infection was a result of the association between hepatitis C and injecting drug use, itself an illegal and highly stigmatised activity, as well as poor knowledge about hepatitis C.

Ideally, the key indicator of hepatitis C-related discrimination and stigma would be collected via national, periodic cross-sectional, community-based surveys that use a stratified sampling frame (e.g. 80% PWID, 10% migrant, 5% iatrogenic, 5% other) to recruit people living with hepatitis C infection at sentinel sites, where data are collected at least annually, and where the survey items about stigma and discrimination are highly reliable and valid.

Summary:

Currently, no routine data collections can be used to derive estimates of the prevalence of hepatitis C-related discrimination and stigma.

HIV

By the end of 2012, an estimated 25 708 people were living in Australia with diagnosed HIV infection, giving a prevalence of 115 per 100 000 population (or 0.1%). The population rate of HIV diagnosis among males (202 per 100 000 (23 037 cases) was almost 10 times the rate among females (24 per 100 000, 2 671 cases). An estimated 70-80% of people living with HIV were infected through homosexual contact (mostly among gay-identified men), ~15% through heterosexual contact (approximately half of which are among people from high-prevalence countries or their partners), and 3% through injecting drug use. Less than 1% of HIV infections were among children aged less than 15 years.

The Sixth National HIV Strategy 2010 – 2013 identified six specific objectives, with associated indicators:

1. Reduce the incidence of HIV

- Rate of newly acquired HIV infection
- Estimated incidence of HIV

2. Reduce the risk behaviours associated with the transmission of HIV

- Proportion of gay men who have engaged in unprotected anal intercourse with casual male partners in the previous six months
- Proportion of people who inject drugs reporting re-use of someone else's needle in previous month

3. Increase the proportion of people living with HIV on treatments with undetectable viral load

- Proportion of treatment-eligible people living with HIV who are receiving antiretroviral treatment

4. Decrease the number of people with undiagnosed HIV infection

- Proportion of gay men who have been tested for HIV in the previous twelve months
- Number of people who inject drugs who have been tested for HIV in the previous twelve months
- Proportion of cases of newly diagnosed HIV infection that have a CD4 count of < 200 cells/ μ l

5. Improve the quality of life of people living with HIV

- Proportion of people with HIV who report their general health status and their general wellbeing to be excellent or good

Reduce the incidence of HIV

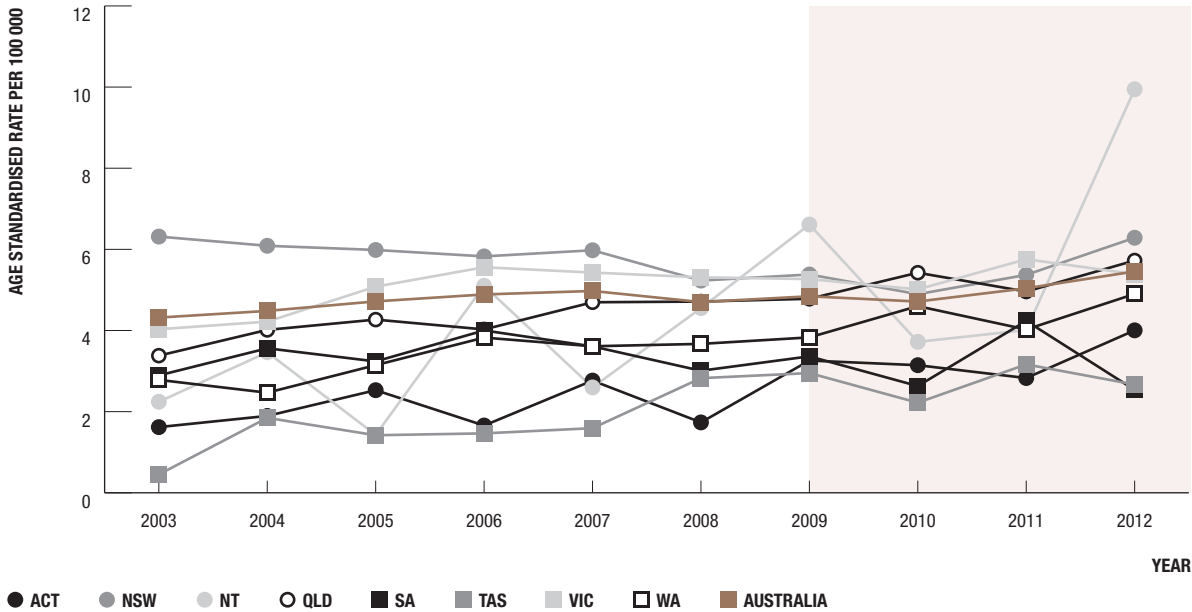
HIV incidence indicates the pattern of HIV transmission in a population and is best measured in cohorts of people at risk of HIV infection, who are documented as having a negative HIV antibody test at entry into the cohort and are followed up at regular intervals over time to document their HIV status and track potential seroconversion. If cohorts are sufficiently large, and representative of the population group(s) of interest, then good estimates of incidence can be obtained. However, it is not feasible to recruit, maintain and use such cohorts for estimating incidence in the Australian population.

Rate of newly acquired HIV infection

Reported numbers of diagnoses of HIV are used to monitor the trends of transmission in Australia. However, trends in diagnoses may only reflect trends in incidence if testing is relatively frequent and rates are relatively constant among people at risk of HIV infection. Trends in the subset of HIV diagnoses with evidence of infection occurring in the previous 12 months (based on testing history, primary HIV infection, or from serological assays) are more reflective of incident cases than all HIV diagnoses, but the numbers also depend on testing patterns among people who have recently acquired HIV. The introduction of routine testing of cases of newly diagnosed HIV infection, using specialised laboratory tests such as the BED capture enzyme immunoassay (BED-CEIA) for detecting incident HIV infection within 180 days of diagnosis, has the potential to provide a more complete indication of recent HIV transmission than does surveillance for newly acquired HIV infection.

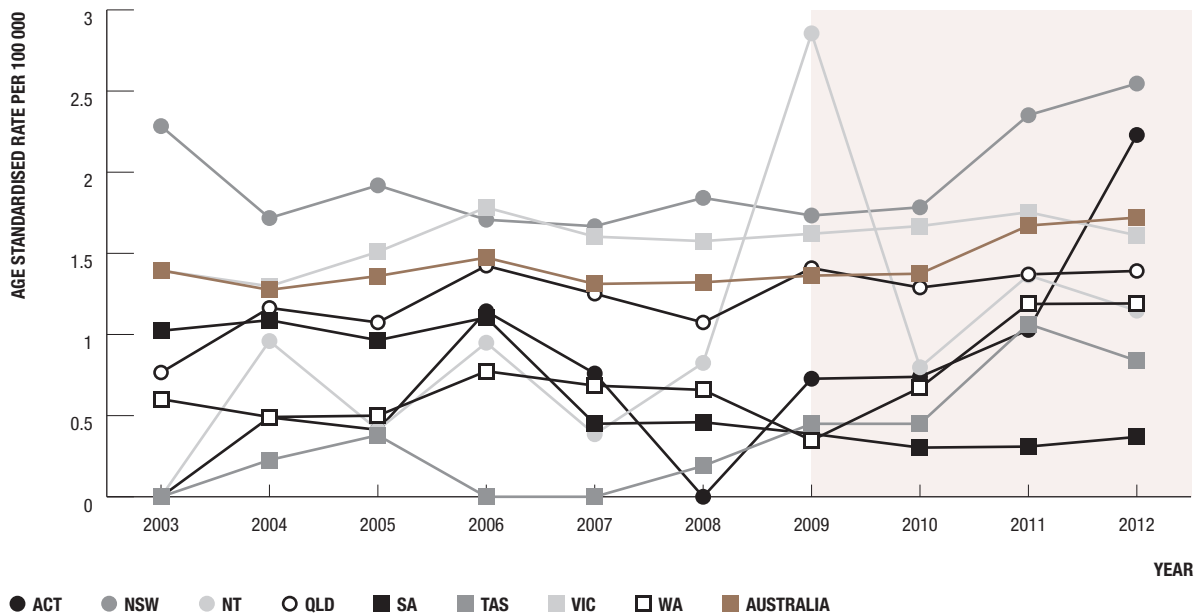
Trends in newly diagnosed HIV infection and diagnosed cases of newly acquired infection are presented in Figure 11 and Figure 12, by State/Territory. Across Australia there has been an increase in the rate of HIV diagnosis over the period of the national strategy, from approximately 4.8 per 100 000 in 2009 population to 5.5 per 100 000 population in 2012 (Figure 11). A similar relative increase was observed among the subset of HIV diagnoses with evidence of recently acquired infection (Figure 12). Use of the BED-CEIA among cases newly diagnosed in 2012 resulted in an increase of 30% in the detection of cases of recent infection over the diagnosed cases of newly acquired infection ^[9].

Figure 11 Age-standardised rate of newly diagnosed HIV infection, 2003-2012, by year and State/Territory



Historically, New South Wales has had the highest rate of HIV infection which had slightly decreased, but recently experienced increases in new HIV diagnoses. Increases in new diagnoses have also been seen in the Australian Capital Territory, Queensland and Western Australia over the life of the national strategies. The rate of diagnosis has remained steady in other Australian jurisdictions between 2009 and 2012.

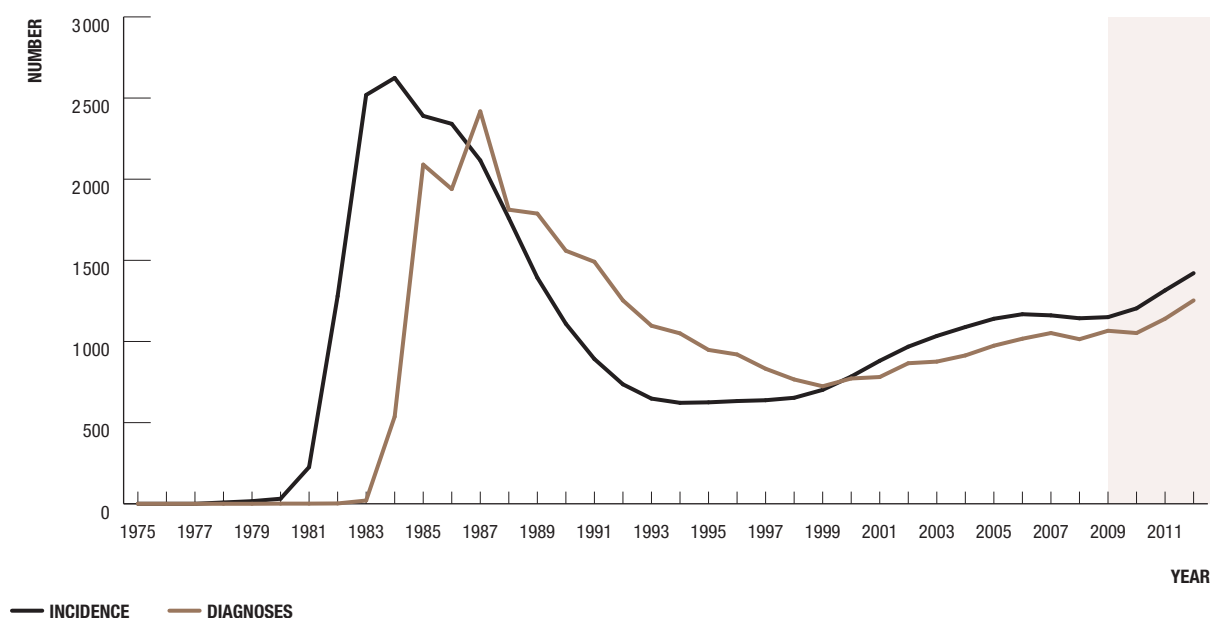
Figure 12 Age-standardised rate of newly acquired HIV infection, 2003-2012, by year and State/Territory



Estimated incidence of HIV

A statistical approach called back-projection has been widely used to estimate HIV incidence and the number of undiagnosed infections in numerous international contexts. This methodology has been applied to surveillance data in Australia to estimate HIV incidence ^[29]. This method confirms that trends in diagnoses reasonably reflect trends in incidence, albeit with a delay, and that HIV incidence in Australia began increasing in 2010 following a five year plateau.

Figure 13 Historical observed HIV diagnoses in Australia and back-projected incidence curves, 1975 – 2012



Summary:

There is reasonably strong evidence that HIV incidence across Australia has increased over the lifetime of the national strategies.

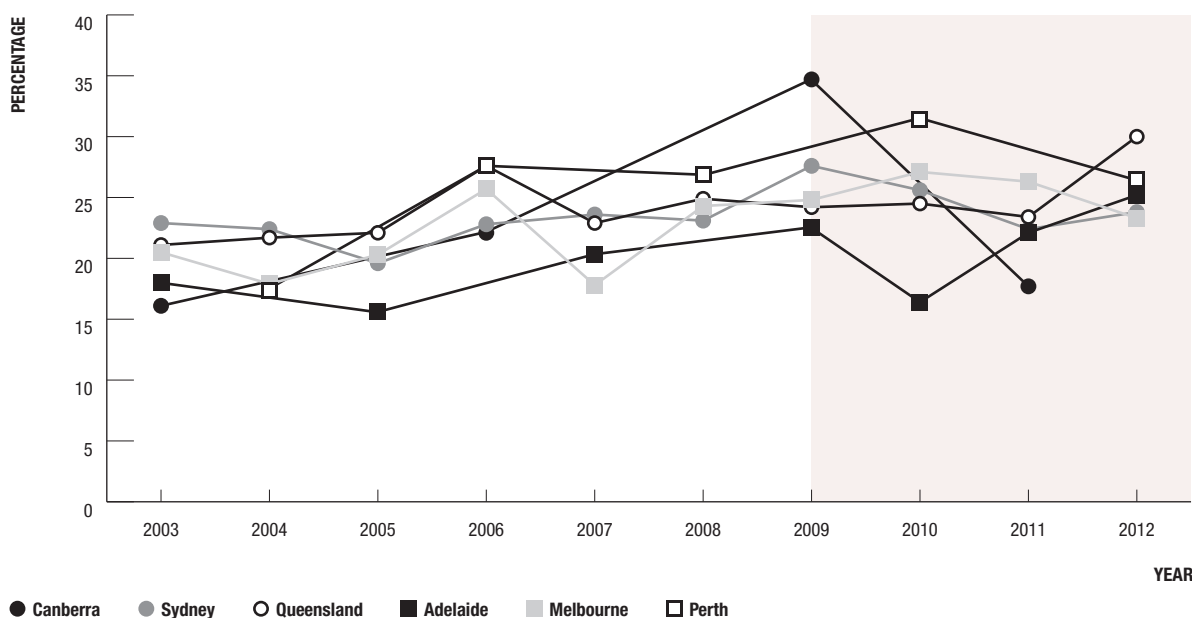
Reduce the risk behaviours associated with the transmission of HIV

Dominant risk behaviours are proven to be good indicators of subsequent trends in HIV infection [30]. In Australia, the dominant risk factor for HIV infection is unprotected anal intercourse between men specifically that between casual partners who are not seroconcordant.

