



**HIV, viral hepatitis  
and sexually transmissible  
infections in Australia  
Annual surveillance  
report 2021**



**Hepatitis C**



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# HIV, viral hepatitis and sexually transmissible infections in Australia

## Annual surveillance report 2021

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in collaboration with networks in surveillance for HIV, viral hepatitis and sexually transmissible infections

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# Abbreviations

<b>ABS</b>	Australian Bureau of Statistics
<b>ACCESS</b>	Australian Collaboration for Coordinated Enhanced Sentinel Surveillance
<b>AIDS</b>	acquired immunodeficiency syndrome
<b>ANSPS</b>	Australian Needle Syringe Program Survey
<b>ART</b>	Antiretroviral therapy
<b>BBV</b>	bloodborne virus
<b>CI</b>	confidence interval
<b>DNA</b>	deoxyribonucleic acid
<b>HIV</b>	human immunodeficiency virus
<b>HPV</b>	human papillomavirus
<b>PEP</b>	post-exposure prophylaxis
<b>PrEP</b>	pre-exposure prophylaxis RNA ribonucleic acid
<b>STI</b>	sexually transmissible infection
<b>TasP</b>	treatment as prevention
<b>UNAIDS</b>	Joint United Nations Programme on HIV/AIDS

# Hepatitis C

*The years for comparison in this report are from 2011 to 2020 unless focus is given to the impact of the COVID-19 epidemic, where the years for comparison are 2011 to 2019, and 2019 and 2020. Additional years for comparison include 2015 to 2020 to highlight the effect of subsidised interferon-free direct-acting antiviral regimen availability from March 2016.*

## 1 Summary data

### New hepatitis C notifications

- In 2020 there were 7990 hepatitis C notifications in Australia. Over two-thirds (5484, 69%) of the notifications were among males.
- The overall notification rate of hepatitis C declined by 31% over the 10-year period 2011 to 2020, from 45.1 per 100 000 to 31.2 per 100 000 respectively.
- The hepatitis C notification rate among the Aboriginal and Torres Strait Islander population was nearly six times as high as among the non-Indigenous population in 2020 (167.3 and 28.5 per 100 000, respectively).
- Among the age group most likely to have acquired hepatitis C recently, people aged 15 to 24 years, the notification rate declined by 20% between 2011 and 2020 (from 36.3 per 100 000 in 2011 to 29.2 per 100 000 in 2020). The decline among this age group was attributed largely to a 50% decline among women, from 32.9 to 16.4 per 100 000. Among men aged 15 to 24 years, the hepatitis rate fluctuated between 2011 and 2020 and was 41.3 per 100 000 in 2020.

### Testing

- Among people who inject drugs and attend clinics in the ACCESS network, the proportion who received a hepatitis C test increased from 27% in 2011 to 50% in 2017, and then declined to 40% in 2020.
- Data from the ANSPS indicate that in 2020, about half (48%) of survey respondents reported a hepatitis C antibody test in the previous 12 months (49% of men and 46% of women).

### Incidence, prevalence and morbidity

- Among people tested at ACCESS primary care sites between 2015 and 2019, the hepatitis C incidence declined from 1.3 to 0.5 new infections per 100 person/years. In 2020 the hepatitis C incidence rate was 0.6 new infections per 100 person/years.
- Of the 117 810 people living with chronic hepatitis C at the end of 2020, an estimated 90 560 (77%) had been diagnosed, and 67 920 (75% of those diagnosed) had a hepatitis C RNA test to confirm their chronic hepatitis C infection.
- Hepatitis C RNA prevalence among participants of the ANSPS was 16% in 2020, a decrease from 51% in 2015.
- There was a 31% increase in the estimated number of people living with hepatitis C and with associated cirrhosis between 2009 and 2015 followed by a 56% decline from 2015 to 2020.
- The proportion of people receiving liver transplants due to chronic hepatitis C or hepatitis C-related hepatocellular carcinoma more than halved between 2015 (72, 33% of all transplants) and 2020 (33, 15% of all transplants).
- The estimated number of hepatitis C-related deaths (among both people both living with and people cured of hepatitis C) increased by 37% from 542 in 2011 to 740 in 2015, then declined by 43% between 2015 and 2020 to (423 in 2020)

## Treatment

- According to modelled estimates, of the 123 770 people living with chronic hepatitis C at the start of 2020, 8100 people (7%) received hepatitis C treatment during 2020 and 7610 (94% of those treated) were cured.
- A higher proportion of people with hepatitis C related cirrhosis (stage F4) at the start of 2020 were estimated to have gone on to received treatment in 2020 (31%) compared with those with pre-cirrhosis liver disease stages (4–6%).
- Among Aboriginal and Torres Strait Islander respondents in the Australian Needle Syringe Program Survey, there was more than a five-fold increase in the proportion reporting ever having hepatitis C treatment, from 10% in 2015 to 52% in 2020. Among non-Indigenous participants over the same period, there was close to a seven-fold increase the number reporting ever having received treatment, from 11% to 67%.
- Among participants in the Australian Needle Syringe Program Survey in 2020 with self-reported history of chronic hepatitis C, 62% reported ever receiving hepatitis C treatment, an increase from 9% in 2011.

## Injecting risk behaviour

- The reuse of needles and syringes that have been used by others (receptive syringe sharing) by people who inject drugs is a major risk factor for transmission of hepatitis C. The proportion of Australian Needle Syringe Program Survey respondents who reported receptive syringe sharing in the past month was 16% in 2020 with the proportion reporting receptive syringe sharing almost twice as high among Aboriginal and/or Torres Strait Islander survey participants (24%) compared with non-Indigenous participants (13%).

## 2 Interpretation

The decline in hepatitis C notifications and testing between 2019 and 2020 was likely strongly influenced by COVID-19, including challenges in testing and healthcare. The preceding decline in hepatitis C notifications between 2015 and 2019 (including among younger age groups) after stable rates between 2011 and 2015, along with corresponding reductions in prevalence among needle and syringe survey participants, suggest that the uptake of hepatitis C treatment, is resulting in a population level decline of hepatitis C transmission. Notably, the decline in the notification rate among people aged between 15 and 24 years was only seen among women in this age group. Also declines in testing between 2015 and 2019 mean that notification rates be may an underrepresentation of the true number of hepatitis C infections in the community.

Declines in hepatitis C notifications were also seen among Aboriginal and Torres Strait Islander peoples, although not to the same extent when compared with declines seen among non-Indigenous people. Among people aged under 25 years, smaller declines were seen among Aboriginal and Torres Strait Islander people compared with non-Indigenous people suggesting inequity in the availability of direct acting antivirals as well as resources directed toward harm reduction and linkage to care, and this may be sustaining the rate of recent infections among Aboriginal and Torres Strait Islander people. Further, hepatitis C notification rates in this age group remain several-fold higher among Aboriginal and Torres Strait Islander people compared to non-indigenous people. Underreporting of Aboriginal and Torres Strait Islander status mean that the number of hepatitis C notifications nationally is likely underestimated.

In 2020, only 9% of the estimated number of people living with hepatitis C in Australia received treatment, a decline from 13% in 2017, and there were an estimated 420 liver related deaths among people who have ever lived with hepatitis C (including those who have been cured). Strategies are needed to raise awareness about the need for testing and availability of new hepatitis C treatments to eliminate hepatitis C as a public health threat by 2030, in line with Australian Government and World Health Organization targets. There has also been no decrease in the rates of receptive syringe sharing in the same period, highlighting the need for enhanced focus on prevention efforts.

Results from the Australian Needle and Syringe Program survey show that Aboriginal and/or Torres Strait Islander people were almost twice as likely as non-indigenous people to report recent receptive syringe sharing in 2020 with the gap unchanged in recent years. Also, a disproportionate number of Aboriginal and/or Torres Strait Islander people are incarcerated each year, a setting where access to evidence-based harm-reduction strategies is very limited. Therefore, there is a need for an increased focus on expanding harm reduction strategies in prison settings and ensuring these are culturally appropriate for Aboriginal and/or Torres Strait Islander people both within community and prison settings. Behavioural factors have complex social determinants, intertwined with poverty and discrimination faced by many Aboriginal and/or Torres Strait Islander people. Similarly, health service access and utilisation are strongly influenced by these factors.

In March 2016, direct-acting antiviral regimens became subsidised by the Pharmaceutical Benefits Scheme (PBS) for hepatitis C treatment. In 2016, the uptake of direct-acting antiviral therapies was initially high but has since steeply declined.

Altogether, almost 90 000 Australians have received these highly curative therapies (43% of all people living with hepatitis C including those cured). In turn, there was an estimated 43% decline in deaths from hepatitis C related liver failure and liver cancer between 2015 and 2020, compared with an estimated 37% increase in the four years before new treatments were made available on the PBS, and a 38% decline in decompensated cirrhosis among people living with hepatitis C and among people cured of hepatitis C between 2015 and 2020.

People who inject drugs are a key population for hepatitis C treatment and prevention. Among participants of the Australian Needle Syringe Program Survey, treatment uptake has increased markedly, with the proportion of people who inject drugs and have a history of living with hepatitis C who report lifetime treatment increasing from 11% in 2015 to 64% in 2019, and 62% in 2020. The curative nature of hepatitis treatment has resulted in a substantial reduction in the prevalence of active hepatitis C infection among this group, with hepatitis C RNA prevalence declining from 51% in 2015 to 16% in 2020.

