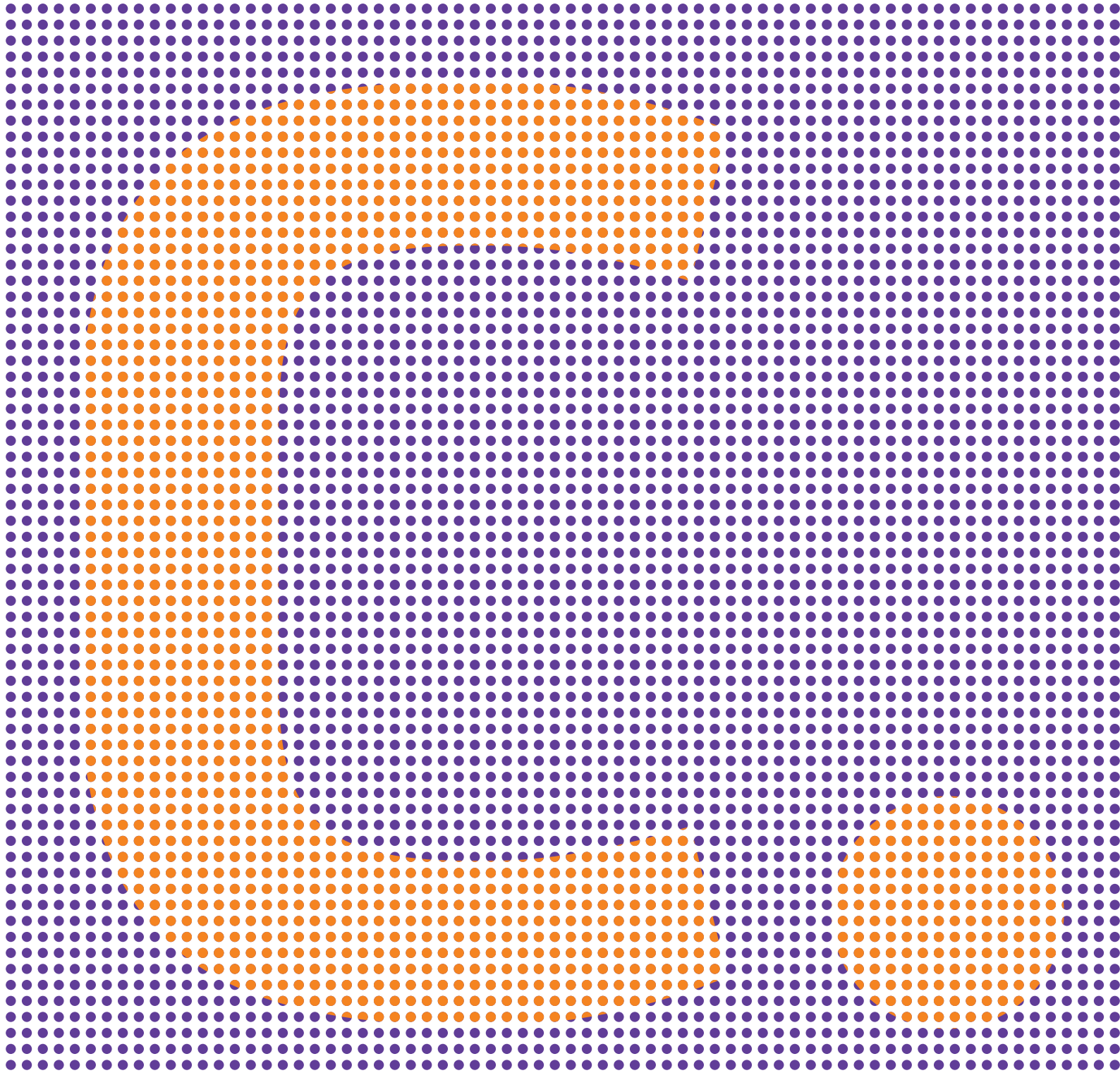
Hepatitis C Elimination in NSW:

Monitoring and Evaluation Report, 2024



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Monitoring and Evaluation Report, 2024

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Acknowledgement of Country

The Kirby Institute at UNSW Sydney is located on the Traditional Lands of the Bidjigal Peoples. We acknowledge the Traditional Owners of Country throughout Australia, and Aboriginal and Torres Strait Islander people's continuing connection to culture, land, sea, waters, and community. We pay our respects to Elders both past and present.