Proportion of gay men who have engaged in unprotected anal intercourse with casual male partners in the previous six months

Information available through the Gay Community Periodic Surveys (GCPS) indicates that the proportion of HIV-negative men who reported any unprotected anal intercourse with casual male partners in the previous six months was stable around 22% in 2009 – 2012 (Figure 14).

Figure 14 Prevalence of unprotected anal intercourse with casual partners, 2003 – 2012, reported by men in Gay Community Periodic Surveys



Over the past decade it has been noted that increasing proportions of gay men are adopting non condom-based methods of risk-reduction, such as serosorting (restricting all unprotected anal intercourse to partners of the same HIV status) ^[31], seropositioning (choosing sexual position based on both partners' HIV status during unprotected anal intercourse with partners of differing HIV status) ^[32], withdrawal (not permitting ejaculation in the rectum during unprotected anal intercourse), and use of viral load (permitting unprotected anal intercourse with an HIV-positive partner only when his viral load is undetectable) ^[33]. Each of these strategies differs in relative effectiveness, but use of such strategies appears to account for a proportion of unprotected anal intercourse among gay men that may be increasing ^[34, 35]. These changes in behaviour suggest that the blunt measure of unprotected anal intercourse may not be able to capture changes in the risk of HIV transmission during sexual contact between gay men as reliably or with sufficient detail as might be ideal.

Proportion of people who inject drugs reporting re-use of someone else's needle in previous month

Monitoring risk behaviours among people who inject drugs is essential to ensure that an HIV epidemic does not emerge among this priority population. Evidence from international settings suggest that if HIV epidemics emerge among people who inject drugs then a bridge is built to facilitate a more general epidemic. The proportion of people who inject drugs seen through the Australian needle and syringe program, who reported having re-used another person's used syringe has remained stable over the past 10 years at around 13 – 14% (Figure 9).

Summary:

Sexual behavioural risk, measured through the GCPS by reports of unprotected anal intercourse with casual partners, was stable at about 22% between 2009 and 2012. Some of this increase is likely to reflect serosorting between men and other risk reduction strategies. The extent of sharing of used syringes by people who inject drugs seen through needle and syringe programs is about 13 – 14% and has not changed over the life of the national strategies.

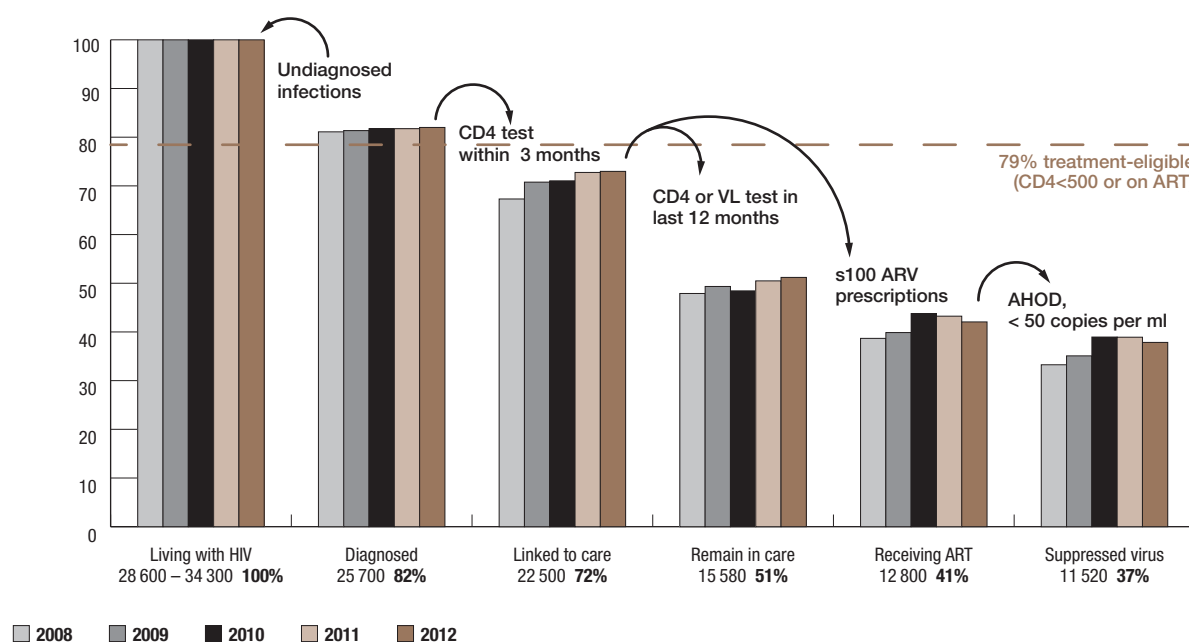
Increase the proportion of people living with HIV on treatments with undetectable viral load

Effective antiretroviral therapy leads to the reduction of viral load to undetectable levels. Suppressed viral load improves the health of persons living with HIV. In addition, suppressed viral load reduces the chance of transmitting HIV infection to other people. In Australia there is no coordinated system for collecting data on all people living with HIV after the time of diagnosis.

Proportion of treatment-eligible people living with HIV who are receiving antiretroviral treatment

To increase the proportion of people living with HIV on treatments with undetectable viral load it is essential to understand the proportion of people living with HIV who are undiagnosed, the proportion who are diagnosed and on antiretroviral treatment and then the proportion of these people who have undetectable viral load (Figure 15). The number of people receiving antiretroviral treatment was estimated from numbers of antiretroviral drugs dispensed for HIV infection through the HSD Program adjusted by the proportion of people monitored through the Australian HIV Observational Database (AHOD) who were prescribed the same drugs (see Methodological notes in ^[9]).

Figure 15 HIV treatment cascade / continuum of care, 2008 – 2012



The estimates in the HIV treatment cascade have been derived as follows:

- **Number of people living with HIV infection** is an extrapolation of the estimated number of people with diagnosed HIV infection, which includes the estimated back-projection model-based proportion of people with undiagnosed HIV infection.
- **Number of people with diagnosed HIV infection** is an estimate created by adjustments to the cumulative number of notifications made to the National HIV Registry to account for mortality among people living with HIV (Kirby Institute, 2013).
- **Number of people linked to care** is an estimate of the proportion of people notified to the National HIV Registry who have received a CD4 count within 3 months of diagnosis.
- **Number of people who remain in care** is an estimate of the number of people living with HIV who receive a leucocyte surface antigen (CD4) or viral load (VL) test in the past 12 months; data on number of CD4 and viral load tests billed to medicare is adjusted according to the distributions of frequency combinations of CD4 /VL tests by people in care recorded in the Australian HIV Observation Database (AHOD) cohort.

- **Number receiving ART** is an estimate based on data on prescriptions for HIV treatment provided by the Highly Specialised Drugs Program, adjusting to reflect regimen combinations of antiretroviral drugs as recorded in AHOD (Kirby Institute, 2013).
- **Number with suppressed virus** is derived from the proportion of people receiving ART in AHOD who have less than 50 copies per ml at last VL test.

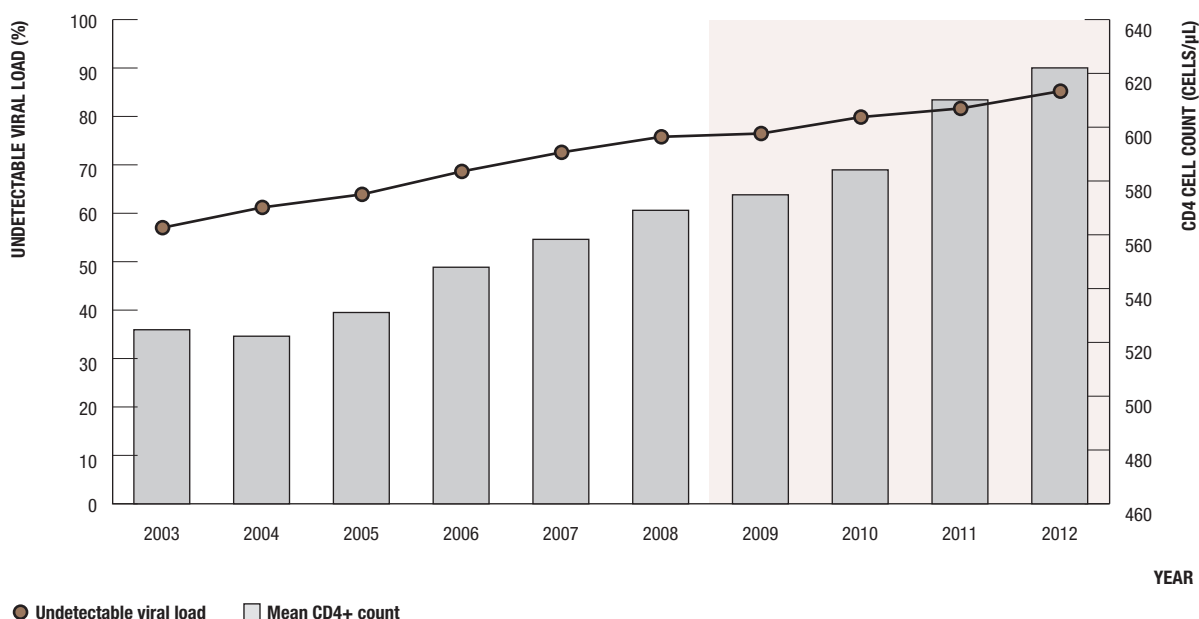
The estimated number of people dispensed antiretroviral treatment for HIV infection, based on data available through the HSD Program, increased steadily from 10 900 in 2009 to 12 800 in 2012. The estimated number of people living with HIV infection has also increased, from 21 171 in 2009 to 25 708 in 2012. The estimated proportion of people living with HIV infection who were dispensed antiretroviral treatment has remained stable at around 50% over the past four years. The proportion of men with diagnosed HIV infection in Sydney and Melbourne reporting use of antiretroviral treatment increased from 74% and 61% in 2009, to 80% and 78% in 2012 respectively ^[36]. Use of antiretroviral treatment by men with diagnosed HIV infection in Adelaide, Canberra and Perth combined, had also increased to over 80% in 2012, with Queensland reporting the lowest uptake of treatment at 70% in 2012.

Proportion of people receiving antiretroviral treatment for HIV infection whose viral load is less than 50 copies/mL

AHOD is a cohort containing a relatively large number of people living with HIV in Australia, recording data on viral load among people receiving antiretroviral therapy. It measures the proportion of people living with HIV in clinical care who have undetectable viral load but it should be noted that the cohort may not be representative of all people living with HIV in Australia, particularly since it is an ageing cohort. Greater recruitment of people newly diagnosed with HIV infection into the cohort would be valuable.

The proportion of people enrolled in AHOD whose viral load was less than the specified assay sensitivity (50 copies/ml) increased from 76% in 2003 to 85% in 2012 (Figure 16).

Figure 16 HIV viral load and CD4+ cell count, 2003 – 2012



Summary:

There has been a steady increase in the number of people dispensed antiretroviral treatment for HIV infection over the period of the national strategies. However, the estimated proportion (50%) of people living with HIV infection who were dispensed antiretroviral treatment does not appear to have changed over this period, or may have even declined. The extent of viral suppression among people on antiretroviral therapy (ART) has substantially increased over this period to ~85%.

Decrease the number of people with undiagnosed HIV infection

There is a critical role for effective and timely HIV antibody testing for minimising ongoing HIV transmission, minimising the morbidity and mortality caused by HIV, minimising the personal and social impact of HIV infection, and for more accurate population-level surveillance^[37]. Late HIV diagnoses leads to late initiation of antiretroviral treatment for minimising the risk of progression of HIV disease and for minimising the risk of onwards HIV transmission.

Proportion of gay men who have been tested for HIV in the previous twelve months

HIV antibody testing reported in the last 12 months by men participating in the GCPS who had not been diagnosed with HIV infection has remained stable at about 60% between 2009 and 2012 (Figure 17). Among men who had had at least 10 male sexual partners in the previous 6 months, HIV antibody testing in the previous 12 months increased slightly from 77% in 2009 to almost 80% in 2012. HIV antibody testing within the previous 12 months also increased from around 64% in 2009 to 67% in 2012 among men who had not been diagnosed with HIV infection and who reported any unprotected anal intercourse with casual partners. Levels of undiagnosed infections could be estimated more directly by supplementing GCPS data collection with the inclusion of saliva or dry blood spot collections for HIV testing.

Figure 17 Men without diagnosed HIV infection participating in the GCPS, who tested for HIV antibody in the 12 months prior to the survey, 2003 – 2012, by year and city

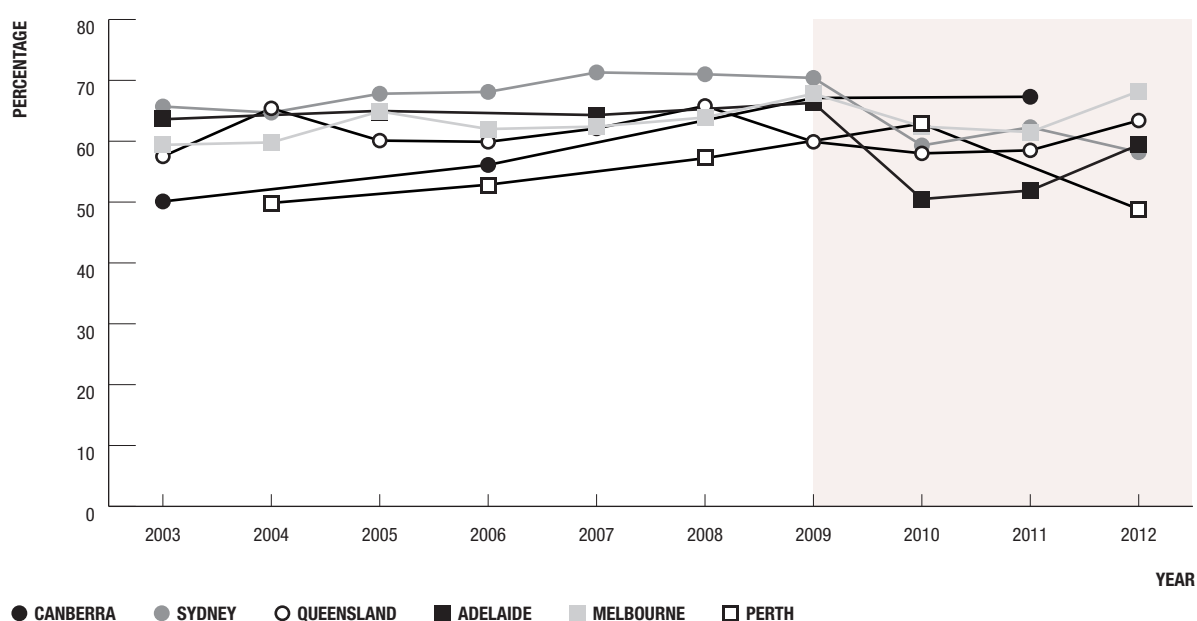
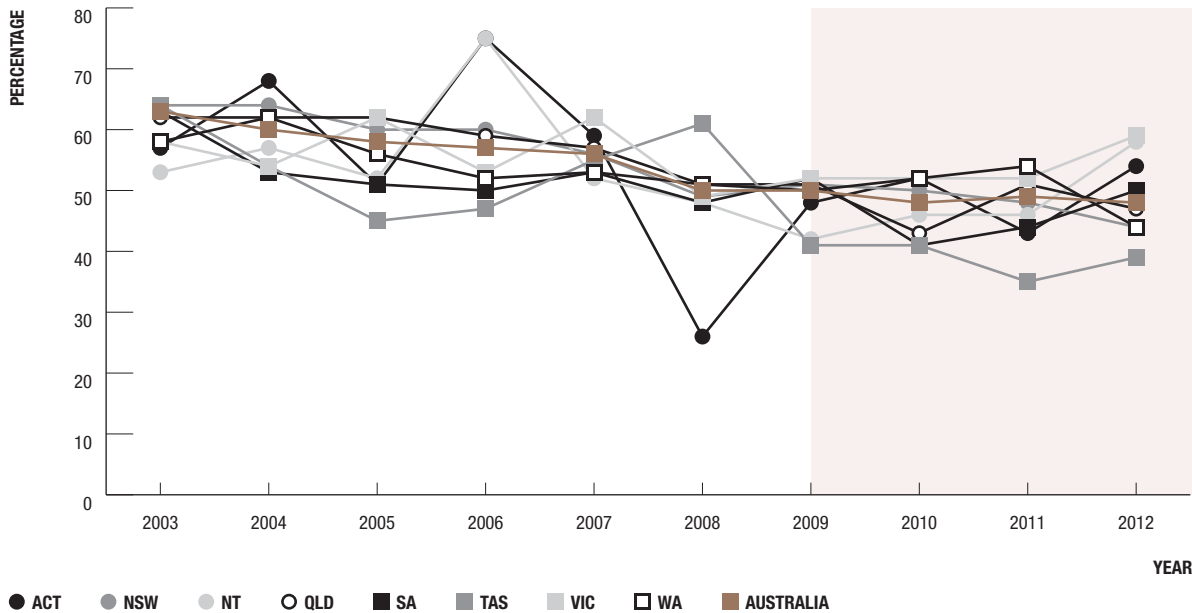