### 3 Hepatitis C notifications

This section focuses on people notified with hepatitis C in Australia, including newly acquired hepatitis C notifications (evidence of hepatitis C acquisition within two years before diagnosis) and unspecified hepatitis C notifications (cases that do not meet any of the criteria for a newly acquired case or acquired hepatitis C more than 24 months before diagnosis).

A total of 7990 hepatitis C notifications (newly acquired and unspecified) were reported in Australia in 2020, of which 1106 (14%) occurred among Aboriginal and/or Torres Strait Islander people, 3450 (43%) were among the non-Indigenous population, and a further 3434 (43%) were among people whose Indigenous status was not reported. Aboriginal and/or Torres Strait Islander people comprise an estimated 3.3% of the Australian population<sup>(1)</sup>, meaning that these notifications reflect a disproportionate burden of disease (Table 1).

In 2020, 5484 (69%) hepatitis C notifications were among males, 6984 (87%) were among people aged 25 years and above, and 4556 (57%) were in major cities. Only 675 (8%) of hepatitis C notifications had evidence of infection in the two years prior to the date of diagnosis (Table 1).

**Table 1 Characteristics of new hepatitis C notifications, 2011–2020**

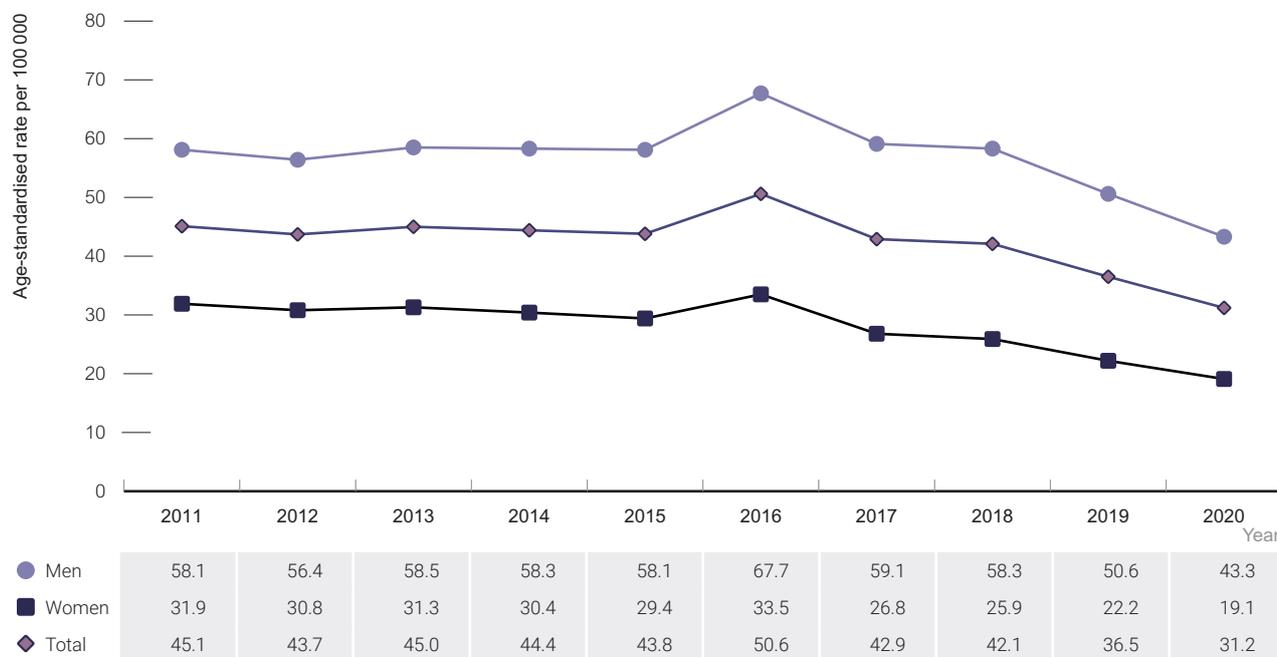
Characteristic	Year of diagnosis									
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
<b>Total cases</b>	9978	9900	10 486	10 307	10 352	12 156	10 458	10 428	9187	7990
<b>Gender</b>										
Male	6399	6394	6841	6746	6835	8074	7140	7143	6306	5484
Female	3536	3473	3618	3538	3484	4053	3290	3249	2846	2479
Missing	43	33	27	23	33	29	28	36	35	27
<b>Age group</b>										
0–14	33	33	23	36	28	27	29	41	43	45
15–19	241	246	307	218	218	225	195	181	212	175
20–24	871	916	1002	891	947	915	907	805	865	761
25–29	1274	1278	1226	1185	1197	1272	1174	1117	1054	970
30–34	1449	1447	1545	1476	1444	1520	1324	1207	1094	958
35–39	1323	1278	1323	1333	1314	1602	1349	1353	1142	971
40+	4767	4694	5048	5159	5188	6587	5474	5720	4770	4085
Missing	20	8	12	9	16	8	6	4	7	25
<b>Indigenous status</b>										
Aboriginal and/or Torres Strait Islander	847	943	1005	1101	1149	1301	1379	1347	1351	1106
Non-Indigenous	4407	4388	4588	4305	4291	5016	4705	5153	4494	3450
Not reported	4724	4569	4893	4901	4912	5839	4374	3928	3342	3434
<b>Newly acquired<sup>a</sup></b>	620	705	669	708	823	737	621	613	795	675
<b>Area of residence</b>										
Major cities	6287	6037	6495	6264	6245	7309	6124	6072	5181	4556
Regional	2963	3053	3144	3343	3403	3978	3496	3269	2991	2575
Remote	254	328	441	242	246	257	231	230	194	143
Missing	474	482	406	458	458	612	607	857	821	716

<sup>a</sup> Newly acquired hepatitis C is defined as newly diagnosed hepatitis C infection with laboratory or clinical evidence of acquisition in the two years before diagnosis. Enhanced surveillance procedures related to hepatitis C vary by state/territory. The total number of cases reported here is likely to be an underestimate for the true number of newly acquired infections.

Source: Australian National Notifiable Disease Surveillance System.

There was a 31% decrease in the notification rate of hepatitis C, from 45.1 per 100 000 in 2011, to 31.2 per 100 000 in 2020 (Figure 1). Notification rates have been gradually decreasing among both males and females since 2011 despite an increase in 2016. This increase likely reflected the increase in testing associated with government-funded interferon-free direct-acting antiviral treatments becoming available on the PBS in March 2016<sup>(2)</sup>. In 2016, there was a rapid uptake of treatment and cure among people living with hepatitis C, which coincides with a steady reduction in notification rates, with 2020 having the lowest rate since in the last 10 years (Figure 1).

**Figure 1 Hepatitis C notification rate per 100 000 population, 2011–2020, by gender**

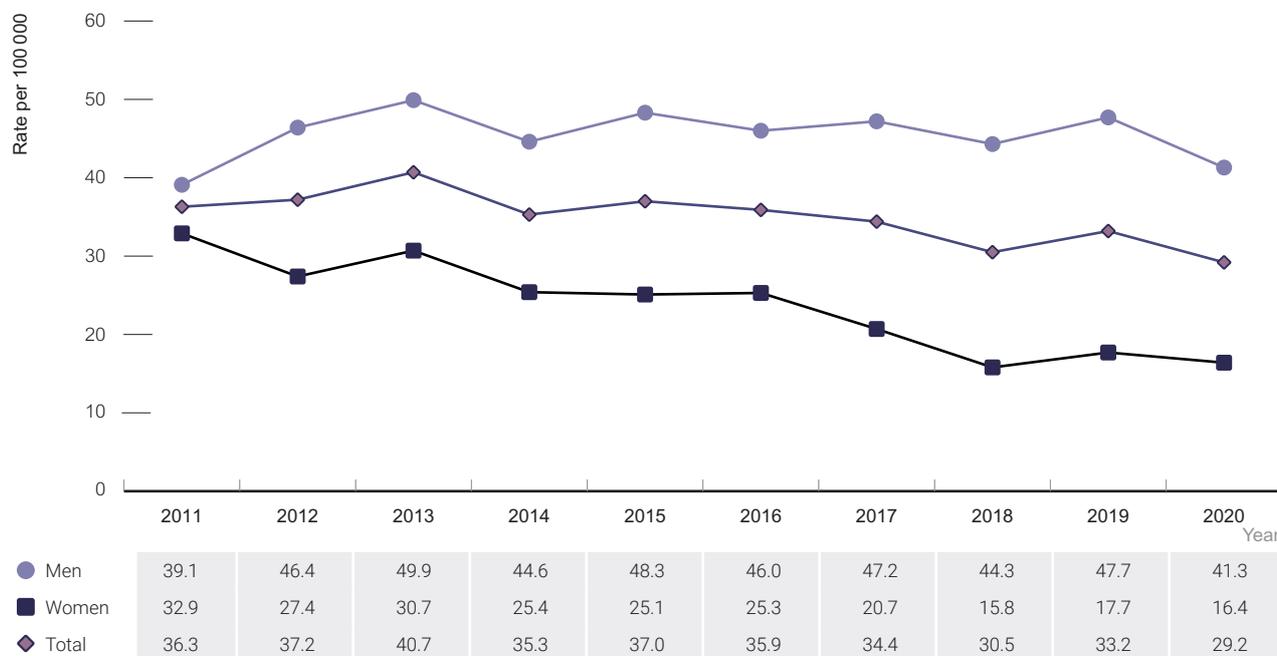


Source: Australian National Notifiable Disease Surveillance System.

