NSW Health

NSW Hepatitis C Annual Data Report

January to December 2023

NSW GOVERNMENT

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Data Summary

Hepatitis C is a blood-borne virus which can lead to liver fibrosis, cirrhosis and cancer if left untreated. New South Wales (NSW) has made considerable progress towards hepatitis C elimination by 2028. Between 2016 and 2023, 36,605 people commenced treatment which represents $103 million saved in avoided healthcare costs and has greatly improved the health outcomes of people previously living with hepatitis C.

The Needle and Syringe Program (NSP) is a critical public health prevention program that provides people who inject drugs with sterile injecting equipment, peer support, harm reduction education and healthcare navigation. In 2023, approximately 14.9 million units of sterile injecting equipment distributed across NSW. The NSW Needle Syringe Program Enhanced Data Collection reports receptive syringe sharing among people who inject drugs. In 2023, the report indicated that receptive syringe sharing among people who inject drugs remained at its lowest level in the past 5 years at 17%. This is encouraging as the NSW Hepatitis C Strategy 2022-2025 aims for 20% or lower reported receptive syringe sharing among people who inject drugs.

Monitoring notifications with a hepatitis C RNA-positive result provides an estimate of the number of people diagnosed with a current hepatitis C infection. In 2023, new individuals notified with a current hepatitis C infection increased by 10% compared to 2022. While the number of current hepatitis C infections reduced in 12 of the 16 Local Health Districts (LHDs), the increase was driven by a doubling in notifications of current infection in Justice Health & Forensic Mental Health Network (2022: n=190 to 2023: n=403). This increase likely reflects the increased focus in hepatitis C testing in custodial settings and improvements in the collection and recording of surveillance data.

NSW Health is committed to expanding hepatitis C testing across NSW and has made progress in innovative service delivery, such as use of Dried Blood Spot (DBS) and Point of Care (POC) testing which remove barriers related to traditional clinic-based testing models. RNA testing in key settings, such as custodial settings, Alcohol and Other Drug and Mental Health Services testing increased by 35% compared to 2022. Hepatitis C serology testing in 2023 has not returned to pre-pandemic levels. This is driven predominantly by a 24% decrease in serology testing in private laboratories compared to the peak observed in 2019. This may reflect a slower return of hepatitis C screening post COVID-19, particularly in General Practice settings.

Increasing the number of people receiving hepatitis C treatment is a priority for NSW Health to achieve elimination as a public health concern by 2028. In 2023, almost 3,000 hepatitis C treatments were administered, including 2,034 initial treatments. General Practitioners accounted for 41% of all initial treatments prescribed outside of custodial settings. Data from the Kirby Institute indicates liver related mortality declined by 15% between 2015 and 2022, suggesting the increasing availability of direct acting antivirals is making a positive impact on the decline of liver related mortality.

NSW Health is committed to eliminating hepatitis C as a public health concern by 2028. Ongoing efforts to improve the prevention, testing and treatment of hepatitis C while reducing stigma and discrimination are necessary. NSW Health will continue to work with partners to ensure hepatitis C transmission is prevented

and people living with hepatitis C receive regular testing and treatment without barriers.

NSW Hepatitis C Strategy 2022 – 2025

The NSW Hepatitis C Strategy 2022 - 2025 (the Strategy) lays the foundation for achieving hepatitis C elimination in NSW by 2028 with a focus on four pillars:

1. **Prevention:** Prevent new infections through harm reduction, education and health promotion
2. **Testing:** Increase access and testing for people at risk of infection
3. **Treatment:** Link newly acquired and existing infections into treatment and care
4. **Stigma and discrimination:** Reduce stigma and discrimination as a barrier to prevention, testing and treatment

The Strategy focuses efforts on priority populations including:

- People who currently inject drugs
- People with a history of injecting drugs
- Aboriginal people
- People living with hepatitis C
- People in custodial settings or with a history of incarceration
- People from culturally and linguistically diverse backgrounds

The Strategy also outlines a renewed focus on embedding hepatitis C care in key settings where priority populations may interact with, including:

- Aboriginal Community Controlled Health Services
- Homeless services and social housing
- Alcohol and Other Drug services
- Mental Health services
- Custodial settings, including community corrections and parole services
- General Practice
- Multicultural and community settings
- Needle and Syringe Program services

NSW Health Acknowledgment

NSW Health acknowledges the Traditional Custodians of country throughout NSW and their connections to land, sea and community. We pay our respects to their Elders past and present and extend that respect to all Aboriginal people today.

NSW Health also recognises all communities and individuals impacted by and at risk of hepatitis C. NSW Health recognises the ongoing negative impacts of stigma and societal discrimination people impacted by hepatitis C can experience. In this report, Aboriginal and Torres Strait Islander people are referred to as Aboriginal people in recognition that Aboriginal people are the original inhabitants of NSW.

NSW Hepatitis C Strategy 2022 – 2025 progress towards targets

Due to impact of the COVID-19 pandemic on transmission and access to testing and treatment, the baseline has been set as 2019.

Prevent

Target	Baseline (2019)	2023	2025 Target
60% reduction in the number of new individuals* with hepatitis C infections	3,296	2,564	1,270
20% or lower reported receptive syringe sharing among PWID	-	17%	20%
10% increase in the distribution of sterile needles and syringes for people who inject drugs	15,395,545	14,865,023	15,710,502

Test

Target	Baseline	2023	2025 Target
10% increase in the number of hepatitis C antibody tests	*Access to RNA testing is now widespread in NSW. This target is no longer relevant.*		
20% increase in the number of hepatitis C RNA tests with a focus on:	20,806†	25,466	21,556
Alcohol and Other Drugs services	1,198	862	1,236
Justice Health	6,113	4,801	6,298
Mental Health services	417	580	409

Treat

Target	Baseline (2020)	2023	2025 Target
65% of people living with chronic hepatitis C who have ever initiated direct-acting antiviral treatment	43%	59%	65%
50% reduction in hepatitis C attributable mortality	350 (2015)	293 (2022)	175

Stigma and discrimination

Target	Baseline (2021)	2023	2025 Target
75% reduction in the reported experience of stigma and discrimination among people affected by hepatitis C	42%	40%	11%
75% reduction in the reported experience of stigma and discrimination among people who inject drugs	79%	80%	20%
75% reduction in the reported incidence of stigma and discrimination towards PWID by healthcare workers	72%	70%*	18%

* The NSW Hepatitis C Strategy 2022-2025 aims for a 60% reduction in the number of new hepatitis C infections. Notifications of reinfections are not currently reported in NSW and only the number of notifications among new individuals can be reported.
† PoC was not available at baseline.

Glossary of terms

ACON	AIDS Council of NSW
DAAs	Direct Acting Antivirals
DBS	Dried Blood Spot
HCV	Hepatitis C virus
LHD	Local Health District
MSIC	Medically Supervised Injecting Centre
NCIMS	Notifiable Conditions Information Management System
NNEDC	NSW Needle and Syringe Program Enhanced Data Collection
NSP	Needle and Syringe Program
NSW	New South Wales
NUAA	New South Wales Users and AIDS Association
PBS	Pharmaceutical Benefits Scheme
POC	Point of Care

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1.Prevent

Hepatitis C is a blood-borne virus which can lead to liver fibrosis, cirrhosis, cancer and, if left untreated, death. In NSW, the primary route of transmission of hepatitis C is by sharing drug-injecting equipment. Other transmission risks include unsterile tattooing, receipt of a blood transfusion before 1990, unsterile medical procedures conducted overseas and in utero or exposure during birth from a hepatitis C positive parent.

Hepatitis C disproportionately affects people who inject drugs or have previously injected drugs and people who have been in custodial settings. People may experience additional barriers to accessing care including living in rural, regional and remote areas of NSW. Individual access to care may also be affected by stigma and discrimination related to a history of incarceration, sexual orientation, race or ethnicity. Many people are affected by several of these factors.

The Strategy aims to prevent new infections of hepatitis C through harm reduction, education and health promotion. NSW will provide culturally appropriate, targeted prevention and care services through the mobilisation of peer initiatives, community organisations and outreach models to reach all populations affected by hepatitis C.