Figure 18 Proportion of ANSPS participants who reported testing for HIV in the previous 12 months, 2003 – 2012 by year and State/Territory



Number of people who inject drugs who have been tested for HIV in the previous twelve months

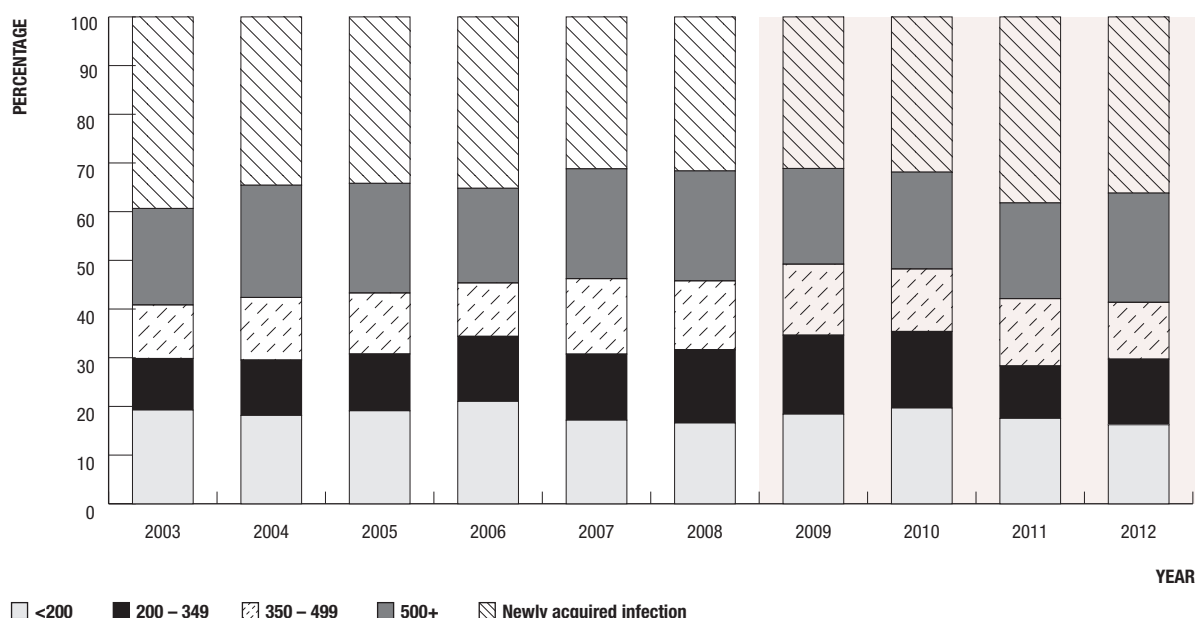
The proportion of people participating in the ANSPS who reported having had an HIV antibody test in the previous 12 months declined from 50% in 2009 to 48% in 2012 (Figure 18). The decline in recent HIV antibody testing may be associated with the change in the age structure of PWID in Australia.

The proportion of ANSPS participants aged less than 25 years decreased from 11% in 2009 to 7% in 2012, and the proportion aged 25 years and older increased from 89% in 2009 to 93% in 2012. HIV prevalence was highest among people aged 35 years and older.

Proportion of cases of newly diagnosed HIV infection that have a CD4 count of < 200 cells/ μ l

Among cases of newly diagnosed HIV infection with a reported CD4+ cell count, the proportion whose CD4+ cell count was less than 200 cells/ μ l remained stable at around 18% over the past four years, 2009 – 2012 (Figure 19). The proportion with an advanced HIV diagnosis was lowest among MSM at 13% but they account for about 50% of diagnoses in people with advanced HIV. Advanced HIV diagnosis was highest at around 25-30% among cases from a high prevalence country and cases with an undetermined exposure.

Figure 19 CD4+ cell count at HIV diagnosis, 2003 – 2012



Summary:

There is mixed evidence about the extent and trends in undiagnosed HIV infections in Australia. Men participating in GCPS who report high numbers of sexual partners, or unprotected anal intercourse with casual partners, have reported increasing rates of HIV testing. However, reported testing rates have been stable among all gay men. There has been a slight decrease in the reported HIV testing rates among people who inject drugs seen through needle and syringe programs. However, the distribution of CD4 counts at diagnosis has not markedly changed over time. Overall, there is inconclusive evidence about trends in undiagnosed HIV infections.

Improve the quality of life of people living with HIV

Within the goal of the Sixth National HIV Strategy is the aim to minimise the personal and social impact of HIV infection. The National Strategy also identifies, through the guiding principles and priority areas for action, the need to tackle stigma, isolation, mental health and other social impacts of HIV infection. These quality of life indicators cannot be easily measured by biomedical indicators.

Proportion of people with HIV who report their general health status and their general wellbeing to be excellent or good

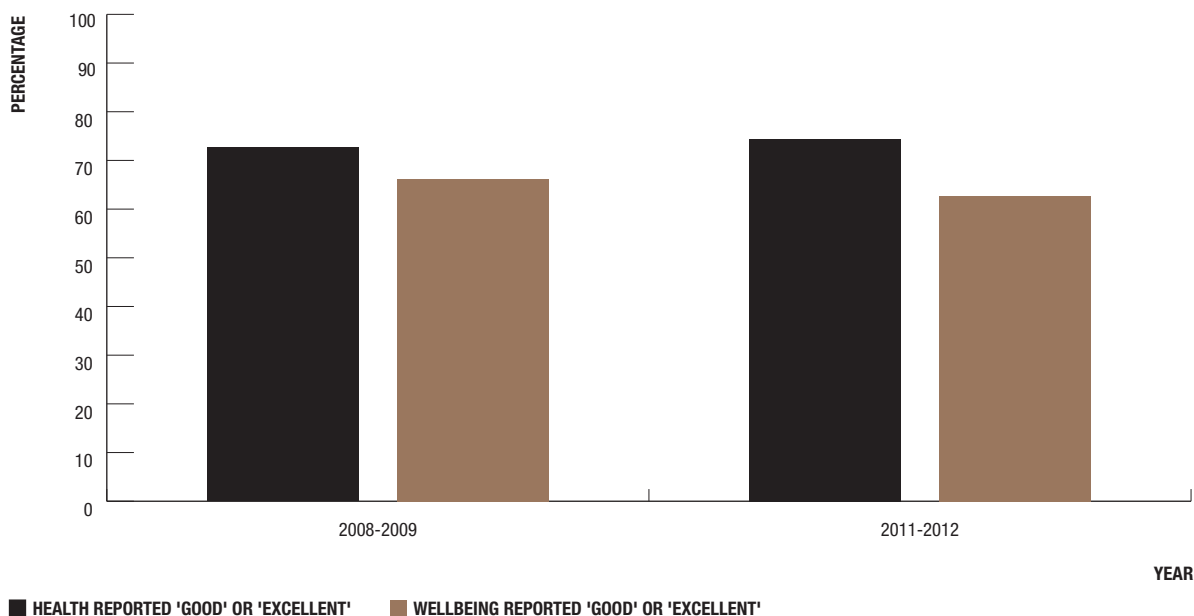
Currently, the Futures study is the only regular cross-sectional study of the experiences of people living with HIV nationally for which there exists a baseline and trends, and it is from this study that a general indicator has been derived to report on the quality of life of people living with HIV. Specifically, the proportion of people with HIV who report their general health status and their general wellbeing to be excellent or good in the Futures study has been identified as a measurable indicator for characterising the perceived quality of life of people living with HIV. This measure is intended to complement the clinical indicators related to people living with HIV to provide a broad indication of the morbidity and the social impact of HIV infection.

The HIV Futures Study is conducted every 2-3 years and is a national cross-sectional survey of people living with HIV. HIV Futures 7 was the latest of these anonymous self-administered surveys to be completed, sampling 1 058 people living with HIV infection in Australia ^[38]. The survey was carried out over 6 months from October 2011 to March 2012.

Among people living with HIV infection who participated in HIV Futures 7 survey, 74.4% of respondents reported their health as 'good' or 'excellent'. Self rating of wellbeing was reported as 'good' or 'excellent' by 63% of respondents. These proportions were similar to those reported in HIV Futures 6, which was conducted in 2008 – 2009 (Figure 20).

It is recognised that the current indicator is not a comprehensive measure of quality of life or social impact of PLHIV. However, it does generally correlate well with a range of other health and wellbeing indicators ^[38].

Figure 20 Perceived quality of life among people living with HIV participating in the HIV Futures 6 and 7 studies



Summary:

Perceived quality of life of people living with HIV appears to have been stable over the past four years, with close to three-quarters reporting their health as 'good' or 'excellent'.

Sexually Transmissible Infections

STIs affect large proportions of Australia's population, with infections affecting different population groups. Chlamydia has been the most frequently reported notifiable disease in Australia for the past 10 years, predominantly affecting young heterosexual people (aged 15-30 years) [9] among whom prevalence is approximately 4% [39, 40]. Gonorrhoea infection is most common among young people but more frequently observed among males than females, reflecting epidemics related to both heterosexual transmission in Aboriginal and Torres Strait Islander people and male homosexual transmission. Syphilis infection is currently predominantly affecting (HIV-positive) males aged 20-40 years, reflecting an epidemic among men who have sex with men. Aboriginal and Torres Strait Islander people are disproportionately affected by all sexually transmissible infections.

The Second National Sexually Transmissible Infections Strategy 2010 – 2013 identified six specific objectives, with associated indicators:

1. Reduce the incidence of gonorrhoea

- Annual rate of notifications of gonorrhoea
- Incidence of gonorrhoea

2. Reduce the incidence of infectious syphilis

- Annual rate of notifications of infectious syphilis
- Incidence of infectious syphilis

3. Reduce the incidence of chlamydia

- Proportion of Chlamydia tests that yield a positive result
- Incidence of chlamydia

4. Increase testing for chlamydia among priority populations

- Proportion of 16 to 25 year olds receiving a chlamydia test in the previous 12 months
- Proportion of STI tests in gay men that give a positive result
- Proportion of gay men who report having had an STI test in the previous 12 months

5. Increase young people's knowledge of STIs

- Proportion of secondary school students giving correct answers to STI knowledge questions

6. Incorporate STI-related prevention and treatment into broader health reforms

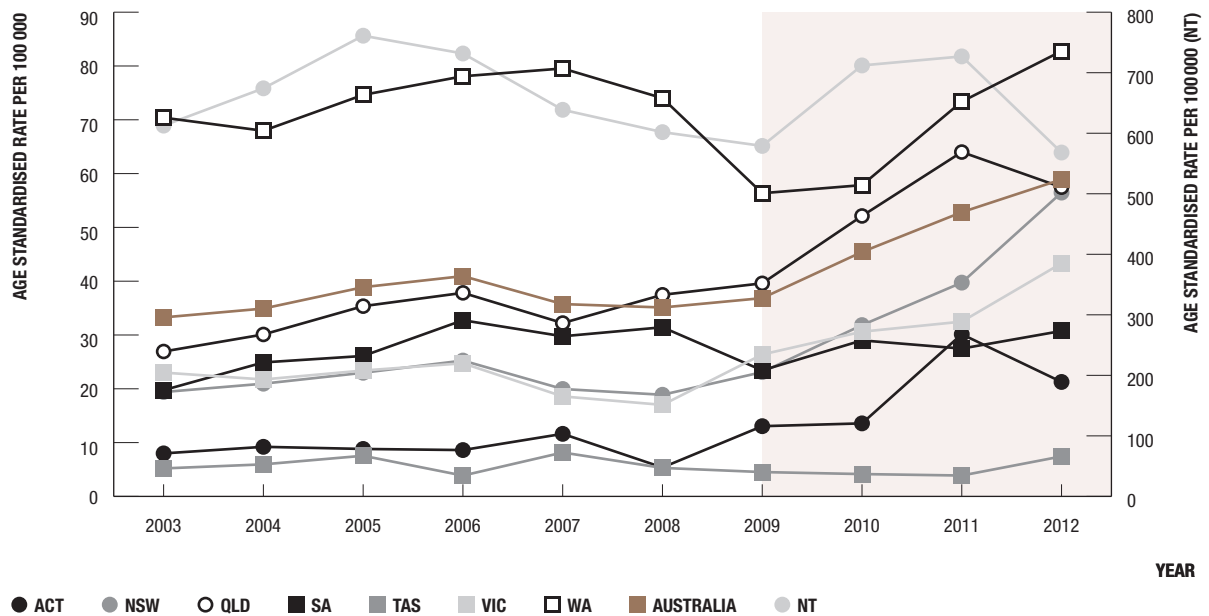
- Proportion of 16 to 25 year olds who undergo a chlamydia test in general practice

Reduce the incidence of gonorrhoea

Annual rate of notifications of gonorrhoea

Notifications of gonorrhoea diagnoses are used to monitor the trends of transmission in Australia. However, trends in diagnoses may only reflect trends in incidence if testing is relatively frequent among people at risk of infection and testing rates do not change substantially over time. Over the past 10 years, national notifications for gonorrhoea increased by almost 50% from 33 to 59 cases per 100 000 population. The increasing trend has accelerated during the period of the national strategy (Figure 21). This increased pattern was observed by most jurisdictions. However, differences were observed in the Northern Territory and Western Australia where rates rose following a short decline. It is uncertain what proportion of this increase is real or an artifact of increased testing as unpublished studies on gonorrhoea testing suggest the rate of testing is increasing through the use of a duplex chlamydia and gonorrhoea molecular test.