Abbreviations

ANSPS	Australian Needle and Syringe Program Survey
OAT	Opioid Agonist Therapy
AusHep	Australian Hepatitis and Risk Survey in Prisons
CEASE	Control and Elimination within AuStralia of hepatitis C from people living with HIV
DAA	Direct-Acting Antiviral
ETHOS Engage	Enhancing Treatment of Hepatitis C in Opioid Substitution Settings
HCV	Hepatitis C virus
LHD	Local Health District
NCIMS	NSW Notifiable Conditions Information Management System
NNEDC	NSW NSP Enhanced Data Collection
NSW	New South Wales
NUAA	NSW Users and AIDS Association
PBS	Pharmaceutical Benefits Scheme
REACH-C	Real-world efficacy of antiviral therapy in chronic hepatitis C
SEARCH 3X	Screening Emergency Admission at Risk of Chronic Hepatitis 3 Extension
WHO	World Health Organization

Preface

Hepatitis C is a global public health threat. At the end of 2022, an estimated 74 400 people were living with hepatitis C in Australia, 29 557 (40%) of whom were from New South Wales (NSW). Unrestricted access to government-reimbursed direct-acting antiviral (DAA) therapy for people with hepatitis C since 2016 has produced transformative changes in hepatitis C clinical management and public health response in Australia. As such, the NSW Ministry of Health has committed to eliminating hepatitis C as a public health threat in NSW by 2028. This second NSW Hepatitis C Elimination Progress report provides an account of progress in the context of three new strategies: NSW Hepatitis C Strategy 2022–2025; Australia's 6th National Hepatitis C Strategy 2023–2030; and World Health Organization Global Health Sector Strategy 2022–2030. The targets and associated objectives of these strategies are to improve testing, treatment, and uptake of preventative measures for hepatitis C, and to reduce the incidence, morbidity, and mortality associated with hepatitis C. Although differing somewhat across strategies, their objectives have a series of measurable indicators for monitoring progress, including a set of focused targets that evaluate service coverage and impact. Meeting international elimination targets is a critical part of Australia's hepatitis C elimination response. The aim of this report is to describe hepatitis C elimination targets, objectives, and indicators, and the level of progress made. Each of the indicators have several data considerations which are outlined in the relevant sections.