Hepatitis C notification rates are highest among people aged 25 to 39 years, yet within the last 10 years (2011–2020), rates among this age group reduced by 39% from 84.9 per 100 000 population in 2011, to 51.2 per 100 000 in 2020. In the same time period, rates among people aged 40 years and older had reduced by 27%, from 46.6 per 100 000 in 2011, to 34.1 per 100 000 in 2020. In 2016, there was an increase in rates among both of these age categories, likely reflecting an increase in testing associated with the introduction of direct acting-antiviral therapies. This trend was similar among both males and females. Rates among people aged 15–24 years reduced by 20% from 36.3 per 100 000 in 2011, to 29.2 per 100 000 in 2020, and were not obviously affected by the change in testing trends in 2016. For detailed breakdown of notification rates by age and gender, please see the [Kirby Institute data site](#).

Compared with older age-groups, most hepatitis C infections among those aged 15 to 24 years were recently acquired<sup>(3)</sup>. Therefore, trends in the rate of notifications among those aged 15–24 years are used here as a proxy for the incidence of hepatitis C infection. There has been a 20% reduction within this group within the last decade. However, the overall reduction was largely due to a 50% reduction among females from 32.9 per 100 000 in 2011 to 16.4 per 100 000 in 2020. By comparison, the rate among males fluctuated, but remained relatively consistent in the same period and was 41.3 per 100 000 in 2020 (Figure 2).

**Figure 2 Hepatitis C notification rate per 100 000 population among people aged 15 to 24 years, 2011–2020, by sex**



Source: Australian National Notifiable Disease Surveillance System.

Aboriginal and Torres Strait Islander notification rates for hepatitis C are based on data from six jurisdictions (the Australian Capital Territory, Northern Territory, Queensland, South Australia, Tasmania and Western Australia) where Indigenous status was ≥50% complete for all hepatitis C notifications for each of the five years (2011–2020). Almost two thirds (61%) of the Aboriginal and Torres Strait Islander population reside in these jurisdictions so it is important to note that the notification rates are not necessarily nationally representative. Incomplete information on Indigenous status can underestimate the true extent of these infections in the Aboriginal and/or Torres Strait Islander population and notification rates may not reflect national trends.

Based on the data from these six jurisdictions, in 2020 the age-standardised notification rate of hepatitis C was nearly six times as high among the Aboriginal and Torres Strait Islander population (167.3 per 100 000) compared with the non-Indigenous population (28.5 per 100 000). Notification rates of hepatitis C among Aboriginal and Torres Strait Islander people have gradually declined between 2016 and 2020 from 191.2 per 100,00 to 167.3 per 100 000 (Figure 3).

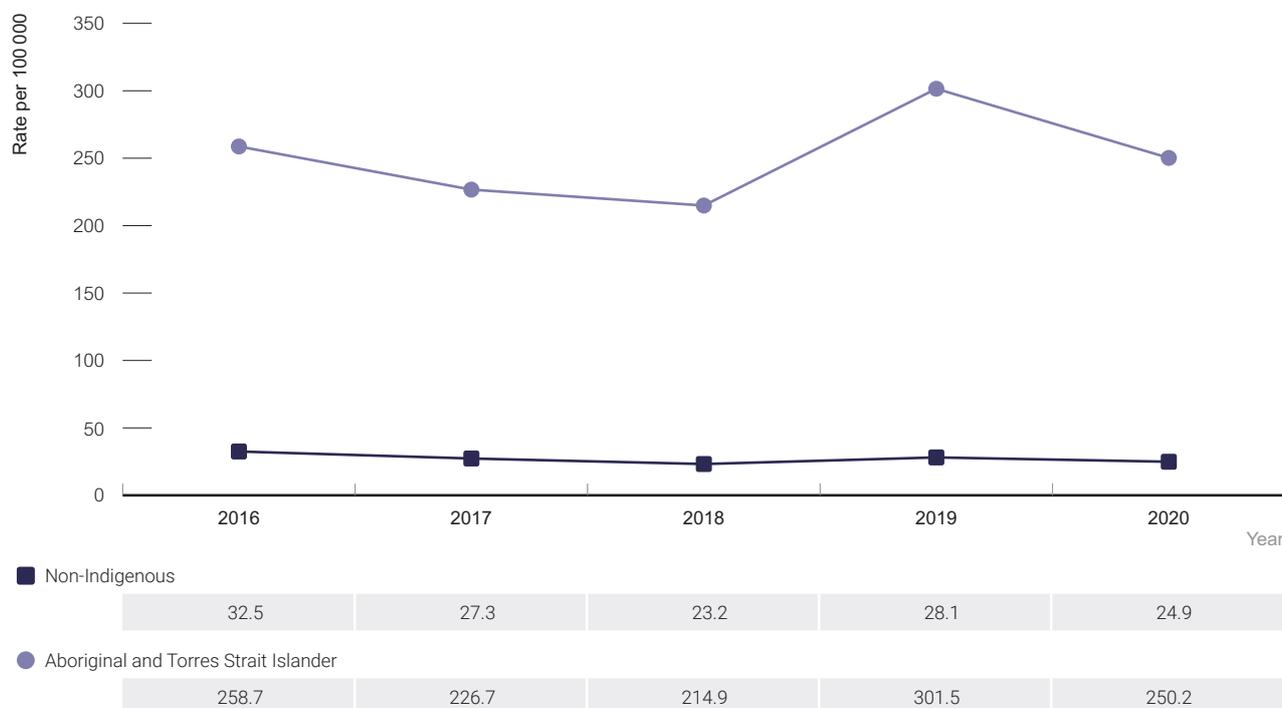
Between 2016 and 2020, among Aboriginal and Torres Strait Islander people aged 15 to 24 years, the hepatitis C notification rate remained stable and was 250.2 per 100 000 in 2020. Conversely, among non-Indigenous people aged 15 to 24 years, the notification rate has declined by 23% in the same period from 32.5 per 100 000 in 2016 to 24.9 per 100 000 in 2020. The hepatitis notification rate among Aboriginal and Torres Strait Islander peoples aged 15–25 years was more than ten times as high as among non-Indigenous people aged 15–25 years (250.2 vs 24.9 per 100 000) (Figure 4).

**Figure 3 Hepatitis C notification rate per 100 000 population, 2016–2020, by Aboriginal and Torres Strait Islander status**



Source: Australian National Notifiable Disease Surveillance System. Includes jurisdictions in which Indigenous status was reported for  $\geq 50\%$  of notifications for each year (Australian Capital Territory, Northern Territory, Queensland, South Australia, Tasmania and Western Australia).

**Figure 4 Hepatitis C notification rate among people aged 15 to 24 years per 100 000 population, 2016–2020, by Aboriginal and Torres Strait Islander status**



Source: Australian National Notifiable Disease Surveillance System. Includes jurisdictions in which Indigenous status was reported for  $\geq 50\%$  of notifications for each year (Australian Capital Territory, Northern Territory, Queensland, South Australia, Tasmania and Western Australia).

Notification rates of hepatitis C have historically been higher in regional areas (42.8 per 100 000, in 2020) than in remote areas (30.9 per 100 000) and major cities (24.3 per 100 000). Rates within all three area classifications have declined to the lowest levels in more than 10 years. Since 2011, notification rates have declined by 39% in major cities, 36% in remote areas, and by 19% in regional areas (Figure 5).

Between 2011 and 2020, notification rates among males residing in remote areas reduced by 41% (from 58.1 to 34.5 per 100 000) while males residing in major cities reduced by 37% (from 50.6 to 32.1 per 100 000). In the same period, rates among males living in regional areas declined by 9%, from 67.9 to 62.0 per 100 000. Declines in notification rates were also seen among females residing in major cities, regional and remote areas. Among females, there was a reduction of 42% in major cities (from 29.0 in 2011 to 16.7 per 100 000 in 2020), 38% in regional areas (from 37.7 in 2011 to 23.4 per 100 000 in 2020), and 27% in remote areas (from 36.4 in 2011 to 26.7 per 100 000 in 2020). Full breakdown of hepatitis C notification rates by remoteness classification and gender can be found at the [Kirby Institute data site](#).

**Figure 5** Hepatitis C notification rate per 100 000 population, 2011–2020, by region of residence



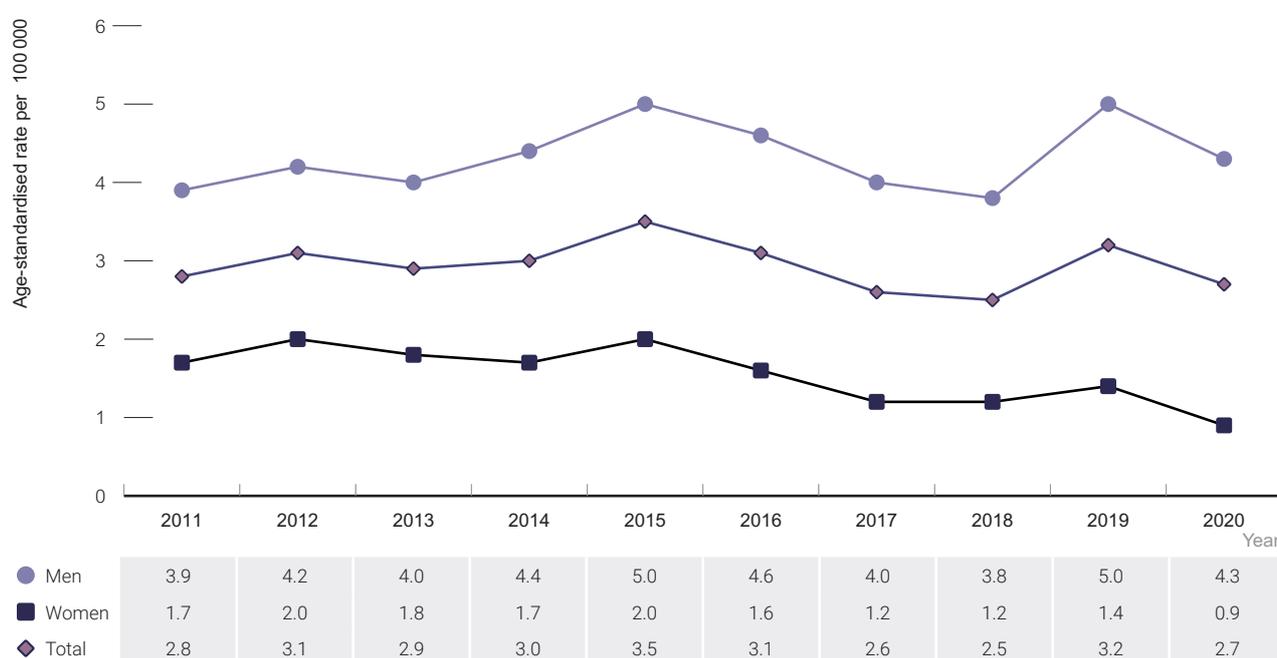
Source: Australian National Notifiable Disease Surveillance System.