Figure 21 Gonorrhoea notifications, 2003 – 2012, by year and State/Territory

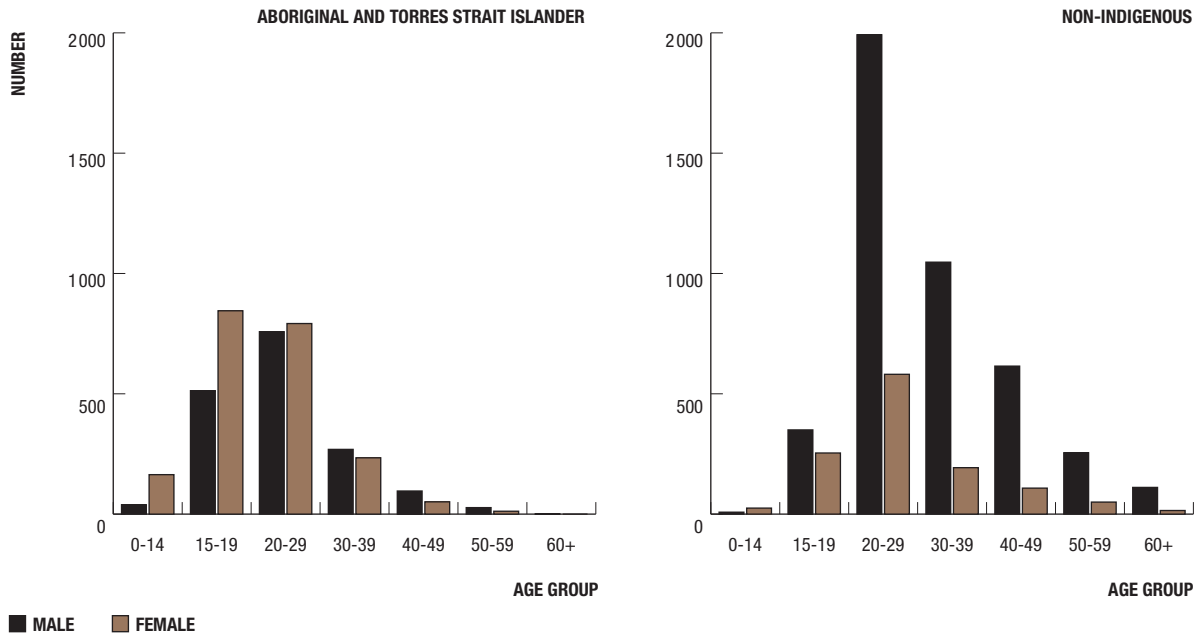


For non-Indigenous people, the notification rate in men is more than twice the rate in women (Figure 22). The notification rate in Aboriginal and Torres Strait Islander people is more than 20 times higher than non-Indigenous people and increased from 772 per 100 000 population in 2008 to 829 in 2012. There were few notifications in non-Indigenous women. This indicates a two pronged epidemic in Aboriginal and Torres Strait Islander people resident in remote communities and men who have sex with men resident in urban areas. Higher rates in non-Indigenous men than women suggest gonorrhoea primarily affects men who have sex with men in this population. It also suggests that incidence may be increasing for men who have sex with men over the past four years, with the notification rate in men increasing 75% to over 80 per 100 000 population (Figure 23).

Incidence of gonorrhoea

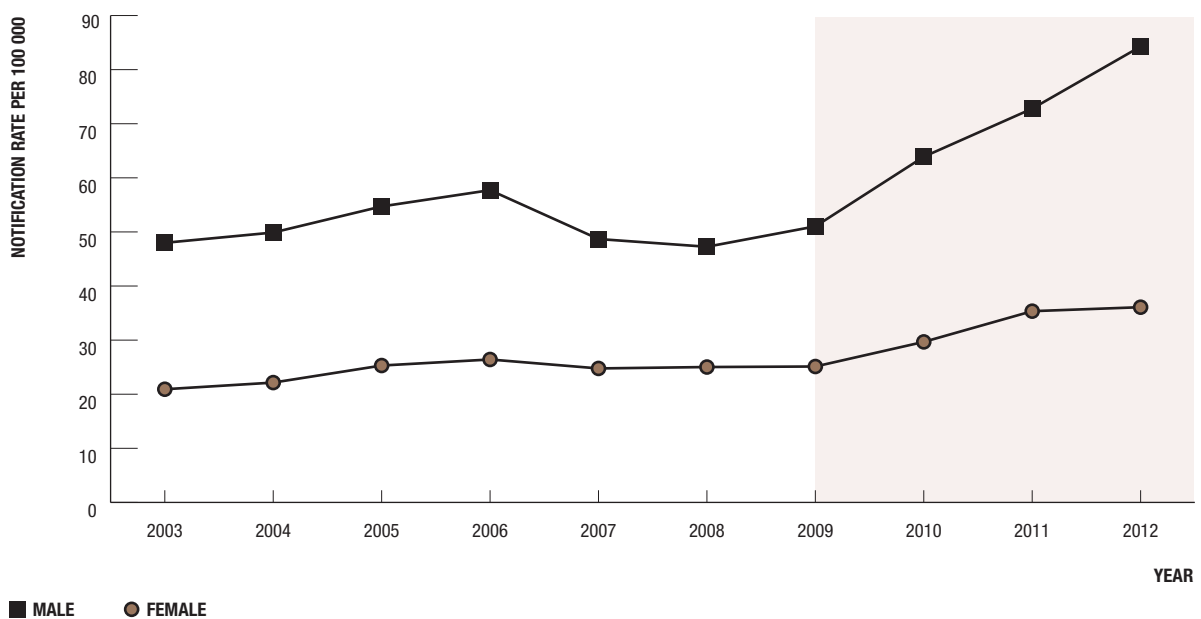
Notification data are a convenient measure of incidence, but lack a natural denominator and are therefore heavily influenced by changes to patterns of testing. Evidence from indicators on STI testing later in the report suggests that some tests for bacterial STIs have increased in gay men over the last 10 years, which may account for the increased rate of notification. There are no data on trends in testing in Aboriginal communities.

Figure 22 Number of notifications of gonorrhoea in 2012 by Aboriginal and Torres Strait Islander status¹, sex and age group



¹ Jurisdictions (NT, QLD, SA, TAS, VIC and WA) in which Aboriginal and Torres Strait Islander status was reported for more than 50% of diagnoses

Figure 23 Gonorrhoea notifications, 2003 – 2012, by year and sex



Summary:

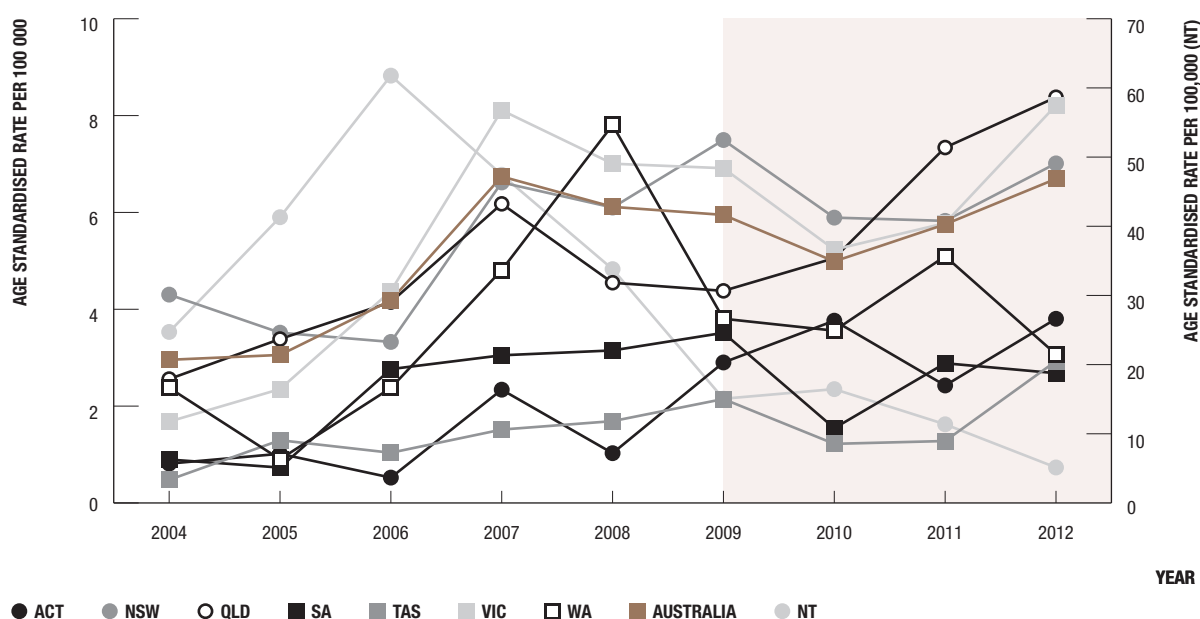
Gonorrhoea is a two-pronged epidemic: among MSM in urban areas and among young Aboriginal people in remote areas. Uncertainties over trends in gonorrhoea testing make notification data a poor indicator for incidence. However, the available evidence for gonorrhoea incidence suggests that incidence may have increased for men who have sex with men over the past four years.

Reduce the incidence of infectious syphilis

Annual rate of notifications of infectious syphilis

Incidence of syphilis is measured by the surrogate marker of number of notifications of infectious syphilis. National notifications for infectious syphilis more than doubled from 3.0 to 6.7 cases per 100 000 population between 2004 and 2007 after which they declined to 5 cases per 100 000 in 2010 before returning to 6.7 in 2012 (Figure 24).

Figure 24 Infectious syphilis notifications, 2004 – 2012, by year and State/Territory



This increase in infectious syphilis was entirely among men, reflecting an epidemic in men who have sex with men (Figure 25), most of whom were gay-identified men. This pattern of notification was seen in all jurisdictions other than the Northern Territory. The substantial increase in infectious syphilis notifications among men masked declines in infectious syphilis cases among Aboriginal and Torres Strait Islander people in the Northern Territory and Western Australia. Unlike other bacterial STIs the notification rate was highest in people aged 30 – 39 years (Figure 26). Notifications in Aboriginal and Torres Strait Islander people occur at five times the rate of non-Indigenous people and outbreaks in remote communities continue to occur (Figure 38).

Figure 25 Infectious syphilis notifications, 2004 – 2012, by year and sex

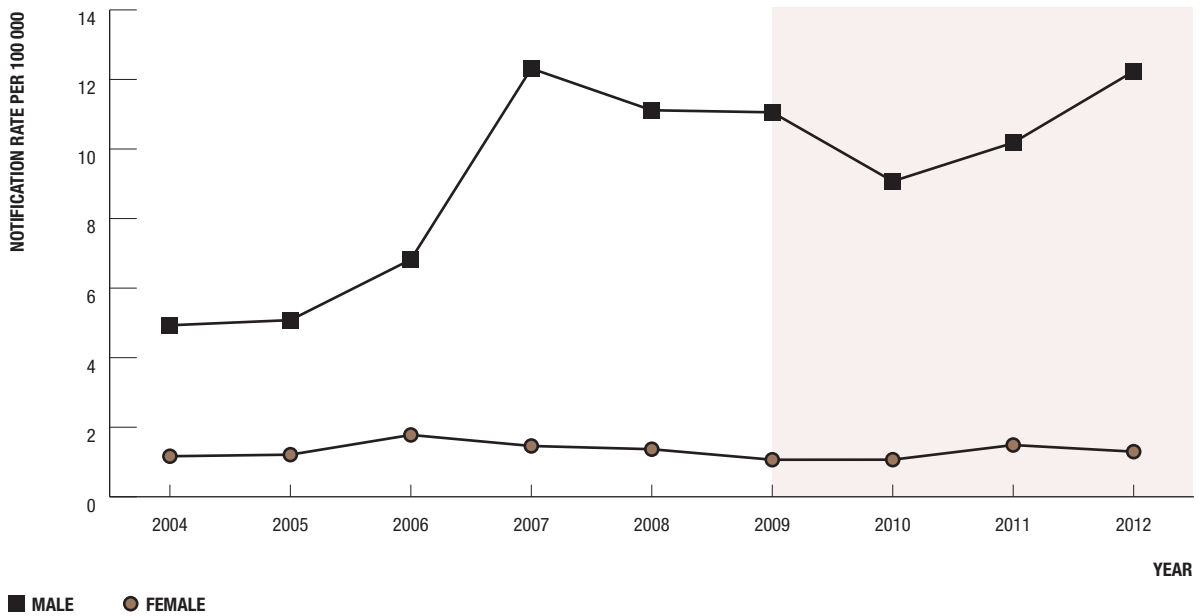
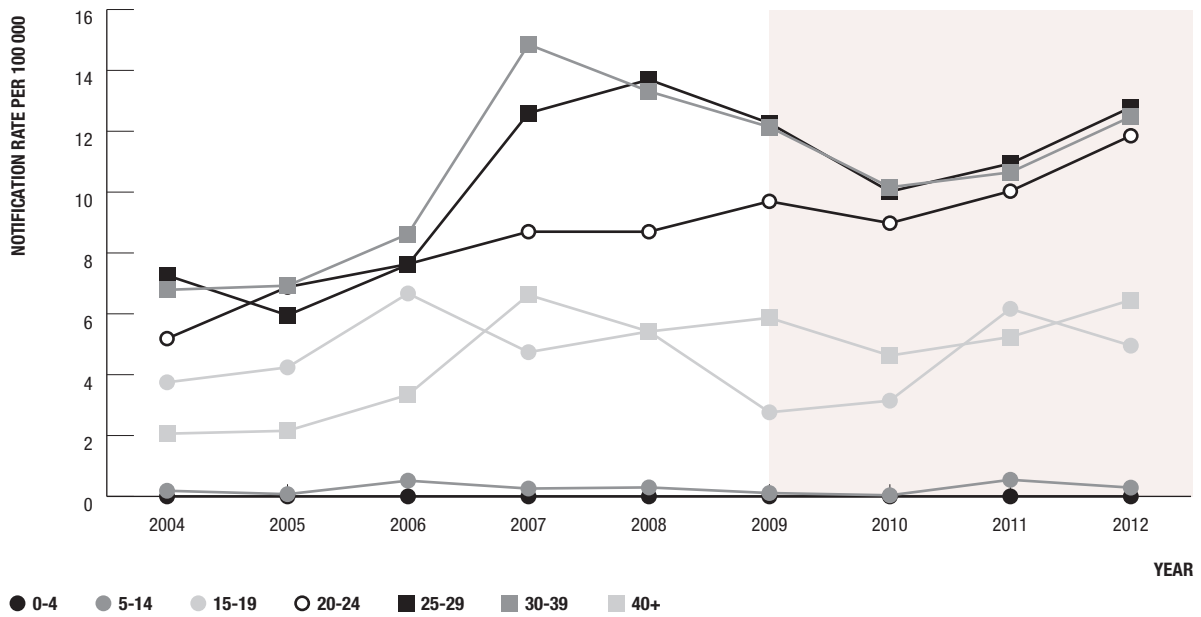


Figure 26 Infectious syphilis notifications, 2004 – 2012, by year and age group



Notification data lacks a natural denominator and is therefore heavily influenced by changes to patterns of testing. However, evidence from the indicator in STI testing in gay men suggests that blood testing for STI other than HIV has remained stable in gay men over the last 10 years (Figure 33).