1. Key findings

Service coverage

Harm reduction

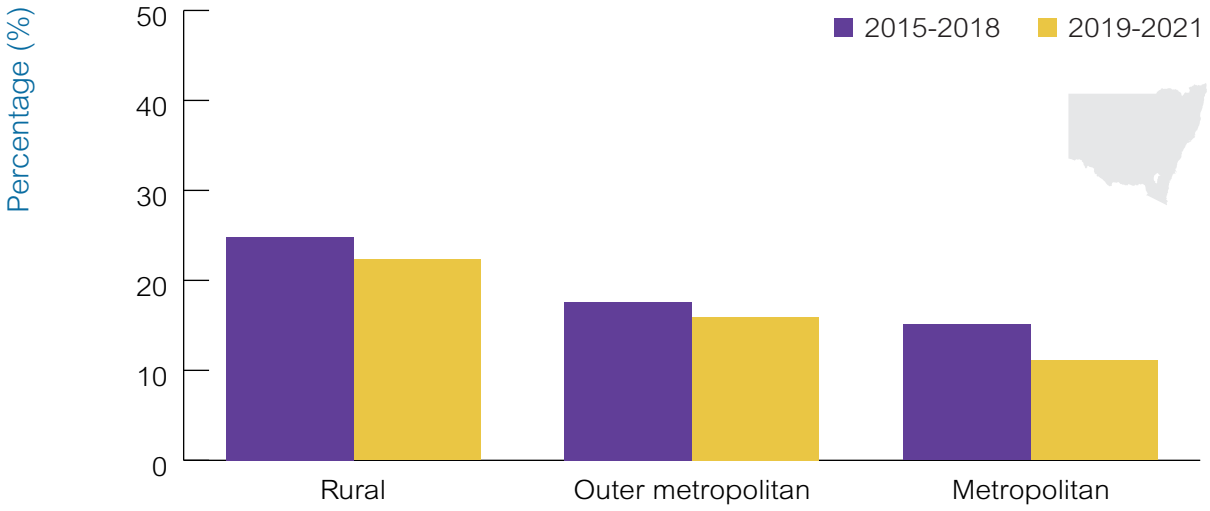
- In 2022-2023, estimated needle and syringe distribution per person who injects drugs per year was high at 556 (source: mathematical modelling).
- In 2023, 17% of people attending needle syringe programs reported receptive syringe sharing in the last month (source: NNEDC).
- In 2023, 24 475 people were on opioid agonist therapy, a 25% increase compared to 2015 with an increased proportion on buprenorphine (27% to 50%) and decreased proportion on methadone (73% to 50%). In 2023, 85% of opioid agonist therapy was delivered in community settings and 15% in correctional settings, compared to 92% and 8% in 2015. In 2023, buprenorphine was 80% of opioid agonist therapy delivered in correctional settings compared to 45% delivered in community settings (source: NSW Health).
- In 2022-2024, 38% of people involved in a point-of-care hepatitis C screening program, who reported injecting drugs in the last six months, reported receiving opioid agonist therapy. Of those reporting they most often injected opioids in the last month, 61% reported receiving opioid agonist therapy (source: National Program).

Service coverage (continued)

Hepatitis C testing and diagnosis

- In 2022-2023, among incarcerated people who reported a history of injecting drug use, 93% reported ever tested for hepatitis C. Of these, 85% reported testing in prison settings, and 42% reported testing in the community (source: AusHep).
- In 2023-2024, 84% of people attending drug treatment clinics and needle syringe programs reported ever tested for hepatitis C (source: ETHOS Engage).
- In 2019-2021, 16% of people with hepatitis C and first-time hospital admission for decompensated cirrhosis or hepatocellular carcinoma had late hepatitis C diagnosis (up to two years before admission). Late hepatitis C diagnosis was more common in rural (22%), compared to outer metropolitan (16%) and metropolitan (11%) areas (source: NSW data linkage).

Figure 1. Late hepatitis C diagnosis among people with advanced liver disease complications in NSW, by residence, 2015-2018 and 2019-2021