## Newly acquired hepatitis C notifications

This section focuses on newly acquired hepatitis C. Hepatitis C is recorded as newly acquired if a person previously known not to have hepatitis C within the previous two years has tested negative for hepatitis C and has subsequently been diagnosed. Data on newly acquired notifications should be interpreted with caution, as they are likely to underestimate the true number of newly acquired infections in the community for several reasons. Hepatitis C is rarely symptomatic when first acquired and therefore, most newly acquired cases remain undetected. Also, even if testing is conducted, it may be difficult to be sure that an infection is newly acquired unless the person has had a negative test in the two years before the positive diagnosis or clinical evidence of newly acquired hepatitis C. Improvements in hepatitis C testing coverage as well as the availability of hepatitis C testing denominator data would provide more confidence in interpretation of newly acquired hepatitis C infections.

Newly acquired hepatitis C notification rates fluctuated between 2011 and 2020, and were 0.9, 4.3 and 2.7 per 100 000 in 2020 for females, males and overall, respectively (Figure 6). For further breakdowns of newly acquired hepatitis C notification rates, please see the [Kirby Institute data site](#).

**Figure 6** Newly acquired hepatitis C notification rate per 100 000 population, 2011–2020, by gender

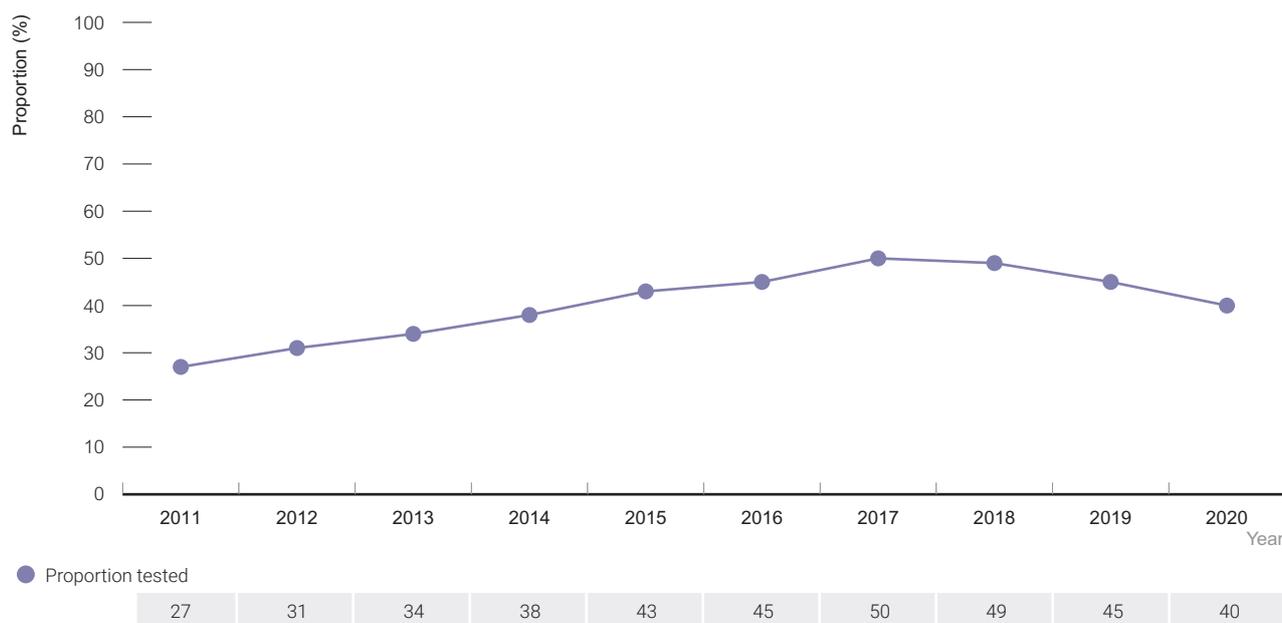


Source: Australian National Notifiable Disease Surveillance System.

## 4 Hepatitis C testing

Hepatitis C testing rates showed a decline between 2019 and 2020 as a consequence of the COVID-19 pandemic related restrictions<sup>(4)</sup>. Sentinel surveillance of hepatitis C testing is conducted by the Australian Collaboration for Coordinated Enhanced Sentinel Surveillance (ACCESS) network and includes 11 general primary care sites specialising in the health of people who inject drugs, 15 sexual health clinics, and ten primary care clinics specialising in the health of gay and bisexual men. Among people who inject drugs and attend one of the 15 sexual health clinics in the ACCESS network, the proportion who received a hepatitis C test increased from 27% in 2011 to 50% in 2017, and then declined to be 40% in 2020 (Figure 7).

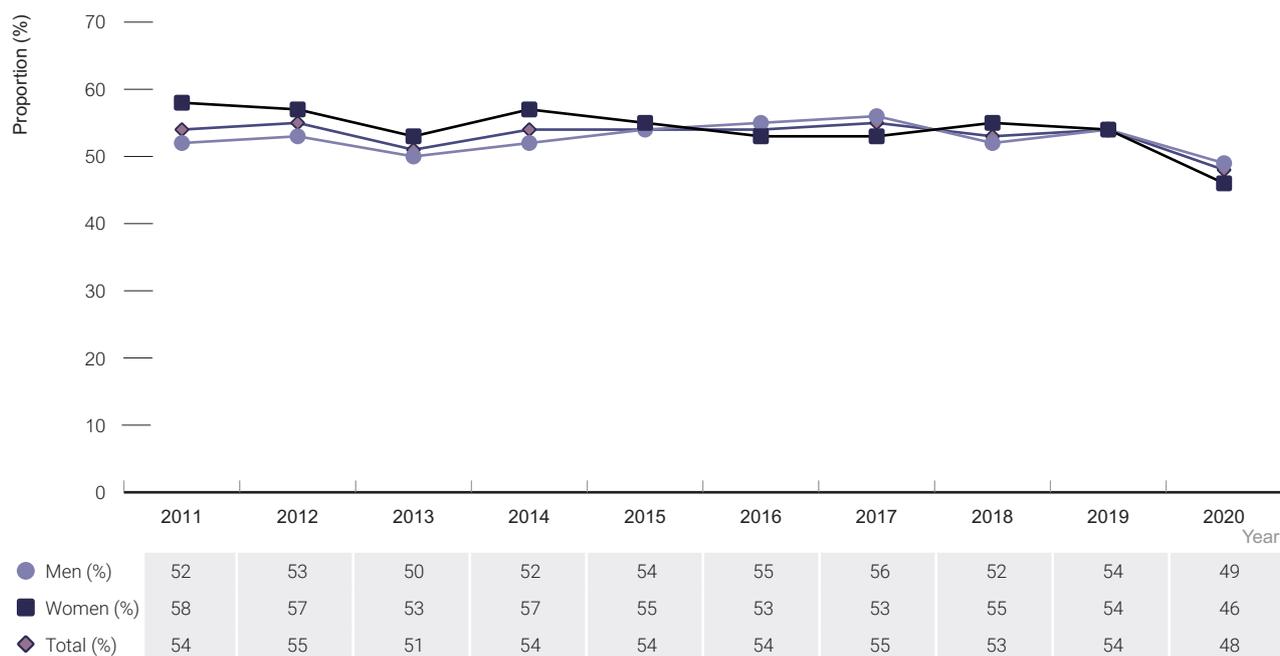
**Figure 7** Proportion of people who inject drugs attending a clinic in the ACCESS network who had a hepatitis C test in the past 12 months, 2011–2020



Source: ACCESS; see [Methodology](#) for detail.