Summary:

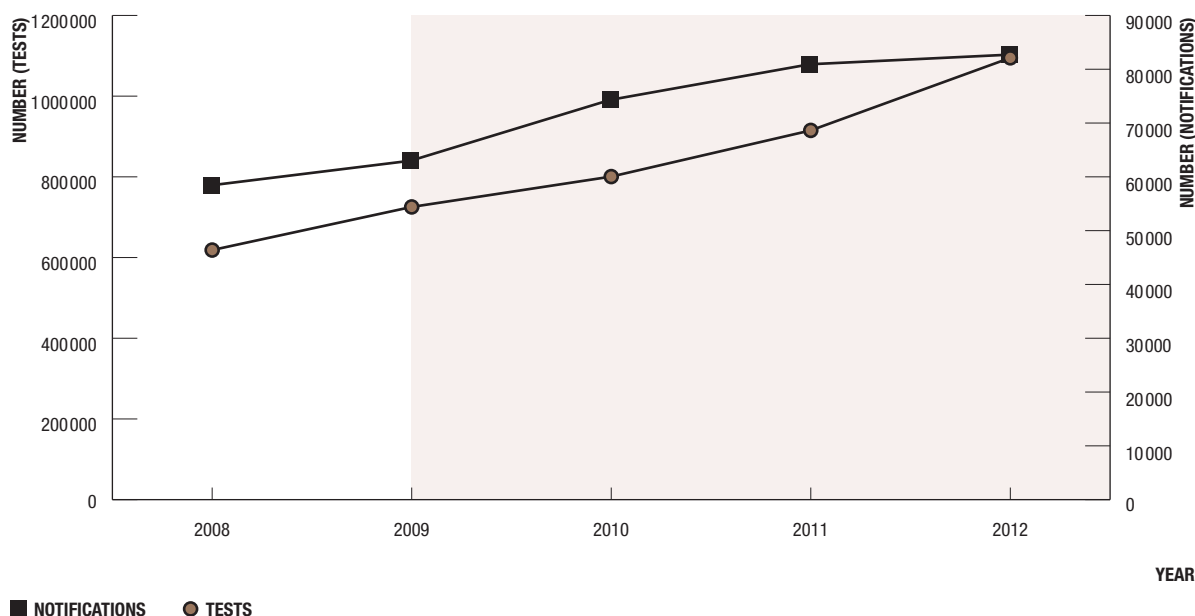
Notification data suggest that syphilis has increased in men who have sex with men has increased since 2010. It is unclear whether this increase will continue or whether it indicates stabilisation at the post epidemic notification rates. Similarly, indications are that there are continuing outbreaks in Aboriginal communities.

Reduce the incidence of chlamydia

Proportion of Chlamydia tests that yield a positive result

The number of chlamydia notifications increased about 30% between 2009 and 2012 and the number of chlamydia tests carried out through Medicare increased by 50% over the same period (Figure 27). The proportion of all tests that were positive for chlamydia has remained relatively stable. These data likely reflect a large pool of undiagnosed infections; insufficient screening rates relative to the level of infection in the population and transitions from chlamydia testing primarily in high-risk populations towards more widespread testing in the general population.

Figure 27 Number of notifications and number of tests for chlamydia, 2008 – 2012



The proportion of tests positive for chlamydia was greater in men than in women as would be expected since the number of tests conducted in men was less than half the number conducted for women (Figure 28). The proportion of tests that were positive was highest in people aged 15 – 24 years of age and the 2010 increase was also higher in this group than in older age groups (Figure 29).

Figure 28 Proportion of positive chlamydia tests, 2008 – 2012, by year and sex

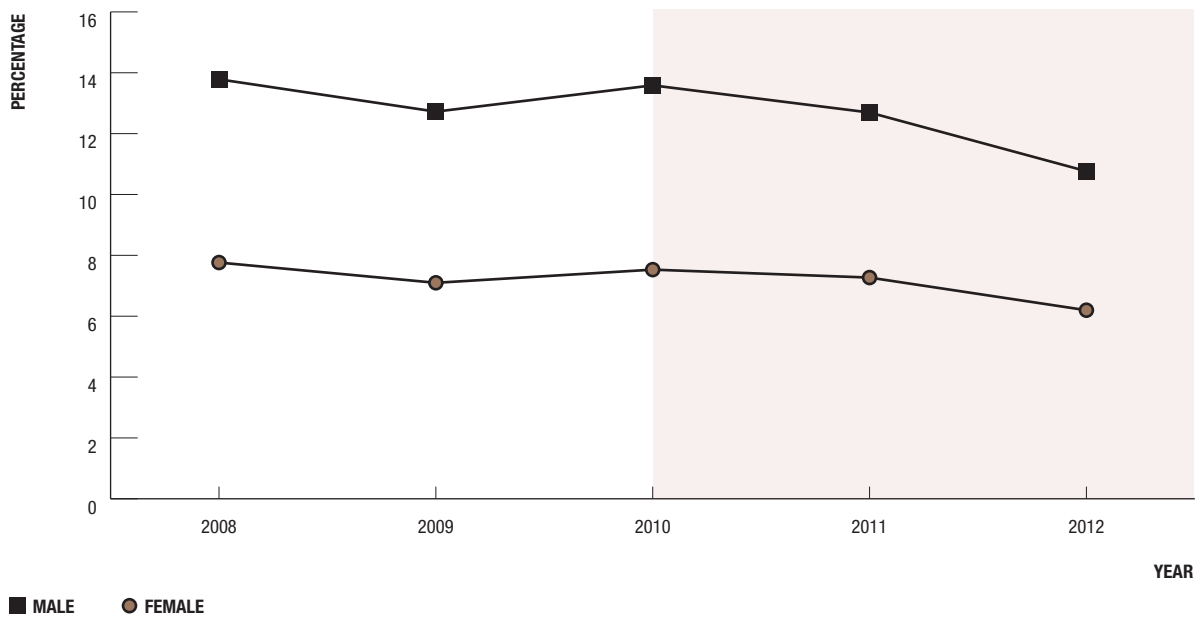
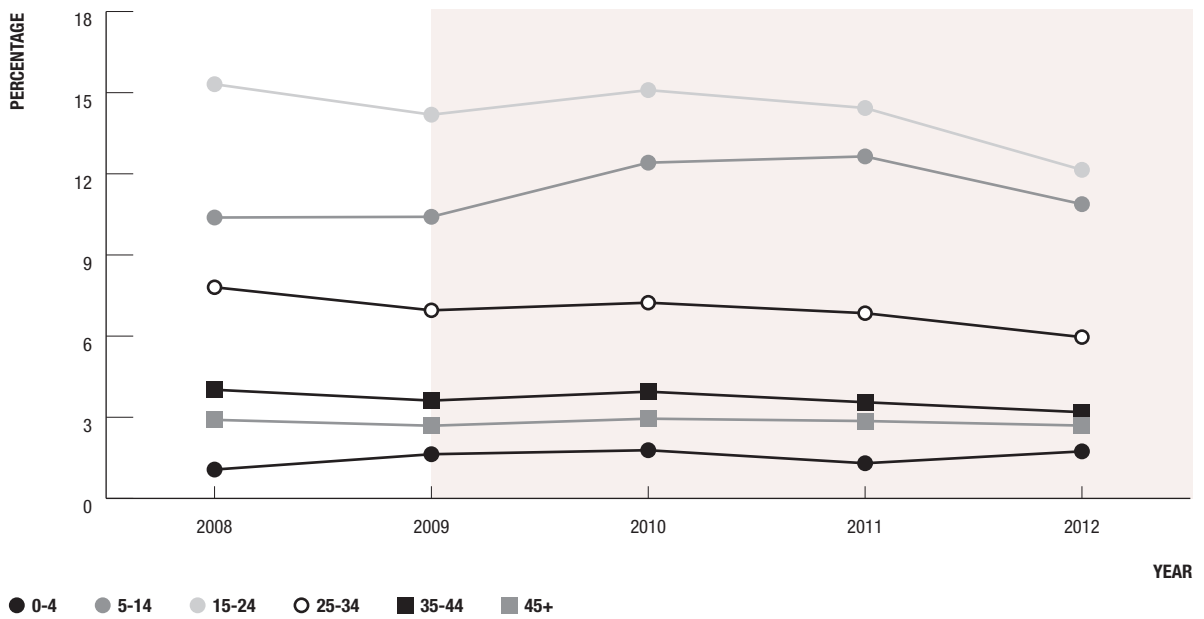


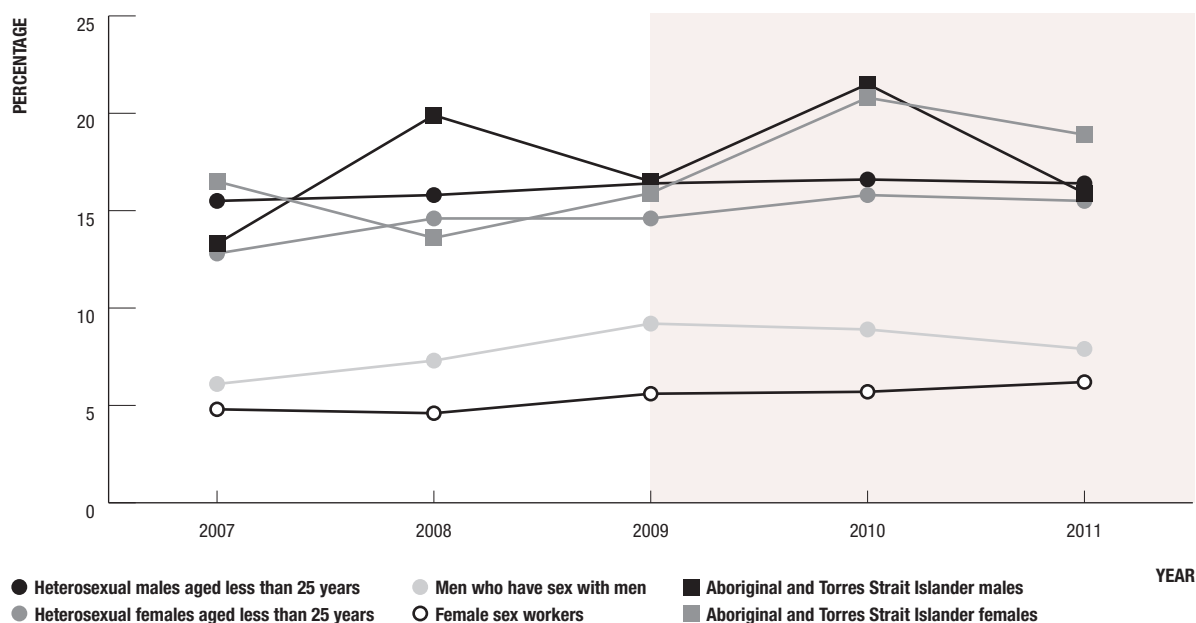
Figure 29 Proportion of positive chlamydia tests, 2008 – 2012, by year and age group



Incidence of chlamydia

Another measure of the extent of chlamydia infections is the pattern of positivity at sentinel surveillance sites. Sentinel surveillance has the advantage of having both a numerator and a denominator. A disadvantage may be its lack of representativeness of the broader population. The Australian Collaboration for Chlamydia Enhanced Sentinel Surveillance (ACCESS) study is a sentinel surveillance network that collects data on the uptake and outcome of chlamydia testing in Australia through six networks. Data are currently only available to 2011. Data from first-time sexual health clinic attendees, a high risk population, have revealed an increase in chlamydia positivity across all priority populations (Figure 30). The largest increase was in Aboriginal and Torres Strait Islander men and women where positivity rates increased from 13.3 to 15.9% and 16.9 to 18.5%, respectively. Positivity levels also increased in heterosexual men and women, men who have sex with men, and sex workers to 16.4, 15.5, 7.9 and 6.1% respectively in 2011.

Figure 30 Chlamydia positivity rate among people seen for the first time at sexual health clinics, 2007 – 2011, by year and chlamydia priority population



Summary:

The available evidence for chlamydia incidence is weak, but suggestive that incidence has been stable or slightly increasing over the past four years. Positivity levels increased by more than 5% in Aboriginal and Torres Strait Islander people and young heterosexual women, and lesser amounts in other priority groups. The proportion of chlamydia tests that were positive has remained stable since 2008.

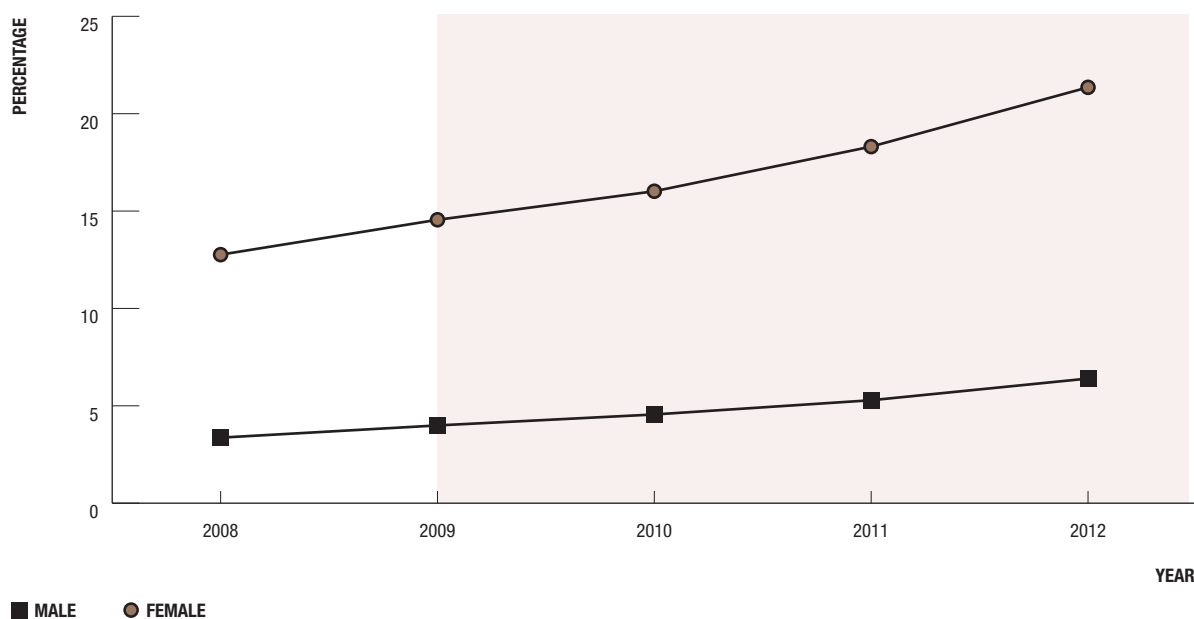
Increase testing for chlamydia among priority populations

Testing people for sexually transmissible infections reduces the pool of people at risk of transmitting an infection by allowing them to be treated and cured or to modify their sexual behaviour to prevent transmission to others. Increasing the frequency of testing is therefore a prime mechanism for reducing incidence, particularly when applied to high risk populations.