1.1 Reduce hepatitis C notifications

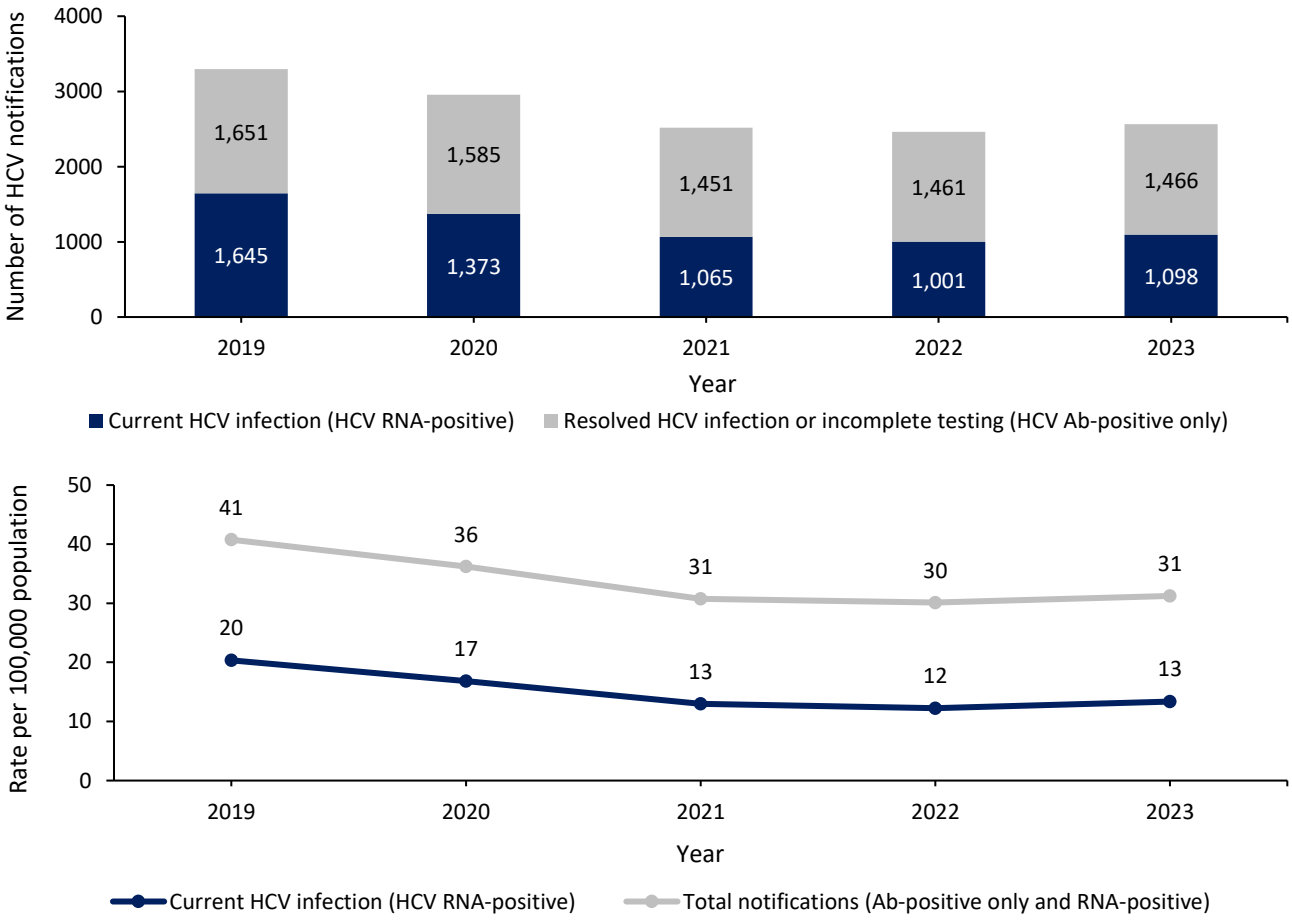
The Strategy aims for a 60% reduction in the number of new hepatitis C infections. While notifications of reinfections are not currently reported in NSW, the number of new individuals notified with hepatitis C has decreased 22% from the 2019 baseline of 3,296 notifications to 2,564 in 2023.

In 2023, NSW Health was notified of 1,098 current hepatitis C infections (HCV RNA-positive Figure 1a), which was a 10% increase compared to 2022 but 33% lower than 2019 baseline (n=1,645). In 2023, the rate of current hepatitis C infection was 13 notifications per 100,000 population (Figure 1b). Notifications with only a hepatitis C antibody-positive result, for which active infection cannot be distinguished from resolved infection or incomplete testing, accounted for 58% of notifications in 2023 (n=1,466).

Of the 1,098 current hepatitis C notifications, 17% were females (n=189) and 83% were males (n=907) (Appendix C, Table 2). Sex was not reported for two people. The median age of females diagnosed with current hepatitis C infection was 47 years (range 5-95 years) and was higher than the median age of males (35 years, range 17-87 years) in 2023.

The Justice Health and Forensic Mental Health Network reported 37% of current hepatitis C infections in NSW in 2023 (n=403) (Appendix C, Table 2). This was a 112% increase compared to 2022 (n=190) and likely reflects the increased focus of hepatitis C testing in custodial settings and improvements in the collection and recording of surveillance data.

Figure 1a & 1b: Hepatitis C notifications and rates by current infection and resolved infection or incomplete testing, NSW, 2019 – 2023

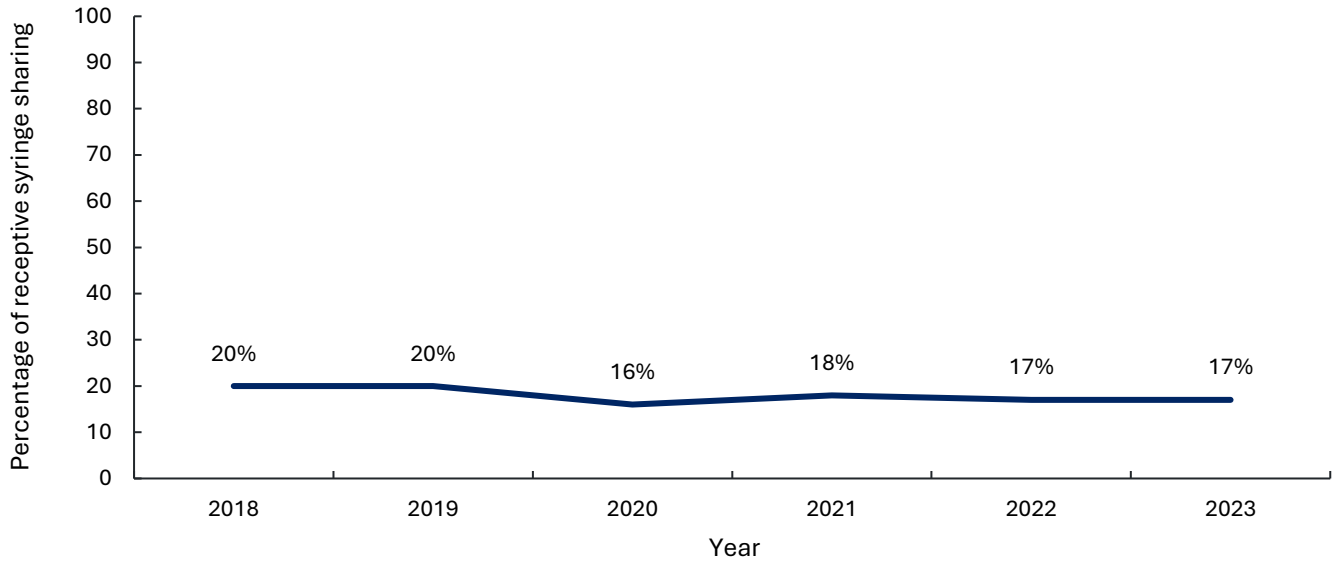


Data source: NCIMS and ABS population estimates (via SAPHaRI), NSW Health. Data extracted 12 April 2024. Note: Excludes non-NSW residents. Year of onset is based on calculated onset date. Hepatitis C RNA-positive result is either standalone or must be within 90 days of hepatitis C Ab-positive result to be classified as hepatitis C current infection.

1.2 Reduce reported receptive syringe sharing

Hepatitis C transmission most commonly occurs via sharing of injecting equipment among people who inject drugs. In 2023, 17% of people who completed the NSW Needle Syringe Program Enhanced Data Collection survey (NNEDC) reported at least one episode of receptive syringe sharing in the month prior to data collection (Figure 2). This is 3% lower than the 2019 baseline of 20% (2019). The Strategy aims for 20% or lower reported receptive syringe sharing among people who inject drugs.

Figure 2: Receptive syringe sharing among people who inject drugs, NSW, 2018 – 2023.



Data source: NNEDC. Note: receptive syringe sharing is defined as at least one episode of receptive syringe sharing in the month prior to data collection. The NNEDC is a mechanism to provide an annual snapshot of the NSW NSP client population. The results may not be representative of all people who inject drugs accessing the needle and syringe program in NSW.