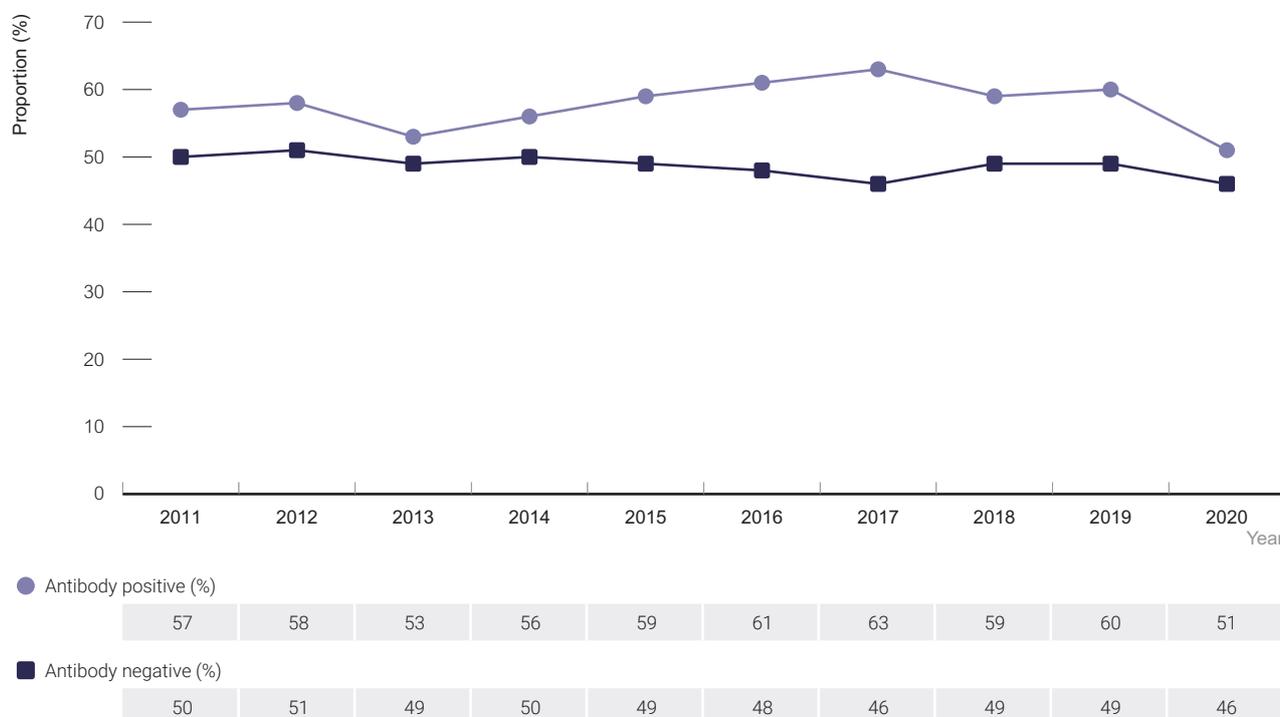
Data from the annual Australian Needle Syringe Program Surveys (ANSPS) provide insights into the demographic characteristics and risk behaviours of laboratory confirmed and self-reported bloodborne virus prevalence, including hepatitis C prevalence, among people who inject drugs attending needle and syringe programs throughout Australia. Data from the ANSPS indicate that in 2020, about half (48%) of survey respondents reported a hepatitis C antibody test in the previous 12 months (49% of men and 46% of women) (Figure 8). These proportions were the lowest in the reporting period, likely related to the ongoing COVID-19 pandemic. Between 2011 and 2019, the overall proportion of ANSPS respondents reporting hepatitis C testing in the past 12 months fluctuated between 51% and 55% followed by a decline in 2020 to 48%. Self-reported hepatitis C testing levels have consistently been higher among survey respondents who were confirmed as hepatitis C antibody positive than in those who were antibody negative (51% vs 46% in 2020) (Figure 9).

**Figure 8** Proportion of people who inject drugs attending needle and syringe programs who reported a hepatitis C antibody test in the past 12 months, 2011–2020 by sex



Source: Australian Needle and Syringe Program Survey; see [Methodology](#) for detail.

**Figure 9** Proportion of people who inject drugs attending needle and syringe programs who reported a hepatitis C antibody test in the past 12 months by hepatitis C antibody status, 2011–2020



Source: Australian Needle and Syringe Program Survey; see [Methodology](#) for detail.

## 5 Number of people living with hepatitis C and prevalence

### Number of people living with chronic hepatitis C

At the end of 2020, an estimated 117 814 people were living with chronic hepatitis C in Australia. The highest estimated numbers of people living with chronic hepatitis C were in New South Wales (43 822, 37%), Victoria (24 820, 21%) and Queensland (22 394, 19%) (Table 2).

**Table 2** Estimated number of people living with chronic hepatitis C at the end of 2020, by state/territory

State/territory	Estimated number of people living with chronic hepatitis C at the end of 2020	Proportion of all people living with chronic hepatitis C at the end of 2020
Australian Capital Territory	2 032	2%
New South Wales	43 822	37%
Northern Territory	2 395	2%
Queensland	22 394	19%
South Australia	8 056	7%
Tasmania	2 005	2%
Victoria	24 820	21%
Western Australia	9 429	8%
Australia	117 814	100%

Source: See [Methodology](#) for detail

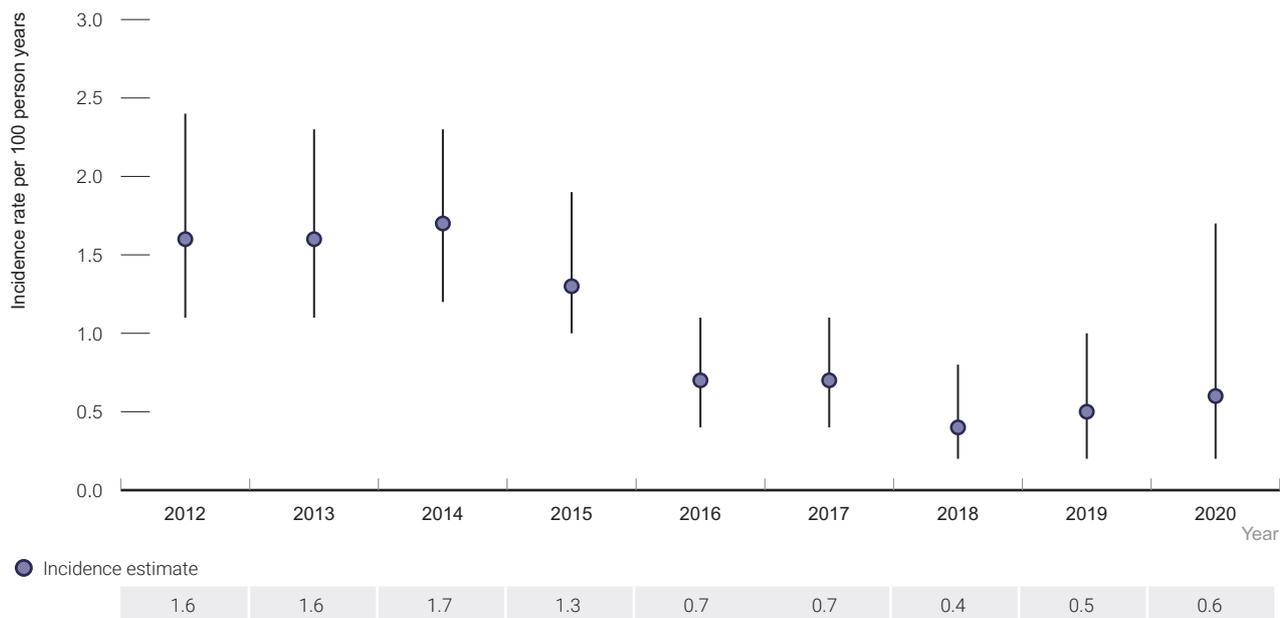
## 6 Hepatitis C incidence

Hepatitis C incidence represents new transmissions and is an important indicator in monitoring the effectiveness of hepatitis C prevention programs. Modelled national hepatitis C incidence estimates are in development and will be presented in future reporting. In lieu of these estimates, hepatitis C incidence estimates calculated using sentinel surveillance data from the ACCESS network are presented below.

Among people tested at ACCESS primary care sites between 2015 and 2019, the hepatitis C incidence declined from 1.3 to 0.5 new infections per 100 person/years. In 2020 the hepatitis C incidence rate was 0.6 new infections per 100 person/years (Figure 10).

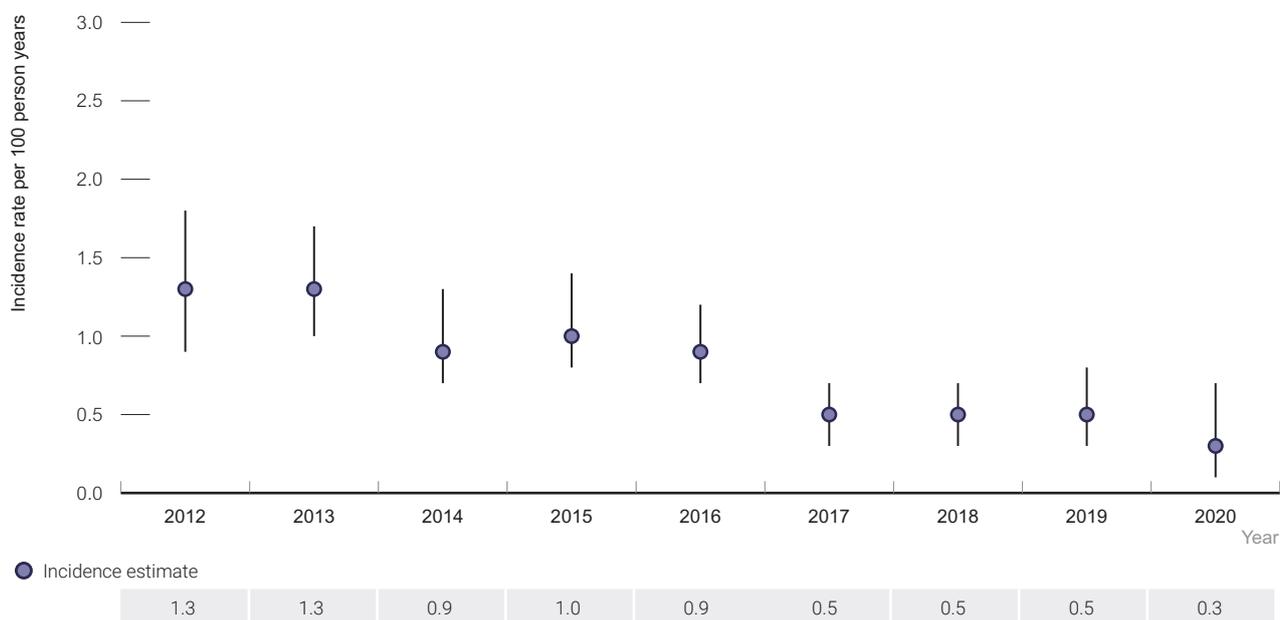
Among gay and bisexual men who were tested at ACCESS sexual health clinics and primary care sites specialising in the health of gay and bisexual men between 2012 and 2019, the hepatitis C incidence halved from 1.0 to 0.5 new infections per 100 person/years. In 2020 the hepatitis C incidence rate was 0.6 new infections per 100 person/years (Figure 11).