Proportion of 16 to 25 year olds receiving a chlamydia test in the previous 12 months

The proportion of people aged 15 – 24 years receiving a test for chlamydia in the previous 12 months increased substantially between 2009 and 2012 (Figure 31). While there was an increase for both men and women, it was greater for women than for men. Up to 14% of young people (aged 15 – 24 years) were tested in 2012. Repeat tests are included in this dataset. Repeat testing will artificially inflate the proportion of people tested, but current evidence suggests that the rate of repeat testing is low ^[41].

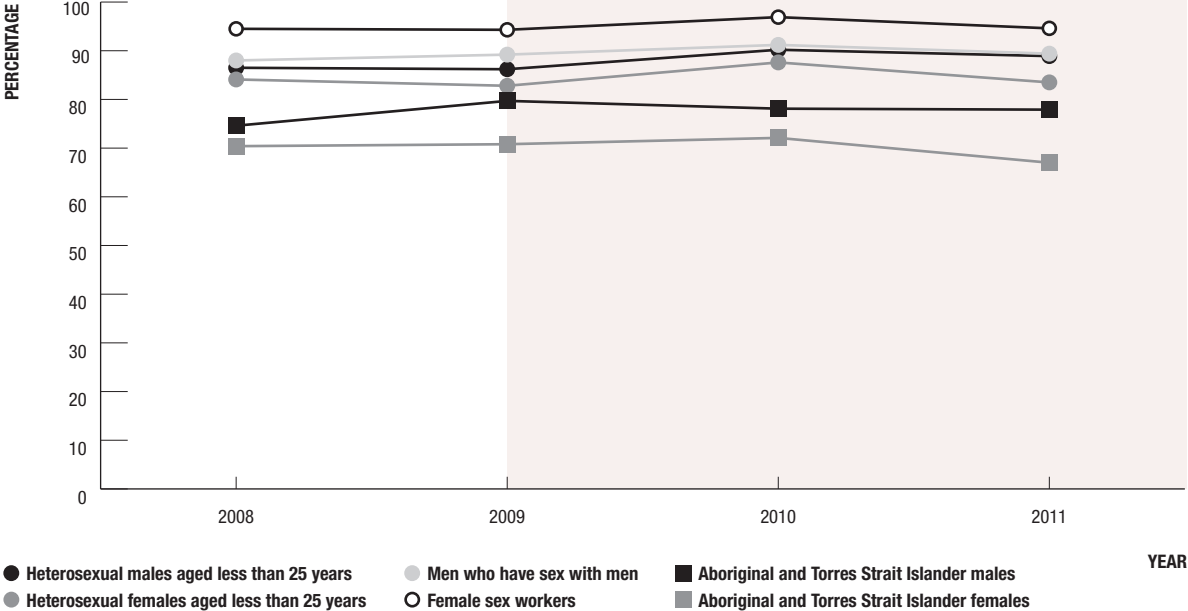
Figure 31 Proportion of 15 – 24 year olds receiving a chlamydia test in the previous 12 months, 2008 – 2012, by year and sex



Proportion of STI tests in gay men that give a positive result

The only sentinel surveillance data currently available for men who have sex with men comes from the ACCESS study, a sentinel surveillance network that collects data on the uptake and outcome of chlamydia testing in Australia through six networks. Data from first-time sexual health clinic attendees found a slight increase in chlamydia testing in men who have sex with men between 2007 and 2011 (Figure 32). Men who have sex with men had a mid-range rate of testing compared to other population groups of interest, with 89% being tested at their first visit in 2011. The proportion of positive men increased from 6.1 to 7.9% between 2007 and 2011 (Figure 30).

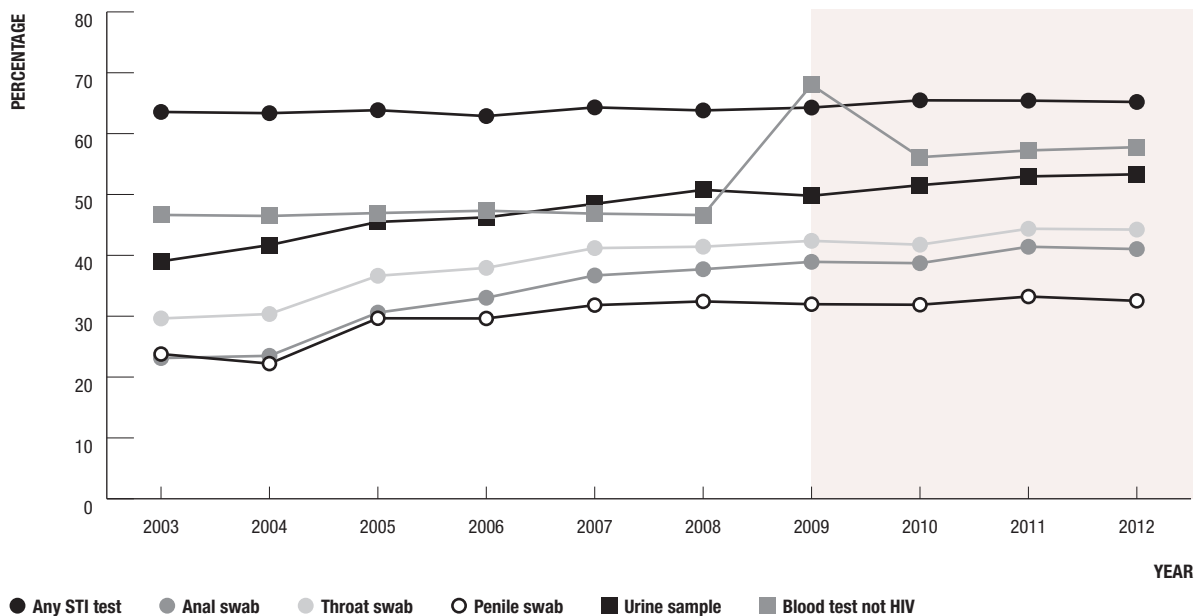
Figure 32 Chlamydia testing rate, 2007 – 2011, by year and chlamydia priority population



Proportion of gay men who report having had an STI test in the previous 12 months

Self reported data on STI testing in the past 12 months in gay men are collected annually as part of the GCPS. The proportion of gay men reporting any STI testing in the past 12 months remained stable at about 65% from 2009 – 2012. There was a more marked increase in bacterial STI testing at all genital sites, including pharyngeal and urine testing, but the proportion of tests done started from a lower base. Despite the resurgence of syphilis infections, the proportion of men receiving a blood test for an STI other than HIV remained stable (Figure 33). It is important to note that these data are based on self-reporting and participants may not recall the exact nature or timing of a specific test. This national set of data combines data from different States and Territories. In each State and Territory, the surveys are conducted at different local events and not all the surveys are conducted annually. This may be responsible for some of the difference in trends.

Figure 33 Proportion of gay men reporting an STI test in the past 12 months, 2003 – 2010



Summary:

There has been a continued increase in the rate of chlamydia testing among young people aged 15 – 24 years in Australia over the period of the national strategies with up to 14% of young people tested in 2012. STI testing in MSM has remained stable over the same time period.

Increase young people’s knowledge of STIs

The provision of information to populations at risk of STIs may help reduce the incidence of infection by enabling the reduction of risk behaviour. In particular, exposure to information on methods of transmission, prevention and treatment will help individuals when making specific behaviour choices. The delivery of age-appropriate education within the school curriculum is seen as the best mechanism for improving young people’s STI knowledge.

Proportion of secondary school students giving correct answers to STI knowledge questions

Information on young people’s STI knowledge is available from the Survey of Secondary Students and Sexual Health ^[42]. The survey is conducted by the Australian Research Centre in Sex, Health and Society approximately every five years with the most recent survey being held in 2008. The next survey round to be conducted among students in both Year 10 and Year 12 can be used to assess progress during the life of the national strategy but is not yet available.

Summary:

There is no data available at this time.

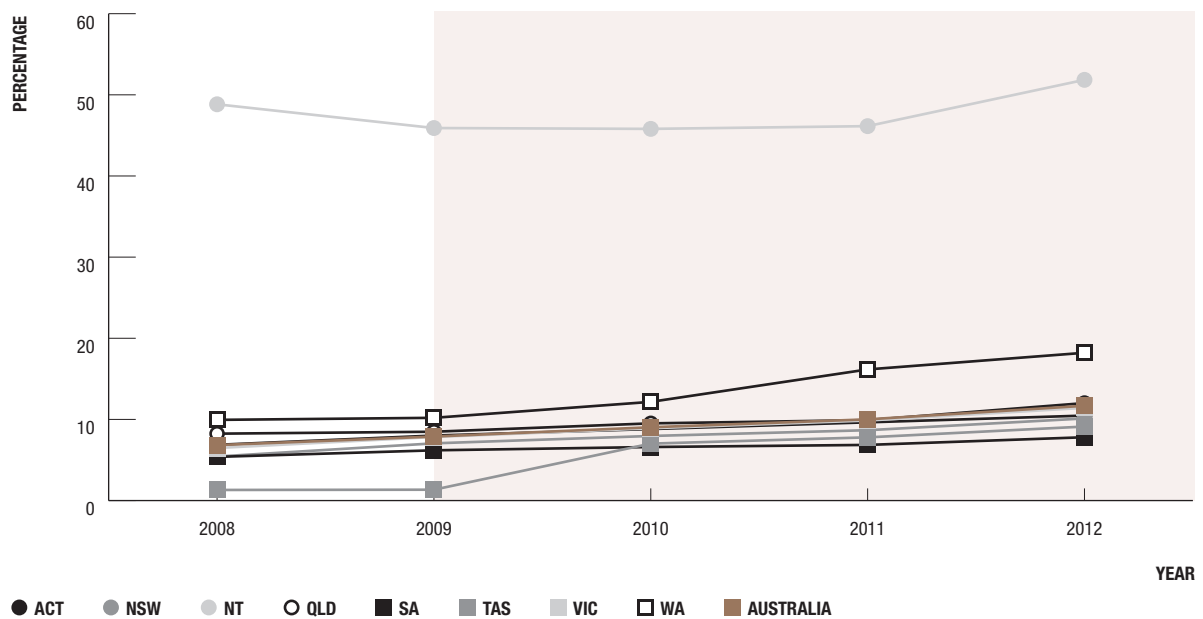
Incorporate STI-related prevention and treatment into broader health reforms

As chlamydia infection is so widespread in people aged 15 – 29 years within the general population ^[39, 40], interventions targeted toward specific populations will not be very effective at reducing infection at a larger population-level. STI treatment and prevention should therefore become part of routine care for young people when they present for other health care. The proportion of individuals tested for chlamydia in general practice (GP) is one way to measure the effectiveness of integration of STI prevention and treatment into broader healthcare.

Proportion of 16 to 25 year olds who undergo a chlamydia test in general practice

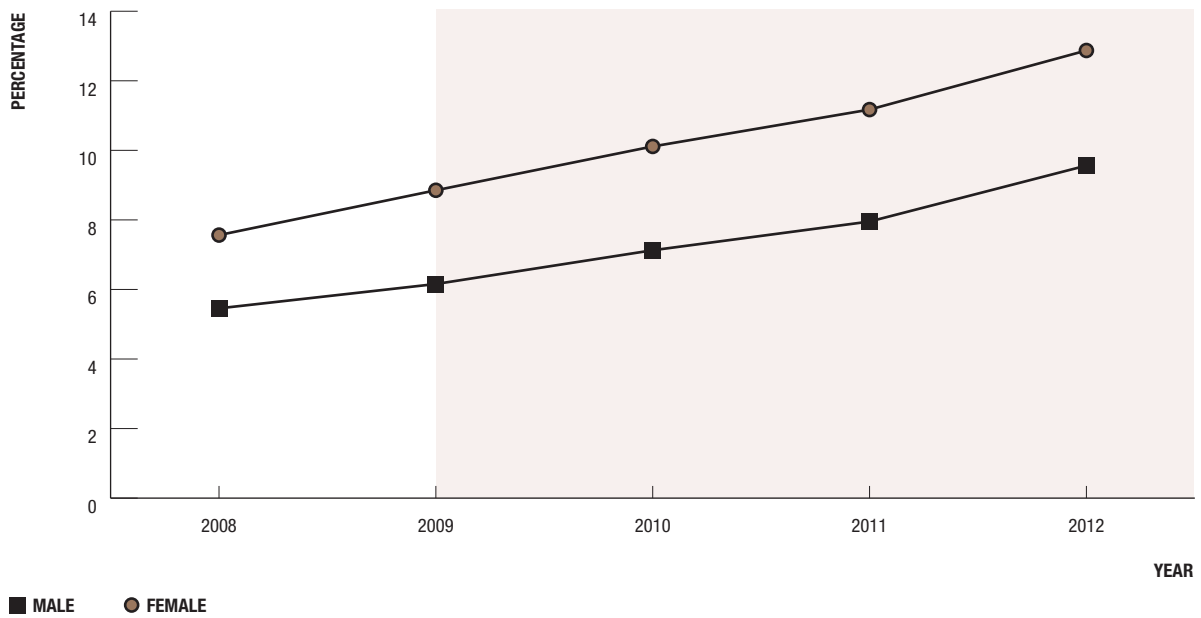
The proportion of chlamydia tests carried out for every GP consultation increased from 7.9 tests per 100 GP visits in 2009 to 11.6 tests in 2012 (Figure 34). This increase was fairly uniform across State and Territory health jurisdictions, but the rate of testing in the Northern Territory was substantially higher than in other jurisdictions. This may be due to targeted screening of Aboriginal and Torres Strait Islander people, which make up a higher proportion of the general population than in other States and Territories.

Figure 34 Proportion of people aged 15 – 24 receiving a chlamydia test in a general practice visit, 2008 – 2012, by year and State/Territory



There was a difference in the proportion of tests by sex, with almost twice as many tests being conducted in women compared to men by 2012 (Figure 35). Women’s higher morbidity as a result of undiagnosed chlamydia may result in more opportunistic screening by clinicians. Women are also more likely to present at GP clinics due to better engagement with health services, and may also be screened as part of routine antenatal testing.

Figure 35 Proportion of people aged 15 – 24 receiving a chlamydia test in a general practice visit, 2008 – 2012, by year and sex



Summary:

There is evidence that STI treatment and prevention has become more integrated into broader healthcare to some extent. The proportion of chlamydia tests carried out for every GP consultation has increased over the period of the national strategies from 7.9 to 11.6 tests per 100 GP visits.

Aboriginal and Torres Strait Islander Blood-borne Viruses and STIs

Aboriginal and Torres Strait Islander communities face substantial public health issues and challenges around BBVs and STIs including sustained and unacceptable high rates of STIs and high rate of acquisition of HIV and hepatitis C through injecting drug use.

