

Overview – Hepatitis C in Australia

Introduction

- 2.1 This chapter provides background information about the hepatitis C virus, its causes, and current prevention strategies. There is also discussion about the prevalence and testing of, and treatment options available in Australia.
- 2.2 The chapter then discusses the costs associated with hepatitis C in Australia and the *Fourth National Hepatitis C Strategy* that has been progressively developed as a coordinated national response to hepatitis C.

What is Hepatitis C?

- 2.3 ‘Hepatitis’ means inflammation of the liver which is commonly caused by a hepatitis virus. The types of viral hepatitis are identified by alphabet letters, such as hepatitis A, B and C. The hepatitis C virus (HCV) was identified in 1989; prior to this it was known as non-A, non-B hepatitis.¹
- 2.4 HCV is spread by blood-to-blood contact. The majority of individuals infected with HCV have no symptoms; however, mild and non-specific symptoms that may occur include fatigue, muscle pain, and low grade fever.²
- 2.5 Once infection occurs, the first six months is the acute phase. During this time, the virus may be cleared without treatment.³ However, most people⁴

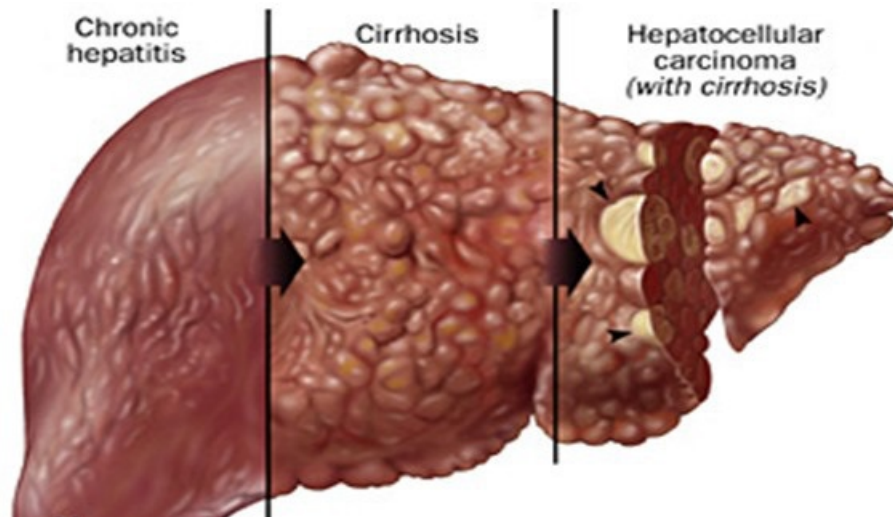
1 For more information on the discovery of HCV, see M Houghton, 'Discovery of the Hepatitis C Virus' *Liver International*, vol. 29, no. s1, January 2009, pp 82-88.

2 Jacinta Holmes, Alexander Thompson, and Sally Bell, 'Hepatitis C: An Update', *Australian Family Physician*, July 2013 Vol 42 (7), p. 453.

3 Jacinta Holmes, Alexander Thompson, and Sally Bell, 'Hepatitis C: An Update', *Australian Family Physician*, July 2013 Vol 42 (7), p. 453.

will move to the chronic phase, which can last for the rest of their life. Chronic hepatitis C can lead to cirrhosis,⁵ end-stage liver disease, and liver cancer.⁶

Figure 2.1 The progression of hepatitis C related liver disease



Source The Burnet Institute

- 2.6 There are believed to be six major genotypes (1 to 6) of HCV, although there are also subtypes. The genotypes most prevalent in Australia are genotypes 1 (54 per cent) and 3 (37 per cent). Genotype 2 represents around five per cent of cases.⁷
- 2.7 When asked to explain why hepatitis C does not cause liver damage until many years after the virus enters a person's body, Professor Geoff McCaughan who, among other roles, is the Chair of the Transplant Society of Australia and New Zealand, compared hepatitis C to HIV using a World War I trench warfare analogy:

HIV goes down into the trench while hepatitis C sits up at the trench and actually fights the immune system to try to establish

4 Figures vary by country, but Australian data indicates that 75 per cent of people with hepatitis C will develop a chronic infection. Australian Government, *Fourth National Hepatitis C Strategy 2014-2017*, July 2014, p. 3.

5 Cirrhosis is a chronic degenerative disease that changes the structure of the liver. Normal liver cells are damaged and replaced by scar tissue. M Haggerty, R Frey, and L Cataldo, 'Cirrhosis', in L Fundukian, ed, *The Gale Encyclopaedia of Medicine*, 4th ed, Detroit: Gale, 2011.

6 Australian Government, *Fourth National Hepatitis C Strategy 2014-2007*, July 2014, p. 18; World Health Organization 'Hepatitis C', *Weekly Epidemiological Record*, vol. 86, no. 41 (7 October 2011) <<http://www.who.int>>.

7 Department of Health, 'Hepatitis C Genotypes', viewed 14 November 2014, <<http://www.health.gov.au>>.

dominance over the immune system. So the immune system is always attacking the hepatitis C virus. But because of its very nature it mutates ... By varying its sequences, through quasi-species, it escapes the immune attack all the time.