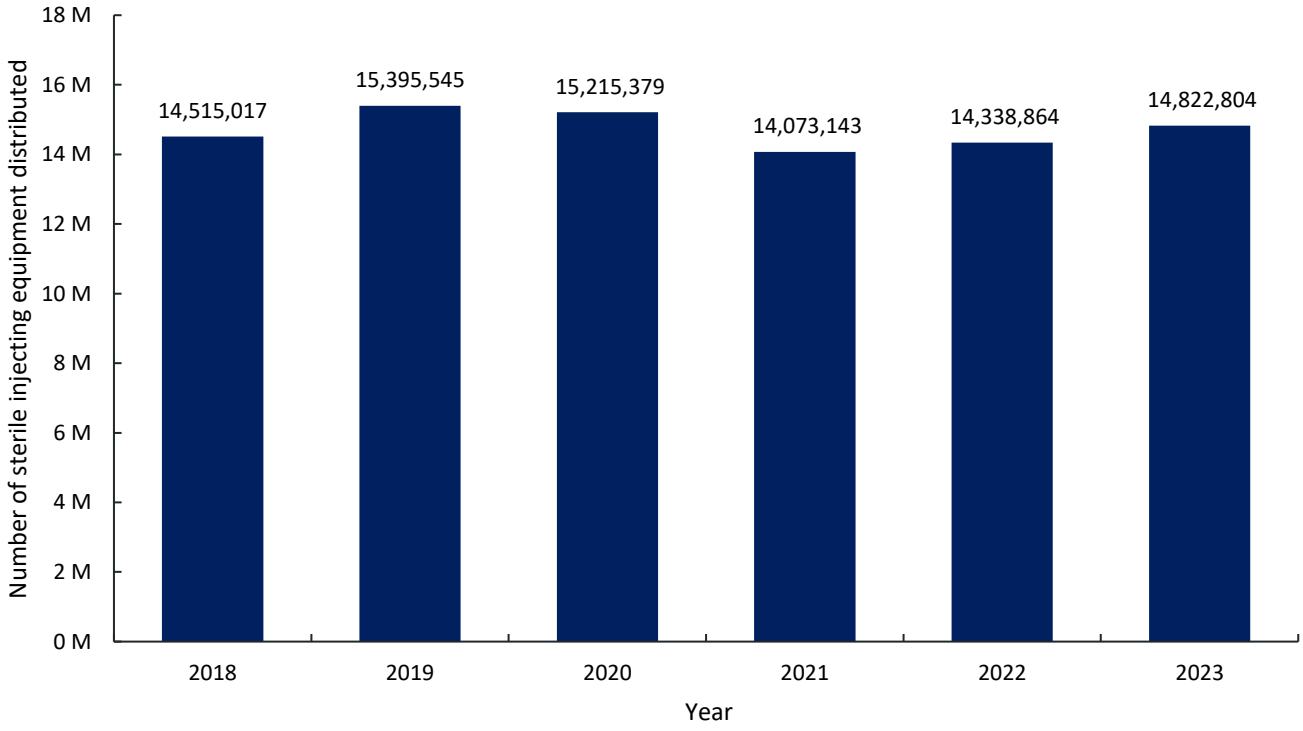
1.3 Increase the distribution of sterile injecting equipment

The NSW Needle Syringe Program (NSP) is a highly cost-effective service that aims to reduce the transmission of blood borne viruses among people who inject drugs through the distribution of sterile injecting equipment and harm reduction education. The NSP continues to be a key setting for hepatitis C prevention, testing and linkage to care and may be the only service that a person who injects drugs accesses within the NSW health system. The NSP is complemented by other initiatives such as opioid pharmacotherapy and other drug treatment to reduce injecting risk behaviours and hepatitis C transmission.

Approximately 14.9 million units of sterile injecting equipment was distributed across NSW through LHD NSPs, non-government organisations and the NSW Pharmacy Fitpack Scheme (Figure 3) in 2023. This was a 4% increase compared to 2022 (n=14.3 million units) but remained 3% below the peak in 2019 (n=15.4 million units).

The Strategy has a target to distribute over 15.7 million sterile needles and syringes for people who inject drugs annually by 2025.

Figure 3: Units of sterile injecting equipment distributed, 2018 – 2023



Data source: LHD Needle and Syringe Program, NUAA, MSIC, ACON and the NSW Pharmacy Fitpack Scheme. Note: this does not include sterile needles and syringes distributed by services outside of the Needle and Syringe Program.

2.Test

The Strategy aims to increase access to testing for people at risk of hepatitis C. A key focus is on services where people at risk of, or living with, hepatitis C intersect with the health system including Alcohol and Other Drug services, Mental Health services, custodial settings, NSP outlets and Aboriginal Community Controlled Health Services.

Innovations in service design and delivery to make testing more available to people who experience barriers to traditional models of care have been made across NSW. Point Of Care (POC) and Dried Blood Spot (DBS) testing options expand access to screening, reduce loss to follow up by decreasing wait time for results and remove barriers related to traditional clinic-based testing models. POC finger stick testing has been scaled up through the National Hepatitis C POC Testing Program which offers a hepatitis C RNA test with results within 60 minutes. The DBS test for hepatitis C RNA requires that the sample be sent to a laboratory for analysis, however is highly transportable and be used in a range of non-clinical settings and on outreach.

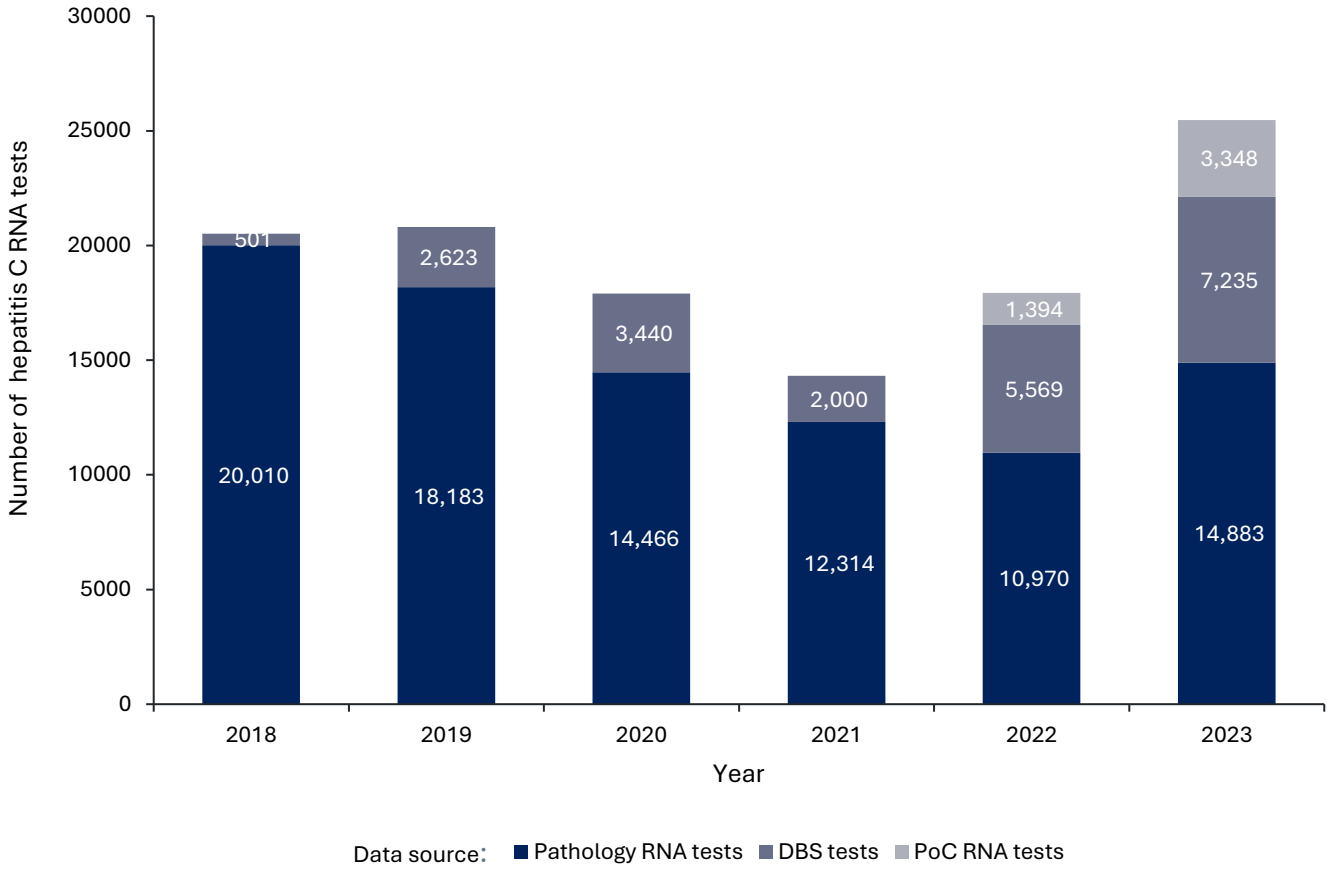
2.1 Increase hepatitis C RNA tests

Hepatitis C RNA testing data is available from NSW Health Pathology, the NSW HIV and Hepatitis C DBS Testing Pilot and the National Australian hepatitis C POC Testing Program. Hepatitis C RNA testing from private pathology providers is currently unavailable, therefore the data in Figure 4 is an underestimate of the number of hepatitis C RNA tests performed in NSW.

In 2023, 25,466 RNA tests were conducted (Figure 4). This represented a 42% increase in RNA tests completed compared to 2022 (n=17,933). Of these tests, 58% were completed through NSW Health Pathology (n=14,883), 28% through the DBS testing pilot (n=7,235) and 13% through the POC Testing Program (n=3,348).

The NSW HCV Strategy target aims for 21,556 performed by 2025. In 2023, NSW exceeded this target by 18% (n=25,466).

Figure 4: Number of hepatitis C RNA tests completed by NSW Health Pathology, DBS and POC testing in NSW, 2018 – 2023



Data source: NSW Health Pathology, National Australian hepatitis C POC Testing Program and the NSW HIV and hepatitis C DBS testing pilot. Note: Excludes General Practice and other private settings. NSW DBS testing pilot commenced in October 2016 and the NSW POC testing program commenced in January 2022. People with a positive DBS result will require confirmatory testing, which may be included in testing numbers from NSW Health Pathology and/or the National Australian HCV PoC Testing Program.