The Third National Aboriginal and Torres Strait Islander Blood-borne Viruses and Sexually Transmissible Infections Strategy 2010 – 2013 identified seven specific objectives, with associated indicators:

- 1. Reduce hepatitis B infections**
 - Coverage of hepatitis B vaccination at 12 and 24 months
- 2. Work towards eliminating infectious syphilis in Aboriginal and Torres Strait Islander people**
 - Rate of infectious syphilis notifications among Aboriginal and Torres Strait Islander people
 - Rate of syphilis testing among Aboriginal and Torres Strait Islander people in remote areas
- 3. Decrease the proportion of HIV and hepatitis C infection caused by injecting drug use**
 - Proportion of Aboriginal and Torres Strait Islander people who are notified as newly diagnosed with HIV who report injecting drug use
 - Incidence of newly diagnosed hepatitis C infection in Aboriginal and Torres Strait Islander people
- 4. Increase the level of testing and treatment of sexually active 15-30 year olds**
 - Proportion of Aboriginal and Torres Strait Islander young people who report having had an STI test in the previous 12 months
 - Rate of chlamydia tests in remote areas in NT, QLD, SA, WA in the previous 12 months
 - Proportion of Aboriginal and Torres Strait Islander young people receiving a chlamydia and gonorrhoea test in the previous 12 months
- 5. Improve Aboriginal and Torres Strait Islander people's knowledge of STIs and BBVs**
 - Proportion of Aboriginal and Torres Strait Islander people giving correct answers to knowledge questions on STIs and BBVs
- 6. Increase the number of Aboriginal and Torres Strait Islander peoples receiving treatment for HIV, hepatitis C and hepatitis B**
 - Proportion of Aboriginal and Torres Strait Islander people with HIV receiving antiretroviral treatment
 - Proportion of Aboriginal and Torres Strait Islander people with chronic hepatitis C who are dispensed drugs for hepatitis C infection through the Highly Specialised Drugs Program in the previous 12 months
 - Proportion of Aboriginal and Torres Strait Islander people with chronic hepatitis B who are dispensed drugs for hepatitis B infection through the Highly Specialised Drugs Program in the previous 12 months
- 7. Implement a national accreditation scheme for Aboriginal and Torres Strait Islander sexual health workers**
 - Number of Aboriginal and Torres Strait Islander people registered under the National Registration Program

Reduce hepatitis B infections

Infection with hepatitis B virus remains a significant health burden in Aboriginal and Torres Strait Islander communities. In 2007, 2.5% of the Australian population identified as Aboriginal or Torres Strait Islander but accounted for an estimated 16% of the Australian population living with chronic hepatitis B infection.

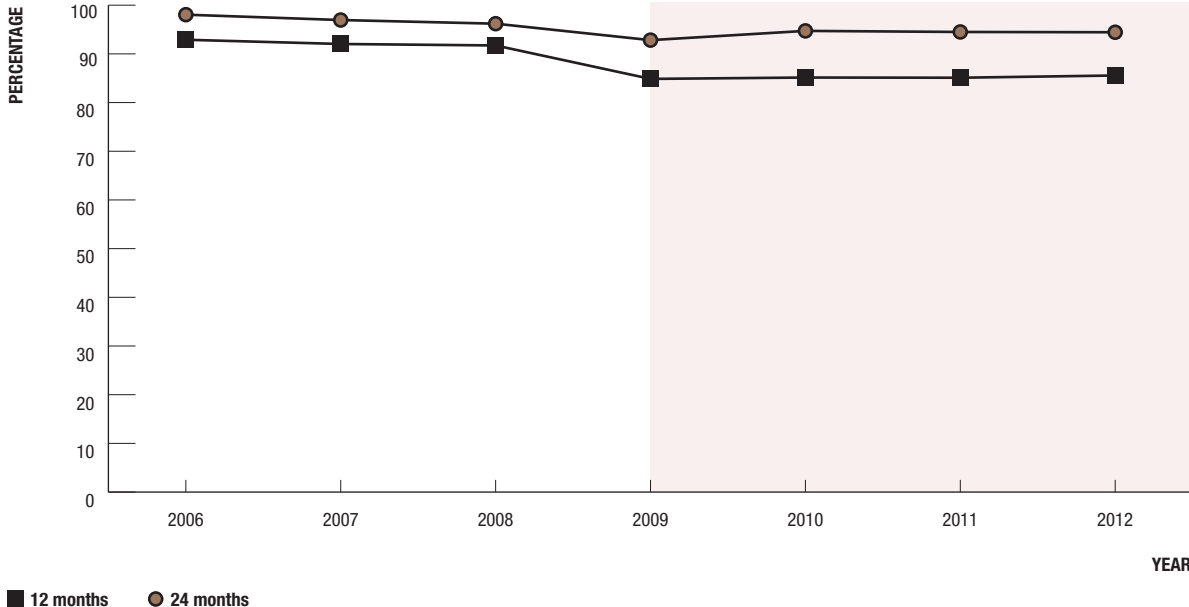
New diagnoses of hepatitis B and newly acquired hepatitis B are notifiable conditions in all State/Territory health jurisdictions in Australia, to the National Notifiable Diseases Surveillance System. Greater than 50% of diagnoses for newly acquired hepatitis B were notified by Aboriginal and Torres Strait Islander status for all jurisdictions in 2012. In

2012, the diagnosis rate for newly acquired hepatitis B infection in the Aboriginal and Torres Strait Islander population was three times higher than in the non-Indigenous population in Australia. In Aboriginal and Torres Strait Islander communities, it is estimated that the prevalence of hepatitis B is 2% in urban areas and 8% in rural areas. Prevalence levels are likely to be higher in remote Aboriginal and Torres Strait Islander communities.

Hepatitis B immunisation coverage among Aboriginal and Torres Strait Island children at 12 and 24 months and 24 months

Hepatitis B vaccination, including universal infant vaccination, is the most effective prevention measure for hepatitis B. Between 2006 and 2012, hepatitis B immunisation coverage among Aboriginal and Torres Strait Islander infants at 12 months of age was about five percent lower than for non-Indigenous infants (Figure 36 & Figure 2). By 24 months of age, hepatitis B vaccination coverage had improved, equalling the coverage in non-Indigenous infants at between approximately 90 – 95%. The lower rates at 12 months compared to 24 months suggest issues around timeliness of completion of the course in Aboriginal and Torres Strait Islander children, which may lead to increased risk of disease acquisition. Like non-Indigenous infants there was a marginal decline in the uptake of vaccination over time, which is likely due to change of the algorithm used to calculate hepatitis B coverage in late 2009. There was no difference in the vaccination rate by State or Territory.

Figure 36 Hepatitis B immunisation coverage among Aboriginal and Torres Strait Islander infants at 12 and 24 months, 2006 – 2012



Summary:
 Vaccination coverage for hepatitis B has been high and stable among Aboriginal and Torres Strait Islander infants at over 90% for children at 24 months of age for the past four years.

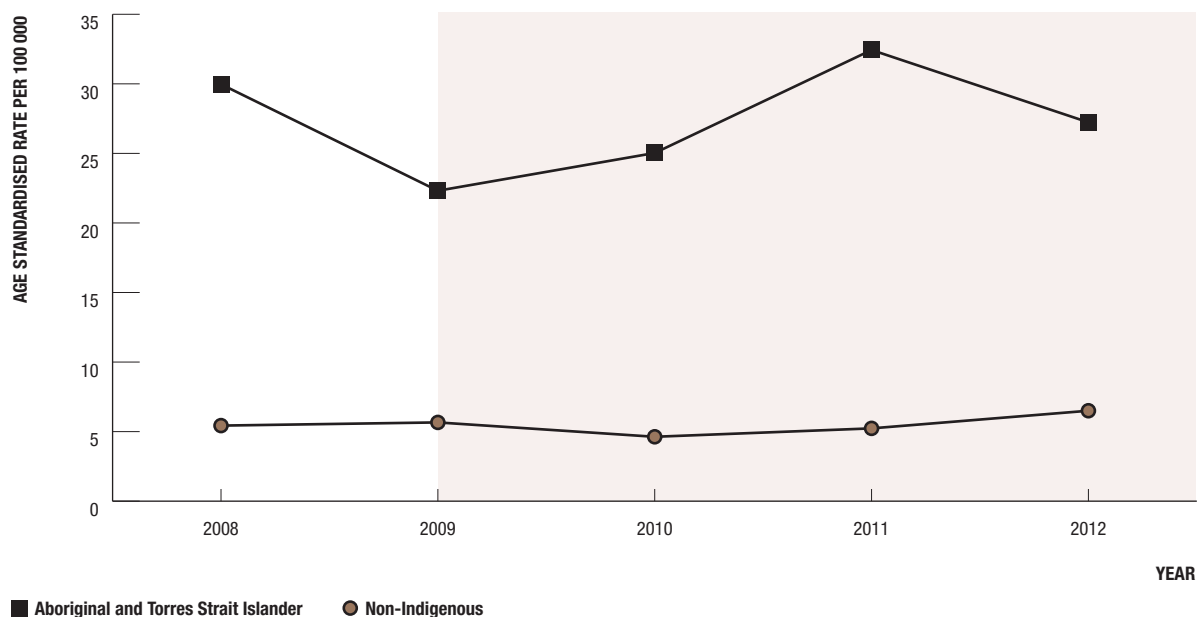
Work towards eliminating infectious syphilis in Aboriginal and Torres Strait Islander people

Rate of infectious syphilis notifications among Aboriginal and Torres Strait Islander people

Accurate and complete systems exist nationally for the notification of infectious syphilis; diagnoses have been reported nationally since 2004 to the National Notifiable Diseases Surveillance System. Greater than 95% of all infectious syphilis diagnoses have been notified by Aboriginal and Torres Strait Islander status. Reported numbers and rates of diagnoses of infectious syphilis in Aboriginal and Torres Strait Islander people are used to monitor trends of transmission in this population.

In 2012, the rate of infectious syphilis in the Aboriginal and Torres Strait Islander population (27 per 100 000 population) was about four-fold higher than the rate in the non-Indigenous population (7 per 100 000 population). However, the Aboriginal and Torres Strait Islander population also experiences periodic outbreaks of syphilis, which increase the rate of notification by more than 25% (Figure 37).

Figure 37 Age standardised rate of infectious syphilis, 2008 – 2012, by Aboriginal and Torres Strait Islander status and year



There are stark differences in rates and trends in infectious syphilis between the States and Territories (Figure 38). Tasmania has only had one reported case of infectious syphilis in the Aboriginal and Torres Strait Islander population since 2009. The rate of infectious syphilis in NSW has been relatively stable since 2009 (5.5 per 100 000 in 2012) and similar to the non-Indigenous population (7.5 per 100 000 in 2012). The largest declines were seen in the Northern Territory and Western Australia. The rate in the Northern Territory dropped from 115 in 2008 to 20 per 100 000 in 2012. In Western Australia, the rate of diagnosis decreased from 86 per 100 000 to 21 per 100 000. Finally, there has been an increase in the rate of infectious syphilis in Queensland and South Australia. The rate of diagnosis rose from 12 to 61 per 100 000 in Queensland between 2008 and 2012. In South Australia, the number of infections almost tripled from 5 notifications in 2008 to 14 in 2011.

Rates of infectious syphilis diagnoses in the Aboriginal and Torres Strait Islander population remained stable in major cities, inner regions, remote and very remote regions from 2008 to 2012 but increased between 2008 and 2012 in outer regional areas of Australia (14 to 40 per 100 000). The rate of infectious syphilis in outer regional, remote and very remote areas of Australia were greater than that in major cities and inner regions, and were 26, 83 and 58 times greater than the rate of infectious syphilis among non-Indigenous people residing in the same areas (Figure 39).

Figure 38 Notification rate of infectious syphilis, 2008 – 2012, by Aboriginal and Torres Strait Islander status and State/Territory

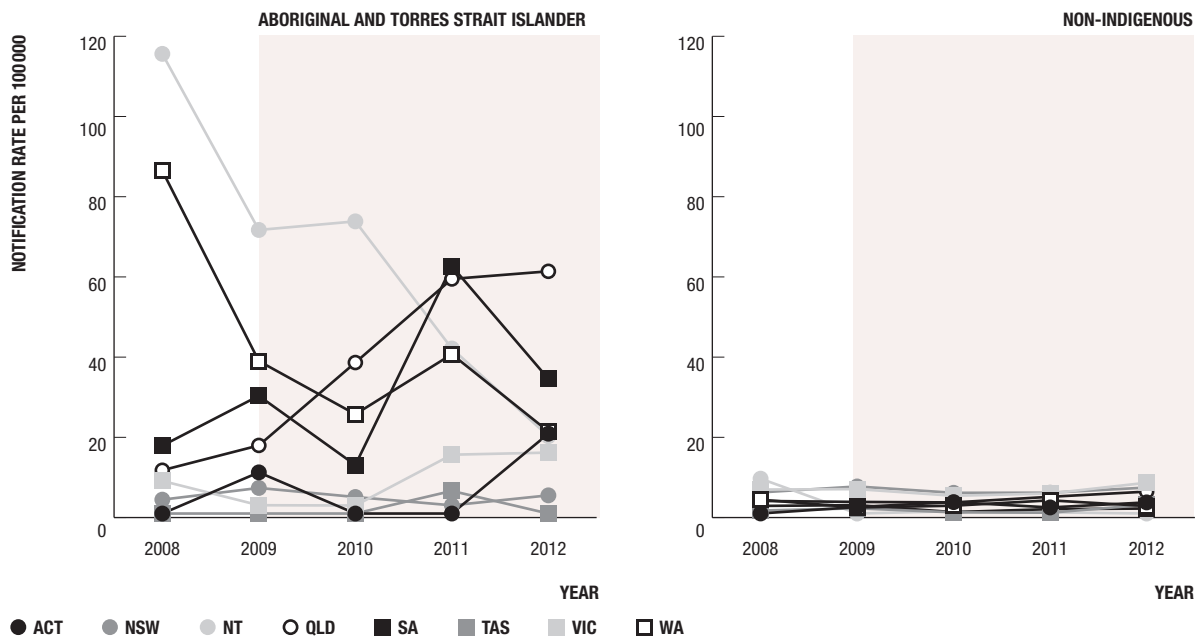
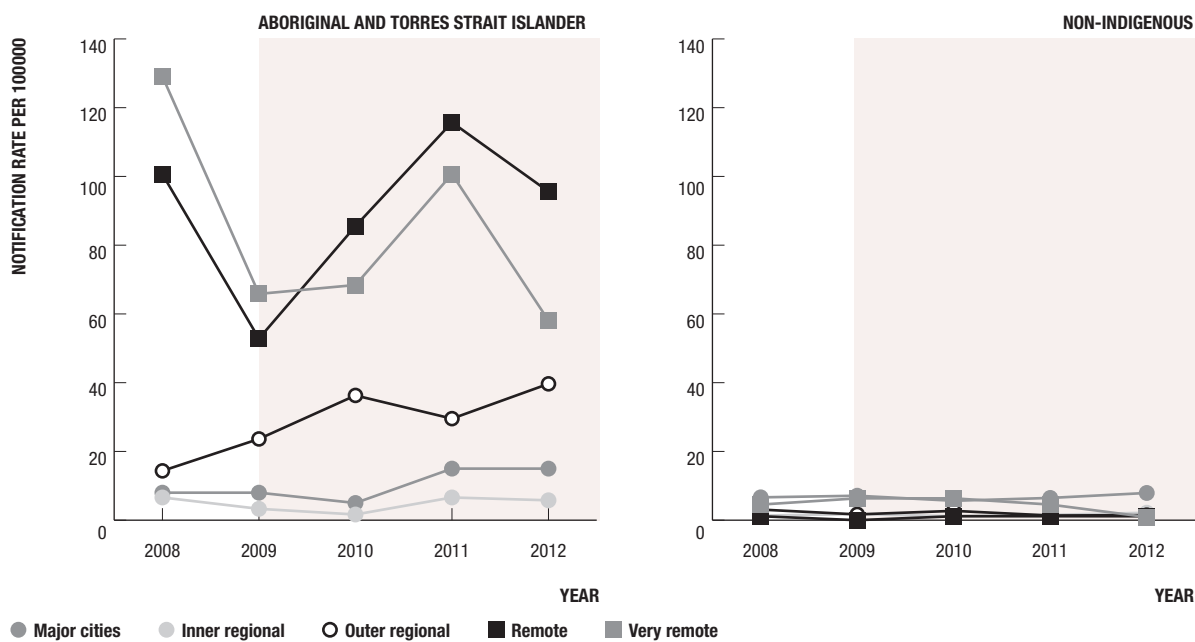