That leads to a situation where the virus becomes established in the host, or the human, and the immune system can no longer recognise it, if you like, over a period of time, and it continues to replicate. But the immune system continues to try to fight it, and that is what damages the liver. The war between the immune response and the virus is happening largely inside the liver, and the collateral damage is to the liver cells themselves, and the development of cirrhosis.⁸

- 2.8 Professor McCaughan added that any liver damage caused by hepatitis C is dependent on how the body reacts to the virus. Professor McCaughan noted that if the virus is no longer recognised by the immune system and 'stays at reasonable levels' then liver damage may be minimal or not occur at all:

It is well known that there are patients who live for 50 years with this virus with virtually no liver damage, or minimal liver damage.⁹

Causes

- 2.9 In Australia, cases of hepatitis C largely stem from unsafe injecting practices.¹⁰ This accounts for approximately 90 per cent of newly-acquired infections and 80 per cent of existing cases.¹¹
- 2.10 Other exposures to infected blood that may result in infection or increase the risk of infection include:
- tattooing or body piercing where non-sterile equipment is used;
 - breakdowns in routine practices of infection control in healthcare settings;
 - medical procedures involving contaminated blood or blood products although transmission by this means is now rare in Australia;¹² and

8 Professor Geoff McCaughan, Chair of the Transplant Society of Australia and New Zealand, Australian Liver Association, *Committee Hansard*, Sydney 22 January 2015, p. 34.

9 Professor Geoff McCaughan, Australian Liver Association, *Committee Hansard*, Sydney 22 January 2015, p. 35.

10 Australian Government, *Fourth National Hepatitis C Strategy 2014-2017*, July 2014, p. 3.

11 Australian Government, *Fourth National Hepatitis C Strategy 2014-2017*, July 2014, p. 3.

12 In the 1970s and 1980s, infection as a result of blood transfusions and other medical procedures involving blood products was a more common cause of infection in developed

- mother-to-child transmission.¹³

2.11 Sexual transmission of hepatitis C is also possible, but not common.¹⁴

Prevention

2.12 Unlike those available for the hepatitis A and B viruses, there is no vaccine to prevent hepatitis C infection. A previous hepatitis C infection does not make a person immune to reinfection.¹⁵ There are, however a range of behaviours that are recommended to stop the spread of hepatitis C.

Among others, these behaviours include:

- not injecting drugs (or if a person continues this form of drug use, that sterile needles or syringes are used and other injecting equipment is not shared);
- ensuring equipment involved in body piercing, tattooing, electrolysis or acupuncture is single-use or sterilised;
- not sharing personal hygiene items such as toothbrushes or razors;
- not following infection control guidelines in the healthcare environment; and
- taking precautions such as wearing single-use gloves when in contact with blood in other health situations such as providing first aid.¹⁶

2.13 Behavioural change is also supported by specific services, with needle and syringe programs (NSPs) being a key service for preventing hepatitis C infections.¹⁷

countries. The research that led to the identification of the virus in 1989, however, also demonstrated that blood screening tests could effectively eradicate the transmission of transfusion-associated HCV. Blood screening for HCV has been in place in Australia since February 1990. C M Houghton, 'Discovery of the Hepatitis C Virus', *Liver International*, vol. 29, no. s1, January 2009, p. 82; Department of Health and Ageing, *National Hepatitis C Testing Policy*, 2012, p. 12.

13 An estimated risk of 5 to 6 per cent, Australian Government, *Fourth National Hepatitis C Strategy 2014-2017*, July 2014, p. 4.

14 Heterosexual transmission is rare; however, more recently some cases have been attributed to unprotected sexual contact between men involving men co-infected with HIV and hepatitis C. Australian Government, *Fourth National Hepatitis C Strategy 2014-2017*, July 2014, p. 4.

15 Australian Government Fourth National Hepatitis C Strategy 2014-2017, July 2014, p. 4.

16 A more comprehensive list can be found at Victorian Department of Health 'Hepatitis C', Better Health Channel, viewed 14 November 2014, <<http://www.betterhealth.vic.gov.au>>.

17 National Centre in HIV Epidemiology and Clinical Research, *Return on Investment to: Evaluating the Cost-Effectiveness of Needle and Syringe Programs in Australia*, 2009; cited in Australian Government *Fourth National Hepatitis C Strategy 2014-2017*, July 2014, p. 15.

Tests for Hepatitis C

2.14 There are two key tests for hepatitis C. An anti-HCV antibody test determines whether a person has been exposed to HCV. The hepatitis C RNA test shows whether the person has an ongoing infection. Professor Margaret Hellard, a noted infectious diseases researcher and clinician, told the Committee the antibody test 'is a highly specific and sensitive test' that should be undertaken before the RNA test. This is because the antibody test is 'considerably cheaper' than the RNA test and it would not be necessary to conduct an RNA test if the person is antibody negative. Although the antibody and RNA tests are the key tests, following an RNA test that detects an ongoing infection, a number of other tests may be needed.¹⁸

Management and Treatment

- 2.15 Regular monitoring and treatment is necessary to detect progressive liver disease and liver cancer, and to reduce the risk of cirrhosis, liver cancer and liver failure. The management of hepatitis C can also take into account other aspects of care and support, such as referrals to drug and alcohol, community health and mental health services. Care becomes more complicated if the patient is co-infected with hepatitis C and HIV; in these cases hepatitis C can be more severe and progress more rapidly to liver disease.¹⁹ Further, even if an infected patient's treatment results in a 'sustained virological response' (meaning the person is considered to have cleared hepatitis C), they will continue to have a higher risk of liver cancer if cirrhosis has developed.²⁰
- 2.16 Liver transplants are another aspect of the burden associated with chronic hepatitis C. However, liver transplants are only a temporary solution as the disease recurs in the transplanted liver. Ten years after a transplant, the incidence rate of cirrhosis among hepatitis C patients is 50 per cent.²¹

18 Professor Margaret Hellard, Director, Centre for Population Health, Burnet Institute, *Committee Hansard*, Melbourne, 21 January 2015, pp 17-18.