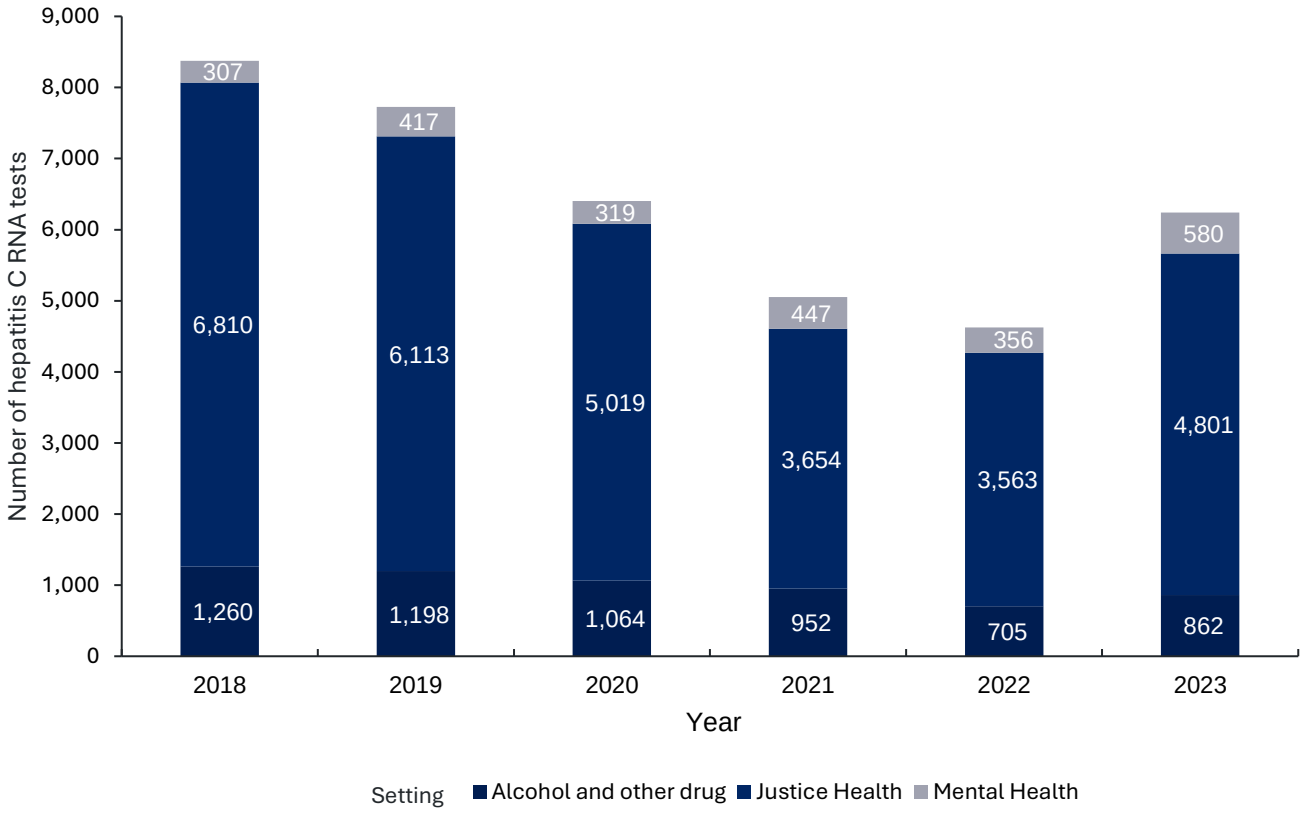
2.2 Increase hepatitis C testing in key settings

Alcohol and Other Drugs, Justice Health and Mental Health settings are ideal settings for hepatitis C testing and treatment as they are often accessed by priority populations. Methods such as, intake screening, completing audits of medical records and care plan reviews can assist early diagnosis and access to treatment, which improves an individual's health and prevents transmission to others.

In 2023, public laboratories performed 6,243 hepatitis C RNA tests across three key settings — Alcohol and Other Drugs, Justice Health, and Mental Health, a 35% increase compared to 2022 (n=4,624) (Figure 5). Justice Health performed the largest number of hepatitis C RNA testing (n=4,801), a 35% increase compared to 2022 (n=3,563). Hepatitis C RNA testing numbers in Alcohol and Other Drugs and Mental Health services were less (n=862 and n=580) but increased 22% and 63% respectively from 2022 (n=705 & n=356). Hepatitis C RNA testing in these key settings remains 25% lower than the peak in 2018 (n=8,377) and likely reflects a slower re-establishment of testing services post the COVID-19 pandemic. Public laboratories do not perform all hepatitis C RNA testing in NSW and these numbers are therefore an underestimate of testing in these settings.

The Strategy has a target to increase RNA testing by 20% with a focus on the key settings of Alcohol and other Drug, Justice Health and Mental Health Services.

Figure 5: Number of hepatitis C RNA tests in Alcohol and Other Drug, Justice Health and Mental Health Services, 2018 – 2023



Data source: NSW Health Pathology Note: Excludes General Practice and other private settings. The data labels represent the total number of tests completed across all three key settings (Alcohol and other drugs, Justice Health and Mental Health). POC and DBS tests are also excluded due to the inability to identify where the test was conducted.

3.Treat

Between 2016 and 2023, 36,605 people initiated hepatitis C treatment in NSW, which represents $103 million in avoided healthcare costs (NSW Ministry of Health Project Management Office).

The Strategy has a goal to increase treatment among priority populations. A key focus of the Strategy is to link all newly acquired and existing infections into timely treatment and care by improving the models of care available for priority populations through strengthening care pathways in key settings. Improving treatment access in outreach and in remote areas via a peer workforce, telehealth, nurse led models of care and remote prescribing are examples of improved care pathways. The Strategy also has a focus on improving the collection and analysis of hepatitis C data and increasing notification follow up for patients returning a positive test.

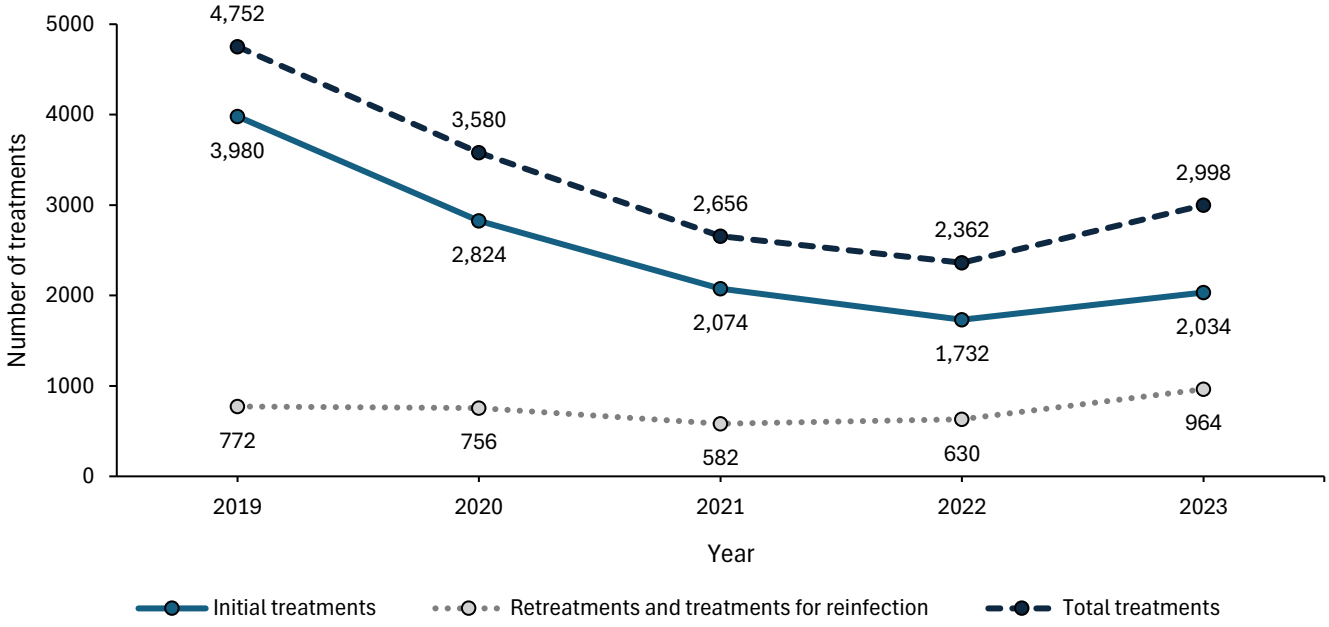
The Strategy aims for a 65% cumulative proportion of people living with chronic hepatitis C to initiate direct acting antiviral treatment and for a 50% reduction in hepatitis C attributable mortality.

3.1 Increase people commencing hepatitis C treatment

The Strategy has a target to increase treatment uptake to ensure that 65% of people living with chronic hepatitis C who have initiated direct-acting antiviral treatment. Since March 2016, NSW has treated 59% (n=36,605) of people estimated to be living with hepatitis C in NSW (modelling estimates from the Kirby Institute, UNSW).