**Figure 10** Incidence of hepatitis C infection at ACCESS primary care clinics, 2012–2020



Source: ACCESS; see [Methodology](#) for detail.

**Figure 11** Incidence of primary hepatitis C infection among HIV-positive gay and bisexual men attending ACCESS sexual health and primary care clinics, 2012–2020



Note:

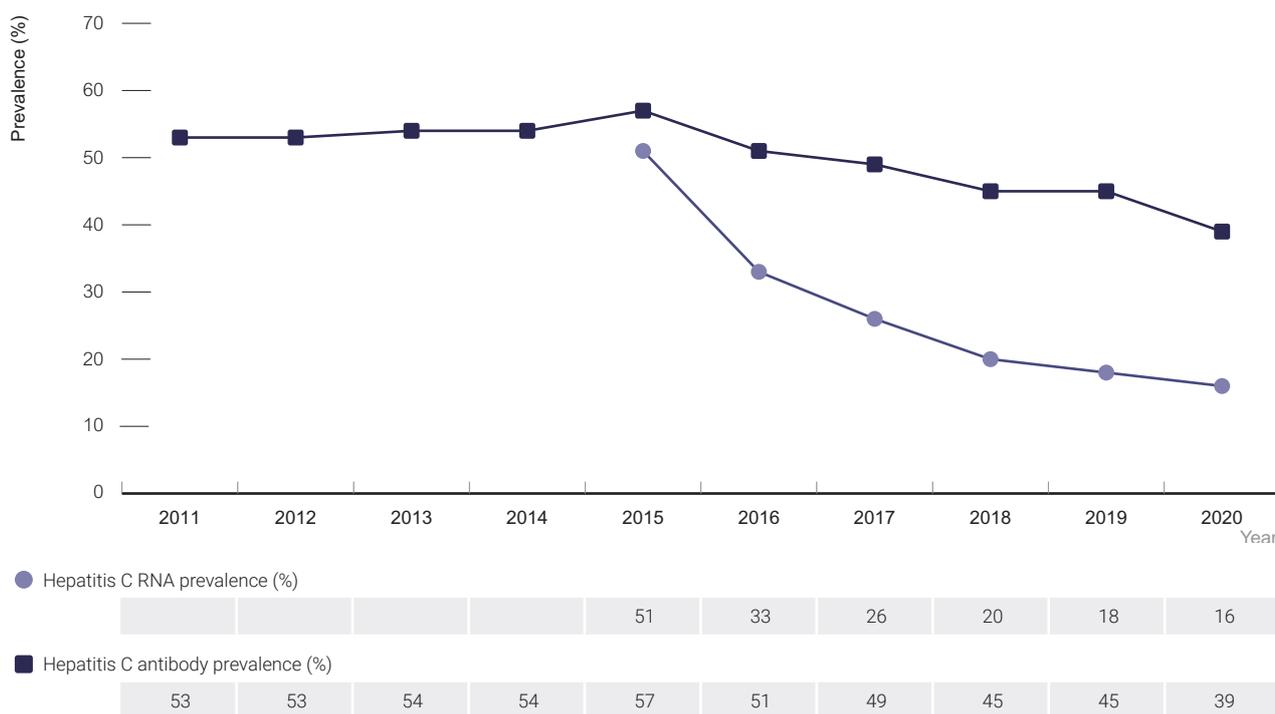
Source: ACCESS; see [Methodology](#) for detail.

## 7 Hepatitis C prevalence

Australia's hepatitis C epidemic affects many people across differing age groups, ethnicities, and sociodemographic backgrounds. Key populations include people with a history of injecting drugs, people with a history of incarceration, and people from high-prevalence countries (where the prevalence of hepatitis C is higher than 3.5%).

According to the ANSPS, hepatitis C antibody prevalence has declined from 57% in 2015 to 39% in 2020 (Figure 12). By comparison, greater declines have been seen in hepatitis C RNA prevalence, reflecting the reduced level of current infection among people with hepatitis C antibodies since the widespread availability of direct-acting antiviral (DAA) therapy. Hepatitis C RNA prevalence declined from 51% in 2015 to 16% in 2020 (Figure 12)<sup>(5)</sup>.

**Figure 12 Hepatitis C antibody and RNA prevalence among people attending needle and syringe programs, 2011–2020**



Notes: RNA prevalence data are weighted for gender and HCV Ab status. RNA testing commenced 2015.

Source: Australian Needle Syringe Program Survey; see [Methodology](#) for detail.

## 8 Hepatitis C morbidity and mortality

There is no comprehensive registry of advanced illness related to hepatitis C in Australia. One indicator of the extent of illness caused by hepatitis C is the number of liver transplants due to chronic infection. The number of people having liver transplants in Australia due to chronic hepatitis C or hepatitis C-related hepatocellular carcinoma has more than halved between 2011 (72, 33% of all transplants) and 2020 (33, 15% of all transplants). The proportion of hepatitis C-related transplants accounted for by hepatocellular carcinoma has more than halved from 13% (n=29) in 2015 to 6% (n=14) in 2020 (Figure 13).

**Figure 13** Number of liver transplants due to chronic hepatitis C and hepatitis C related hepatocellular carcinoma, 2011–2020



Note: Only includes people aged 16 years and over.

Source: Australian and New Zealand liver Transplant Registry; see [Methodology](#) for detail.

In lieu of empirical mortality and morbidity data, estimates based on mathematical modelling, incorporating the impact of hepatitis C treatment, are presented below<sup>(6)</sup> with 88 790 treated since March 2016. However, treatment uptake is declining which could potentially undermine Australia's progress towards the WHO HCV elimination targets. Using mathematical modelling, we updated estimates for those living with chronic HCV in Australia, new cases of decompensated cirrhosis. By the end of 2020, an estimated 88 437 people living with chronic hepatitis C had early to moderate fibrosis (stages F0–F2), 21 642 had severe fibrosis (stage F3), 6635 had hepatitis C-related cirrhosis (stage F4), 480 had decompensated cirrhosis, and 408 had hepatocellular carcinoma. The estimated number of hepatitis C-related deaths increased by 37% from 542 in 2011 to 740 in 2015, then declined by 43% between 2015 and 2020 to 423 in 2020 (Figure 14).

The estimated number of people living with chronic hepatitis C who had hepatitis C-related cirrhosis increased by 31% from 11 463 in 2011 to 15 019 in 2015, then declined by 56% between 2015 and 2020 to 6635 (Figure 15).

Among people who were living with chronic hepatitis C as well as those who have been cured, between 2011 and 2020, the estimated number with hepatitis C-related cirrhosis increased by 96% (from 12 029 to 23 532) (Figure 15). People who have been cured of chronic hepatitis C are included as they may still develop morbidity after being cured.

Among people who were living with chronic hepatitis C (including those who have been cured), the estimated number of new cases of hepatitis C-related decompensated cirrhosis increased by 33% from 319 in 2011 to 425 in 2015, then declined by 38% between 2015 and 2020 (264 in 2020) (Figure 14). The estimated number of new cases of hepatitis C-related hepatocellular carcinoma increased by 32% between 2011 and 2015 from 418 to 553, then declined by 33% between 2015 and 2020 (360 in 2020).

**Figure 14** Estimated number of incident cases of hepatitis C-related decompensated cirrhosis, hepatocellular carcinoma, and deaths, 2011–2020



Note: Includes people with chronic hepatitis C infection and those who have been cured of infection but still have hepatitis C-related severe fibrosis or cirrhosis.

Source: See [Methodology](#) for detail.

**Figure 15** Estimated number of people with hepatitis C-related cirrhosis, 2011–2020



Source: See [Methodology](#) for detail.