19 Australian Government, *Fourth National Hepatitis C Strategy 2014-2017*, July 2014, p 20.

20 Australian Government, *Fourth National Hepatitis C Strategy 2014-2017*, July 2014, p 3.

21 Professor Geoff McCaughan, Australian Liver Association, *Committee Hansard*, Sydney 22 January 2015, p. 15.

Specific Treatments

- 2.17 Treatment for HCV has predominately been based on pegylated interferon and ribavirin,²² however, the current treatments used for hepatitis C in Australia now depend on the genotype of HCV the patient has.
- 2.18 For genotype 1 (54 per cent of cases in Australia), new direct acting antiviral medicines taken daily support a regimen of weekly pegylated interferon injections and daily ribavirin tablets.²³ These medicines, boceprevir and telaprevir, were registered by the Therapeutic Goods Administration (TGA) in 2012 and became available through the Pharmaceutical Benefits Scheme (PBS) in April 2013.²⁴
- 2.19 For genotype 2, treatment continues to be based on interferon and ribavirin.²⁵ Genotype 3, requires a combination of weekly pegylated interferon injections and daily ribavirin tablets over a period of 26 weeks).²⁶
- 2.20 Treatments involving pegylated interferon and ribavirin can cause significant side-effects. HepatitisWA advised that these can include:
- mild-to-severe mood disturbances;
 - anaemia;
 - slow blood-clotting;
 - fatigue;
 - flu-like symptoms;
 - dry skin and skin rash;
 - insomnia;
 - decreased appetite;
 - weight loss;
 - hair loss; and

22 Interferons are proteins produced by the human body in response to a viral infection. Pegylated interferon is a modified form of interferon designed to extend the duration of the therapeutic effect. Ribavirin is a drug that alters the body's immune response to viruses. See Department of Health, 'Treatments: Pegylated Interferon and Ribavirin', viewed 18 November 2014, <<http://www.health.gov.au>>

23 Hepatitis Australia, 'Treatment of Hepatitis C', viewed 14 May 2015, <<http://www.hepatitisaustralia.com>>.

24 Australian Government, *Fourth National Hepatitis C Strategy 2014-2017*, July 2014, p. 5.

25 HepatitisWA, 'Hepatitis C Treatment and Side Effects', viewed 14 May 2015 <<http://www.hepatitiswa.com.au>>.

26 Hepatitis Australia, 'Treatment of Hepatitis C', viewed 14 May 2015, <<http://www.hepatitisaustralia.com>>.

- in relation to ribavirin, birth defects.²⁷
- 2.21 However, a new generation of medications for treating chronic hepatitis C have progressed or are progressing from discovery and development stages to being available for use. These medications offer simpler treatment regimens, fewer side effects and more favourable health outcomes than current treatments.

Incidence and Prevalence in Australia

- 2.22 Hepatitis C is one of the most common notifiable diseases in Australia.²⁸ It is estimated that in 2013 there were 310 000 people living in Australia who had been exposed to hepatitis C (that is, they were HCV antibody positive). An estimated 230 000 people had a chronic hepatitis C infection; of these 155 000 had early liver disease, 64 000 had moderate-to-severe liver disease and 11 400 had hepatitis C-related cirrhosis. In 2013 there were an estimated 630 liver-related deaths linked to hepatitis C.²⁹
- 2.23 Globally, it is thought that 130 to 170 million people are chronically infected with hepatitis C. The World Health Organization (WHO) estimates that each year 350 000 to 500 000 people die from hepatitis C-related liver diseases.³⁰ Available data comparing the prevalence of hepatitis C in Australia and other countries are at Table 2.1.

27 HepatitisWA, *Submission 9*, p. 2.

28 Australian Government, *Fourth National Hepatitis C Strategy 2014-2017*, July 2014, p. 3. Hepatitis C was made a notifiable disease in most states and territories in 1990 (and has been notifiable in all states and territories since 1995), meaning that cases of newly diagnosed hepatitis C infection are required to be reported to the National Notifiable Diseases Surveillance System. Department of Health and Ageing, *National Hepatitis C Testing Policy*, 2012, p. 18.

29 The Kirby Institute, *HIV, Viral Hepatitis and Sexually Transmissible Infections in Australia: Annual Surveillance Report 2014*, p. 7.

30 World Health Organization 'Hepatitis C', April 2014, viewed 12 November 2014 <<http://www.who.int>>.

Table 2.1 Number of people with chronic hepatitis C infections, by selected country or region

Country/region	Estimated number of people infected	Estimated prevalence
Sweden	n/a	0.04% (2008) ^(a)
United Kingdom	214 000	England: 0.4% (2005) ^(b) Scotland: 0.7% (2013) ^(b)
Canada	242 000 (2007)	0.8% (2007) ^(c)
France	n/a	0.84% (2004) ^(a)
United States	3.2 million (2002)	1.3% (2002) ^(d)
Australia	230 000 (2013)	1.4% (2013) ^(e)
Italy	n/a	2.6% (2007) ^(a)
Globally	130–170 million	2–3% ^(f)
China	n/a	> 3% ^(f)
Pakistan	n/a	> 3% ^(f)
Egypt	n/a	22% ^(f)