In 2023, 2,034 initial hepatitis C treatments were prescribed in NSW, accounting for 68% of total treatments (2,034/2,998) (Figure 6). This represented a 27% increase in the number of initial treatments compared to 2022 (n=1,732). Retreatments and/or treatments for reinfection accounted for the remaining 32% (n=964) and represented a 53% increase compared to 2022 (n=630).

Figure 6: Number of hepatitis C treatments, 2019 – 2023



Data source: Pharmaceutical Benefits Scheme. Note: Total treatment is reported as initial treatment and re-treatment in NSW, noting an individual could have multiple treatments due to reinfection and/or retreatment after treatment failure. The treatments number includes data from the PBS and does not include self-reported data from Justice Health.

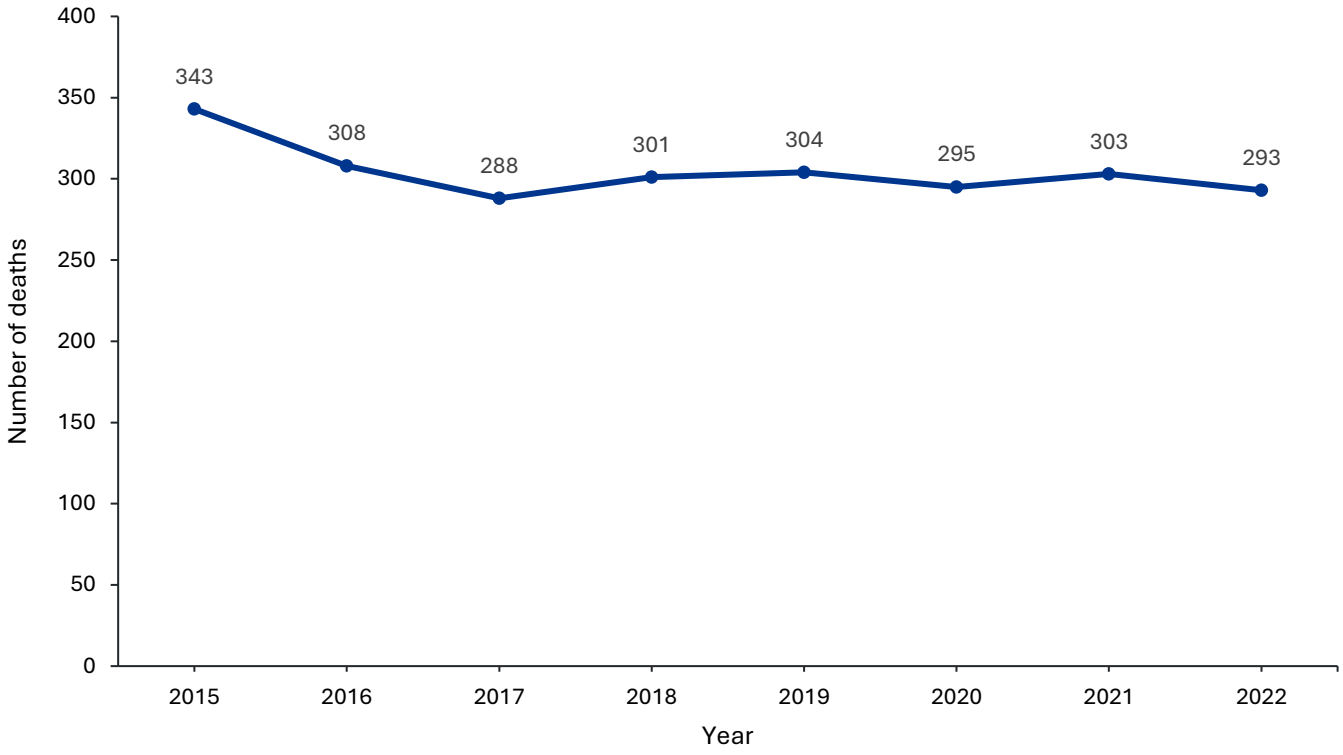
3.2 Reduce deaths caused by hepatitis C

Hepatitis C notification data from 1993 to March 2022 has been linked to administrative data sets for hospital admissions and deaths to enable an estimation of the numbers of deaths attributable to hepatitis C.

In 2022, there were 293 deaths attributable to hepatitis C, representing a 15% reduction in hepatitis C related mortality between 2015 and 2022 (Figure 7).

The Strategy has a target of 50% reduction in hepatitis C attributable mortality.

Figure 7: Number of deaths attributable to hepatitis C, NSW, 2015 – 2022



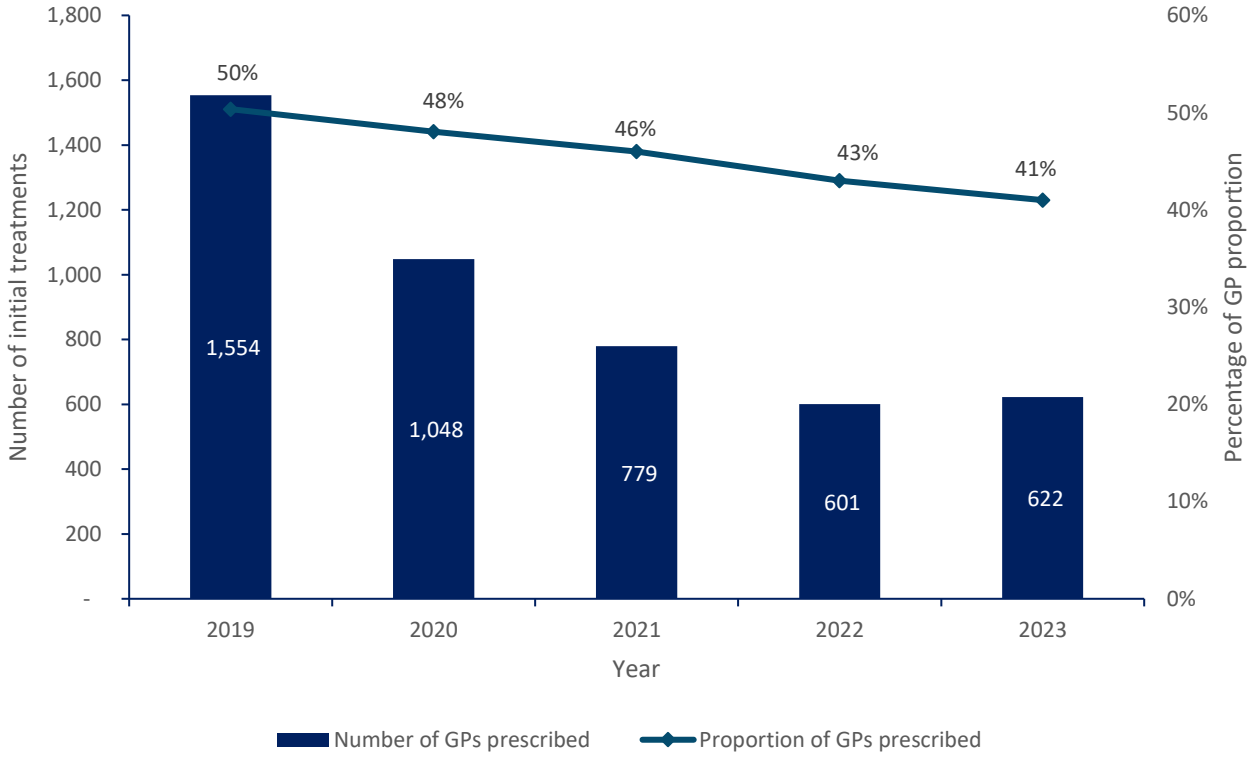
Data source: Data Linkage Project, Kirby Institute. Note: Data is only available up until 2022. Deaths attributable to hepatitis C are defined by a record of mortality following at least one hospitalisation for advanced liver disease (decompensated cirrhosis or hepatocellular carcinoma). In the absence of more up-to-date death certificate data, this definition is a regularly used, validated as a proxy measure for hepatitis C liver-related death.

3.3 Hepatitis C treatments prescribed by General Practitioners

General Practitioners (GPs) play a key role in testing and treating people with or at risk of hepatitis C. GPs are important in reaching people with hepatitis C who may not access other health services.

In 2023, GPs prescribed 622 initial hepatitis C treatments, marking a 3.5% increase from 2022 (n=601). However, the proportion of total initial treatments prescribed by GPs has consistently decreased over the last five years, reaching 41% in 2023. This drop in treatments may be accounted by changes in Medicare bulk billing practices by GPs, as well as less people being diagnosed with hepatitis C compared to 2019.

Figure 8: Number and proportion of Hep C initial treatments prescribed by GPs, NSW, 2019 - 2023



Data source: Pharmaceutical Benefits Scheme. Note: The bars represent the number of initial hepatitis C treatments prescribed by GPs. The line represents the proportion of total initial treatments prescribed by GPs.