## 9 The hepatitis C diagnosis and care cascade

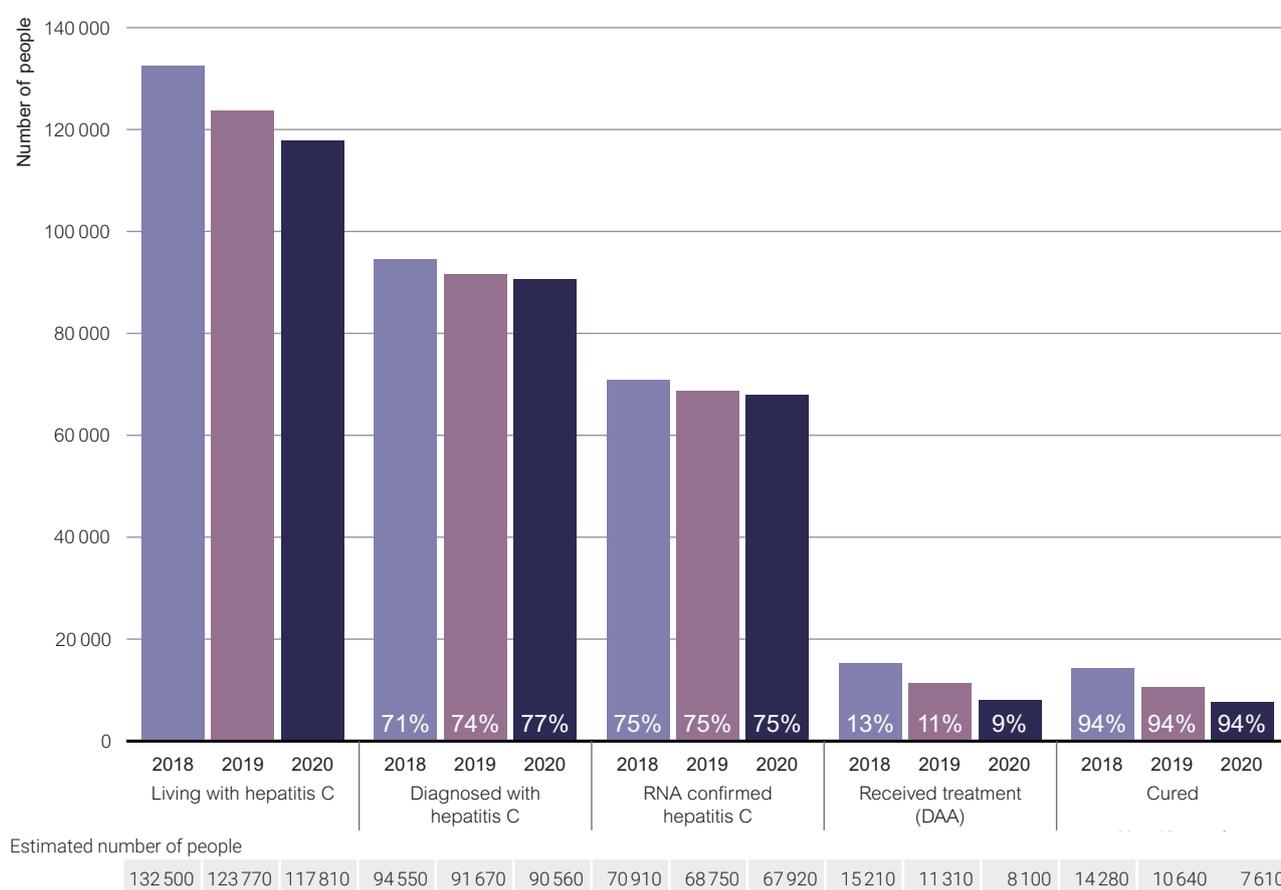
This section includes the hepatitis C diagnosis and care cascade, with estimates of the number of people living with chronic hepatitis C in Australia, the number and proportion of people who have been diagnosed, had hepatitis C RNA testing done and received antiviral treatment. These estimates are used to support and inform the delivery of services to people living with chronic hepatitis C infection across the entire continuum of care—from diagnosis of chronic hepatitis C to initiation of antiviral therapy and cure. Using available data and accounting for uncertainties, the number and proportions of people in each stage of the cascade in Australia were estimated (Figure 16, Table 3).

At the end of 2020, an estimated 117 810 people were living with chronic hepatitis C in Australia, down from 132 500 at the end of 2018. Of those living with chronic hepatitis C at the end of 2019, an estimated 90 560 (77%) were diagnosed, and 67 920 (75% of those diagnosed) had a hepatitis C RNA test to confirm their chronic hepatitis C infection (Figure 16).

Of those people living with chronic hepatitis C at the start of 2020 (123 770), 8100 (9%) received hepatitis C direct-acting antiviral treatment during 2020, and 7610 (94% of those treated) were cured during 2020. The Australian Government has committed to the World Health Organization targets of 90% of people living with chronic hepatitis C infection to be diagnosed, with 80% treatment coverage by 2030. For estimates over a greater range of years, please see the [Kirby Institute data site](#).

Further details are provided in the [Methodology](#) section.

**Figure 16** The hepatitis C diagnosis and care cascade, 2018–2020



Source: See [Methodology](#) for details of mathematical modelling used to generate estimates.

**Table 3** The hepatitis C diagnosis and care cascade estimates, 2018–2020

	2018	2019	2020
<b>Cascade stage</b>			
Living with chronic hepatitis C (end of year)	132 500	123 770	117 810
Diagnosed with chronic hepatitis C (end of year)	94 550	91 670	90 560
RNA confirmed hepatitis C (end of year)	70 910	68 750	67 920
Received DAA hepatitis C treatment (during the year)	15 210	11 310	8 100
Cured of hepatitis C (during the year)	14 280	10 640	7 610

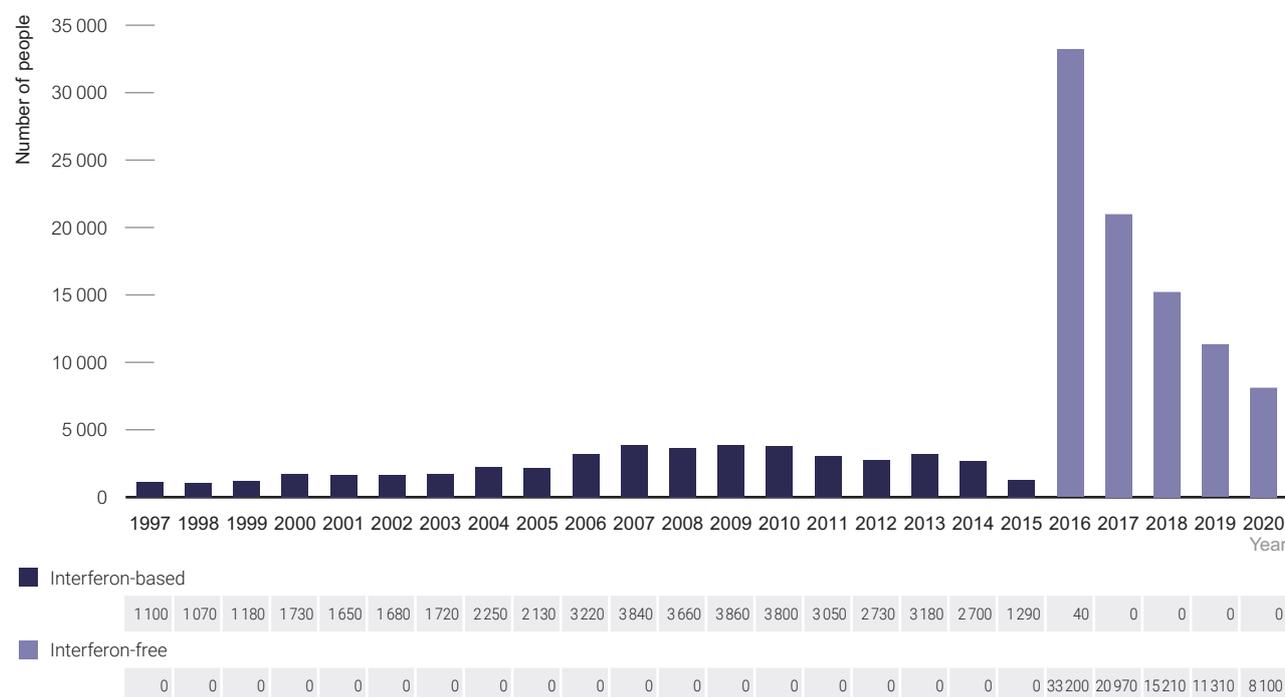
Source: See [Methodology](#) for details of mathematical modelling used to generate estimates.

## Hepatitis C treatment

Subsidised interferon-free DAA regimens became available in Australia from March 2016. Access to new highly effective hepatitis C treatments led to a 26-fold increase in the number of people receiving treatment between 2015 and 2016. The large initial DAA uptake in 2016 likely reflected a 'warehouse' effect, with many patients awaiting DAA treatment access after a hepatitis C in previous years<sup>(2)</sup>. Since this time the DAA treatment initiations per year have declined from 33 200 in 2016 to 8100 in 2020 (Figure 17). Since 2016, almost 90 000 people in Australia have been treated with these highly curative therapies, meaning that in this period, 43% of all people living with HCV, including those who have been cured, have received treatment.

In 2020, 7% of all people estimated to be living with hepatitis C in Australia initiated direct-acting antiviral therapy (Table 4). A higher proportion of people with hepatitis C-related cirrhosis (stage F4) at the start of 2020 were estimated to have gone on to receive the treatment (31%) in 2018 compared with 6% with early-to-moderate fibrosis (stage F0-F2) and 4% with moderate fibrosis (F3) (Figure 18).