Sources (a) European Centre for Disease Prevention and Control, *Surveillance and Prevention of Hepatitis B and C in Europe*, 2010, p. 24; (b) Public Health England, *Hepatitis in the UK: 2014 Report*, July 2014, p. 17; (c) Public Health Agency of Canada, *Hepatitis C in Canada: 2005-2010 Surveillance Report*, 2012, p. 4; (d) Center for Disease Control and Prevention, 'Hepatitis C Information for the Public' <www.cdc.gov/Hepatitis/C/cFAQ.htm> viewed 13 November 2014; (e) The Kirby Institute, *HIV, Viral Hepatitis and Sexually Transmissible Infections in Australia: Annual Surveillance Report 2014*, p. 16; (f) WHO, *Weekly Epidemiological Record*, vol. 86, no. 41 (7 October 2011), viewed 13 November 2014, <<http://www.who.int>>.

2.24 Data for the annual number of hepatitis C diagnoses is available in two categories: all diagnosed infections and infections that have been newly-acquired (within the previous two years). In 2013, there were 10 715 diagnoses of hepatitis C infection in Australia. The number of newly-acquired infections was 407.³¹ A breakdown of the newly-acquired infections in 2013 by location, age, sex, and exposure category is at Figure 2.1 and Table 2.2.

31 The Kirby Institute, *HIV, Viral Hepatitis and Sexually Transmissible Infections in Australia: Annual Surveillance Report 2014*, p. 58. The data for newly-acquired hepatitis C infections does not include Queensland as data for that State is not available.

Figure 2.2 Number of newly acquired hepatitis C infections in 2013 by location

Source The Kirby Institute, *HIV, Viral Hepatitis and Sexually Transmissible Infections In Australia: Annual Surveillance Report 2014*, p. 58.

Table 2.2 Number of diagnoses of newly acquired hepatitis C infections in 2013, by age group, sex and exposure category

Age group	Sex			Exposure category	Sex		
	M	F	Total		M	F	Total
0–4	3	1	4	Injecting drug use	205	93	300
5–14	0	0	0	Sexual contact	12	4	16
15–19	19	12	31	Blood/tissue recipient	2	0	2
20–24	63	29	92	Skin penetration procedure	4	2	6
25–29	61	28	90	Healthcare exposure	4	2	6
30–39	73	37	110	Household contact	2	1	3
40–49	42	16	58	Other	24	9	33
50–59	11	4	15	Undetermined	25	16	41
60+	6	0	6				
Not reported	0	0	1				
Total	278	127	407	Total	278	127	407

Source The Kirby Institute, *HIV, Viral Hepatitis and Sexually Transmissible Infections in Australia: Annual Surveillance Report 2014*, p. 59.

* Includes diagnoses in people whose sex was not reported

- 2.25 In recent years, it is considered that the incidence of hepatitis C in Australia has been stable or possibly decreasing.³² While the overall rate of diagnosis fell from 52.7 per 100 000 in 2009 to 46.3 per 100 000 in 2013, the number of diagnoses of newly-acquired hepatitis C has been relatively stable – 399 instances were diagnosed in 2009 compared to 407 in 2013.³³ Declining incidences have been most prominent in the 25 to 29 and 20 to 24 year age groups; over the past ten years the diagnosis rates for these groups have decreased by 50 per cent and 43 per cent respectively.³⁴ However, new diagnoses of hepatitis C have been gradually increasing in the Aboriginal and Torres Strait Islander population (from 130 per 100 000 in 2008 to 166 per 100 000 in 2012).³⁵
- 2.26 Despite the overall incidence rate remaining stable or possibly declining, the consequences of existing hepatitis C cases remain significant. Although there is a high diagnosis rate of hepatitis C in Australia (over 80 per cent), the estimated number of people being treated for chronic hepatitis C is very low, with only approximately one per cent accessing treatment.³⁶ An increase in the number of people living with hepatitis C presenting with liver damage is becoming more evident: for example, the estimated number of people with moderate to severe liver disease has increased by 115 per cent over the past ten years.³⁷ Chronic hepatitis C was also considered to be the underlying cause of liver disease in 22 per cent of the liver transplants that occurred in 2012.³⁸ Hepatitis C is the most common reason for liver transplants in Australia, as it is globally.³⁹

32 Australian Government, *Fourth National Hepatitis C Strategy 2014-2017*, July 2014, p. 2.

33 The Kirby Institute, *HIV, Viral Hepatitis and Sexually Transmissible Infections in Australia: Annual Surveillance Report 2014*, p. 59.

34 The Kirby Institute, *HIV, Viral Hepatitis and Sexually Transmissible Infections in Australia: Annual Surveillance Report 2014*, p. 14.

35 It is also expected that the figures for the Aboriginal and Torres Strait Islander population are likely to be under-reported, partly because Aboriginal and Torres Strait Islander status is not always included when an infection is notified. See Australian Government, *Fourth National Aboriginal and Torres Strait Islander Blood-Borne Viruses and Sexually Transmissible Infections Strategy, 2014-2017*, July 2014, p. 4, 6.

36 Based on a 2012 study. Australian Government, *Fourth National Hepatitis C Strategy 2014-2017*, July 2014, p. 3.

37 The Kirby Institute, *HIV, Viral Hepatitis and Sexually Transmissible Infections in Australia: Annual Surveillance Report 2014*, p. 7.