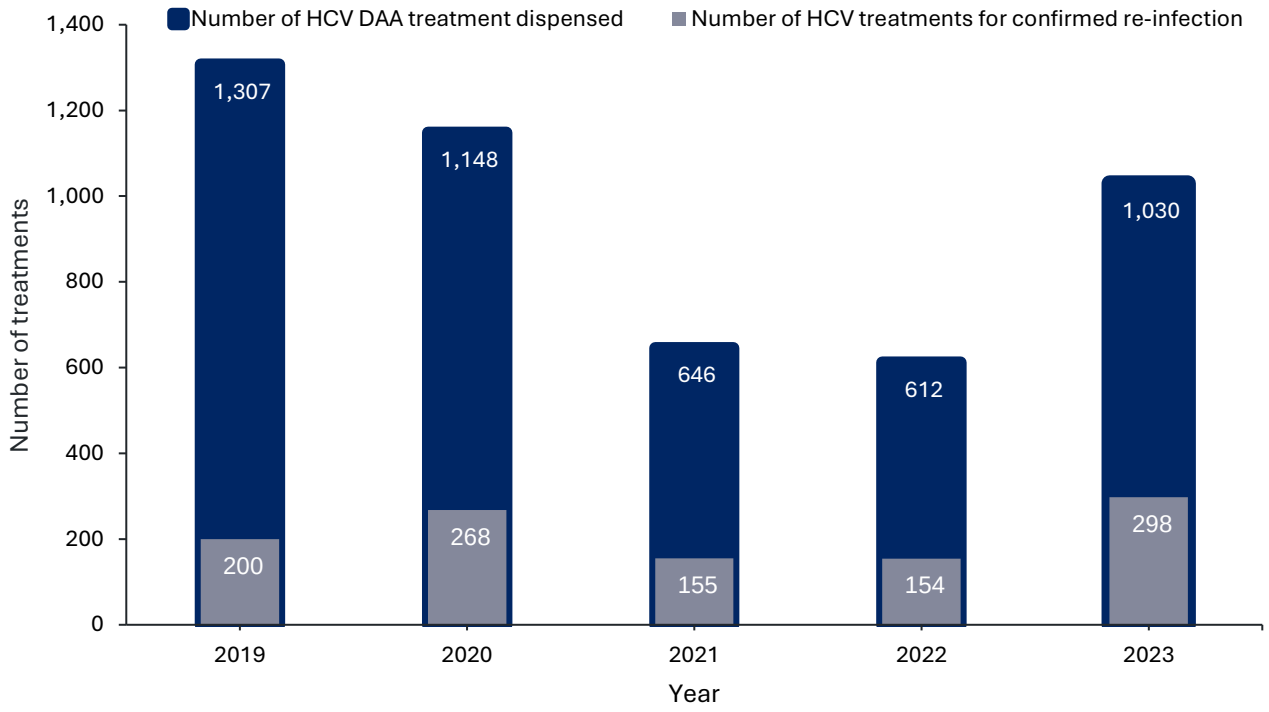
3.4 Increase hepatitis C treatment initiation for people in custody

Hepatitis C prevalence is higher in custodial settings than in the community partly due to a large population of people who inject drugs being incarcerated and lack of full range of effective harm reduction measures in these settings. Custodial settings therefore play an important role in testing and treating people living with hepatitis C.

In 2023, Justice Health prescribed 1,030 hepatitis C treatments, of which 29% were for confirmed reinfection (n=298) (Figure 9). Overall total prescribing increased by 68% compared to 2022 (n=612). This increase reflects a returned focus on hepatitis C testing and treatment after the lifting of COVID-19, prevention measures which restricted access to health services.

Of the 1,030 hepatitis C treatments, 47% were among Aboriginal and Torres Strait Islander people (n=484). Thirty per cent of reinfections were among Aboriginal and Torres Strait Islander people (n=88).

Figure 9: Hepatitis C treatments in Justice Health, 2019 – 2023



Data source: Justice Health iPharmacy. Note: The total number of hepatitis C Direct Acting Antiviral (DAA) treatments includes new, confirmed reinfection and retreatments for virological failure. Reinfection is determined based on clinical notes from Justice Health. Reinfection number is included in the total treatment number.

4.Stigma and discrimination

The Strategy has a goal to reduce stigma and discrimination as a barrier to prevention, testing and treatment. Almost three quarters (71%) of people living with hepatitis C in Australia report experiencing some form of stigma and discrimination. Evidence supports addressing individual, interpersonal and structural stigma is critical in reaching elimination targets and is a priority across the Strategy.

The Strategy aims to achieve a:

- 75% reduction in the reported experience of stigma and discrimination among people affected by hepatitis C
- 75% reduction in the reported experience of stigma and discrimination among people who inject drugs
- 75% reduction in the reported incidence of stigma and discrimination towards people who inject drugs by healthcare workers

4.1 Reducing stigma and discrimination

The Stigma Indicators Monitoring Project managed by the Centre for Social Research in Health, UNSW periodically collects data regarding stigma and discrimination experienced by people impacted by hepatitis C and people who inject drugs. The Centre for Social Research in Health also surveyed healthcare workers about their attitudes and beliefs.

The data collected is in relation to any experiences of stigma and discrimination within the past 12 months, as well as stigmatising experiences within health care settings by healthcare workers.

The most recent data available for are from the 2022 survey, in which:

- The proportion of stigma and discrimination experienced among people affected by hepatitis C reduced by 2% compared to 2021.
- The proportion of stigma and discrimination experienced among people who inject drugs increased by 1% compared to 2021.
- The proportion of stigma and discrimination towards people who inject drugs by healthcare workers decreased by 2%.

For further information about the Stigma Indicators Monitoring Project, see https://www.brise.org.au/projects

Appendices

Appendix A: Data sources

Table 1: Details on data sources included in this report

Name	Custodian	Description
NSW Notifiable Conditions Information Management System (NCIMS)	Health Protection NSW, NSW Health	The NSW Notifiable Conditions Information Management System (NCIMS) contains records of all people notified to NSW Health with a notifiable condition under the NSW *Public Health Act 2010*. A hepatitis C notification is reported based on the NSW hepatitis C case definition, which considers a hepatitis C antibody positive result and/or hepatitis C RNA positive result as a confirmed case. Individuals with past treated or resolved infection who are reinfected are not currently captured, with subsequent testing appended to the original notification. Furthermore, notifications may not reflect the true incidence of hepatitis C as they represent only a proportion of individuals in the population that have been tested and diagnosed. While notification data per se provides limited information about the epidemiology of hepatitis C, it remains a useful tool for monitoring trends over time.
NSW Needle and Syringe Program Enhanced Data Collection	The Kirby Institute, UNSW	Annual Survey of NSP attendees. Provides NSP client demographic, behavioural and drug use data to strengthen the state-wide prevention approach and inform LHDs in planning for NSP service delivery at the local level. Data is self-reported. Data is collected over a two-week period in late Feb/early March.
Pharmaceutical Benefits Schedule (PBS) Highly Specialised Drugs Programme data	Centre for Population Health, NSW Health	This data is prepared by the Commonwealth Government for NSW Health and captures all hepatitis C treatment dispensing in NSW through the PBS from a public hospital, private hospital, or community pharmacies.
NSW DBS HIV and HCV Testing Pilot	Centre for Population Health, NSW Health	Quarterly hepatitis C and HIV testing data is submitted to the Centre for Population Health.
Stigma Indicators Monitoring Project	Centre for Social Research in Health	The Stigma Indicators Monitoring Project periodically collects data regarding stigma and discrimination experienced by groups including people who inject drugs, people affected by hepatitis C and sex workers. The project also monitors the expression of stigma towards these groups by health care workers and the public

Appendix B: Case definition

The hepatitis C notifications in this report meet the case definitions in the relevant Control Guideline for Public Health Units as listed here:
https://www.health.nsw.gov.au/Infectious/controlguideline/Pages/hep_c_protoco.aspx

Under the NSW *Public Health Act 2010* hepatitis C is a notifiable disease. A confirmed case requires two hepatitis C antibody-positive (hepatitis C Ab-positive) results from two different immunoassays to confirm true reactivity from false positives and/or a hepatitis C ribonucleic acid-positive (hepatitis C RNA-positive) result.[1] Confirmation with two hepatitis C Ab-positive results shows the individual has ever had a hepatitis C infection, but does not indicate if the infection is acute, chronic or resolved.[2] To determine acute or chronic infection (current infection) hepatitis C RNA testing is recommended for all individuals shown to have an hepatitis C Ab-positive result.[2] The presence of hepatitis C RNA indicates active viral replication.

Ideally, hepatitis C RNA testing should be performed on a second blood sample to confirm current infection. This sample could be collected at the time of the initial blood draw, but more commonly requires the individual to return to the health care setting for subsequent blood collection, increasing the potential for lost to follow up and incomplete testing.

Rather than obtaining a follow-up sample at a second patient visit, the current Australasian Society for HIV, Viral Hepatitis and Sexual Health Medicine (ASHM) encourages laboratories to reflex to hepatitis C RNA using either the second blood sample collected at the initial visit or by splitting a single specimen into two aliquots at the sample processing stage. Such procedures offer the benefit of less patient visits to obtain venous access which should improve testing, diagnosis and treatment of at-risk people.[2] Reflex hepatitis C RNA testing is gaining traction in Australia and is preformed by some laboratories in NSW, however challenges remain concerning resourcing, risk of sample contamination for aliquots and storage space.