**Figure 17** The estimated number of people living with hepatitis C who received treatment, 1997–2020



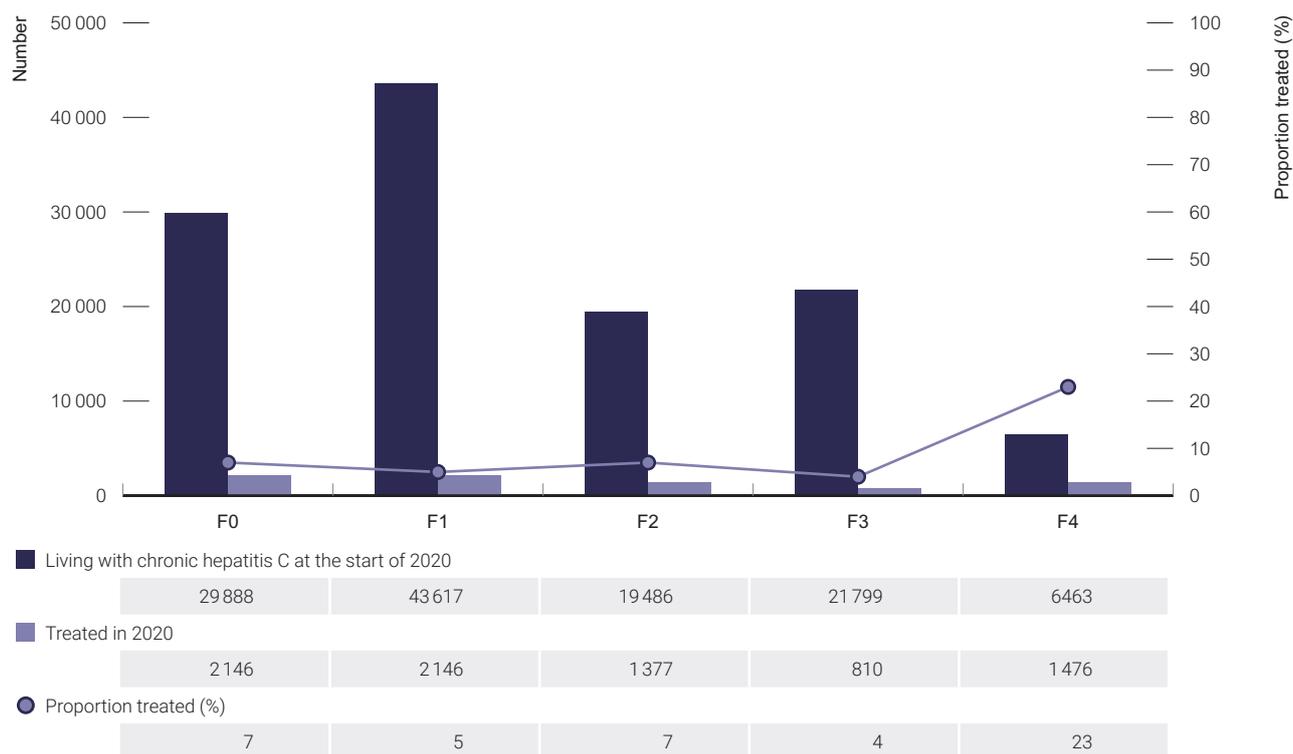
Source: Pharmaceutical Benefits Scheme

**Table 4** Number and proportion of people with chronic hepatitis C infection initiating direct-acting antiviral therapy, 2020, by state/territory

State/Territory	Number initiating direct-acting antiviral therapy in 2020	Estimated number of people living with chronic hepatitis C at the start of 2020	Proportion of people initiating direct-acting antiviral therapy in 2020
Australian Capital Territory	85	2 089	4%
New South Wales	2 827	45 898	6%
Northern Territory	59	2 426	2%
Queensland	2 091	24 106	9%
South Australia	444	8 394	5%
Tasmania	180	2 151	8%
Victoria	1 609	26 058	6%
Western Australia	902	10 179	9%
Australia	8 099	123 772	7%

Source: See [Methodology](#) for detail.

**Figure 18** Number and proportion of people living with chronic hepatitis C at the start of 2020 who received treatment during 2020, by stage of disease

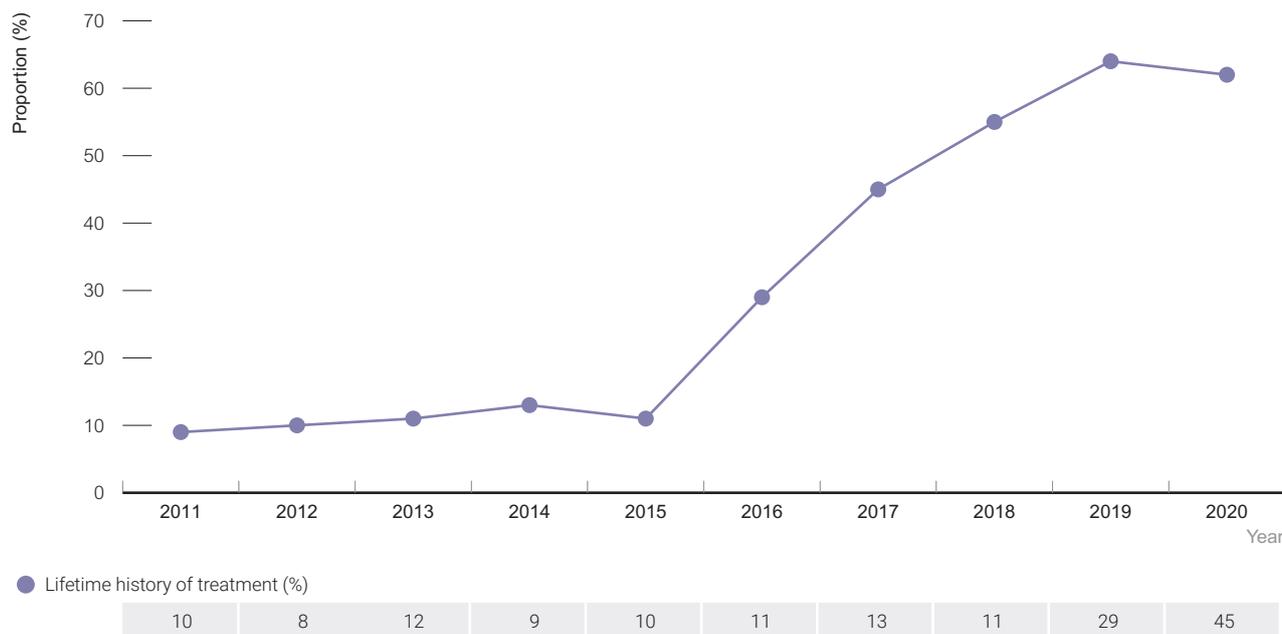


Note: F4 includes fibrosis stage 4, decompensated cirrhosis, and hepatocellular carcinoma

Source: Pharmaceutical Benefits Scheme; see [Methodology](#) for detail.

Data from the ANSPS indicate that among respondents with self-reported chronic hepatitis C in 2020, 62% reported ever having received hepatitis C treatment, an increase from 9% in 2011 (Figure 19). This increase reflects improved access through subsidised interferon-free direct-acting antiviral regimens from March 2016<sup>(7)</sup>. Among Aboriginal and/or Torres Strait Islander ANSPS respondents, there was more than a five-fold increase, from 11% in 2015 to 52% in 2020 compared to an almost seven-fold increase in non-Indigenous respondents from 11% to 67% over the same period. Please refer to the [Australian Needle Syringe Program Survey National Data Report 2016–2020: Prevalence of HIV, HCV and injecting and sexual behaviour among NSP attendees](#) for more information<sup>(3)</sup>.

**Figure 19** Proportion of hepatitis C antibody positive people seen at needle and syringe programs with a lifetime history of hepatitis C treatment, 2011–2020



- a Denominator for lifetime history of treatment is restricted to people with hepatitis C antibody positive serology and excludes people who self-reported spontaneous clearance;
- b prior to 2012 commenced treatment in the last twelve months was 'current treatment';
- c excludes people who reported treatment induced clearance >12 months previously

Source: Australian Needle Syringe Program Survey; see [Methodology](#) for detail.

## 10 Hepatitis C prevention

The reuse of needles and syringes that have been used by others (receptive syringe sharing) is a major risk factor for the transmission of hepatitis C and other bloodborne viruses among people who inject drugs. Harm reduction strategies such as needle and syringe programs and opioid substitution therapy as well as safe injections, community education and peer interventions can reduce injecting risk behaviour<sup>(8–10)</sup>. Opioid agonist therapy has been shown to reduce the incidence of hepatitis C and HIV among people who inject drugs<sup>(11–13)</sup>. Health promotion is important to enhance the effectiveness of harm reduction strategies and to support people who inject drugs to implement safer practices. Mathematical modelling suggests achieving a high coverage of hepatitis C antiviral treatment can reduce the population prevalence of hepatitis C and therefore lead to reduced incidence (treatment as prevention)<sup>(14)</sup>. Secondary prevention strategies to reduce the risk of liver disease morbidity and mortality include improving access to diagnosis and antiviral treatment and engagement in regular ongoing liver cancer monitoring for all people with cirrhosis even when cured of hepatitis C infection.

### Injecting risk behaviour

Data from the Australian Needle Syringe Program Survey indicate that the prevalence of receptive syringe sharing has been generally stable over the past 10 years (2011–2020). In 2020, 16% of people who inject drugs attending needle and syringe programs reporting receptive syringe sharing in the last month (see HIV chapter, Figure 35 on page 43). The proportion of respondents reporting receptive syringe sharing was almost twice as high among Aboriginal and/or Torres Strait Islander survey participants (24%) compared with non-Indigenous participants (13%). Please refer to the [Australian Needle Syringe Program Survey National Data Report 2016–2020: Prevalence of HIV, HCV and injecting and sexual behaviour among NSP attendees](#) for further information<sup>(3)</sup>.

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