38 Hepatitis Australia, *A Guide to Current and Emerging Hepatitis C Treatments in Australia*, 2012; cited in Australian Government, *Fourth National Hepatitis C Strategy 2014-2017*, July 2014, p. 3.

39 Economist Intelligence Unit, *The Silent Pandemic: Tackling Hepatitis C with Policy Innovation*, 2012, p. 2, <<http://www.economistinsights.com>>, viewed 14 November 2014 ; Professor Alex Thompson, Director, Department of Gastroenterology, St Vincent's Hospital, *Committee Hansard*, Melbourne, 21 January 2015, p. 6.

- 2.27 Witnesses told the Committee that without intervention, the burden will increase further. Ms Helen Tyrrell, the Chief Executive Officer of Hepatitis Australia informed the Committee that three-quarters of people with hepatitis C in Australia are in what is termed the ‘liver danger zone’; that is, they are ‘over 40 years of age and are judged to be at significant risk of developing serious liver disease’.⁴⁰ Professor Alex Thompson advised that, according to current estimates, the number of people living with hepatitis C-related cirrhosis in Australia is expected to increase to 38 000 by 2030. Further, the annual number of people expected to be diagnosed with liver cancer related to hepatitis C – 590 people in 2015 – is expected to increase by 400 per cent by 2030.⁴¹
- 2.28 Associate Professor Joseph Torresi from the Australasian Society for Infectious Diseases (ASID) used the available data and likely trends to sum up the hepatitis C situation in Australia as follows:

We know there has been some reduction in the number of new cases of hepatitis C which have been reported. However, we also know that the proportion of people with advanced liver disease requiring more complex therapy has increased and that is no surprise as the population of hepatitis C infected people will age and will be more likely to develop complications. The other important point is that the incidence of hepatitis C among people who inject drugs has increased, not decreased.⁴²

High Risk Groups in Australia

- 2.29 The main group of people in Australia who are at high-risk of acquiring a hepatitis C infection are those who inject drugs. For people in this group, the risk of acquiring the disease is highest in the first year of injecting. In addition, injecting drug users from the following groups (and other people who have injected drugs from them) have a particularly heightened risk of acquiring hepatitis C:
- people in custodial settings or with a history of incarceration;⁴³
 - people from Aboriginal or Torres Strait Islander backgrounds;

40 Ms Helen Tyrrell, Chief Executive Officer, Hepatitis Australia, *Committee Hansard*, Melbourne, 21 January 2015, p. 2.

41 Professor Alex Thompson, Director, Department of Gastroenterology, St Vincent’s Hospital, *Committee Hansard*, Melbourne, 21 January 2015, p. 6.

42 Associate Professor Joseph Torresi, Australasian Society for Infectious Diseases, *Committee Hansard*, Melbourne, 21 January 2015, p. 7.

43 Australian Government, *Fourth National Hepatitis C Strategy 2014-2017*, July 2014, p. 3.

- people from culturally and linguistically diverse backgrounds; and
 - sex workers.⁴⁴
- 2.30 Hepatitis C rates among Indigenous Australians are three times higher than for the rates for the non-Indigenous population. Ms Sandra Bailey, Chief Executive Officer of the Aboriginal Health and Medical Research Council of NSW, stated that among the Aboriginal and Torres Strait Islander population prevalence rates are six times higher for 15 to 19 year olds, and five times higher for 20 to 29 year olds, compared to the non-Indigenous population.⁴⁵ Among Indigenous Australians who inject drugs, the rate of hepatitis C infection is estimated to be between three and 13 times higher than that of the non-Indigenous injecting drug user population.⁴⁶
- 2.31 In prison populations, the prevalence of hepatitis C infection is estimated to be 35 to 47 per cent of male inmates and 50 to 70 per cent of female inmates (overall, up to half of the full-time prison population).⁴⁷ The heightened prevalence of hepatitis C in prison populations is attributed to the 'high rate of imprisonment for drug-related offences and unsafe injecting drug use in prisons'.⁴⁸
- 2.32 Individuals can fall within multiple high-risk groups, compounding the risk. For example, 43 per cent of Indigenous Australians in custodial settings tested for blood-borne diseases were found to be infected with hepatitis C, compared with 33 per cent of non-Indigenous inmates.⁴⁹
- 2.33 In addition to the established high-risk populations and activities, emerging behaviours are of concern to hepatitis C experts. Although drugs such as heroin and methamphetamines are commonly associated with hepatitis C, other groups of injectors, such as those using performance and image-enhancing drugs, are now recognised as being at

44 Australian Government, *Fourth National Hepatitis C Strategy 2014-2017*, July 2014, p. 13.

45 Ms Sandra Bailey, Chief Executive Officer, Aboriginal Health and Medical Research Council of NSW Inc., *Committee Hansard*, Sydney, 22 January 2015, p. 9.

46 Australian Government, *Fourth National Hepatitis C Strategy 2014-2017*, July 2014, p. 17. Most notifications of diagnosis do not report Aboriginal and Torres Strait Islander status as demonstrated by the data presented by the Kirby Institute. See The Kirby Institute, *HIV, Viral Hepatitis and Sexually Transmissible Infections in Australia: Annual Surveillance Report 2014*, p. 65.

47 Australian Government, *Fourth National Hepatitis C Strategy 2014-2017*, July 2014, pp 17, 39; Ministerial Advisory Committee on AIDS, Sexual Health and Hepatitis, Hepatitis C Subcommittee, *Hepatitis C Prevention, Treatment and Care: Guidelines for Australian Custodial Settings*, July 2008, p. [1].