NSW does not currently report notifications of hepatitis C reinfection; however Justice Health do report the number of direct-acting antiviral treatment for confirmed reinfections in custodial settings

[1] NSW Health. Hepatitis C control guidelines. 29 July 2019. Available from https://www.health.nsw.gov.au/Infectious/controlguideline/Pages/hep_c_protoco.aspx#2
[2] ASHM. Hepatitis C diagnostic strategies. 2022. Available from: https://testingportal.ashm.org.au/national-hcv-testing-policy/diagnostic-strategies/

Appendix C: Hepatitis C notifications and rates

Table 2: Characteristics of hepatitis C notifications with current infection (hepatitis C RNA-positive), NSW, 2019 – 2023.

Characteristic	2019 N = 1,645[1]	2020 N = 1,373[1]	2021 N = 1,065[1]	2022 N = 1,001[1]	2023 N = 1,098[1]
Gender					
Male	1,235 (75.1%)	1,065 (77.6%)	806 (75.7%)	760 (75.9%)	907 (82.6%)
Female	398 (24.2%)	306 (22.3%)	258 (24.2%)	240 (24.0%)	189 (17.2%)
Other/Not stated	12 (0.7%)	2 (0.1%)	1 (0.1%)	1 (0.1%)	2 (0.2%)
Median age at diagnosis	39 (29, 52)	38 (29, 51)	42 (30, 55)	41 (30, 54)	37 (28, 51)
Age group at diagnosis					
0-14	3 (0.2%)	7 (0.5%)	4 (0.4%)	2 (0.2%)	1 (0.1%)
15-19	27 (1.6%)	26 (1.9%)	22 (2.1%)	11 (1.1%)	24 (2.2%)
20-24	179 (10.9%)	171 (12.5%)	109 (10.2%)	97 (9.7%)	142 (12.9%)
25-29	209 (12.7%)	185 (13.5%)	119 (11.2%)	140 (14.0%)	171 (15.6%)
30-34	192 (11.7%)	161 (11.7%)	112 (10.5%)	108 (10.8%)	164 (14.9%)
35-39	213 (12.9%)	182 (13.3%)	114 (10.7%)	101 (10.1%)	108 (9.8%)
40-44	180 (10.9%)	144 (10.5%)	115 (10.8%)	116 (11.6%)	105 (9.6%)
45-49	149 (9.1%)	124 (9.0%)	102 (9.6%)	94 (9.4%)	79 (7.2%)
50-54	160 (9.7%)	119 (8.7%)	90 (8.5%)	89 (8.9%)	85 (7.7%)
55-59	122 (7.4%)	91 (6.6%)	104 (9.8%)	83 (8.3%)	71 (6.5%)
60-64	123 (7.5%)	94 (6.8%)	84 (7.9%)	83 (8.3%)	60 (5.5%)
65-69	52 (3.2%)	44 (3.2%)	60 (5.6%)	40 (4.0%)	49 (4.5%)
70-74	19 (1.2%)	13 (0.9%)	18 (1.7%)	20 (2.0%)	21 (1.9%)
75-79	6 (0.4%)	8 (0.6%)	5 (0.5%)	8 (0.8%)	7 (0.6%)
80-84	5 (0.3%)	2 (0.1%)	5 (0.5%)	4 (0.4%)	4 (0.4%)
85+	6 (0.4%)	0 (0.0%)	2 (0.2%)	5 (0.5%)	6 (0.5%)
Missing	0 (0.0%)	2 (0.1%)	0 (0.0%)	0 (0.0%)	1 (0.1%)
Local Health District					
Central Coast	75 (4.6%)	41 (3.0%)	43 (4.0%)	22 (2.2%)	31 (2.8%)
Far West	8 (0.5%)	11 (0.8%)	11 (1.0%)	3 (0.3%)	0 (0.0%)
Hunter New England	160 (9.7%)	162 (11.8%)	135 (12.7%)	162 (16.2%)	112 (10.2%)
Illawarra Shoalhaven	55 (3.3%)	48 (3.5%)	25 (2.3%)	47 (4.7%)	46 (4.2%)
Mid North Coast	64 (3.9%)	53 (3.9%)	56 (5.3%)	58 (5.8%)	44 (4.0%)
Murrumbidgee	46 (2.8%)	41 (3.0%)	32 (3.0%)	29 (2.9%)	24 (2.2%)
Nepean Blue Mountains	53 (3.2%)	56 (4.1%)	35 (3.3%)	39 (3.9%)	30 (2.7%)
Northern NSW	87 (5.3%)	74 (5.4%)	55 (5.2%)	39 (3.9%)	52 (4.7%)
Northern Sydney	54 (3.3%)	21 (1.5%)	26 (2.4%)	28 (2.8%)	18 (1.6%)
South Eastern Sydney	116 (7.1%)	83 (6.0%)	74 (6.9%)	54 (5.4%)	54 (4.9%)
South Western Sydney	132 (8.0%)	110 (8.0%)	90 (8.5%)	72 (7.2%)	88 (8.0%)
Southern NSW	33 (2.0%)	26 (1.9%)	14 (1.3%)	24 (2.4%)	18 (1.6%)
Sydney	92 (5.6%)	70 (5.1%)	50 (4.7%)	58 (5.8%)	44 (4.0%)
Western NSW	62 (3.8%)	57 (4.2%)	48 (4.5%)	38 (3.8%)	33 (3.0%)
Western Sydney	119 (7.2%)	104 (7.6%)	102 (9.6%)	94 (9.4%)	80 (7.3%)
Justice Health	441 (26.8%)	387 (28.2%)	239 (22.4%)	190 (19.0%)	403 (36.7%)
Missing	48 (2.9%)	29 (2.1%)	30 (2.8%)	44 (4.4%)	21 (1.9%)

Data source: NCIMS, NSW Health; data extracted 9 April 2024. Note: Excludes non-NSW residents. Year of notification is based on calculated onset date. Hepatitis C RNA-positive result is either standalone or must be within 90 days of hepatitis C Ab-positive result to be classified as hepatitis C current infection.

Table 3: Hepatitis C current infection rates (hepatitis C RNA-positive) per 100,000 population by gender, age group and LHD of residence, NSW 2019-2023

Characteristic	2019	2020	2021	2022	2023
Gender					
Female	9.8	7.4	6.3	5.8	4.6
Male	30.8	26.3	19.8	18.8	22.3
Other/Not stated	NA	NA	NA	NA	NA
Age group at diagnosis					
0-14	0.2	0.5	0.3	0.1	0.1
15-19	5.7	5.6	4.7	2.3	5.0
20-24	32.3	31.7	21.2	19.3	28.9
25-29	34.1	30.4	20.2	24.4	30.5
30-34	31.9	26.3	18.3	17.9	27.4
35-39	37.5	31.2	19.2	17.2	18.4
40-44	35.6	28.1	22.0	21.8	19.3
45-49	28.3	23.5	19.7	18.6	15.8
50-54	33.5	24.6	18.1	17.5	16.5
55-59	24.6	18.4	21.3	17.3	15.0
60-64	27.4	20.4	17.9	17.4	12.5
65-69	13.2	10.9	14.6	9.5	11.4
70-74	5.6	3.7	4.9	5.5	5.7
75-79	2.5	3.2	1.9	2.8	2.3
80-84	3.0	1.1	2.8	2.1	2.0
85+	3.4	0.0	1.1	2.6	3.1
Missing	NA	NA	NA	NA	NA
Local Health District					
Central Coast	21.8	11.9	12.4	6.3	8.8
Far West	27.3	37.8	38.3	10.6	0.0
Hunter New England	17.1	17.2	14.2	17.0	11.6
Illawarra Shoalhaven	13.1	11.3	5.8	10.9	10.5
Mid North Coast	28.5	23.4	24.6	25.4	19.1
Murrumbidgee	15.4	13.6	10.6	9.6	7.9
Nepean Blue Mountains	13.9	14.6	9.1	10.2	7.8
Northern NSW	28.5	24.1	17.8	12.6	16.7
Northern Sydney	5.7	2.2	2.7	2.9	1.9
South Eastern Sydney	12.2	8.6	7.8	5.8	5.8
South Western Sydney	12.8	10.5	8.6	6.8	8.3
Southern NSW	15.6	12.2	6.5	11.1	8.2
Sydney	13.2	10.0	7.2	8.4	6.3
Western NSW	22.0	20.3	17.0	13.4	11.6
Western Sydney	11.6	10.0	9.8	9.0	7.6
Justice Health	NA	NA	NA	NA	NA
Missing	NA	NA	NA	NA	NA

Data source: NCIMS, NSW Health and ABS population estimates (SAPHaRI); data extracted 9 April 2024. Note: Excludes non-NSW residents. Year of notification is based on calculated onset date. Data are provisional and subject to change. NA is applied when the denominator (total population) is unavailable. For Justice Health this is because the available population data provides the number of annual incarcerations, not the number of people incarcerated.