* Missing residence: 7%

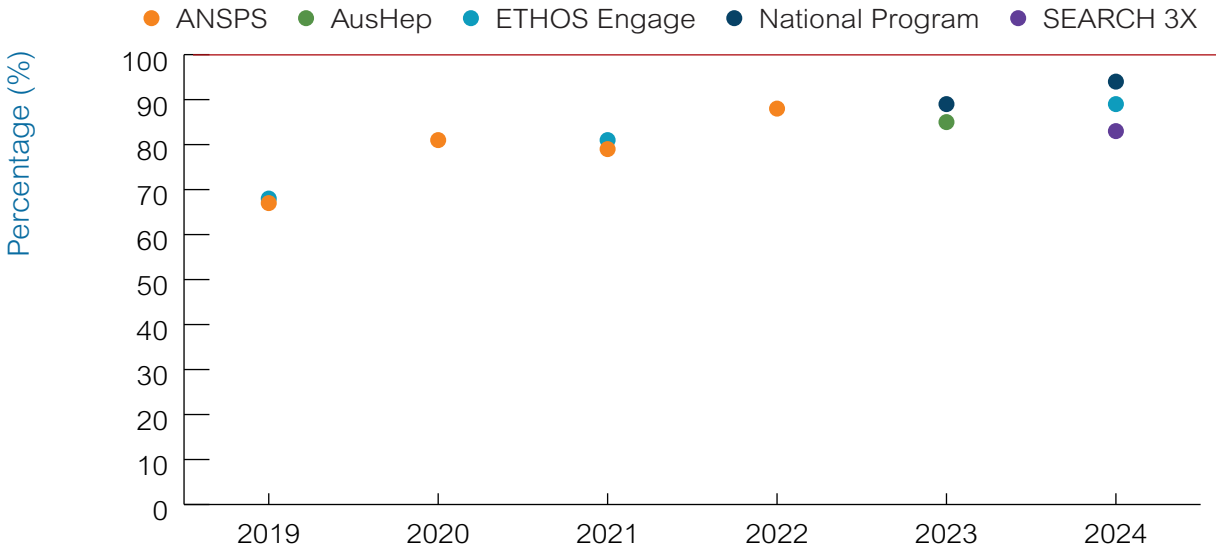
Indicator Key

Study & Design: **Population-level data linkage**
Sample size: **113 335 people with a hepatitis C notification 1995-2021**

Hepatitis C treatment

- In 2023-2024, 83% of people hepatitis C screen positive in emergency departments and ever hepatitis C treatment eligible reported having received treatment (source: SEARCH 3X).
- In 2023, 81% of people attending needle syringe programs and ever hepatitis C treatment eligible reported having received DAA therapy (source: NNEDC).
- In 2023-2024, 89% of people attending drug treatment clinics and needle syringe programs and ever hepatitis C treatment eligible reported having received treatment. Hepatitis C treatment uptake was lower in women (85%) and those who reported injecting opioids in last month (84%) (source: ETHOS Engage).
- In 2022-2023, 86% of people hepatitis C tested in prison surveillance program and ever hepatitis C treatment eligible reported having received hepatitis C treatment (source: AusHep).
- In 2016-2023, among 36 101 people who initiated DAA therapy, 3588 (10%) have been retreated. Of those retreated, 2168 (60%) were for reinfection and 1421 (40%) for treatment failure, with a marked increase in reinfection retreatment in 2023 (source: PHASE).

Figure 2. Hepatitis C treatment uptake among treatment eligible, 2019-2024



ANSPS: 2021 data, public health measures due to the impact of COVID-19 significantly impacted data collection in NSW in 2021 as only 3 sites had capacity to participate, and these had reduced numbers compared to previous years. Therefore 2021 data should be interpreted with caution.
ETHOS Engage: 2024 data up to April 23rd 2024
National Program: 2024 data up to May 1st 2024
SEARCH 3X: 2024 data up to June 19th 2024

Stigma and discrimination

- In 2023, 80% of people who inject drugs reported recent (within the past year) experiences of stigma or discrimination related to their injecting drug use (source: Stigma Indicators Monitoring Project).
- In 2023-2024, 57% of people attending drug treatment clinics and needle syringe programs reported recent (within the past year) experiences of stigma or discrimination related to their injecting drug use (source: ETHOS Engage).
- In 2023, 40% of people who inject drugs with hepatitis C reported recent experiences of stigma or discrimination related to their hepatitis C (source: Stigma Indicators Monitoring Project)
- In 2023-2024, 33% of people attending drug treatment clinics and needle syringe programs with hepatitis C reported recent experiences of stigma or discrimination related to their hepatitis C (source: ETHOS Engage).
- In 2023, 67% of people who inject drugs reported recent experiences of having been negatively or differently treated by health workers (source: Stigma Indicators Monitoring Project).
- In 2023-2024, 47% of people attending drug treatment clinics and needle syringe programs self-reported recent experiences of having been negatively or differently treated by health workers (43.3%) (source: ETHOS Engage).