48 Australian Government, *Fourth National Hepatitis C Strategy 2014-2017*, July 2014, p. 17.

49 T Butler and C Papanastasiou, *National Prison Entrants' Blood Borne Virus and Risk Behaviour Survey 2004 & 2007*, 2008; cited in Australian Government *Fourth National Hepatitis C Strategy 2014-2017*, July 2014, p. 26.

a heightened risk of infection.⁵⁰ Another issue is the large number of Australian travellers visiting countries with high endemic rates, an issue that the ASID warned is 'under-appreciated'.⁵¹ Associate Professor Joseph Torresi explained that studies show 'around 20 per cent of travellers engage in very high-risk activities for a range of sexually transmitted diseases and blood-borne viral infections'.⁵² The low-price tattoos available in countries frequented by Australian travellers were also considered to be a potential risk.⁵³

Costs Associated with Hepatitis C

- 2.34 One measure of the effects hepatitis C has on the Australian community as a whole is the economic cost associated with hepatitis C infections and treatment. One aspect of this is the consequences of hepatitis C for government budgets. The Boston Consulting Group estimated that the combined annual cost associated with hepatitis C to Commonwealth, State and Territory budgets was \$252 million in 2012, and was projected to cost \$1.5 billion over the following five years.⁵⁴
- 2.35 The medical costs associated with hepatitis C are a significant expense. The expenditure on subsidised medicines for the treatment of hepatitis C under the Pharmaceutical Benefits Scheme exceeded \$87 million in 2013-14. Hepatitis C-related medical services subsidised under the Medicare Benefits Schedule, such as specialist or general practitioner appointments and tests, totalled \$7.6 million in 2013-14.⁵⁵ The cost of a liver transplant in Australia is reported to be around \$140 000.⁵⁶
- 2.36 Medical research into hepatitis C is also supported. The Department of Health advised that from 2004 to 2013, the National Health and Medical

50 Australian Government, *Fourth National Hepatitis C Strategy 2014-2017*, July 2014, p. 15.

51 Australasian Society for Infectious Diseases, *Submission 11*, p. 4

52 Associate Professor Joseph Torresi, Australasian Society for Infectious Diseases, *Committee Hansard*, Melbourne, 21 January 2015, p. 30.

53 Australasian Society for Infectious Diseases, *Submission 11*, p. 4; Associate Professor Joseph Torresi, Australasian Society for Infectious Diseases, *Committee Hansard*, Melbourne, 21 January 2015, pp 29-30.

54 Boston Consulting Group, *The Economic Impact of Hepatitis C in Australia*, August 2012, p. 7, viewed 14 November 2014, <<http://www.hepatitisaustralia.com>>.

55 Professor Chris Baggoley, Chief Medical Officer, Department of Health, *Committee Hansard*, Sydney, 22 January 2015, p. 2.

56 Professor Geoff McCaughan, Australian Liver Association, *Committee Hansard*, Sydney, 22 January 2015, p. 15.

- Research Council 'provided funding of \$86 million for a wide range of research projects on hepatitis C'.⁵⁷
- 2.37 Another source of expenditure is the support given to NSPs, which aim to minimise the spread of blood borne viruses in general/ not just hepatitis C. The Department of Health advised that in the decade from 2000 to 2009, Australian governments invested \$243 million in NSPs with a historical average of around \$9.5 million per annum.⁵⁸
- 2.38 The Boston Consulting Group report also concluded that for every dollar spent by governments treating chronic hepatitis C, an additional four dollars are spent 'to deal with the consequences of a failure to prevent, treat and cure it'. The report estimated that over five years, \$640 million would be spent on Commonwealth assistance for 'those who are disabled by their illness, who are too ill to work or who have lost their jobs for HCV-related reasons'.⁵⁹
- 2.39 The economic impact of hepatitis C is, however, broader than the cost to government budgets and the burden on the health system. Another aspect is the work days lost to the economy. In general, employee absences trigger direct costs for the employer from personal leave and additional wages or overtime for any replacement employees. Absences can also result in lost productivity or income for a business. In the United States, a 2010 study provided evidence in support of a relationship between hepatitis C infection, reduced productivity and increased health-related work absences, finding that employees with hepatitis C had 1.8 times more absence days than employees who did not have hepatitis C.⁶⁰
- 2.40 Witnesses argued that without changes to the current approach to hepatitis C in Australia, the costs related to hepatitis C will increase. Professor Alex Thompson, Director of Gastroenterology at St Vincent's Hospital in Melbourne, told the Committee that if the projected increase in the number of people with cirrhosis is realised, direct medical costs related to hepatitis C will increase from approximately \$224 million per year to over \$300 million per year by 2030.⁶¹ However, increased treatment rates could potentially decrease costs and the burden on the health system. For

57 Professor Chris Baggoley, Department of Health, *Committee Hansard*, Sydney, 22 January 2015, p. 2.

58 Mr Graeme Barden, Assistant Secretary, Health Protection Policy Branch, Department of Health, *Committee Hansard*, Sydney, 22 January 2015, p. 4.

59 Boston Consulting Group, *The Economic Impact of Hepatitis C in Australia*, August 2012, p. 7, viewed 14 November 2014, <<http://www.hepatitisaustralia.com>>.

60 J Su et al, 'The Impact of Hepatitis C Virus Infection on Work Absence, Productivity, and Healthcare Benefit Costs' *Hepatology*, vol. 52, no. 2, 2010, pp 438-441.