Appendix D: DBS and POC testing

Table 4: Number of DBS tests completed by LHD by quarter (January 2020 – December 2023)

LHD	2020				2021				2022				2023			
	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec
CC	2			4	6	1	3	18	2	49	27	3	8	29	19	10
FW	6	4	3			8	4		1		3				1	
HNE	19	5	7	12	14	6	7	3	4	122	53	8	5	18	23	52
IS	12	4	118	58	12	11	9	7	9	91	29	14	15	93	94	35
M	5			3	1	2	3	2	4	2	41	5	19	17	55	36
MNC	22	1	28	45	31	45	26	50	47	56	58	47	38	96	97	120
NBM	32	3	20	116	26	56	9	12	45	149	74	71	51	114	73	67
NNSW	8	3	11	16	8	24	3	8	98	92	150	60	87	294	75	53
NS	15	5	20	26	20	20	17	26	36	95	50	55	146	76	94	43
SES	103	89	155	130	96	254	53	66	112	156	405	172	152	265	395	151
SNSW	2			2	5	1		2		3	7	8	7	12	5	11
SWS	142	37	69	150	82	117	12	23	119	224	191	150	168	98	403	212
SYD	37	13	11	70	73	118	36	17	64	87	197	150	150	175	258	189
WNSW	58	2	12	49	16	35	39	2	15	11	28	8	20	20	17	10
WS	45	5	14	49	45	100	13	9	61	113	39	14	21	41	28	47
JH	450	196	518	399	225	47	12	4	100	517	531	437	1132	739	417	39
Total	**958**	**367**	**986**	**1,129**	**660**	**845**	**246**	**249**	**717**	**1,767**	**1,883**	**1,202**	**2,019**	**2,087**	**2,054**	**1,075**

Data source: NSW HIV and hepatitis C DBS Testing Pilot.

Table 7: Number of POC tests completed by LHD by quarter (January 2022 – December 2023)

LHD	2022				2023			
	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec
Central Coast								
Far West				2	9			
Hunter New England						8	10	25
Illawarra Shoalhaven			55	44	28	39	54	26
Mid North Coast			19	20	16	16	57	35
Murrumbidgee							3	1
Nepean Blue Mountains				9	46	42	76	40
Northern NSW							70	76
Northern Sydney						23	20	24
South Eastern Sydney		3	114	119	81	33	101	55
South Western Sydney				5	69	29	17	8
Southern NSW								
Sydney			7	25	29	36	100	67
Western NSW	35	12	28	25	18	25	69	10
Western Sydney				33	99	81	129	62
Justice Health			57	783	177	338	391	580
Total	**35**	**15**	**280**	**1,065**	**572**	**670**	**1,097**	**1,009**

Data source: National Australian HCV POC Testing Program. Note: The National Australian HCV POC Testing Program commenced in January 2022.

Appendix E: Initial hepatitis C treatments by speciality prescribers

NSW has a range of speciality prescribers who can prescribe hepatitis C treatment, making it easier for patients to commence hepatitis C treatment. Increasing the number of hepatitis C treatments prescribed by speciality prescribers is a priority for NSW Health as it will expand access to hepatitis C treatments.

In 2023, GPs prescribed the most initial hepatitis C treatments (n=622, 41%) followed by Gastroenterology Specialists (n=361, 24%) and Other Specialties (n=91, 6%).

Table 5: Number of initial hepatitis C treatments by prescriber type, 2023

LHD	GP	Gastroenterology	Internal Medicine	Infectious Diseases	Addiction Medicine	Sexual Health Medicine	Other Specialist*	Unknown
	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)
CC	7 (12)	45 (76)	0 (0)	1 (2)	2 (3)	2 (3)	0 (0)	2 (3)
FW	4 (67)	1 (17)	0 (0)	1 (17)	0 (0)	0 (0)	0 (0)	0 (0)
HNE	99 (41)	29 (12)	22 (9)	4 (2)	16 (7)	14 (6)	18 (7)	40 (17)
IS	51 (43)	47 (40)	1 (1)	2 (2)	3 (3)	0 (0)	6 (5)	8 (7)
M	38 (49)	10 (13)	1 (1)	1 (1)	1 (1)	3 (4)	6 (8)	17 (22)
MNC	15 (22)	7 (10)	16 (23)	0 (0)	8 (12)	1 (1)	1 (1)	21 (30)
NBM	21 (57)	8 (22)	1 (3)	2 (5)	1 (3)	0 (0)	2 (5)	2 (5)
NNSW	46 (37)	19 (15)	8 (7)	0 (0)	15 (12)	0 (0)	5 (4)	30 (24)
NS	44 (60)	17 (23)	1 (1)	2 (3)	4 (5)	0 (0)	4 (5)	1 (1)
SES	55 (49)	23 (20)	4 (4)	4 (4)	3 (3)	10 (9)	5 (4)	9 (8)
SNSW	21 (38)	12 (21)	4 (7)	1 (2)	2 (4)	10 (18)	1 (2)	5 (9)
SWS	77 (42)	50 (27)	3 (2)	6 (3)	5 (3)	1 (1)	34 (19)	6 (3)
SYD	41 (37)	15 (14)	6 (5)	4 (4)	3 (3)	2 (2)	4 (4)	35 (32)
WNSW	22 (28)	14 (18)	0 (0)	5 (6)	2 (3)	0 (0)	3 (4)	33 (42)
WS	81 (46)	64 (36)	2 (1)	8 (5)	8 (5)	1 (1)	2 (1)	10 (6)
Total	**622 (41)**	**361 (24)**	**69 (5)**	**41 (3)**	**73 (5)**	**44 (3)**	**91 (6)**	**219 (14)**

Data source: Pharmaceutical Benefits Scheme. Note: 'Other' includes non-vocationally registered GP, pathology, immunology and allergy, nurse practitioner, public health medicine, surgery, psychiatry, respiratory and sleep medicine, dermatology, college trainee, paediatric medicine, medical oncology, ophthalmology, palliative medicine, nephrology, geriatric medicine, and haematology specialists.

Appendix F: People initiating hepatitis C treatment in Local Health Districts

Analysing people commencing initial hepatitis C treatments by age group is important to understand which age groups are most susceptible to acquiring hepatitis C.

In 2023, Hunter New England treated the largest number of people (n=242), followed by South Western Sydney (n=192) and Western Sydney (n=176). The largest number of people commencing treatment were from age groups 45-54 years and 55-64 years.

Table 6: Number of people in NSW commenced initial hepatitis C treatments by age group and Local Health District of patient residence, 2023

LHD	0-24	25-34	35-44	45-54	55-64	65+	Total
Central Coast	1	5	5	20	20	8	59
Far West		1		4	1		6
Hunter New England	12	44	57	55	53	21	242
Illawarra Shoalhaven	5	16	17	28	28	10	104
Mid North Coast	5	9	17	11	16	11	69
Murrumbidgee	4	16	15	19	16	7	77
Nepean Blue Mountains	4	8	11	25	14	11	73
Northern NSW	9	20	23	24	36	11	123
Northern Sydney	5	4	13	11	7	11	51
South Eastern Sydney	4	18	24	32	24	11	113
South Western Sydney	6	28	43	44	37	24	182
Southern NSW	2	7	10	13	16	8	56
Sydney	4	18	21	31	20	16	110
Western NSW	5	15	23	17	14	5	79
Western Sydney	6	24	39	50	39	18	176
Total	**72**	**233**	**318**	**384**	**341**	**172**	**1520**

Data source: Pharmaceutical Benefits Scheme.

Appendix G: Needle and Syringe Program

Needle and Syringe Programs are evidence based, cost-effective ways to prevent hepatitis C transmission. A harm reduction approach, combined with other complementary prevention strategies is central to prevention efforts in NSW.

In 2023, NSW had 31 primary outlets, 240 secondary outlets, 636 pharmacy outlets and 287 automatic dispensing machines.

Table 7: Number of units of injecting equipment distributed by local health district in NSW, 2023.

Local Health District	Public	Pharmacy
Central Coast	750,663	31,336
Far West	149,401	-
Hunter New England	1,789,823	351,378
Illawarra Shoalhaven	748,419	28,150
Mid North Coast	627,809	40,798
Murrumbidgee	531,925	7,860
Nepean Blue Mountains	683,507	18,715
Northern NSW	615,292	400
Northern Sydney	549,433	21,494
South Eastern Sydney	1,232,653	95,203
South Western Sydney	1,287,442	334,359
Southern NSW	202,696	5,906
Sydney	1,436,296	317,021
Western NSW	886,846	5,623
Western Sydney	974,137	67,285
Total	**12,466,342**	**1,325,528**
ACON	293,971	-
MSIC	42,219	-
NUAA	736,963	-
Total	**13,539,495**	-

Data source: Data source: Local Health District Needle and Syringe Program and the NSW Pharmacy Fitpack Scheme.

The Kirby Institute is responsible for the annual NSW Needle and Syringe Program Enhanced Data Collection (NNEDC) and the Needle Syringe Program National Minimum Data Collection. Both data collections provide annual snapshots of the NSW Needle and Syringe Program. For further information about the NSW Needle and Syringe Program and its population, see the 2023 reports:

- Needle Syringe Program National Minimum Data Collection 2023 National Data Report
- New South Wales Needle and Syringe Program Enhanced Data Collection 2023 Report

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