Impact

People living with current hepatitis C infection

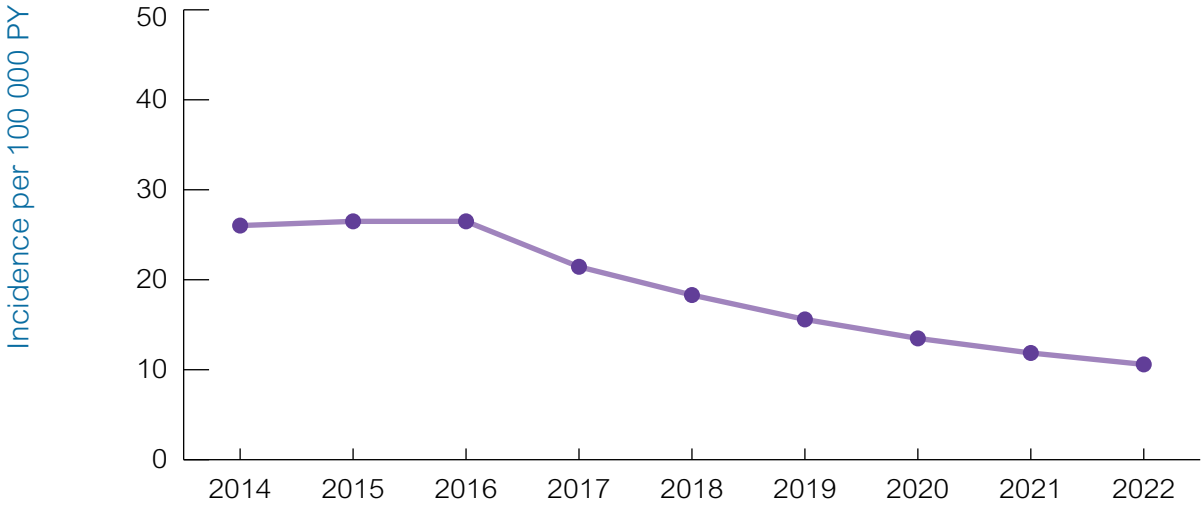
- In 2022, 29 557 people were estimated to be living with hepatitis C, a 50% decline from 59 321 in 2015 (source: mathematical modelling).
- In 2022, 9% of people attending needle syringe programs had current hepatitis C infection, a decline from 51% in 2015. In 2022, current hepatitis C prevalence was higher among women (11%) than men (7%), lower among Aboriginal and Torres Strait Islander people (5%) than non-Indigenous Australians (9%), and higher among those injecting opioids (16%) than those injecting stimulants (6%) (source: ANSPS).
- In 2023-2024, 8% of people attending drug treatment clinics and needle syringe programs had current hepatitis C infection, a continued decline from 2019-2021 (14%) and 2018-2019 (24%). In 2023-2024, current hepatitis C prevalence was higher among those injecting opioids (14%) than those injecting stimulants (5%) (source: ETHOS Engage)
- In 2022-2023, 15% of people incarcerated who reported history of injecting drug use or opioid agonist therapy had current hepatitis C infection. Current hepatitis C prevalence was higher among Aboriginal and Torres Strait Islander people (22%) than non-Indigenous Australians (10%) (source: AusHep).
- In 2022-2023, less than 1% of people living with HIV with positive hepatitis C antibody had current hepatitis C infection, a decline from 85% in 2014-2015 (source: CEASE).

Impact (continued)

Incidence of hepatitis C infection

- In 2023, among the 15–24-year age group, there were 259 hepatitis C notifications. The number of notifications had progressively declined during 2017-2022 but increased in 2023. The 2023 increase in notifications was only seen in Justice Health (source: NCIMS).
- In 2022, hepatitis C infection incidence was 11 per 100 000 population, a decline from 26 per 100 000 in 2016 (source: mathematical modelling).
- In 2022-2023, among people with HIV and hepatitis C co-infection following treatment-induced cure, hepatitis C incidence was 0 per 100 person-years, a decline from 4 per 100 person-years in 2014-2015 (source: CEASE).