61 Professor Alex Thompson, St. Vincent's Hospital, *Committee Hansard*, Melbourne, 21 January 2015, p. 7.

example, the Australasian Society for Infectious Diseases stated that ‘targeting treatment towards patients with advanced liver disease results in the lowest overall cost with an annual cost of \$143 million in 2030’.⁶²

2.41 Treatment costs are examined further in Chapter 4.

National Strategies for Responding to Hepatitis C

2.42 There are currently five national strategies intended to support a coordinated, national response to blood-borne viruses and sexually transmissible infections. The most recent versions of the strategies were endorsed by the Council of Australian Governments (COAG) Health Council in June 2014.⁶³

2.43 One of the strategies specifically addresses hepatitis C: the *Fourth National Hepatitis C Strategy*. Another strategy, the *Fourth National Aboriginal and Torres Strait Islander Blood-Borne Viruses and Sexually Transmissible Infections Strategy 2014-2017*, is also relevant to hepatitis C. In addition to the national strategies, some state and territory governments have developed their own hepatitis C strategies.

2.44 The stated goal of the *Fourth National Hepatitis C Strategy* is ‘to reduce the transmission of, and morbidity and mortality caused by, hepatitis C, and to minimise the personal and social impact of the epidemic’.⁶⁴ The objectives identified to achieve this goal are:

- reducing the incidence of hepatitis C;
- reducing the risk behaviours associated with the transmission of hepatitis C;
- increasing access to appropriate management and care for people with chronic hepatitis C;
- reducing the burden of disease attributed to chronic hepatitis C; and
- eliminating the negative impact of stigma, discrimination, legal and human rights issues on people's health.⁶⁵

2.45 Underpinning the goal and objectives are a number of priority areas.

62 Australasian Society for Infectious Diseases, *Submission 11*, p. 3; Associate Professor Joseph Torresi, Australasian Society for Infectious Diseases, *Committee Hansard*, Melbourne, 21 January 2015, p. 8.

63 Department of Health, ‘National Strategies for Blood-Borne Viruses and Sexually Transmissible Infections’, viewed 17 November 2014, <<http://www.health.gov.au>>.

64 Australian Government, *Fourth National Hepatitis C Strategy 2014-2017*, July 2014, p. 6.

65 Australian Government, *Fourth National Hepatitis C Strategy 2014-2017*, July 2014, p. 6.

Table 2.3 Priority areas under the *Fourth National Hepatitis C Strategy 2014–2017*

Category	Stated priority areas for action
Prevention	<ul style="list-style-type: none"> ■ Increase availability, access to and use of sterile injecting equipment among people who inject drugs. ■ Continue to support increased access to evidence-based harm-reduction and drug treatment programs, including NSPs, peer education and opioid pharmacotherapy programs. ■ Build greater understanding of, and skills within, priority populations, healthcare professionals and the community sector as they relate to hepatitis C transmission. ■ Consider the impact of new drug therapies that will cure the large majority of hepatitis C cases.
Testing	<ul style="list-style-type: none"> ■ Increase voluntary testing of hepatitis C in priority populations. ■ Improve referral and access to high quality support services at the time of diagnosis for people with or at risk of hepatitis C to initiate a pathway to care. ■ Assess the feasibility, accessibility and cost effectiveness of the range of existing and emerging testing methods. ■ Implement targeted initiatives to improve understanding and skills related to hepatitis C testing for priority populations, healthcare professionals and services, and the community sector.
Management, care, support	<ul style="list-style-type: none"> ■ Improve awareness and knowledge in priority populations about treatment options. ■ Support and implement appropriate models of care for primary healthcare, drug and alcohol services, health services in custodial settings, Aboriginal community-controlled health services and community health services. ■ Implement strategies to increase the involvement of primary healthcare professionals in the management of people with hepatitis C. ■ Implement strategies to encourage increased involvement of primary healthcare governance at the local level to ensure better integration of services.
Workforce	<ul style="list-style-type: none"> ■ Improve awareness and knowledge of hepatitis C in the health workforce. ■ Provide the primary healthcare workforce with support and mentorship to ensure successful testing, management and treatment in primary healthcare. ■ Support community organisations and the healthcare workforce to increase appropriate engagement with priority populations to improve health literacy and maximise health.
Enabling environment	<ul style="list-style-type: none"> ■ Explore the development of a national hepatitis C public education campaign. ■ Create supportive and enabling environments, promote the health and rights of those living with or at risk of hepatitis C, and support access to hepatitis C prevention, treatment and care services. ■ Identify and work to address legal barriers to evidence-based prevention activities across jurisdictions. ■ Support the implementation and expansion of post-release testing, management and treatment programs for priority populations in custodial settings.
Surveillance, monitoring, research and evaluation	<ul style="list-style-type: none"> ■ Strengthen the hepatitis C component of the National BBV & STI Surveillance and Monitoring Plan. ■ Improve our understanding of the burden of disease attributable to hepatitis C and the associated risk factors. ■ Develop appropriate evidence-based public health responses and evaluate the impact of these programs on the increasing morbidity and mortality due to hepatitis C. ■ Promote balance in research to take account of social, behavioural, epidemiological and clinical research to better inform all aspects of the response. ■ Evaluate health promotion, testing, treatment, care, support and education and awareness programs and activities to ensure they are effective.

Source Australian Government, *Fourth National Hepatitis C Strategy 2014–2017*, July 2014, pp 15–27.