Figure 39 Notification rate of infectious syphilis, 2008 – 2012, by Aboriginal and Torres Strait Islander status and area of residence



Rate of syphilis testing among Aboriginal and Torres Strait Islander people in remote areas

These reported trends in diagnoses may only reflect trends in incidence of infectious syphilis if testing is relatively frequent. Since high rates of syphilis are observed in remote and very remote areas, an increase in syphilis testing among Aboriginal and Torres Strait Islander people in these areas is a significant step forward to 1) allow the rates of diagnoses to correctly reflect incidence trends and 2) diagnose and subsequently treat those in the community with infectious syphilis to prevent further transmission. Syphilis testing data are currently unavailable.

Summary:

The incidence of infectious syphilis in the Aboriginal and Torres Strait Islander population is four times higher than in the non-Indigenous population. There have been periodic outbreaks in remote communities during the life of the national strategies.

Decrease the proportion of HIV and hepatitis C infection caused by injecting drug use

HIV epidemics have quickly emerged among Indigenous people who inject drugs in international settings^[43] and a greater proportion of HIV diagnoses in Australian Aboriginal and Torres Strait Islander people are reportedly due to injecting drug use^[9], suggesting that it is important to monitor HIV transmission by this exposure route.

Proportion of Aboriginal and Torres Strait Islander people who are notified as newly diagnosed with HIV who report injecting drug use

In 2012, the population rate for HIV diagnoses among the Aboriginal and Torres Strait Islander population (5.5 per 100 000) was similar to that in the non-Indigenous population (5.1 per 100 000). However, surveillance data for newly diagnosed HIV infection demonstrate differences in the modes of HIV transmission between the two populations. Between 2008 and 2012, the most frequently reported mode of transmission among non-Indigenous people, was sexual contact between men (72%), followed by heterosexual contact (17%). Injecting drug use was the reported exposure among 2% of cases. Over the same time period, the most frequently reported routes of HIV transmission among Aboriginal and Torres Strait Islander people were sexual contact between men (56%), injecting drug use (13%) and heterosexual contact (18%). The percentage of newly diagnosed HIV cases among Aboriginal and Torres Strait Islander people who reported injecting drug use as the sole exposure between 2008 and 2012 is not consistent over time (Figure 40), ranging from 4% to 36%. However, this is due to the small number of diagnoses of HIV in the Aboriginal and Torres Strait Islander community (between 18 and 32 per year). The proportion does seem to show an overall decline from an average of 17% from prior to the national strategies to 6% in 2012. Compared with the non-Indigenous population, the proportion of people with newly diagnosed HIV infection reporting injecting drug use was up to 10 times higher in the Aboriginal and Torres Strait Islander population.

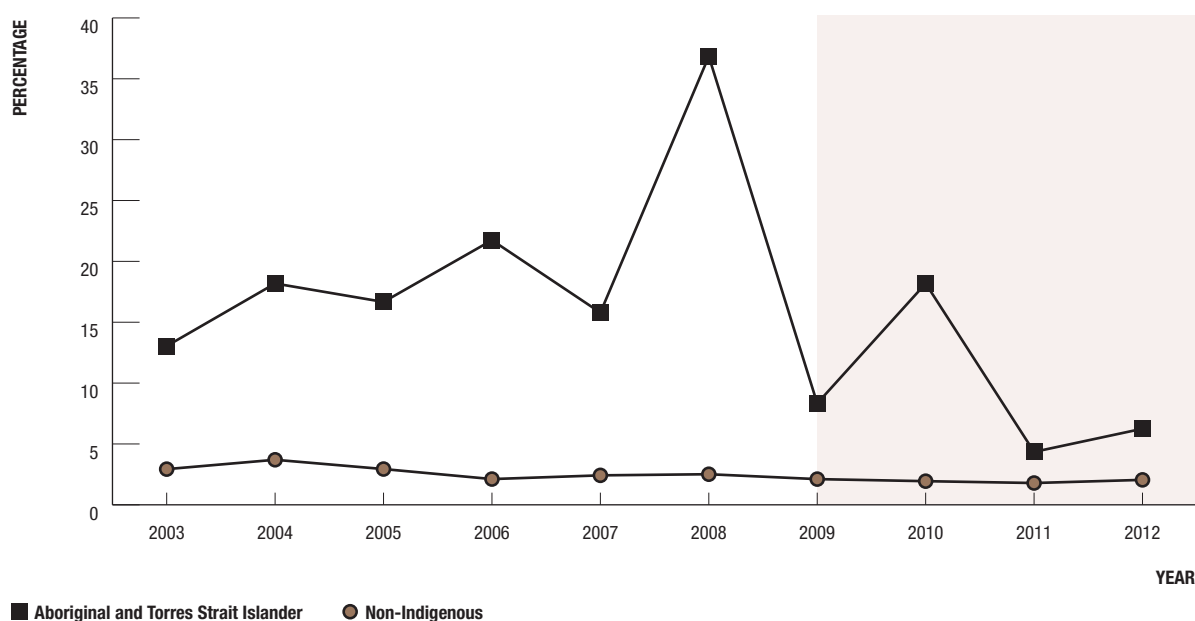
There are differences between States and Territories in the proportion of Aboriginal and Torres Strait Islander people with newly diagnosed HIV who report injecting drug use as sole exposure (Table 2). However, even after combining data for the period 2003 to 2012, the numbers in each jurisdiction are small which should be taken into account when interpreting these data.

Table 2 Proportion of Aboriginal and Torres Strait Islander people with newly diagnosed HIV who report injecting drug use as the sole exposure for the period 2003 – 2012

State	Percentage reporting injecting drug use as sole exposure*	Total number of newly diagnosed HIV cases*
ACT	0%	0
NSW	15%	67
NT	0%	8
QLD	6%	69
SA	57%	14
TAS	0%	3
VIC	15%	26
WA	21%	38
Total	15%	225

* In the Aboriginal and Torres Strait Islander population

Figure 40 Proportion of newly diagnosed HIV cases reporting injecting drug use as the sole reported exposure, 2003 – 2012, by Aboriginal and Torres Strait Islander status



Incidence of newly diagnosed hepatitis C infection in Aboriginal and Torres Strait Islander people

Information is sought for Aboriginal and Torres Strait Islander status for all hepatitis C cases notified nationally. In the Northern Territory, South Australia, Western Australia and Tasmania, Aboriginal and Torres Strait Islander status was reported for more than 50% of diagnoses of hepatitis C in 2012 where this population comprised 11%, 14%, 17% (Northern Territory, South Australia and Western Australia) and 7%, respectively, of all hepatitis C diagnoses. Completeness of reporting for Aboriginal and Torres Strait Islander status was greater than 90% in the Northern Territory, South Australia and Western Australia.

Newly acquired hepatitis C infection is also reportable in all health jurisdictions other than Queensland but the data quality is discussed more fully in the section on hepatitis C indicators. Sentinel surveillance of newly acquired

hepatitis C among Aboriginal and Torres Strait Islander people would more accurately ascertain the incidence of hepatitis C in this population. This sentinel surveillance system could involve Aboriginal Community Controlled Health Services, sexual health services, public and private laboratories and potentially other sites.

Summary:

A high proportion (15%) of Aboriginal and Torres Strait Islander people diagnosed with HIV acquired infection via injecting drug use compared to non-Indigenous Australians (2%). However, there are substantial differences between jurisdictions and this proportion appears to have declined between 2008 and 2012. Relevant data are not available for hepatitis C.

Increase the level of testing and treatment of sexually active 15 – 30 year olds

Bacterial STIs (gonorrhoea, chlamydia and syphilis) are preventable, easy to detect and curable. Aboriginal and Torres Strait Islander young people, aged 15 – 30 years, experience rates of chlamydia, gonorrhoea and infectious syphilis much greater than their non-Indigenous peers. High rates of these STIs can have important health implications if left undiagnosed and untreated.

An increase in the level of systematic testing and treatment of sexually active 15 to 30 year olds is an important measure in the decrease of bacterial STIs among young Aboriginal and Torres Strait Islander people. In the short-term, successful testing and treatment strategies will increase the notifications of bacterial STIs, however, a reduction will be observed in the long term.

Proportion of Aboriginal and Torres Strait Islander young people who report having had an STI test in the previous 12 months

The proportion of Aboriginal and Torres Strait Islander young people who report having had an STI test in the previous 12 months is an indication of the level of testing in this population. No data are currently available for reporting against this indicator.

Summary:

Currently there are no data available for monitoring the level of systematic testing and treatment of sexually active, young Aboriginal and Torres Strait Islander people.

Improve Aboriginal and Torres Strait Islander people's knowledge of STIs and BBVs

Proportion of Aboriginal and Torres Strait Islander people giving correct answers to knowledge questions on STIs and BBVs

Improved knowledge about sexually transmitted infections (STIs) and blood borne viruses (BBVs) in the Aboriginal and Torres Strait Islander community can play an important role in encouraging safer sexual behaviours and seeking regular testing and treatment, therefore reducing the transmission of these infections.

Data on Aboriginal and Torres Strait Islander people's knowledge of STIs and BBVs are currently not available but will be assessed using a national study of young people called GOANNA (young Aboriginal and Torres Strait Islander National sexual health Survey). These data should be available in 2013.

Summary:

Data for this indicator are not yet available.

Increase the number of Aboriginal and Torres Strait Islander peoples receiving treatment for HIV, hepatitis C and hepatitis B

Hepatitis C and hepatitis B are reported at high rates in Aboriginal and Torres Strait Islander people, disproportionate to those among non-Indigenous Australians. HIV continues to be diagnosed at a similar rate to non-Indigenous people, although the distribution of exposure differs between the two populations. There is a growing need for focused treatment programmes for each of these infections among Aboriginal and Torres Strait Islander peoples.

Calculating the extent of access to treatments for HIV, chronic hepatitis C and chronic hepatitis B among Aboriginal and Torres Strait Islander peoples is useful for various reasons. These include identification and determination of the extent of any unaddressed clinical needs of Aboriginal and Torres Strait Islander people affected by these viruses and for developing and/or improving models of access to care in order to reduce the obstacles Aboriginal and Torres Strait Islander people may face when trying to access treatment and support.

Proportion of Aboriginal and Torres Strait Islander peoples with HIV receiving antiretroviral treatment

Proportion of Aboriginal and Torres Strait Islander peoples with chronic hepatitis C who are dispensed drugs for hepatitis C infection through the Highly Specialised Drugs Program in the previous 12 months

Proportion of Aboriginal and Torres Strait Islander peoples with chronic hepatitis B who are dispensed drugs for hepatitis B infection through the Highly Specialised Drugs Program in the previous 12 months

To measure the proportion of Aboriginal and Torres Strait Islander people with chronic hepatitis B, chronic hepatitis C and HIV receiving treatment, the number of Aboriginal and Torres Strait Islander people receiving treatment would be required from the Highly Specialised Drugs Program. However, this is currently unavailable. Negotiations are to be made by the Department of Health and Ageing with Medicare for the routine release of Highly Specialised Drugs Program data, cross tabulated by Voluntary Indigenous Identifier data. The denominators for this indicator would be the number of Aboriginal and Torres Strait Islander people on the National HIV Registry and model based estimates of the number of Aboriginal and Torres Strait Islander people with hepatitis B and C.

Summary:

Data for these three indicators of treatment coverage for Aboriginal and Torres Strait Islander people with HIV, chronic hepatitis C and chronic hepatitis B are currently unavailable.

Implement a national accreditation scheme for Aboriginal and Torres Strait Islander sexual health workers

A strong and competent health care workforce is required to effectively address STIs and BBVs in the Aboriginal and Torres Strait Islander population. There is a need to increase the number of Aboriginal and Torres Strait Islander sexual health workers and to provide them with ongoing support and professional development opportunities. In order to facilitate this, the national registration and accreditation scheme for sexual health professionals, implemented by the Coalition of Australian Governments, should be extended to Aboriginal and Torres Strait Islander sexual health workers.

Number of Aboriginal and Torres Strait Islander people registered under the National Registration Program

To measure the progress of this national accreditation scheme for Aboriginal and Torres Strait Islander sexual health workers, the number of people registered under the National Registration program will be the key indicator. This information will not be available until the National Registration Program is implemented.

Summary:

A national accreditation scheme for Aboriginal and Torres Strait Islander sexual health workers will facilitate their support and ongoing professional development. Until the scheme is implemented, this indicator will not be reported against.



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Glossary

ACCESS	Australian Collaboration for Chlamydia Enhanced Sentinel Surveillance
AHOD	Australian HIV Observational Database
AHMAC	Australian Health Ministers' Advisory Committee
AHPC	Australian Health Protection Committee
ANSPS	Australian Needle and Syringe Program Survey
AHPPC	Australian Health Protection Principal Committee
ART	Antiretroviral therapy
BBV	Blood Borne Virus
BBVSS	Blood Borne Viruses and Sexually Transmissible Infections Standing Committee of the AHPPC
BED-CEIA	BED capture enzyme immunoassay
CDNA	Communicable Diseases Network Australia
CSRH	Centre for Social Research in Health
DBS	Dried blood spots
GCPS	Gay Community Periodic Surveys
GP	General Practice
HCC	Hepatocellular carcinoma
HITS-c	NSW Hepatitis C Incidence and Transmission – community
HIV	Human immunodeficiency virus
HSD	Highly Specialised Drugs
NSP	Needle and Syringe Program
PWID	People who inject drugs
RNA	Ribonucleic Acid
STI	Sexually transmissible infection

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