Figure 3. Estimated hepatitis C incidence in NSW, 2014-2022



Indicator Key

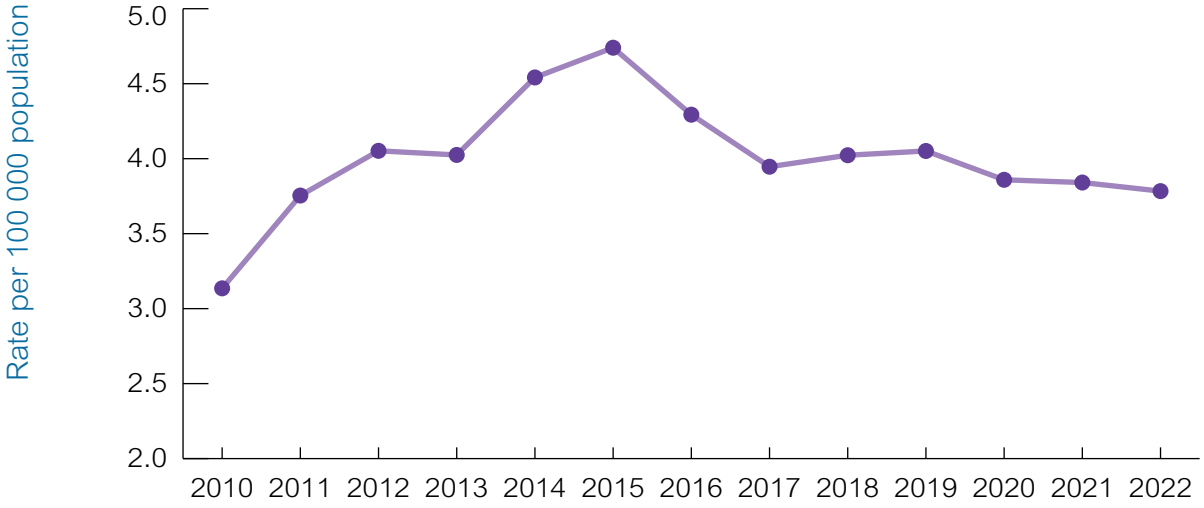
Study & Design: **Mathematical modelling**

Impact (continued)

Morbidity and Mortality

- In 2022, 230 people were newly diagnosed with hepatitis C-related decompensated cirrhosis, a decline from 411 in 2015 (source: NSW data linkage)
- In 2022, 162 people were newly diagnosed with hepatitis C-related hepatocellular carcinoma, a decline from 174 in 2015 (source: NSW data linkage).
- In 2022, 309 people died from hepatitis C-related liver causes, a decline from 361 in 2015 (source: NSW data linkage).
- In 2022, incidence of hepatitis C-related mortality was 3.8 per 100 000 population (source: NSW data linkage).

Figure 4. Liver-related mortality among NSW people with a hepatitis C notification per 100 000 population, 2010-2022



Indicator Key

Study & Design: **Population-level data linkage**

Sample size: **113 716 people with a hepatitis C notification 1995-2022**

2. Monitoring and evaluation indicators

2.1 NSW Hepatitis C Strategy 2022–2025

The NSW Hepatitis C Strategy 2022-2025 lays the foundation for achieving hepatitis C elimination in NSW by 2028. The strategy focuses on four pillars: prevention, testing, treatment, and stigma and discrimination.