- 2.46 The latest iteration of the strategy is the first to include specific targets. By 2017, the Fourth National Hepatitis C Strategy aims for the incidence of new hepatitis C infections to have been reduced by 50 per cent and the number of people receiving antiviral treatment each year to have increased by 50 per cent.⁶⁶
- 2.47 Progress against the objectives and targets will be measured where possible. For example, the objective of reducing the risk behaviours associated with the transmission of hepatitis C will be measured with reference to the following three indicators:
- the per capita number of needles and syringes distributed in the previous calendar year;
 - the proportion of all injections by people who inject drugs in which a new needle and syringe was used in the previous calendar year; and
 - the proportion of people who inject drugs reporting re-using another person's used needle and syringe in the previous month.⁶⁷
- 2.48 It is recognised in the Strategy, however, that there are gaps in the ability to monitor the implementation of the Strategy and measure success against the objectives and targets. The Strategy stated that 'existing national hepatitis C surveillance systems need to be improved to provide accurate data to inform the planning and delivery of prevention and disease management options'.⁶⁸ A key gap identified to be addressed is 'the lack of a nationally agreed indicator for measuring progress in reducing the health impact of stigma, discrimination, and legal and human rights in the context of this Strategy'.⁶⁹
- 2.49 The Strategy also described 'an urgent need' to develop an indicator for reliable reporting on disease related mortality and morbidity attributed to chronic hepatitis C infection nationally. 'Possible areas identified included 'indicators that report on hospitalisations or the number of deaths attributed to hepatitis C, and the proportion of liver cancer attributable to hepatitis C'.⁷⁰ Estimates around the undiagnosed proportion of hepatitis C was another area noted for review and update.⁷¹
- 2.50 In response to questions about the *Fourth National Hepatitis C Strategy*, the Department of Health told the Committee that an implementation plan is being developed that will set out the tasks to be achieved during the life of

66 Australian Government, *Fourth National Hepatitis C Strategy 2014-2017*, July 2014, p. 6.

67 Australian Government, *Fourth National Hepatitis C Strategy 2014-2017*, July 2014, p. 8.

68 Australian Government, *Fourth National Hepatitis C Strategy 2014-2017*, July 2014, p. 27.

69 Australian Government, *Fourth National Hepatitis C Strategy 2014-2017*, July 2014, p. 7.

70 Australian Government, *Fourth National Hepatitis C Strategy 2014-2017*, July 2014, p. 27.

71 Australian Government, *Fourth National Hepatitis C Strategy 2014-2017*, July 2014, p. 7.

the Strategy.⁷² Further, the implementation of all the national strategies for blood-borne viruses and sexually transmissible infections will be reviewed in 2017.⁷³

- 2.51 A Department of Health official told the Committee that progress against the implementation plan will also be regularly reviewed, with progress measured against the data compiled by the Kirby Institute:

[The Kirby Institute data] will tell us whether our testing and our treatment targets are being met. It will record for us on an annual basis how many people are still undiagnosed, how many people are accessing treatment and where they live anywhere in Australia, whether they are urban, regional or very remote, and it will tell us that jurisdiction. So we have a very complete picture of the hepatitis C incidence and prevalence across any year. That is the data that will tell us whether we are achieving our targets.

The implementation plan is overseen by a number of committees. One is the standing committee of the Australian Health Protection Principal Committee. All chief health officers sit on that committee and they will be reviewing the implementation plan, probably annually, to see whether all partners – states and territories, community based [organisations], researchers and the Commonwealth – are actually implementing the priority action items that we all agree to.⁷⁴

Concluding Comment

- 2.52 As it is globally, hepatitis C is a significant public health issue in Australia, with an estimate that 230 000 Australians live with chronic hepatitis C.
- 2.53 The currently high prevalence and expected future prevalence of hepatitis C is of concern. If the gap between the numbers of people estimated to be living with hepatitis C compared with the number of people undergoing treatment widens, there is likely to be an increased reliance on the health system.
- 2.54 The Committee endorses the *Fourth National Hepatitis C Strategy* and acknowledges renewed commitments by all Australian jurisdictions to address hepatitis C. In particular, the Committee considers the Strategy's

72 Professor Chris Baggoley, Department of Health, *Committee Hansard*, Sydney, 22 January 2015, p. 3.

73 Mr Graeme Bardon, Department of Health, *Committee Hansard*, Sydney, 22 January 2015, p. 6.

74 Ms Teresa Gorondi, Director, Blood Borne Viruses and Sexually Transmissible Infections Section, Department of Health, *Committee Hansard*, Sydney 22 January 2014, p. 6.

inclusion of targets for reducing the incidence of new hepatitis C infection through various measures and increasing the number of people receiving antiviral treatment important developments.

- 2.55 The Committee has, however, found it difficult to determine how progress is being made against the targets identified in the *Fourth National Hepatitis C Strategy*. The Strategy could be enhanced with the inclusion of a comprehensive reporting and review framework which includes an annual report, and reporting against key performance indicators.
- 2.56 The Committee notes that the Department of Health is developing an implementation plan to support the *Fourth National Hepatitis C Strategy*, and recommends that the implementation plan be part of the overall reporting framework as mentioned above.

Recommendation 1

- 2.57 **The Committee recommends that the Department of Health enhance reporting on the *National Hepatitis C Strategy* by including a comprehensive reporting and review framework (which includes an annual report and reporting against key performance indicators) within the Strategy.**