The goals of the strategy are to:

- prevent new infections through harm reduction, education and health promotion
- increase access and testing for people at risk of infection
- link newly acquired and existing infections into treatment and care
- 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 or have a history of injecting drugs
- people in custodial settings or with a history of incarceration
- people living with hepatitis C
- 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
- homelessness services and social housing
- alcohol and other drug services
- mental health services
- custodial settings (including community corrections and parole services)
- multicultural and community settings
- general practice
- Needle and Syringe Program services

Targets related to prevention, testing, treatment, stigma and discrimination include:

- Number of new hepatitis C infections reduced by 60%
- Reported receptive syringe sharing among people who inject drugs reduced by 20%
- Distribution of sterile needles and syringes for people who inject drugs increased by 10%
- Number of hepatitis C antibody tests performed increased by 10%
- Number of hepatitis C RNA tests performed increased by 20%
- Percentage of people with hepatitis C treated with direct-acting antiviral therapy of 65%
- Number of hepatitis C-related deaths reduced by 50%
- Reported experience of stigma and discrimination among people affected by hepatitis C, and among people who inject drugs reduced by 75%
- Reported incidence of stigma and discrimination towards people who inject drugs by healthcare workers reduced by 75%

2.2 National Hepatitis C Strategy 2023-2030

The soon to be launched 6th National Hepatitis C Strategy 2023-2030 has outlined in its consultation document that the goals of the strategy are to:

- Eliminate hepatitis C as a public health threat by 2030
- Reduce mortality and morbidity related to hepatitis C
- Eliminate the negative impact of stigma, discrimination, and legal and human rights issues on people's health
- Minimise the personal and social impacts of hepatitis C

By 2025 and 2030, proposed targets of the Strategy are:

- Number of new hepatitis C infections of 8 and 5 per 100 000 population
- Number of new hepatitis C infections among people who inject drugs of 3 and 2 per 100 people who inject drugs per year
- Percentage of people with hepatitis C diagnosed and hepatitis C RNA confirmed of 80% and 90%
- Percentage of people with liver failure or liver cancer and late hepatitis C diagnosis (up to two years prior) of 5% and 2%
- Percentage of people with hepatitis C treated and cured of 65% and 85%
- Number of hepatitis C-related deaths of 1.6 and 1.0 per 100 000 population
- Reduction by 75% of reported experience of stigma among people living with hepatitis C

2.3 Global Health Sector Strategy 2022-2030

Methods used in the WHO 2015 Global reference list of 100 health indicators guided the process of selecting indicators for hepatitis C. A minimum set of nine core indicators were selected to monitor and evaluate the health sector service and impact response to hepatitis C, including prevalence, infrastructure for testing, needle syringe distribution, facility level injection safety, people diagnosed, treatment coverage/initiation, hepatitis C cure, incidence, and attributable hepatocellular carcinoma, cirrhosis, and chronic liver disease mortality. Recent revision of specific targets has been undertaken to incorporate population-level indicators for number of new hepatitis C infections and hepatitis C mortality, rather than the previous relative reduction (from 2015) targets.

By 2025 and 2030, the Global health sector viral hepatitis strategy would be expected to deliver:

- Number of new hepatitis C infections of 13 and 5 per 100 000 population
- Number of new hepatitis C infections among people who inject drugs of 3 and 2 per 100
- Number of hepatitis C related deaths of 3 and 2 per 100 000 population
- Percentage of people with hepatitis C who are diagnosed of 60% and 90%
- Percentage of people with hepatitis C treated and cured of 50% and 80%
- Number of needles and syringes distributed per person who injects drugs of 200 and 300 per year

2.4 Data sources

Australian Needle and Syringe Program Survey (ANSPS)

The ANSPS commenced in 1995 and is conducted annually over a one or two-week period in October at selected needle syringe programs in NSW (~20 sites from 9 Local Health Districts) and across Australia. Eligible participants include all people who inject drugs attending participating centres. Participants are invited to complete a brief, anonymous questionnaire, providing information on drug use, self-reported hepatitis C testing, hepatitis C infection, and hepatitis C treatment uptake. Participants also provide a capillary dried blood spot for HIV and hepatitis C antibody and hepatitis C RNA (since 2015) testing. Data from NSW ANSPS sites were used to evaluate progress utilising three indicators: opioid agonist therapy coverage; hepatitis C treatment uptake; and current hepatitis C infection prevalence.

Australian Hepatitis and Risk Survey in Prisons (AusHep):

The AusHep study is a cross-sectional bio-behavioural survey conducted in representative 23 prisons from six jurisdictions during 2022-2023. Randomly-selected participants were offered point-of-care testing for HIV and hepatitis C antibodies, hepatitis B surface antigen, and hepatitis C RNA (if anti-HCV positive). Data on risk behaviours, hepatitis C testing, and hepatitis C treatment were collected by structured interview. More details of the methodology can be found in: https://doi.org/10.1016/j.drugpo.2024.104401. Data from seven NSW prison sites was used to evaluate progress with indicators, including hepatitis C testing, hepatitis C treatment uptake, and current hepatitis C prevalence.

CEASE

CEASE was an observational cohort evaluating progress towards hepatitis C elimination among people with HIV and hepatitis C coinfection. Adults with HIV who had evidence of past or current hepatitis C infection (hepatitis C antibody positive) were enrolled in the CEASE cohort from 11 primary and tertiary clinics in NSW. Bio-behavioural, clinical, and virological data were collected at enrolment (2014-2017), follow-up 1 (2017-2018), and follow-up 2 (2021-2023). Cumulative hepatitis C treatment uptake, outcome, and proportion with current hepatitis C infection (HCV RNA positive) were evaluated. Hepatitis C reinfection incidence following curative treatment was calculated per 100 person years.

ETHOS Engage: Enhancing Treatment of Hepatitis C in Opioid Substitution Settings

ETHOS Engage is an observational cohort study evaluating hepatitis C testing, treatment, and current hepatitis C infection prevalence among people attending drug treatment clinics and needle syringe programs (17 sites in NSW). Eligible participants are people with a history of injecting drug use, either in the last 6 months, or currently receiving opioid agonist therapy. At enrolment, participants were invited to complete a questionnaire, providing information on drug use, self-reported hepatitis C testing, hepatitis C infection, and hepatitis C treatment uptake. Further, participants provided a fingerstick capillary blood sample for hepatitis C RNA testing using the point-of-care Xpert Viral Load Fingerstick assay. The first wave of ETHOS Engage enrolment was May 2018–September 2019. A second wave of recruitment was November 2019-June 2021. A third wave of recruitment was May 2023-December 2024. Enrolment data of each ETHOS Engage wave from NSW sites was used to evaluate progress with indicators, including hepatitis C testing, hepatitis C treatment uptake, and current hepatitis C infection prevalence.

Justice Health and Forensic Mental Health Network:

Justice Health and Forensic Mental Health Network is a Statutory Health Corporation established under the Health Services Act (NSW) 1997, reporting to the Minister for Health through the Network Board and the Secretary, NSW Health. The Network delivers health care to adults and young people in contact with the forensic mental health and criminal justice systems, across community, inpatient and custodial settings. Data from Justice Health and Forensic Mental Health Network was used to evaluate progress with hepatitis C treatment initiation.

Mathematical modelling:

Data from National Notifiable Diseases Surveillance System and Pharmaceutical Benefits Scheme were used to produce the model estimates for the number of people living with current hepatitis C in NSW and the resulting time trends. A specific estimate for the year 2015 was produced nationally using cumulative hepatitis C notifications, adjusted for duplicate notifications, spontaneous clearance, mortality, migration, and treatment uptake and cure numbers. Subsequently, a mathematical model of hepatitis C transmission, developed by Centre for Disease Analysis (centerforda.com), was used to fit to the 2015 estimate and the following years.

National Program

The National Hepatitis C Point-of-Care Testing Program is an observational cohort study evaluating the scale-up of point-of-care hepatitis C testing in Australia. Eligible participants are adults aged 18 and over who have a risk factor for hepatitis C infection (current or past injecting drug use, previous incarceration, HIV infection, or receipt of blood products prior to 1990) or are attending a service that provides care for people at risk for hepatitis C infection. Participants are recruited from drug treatment clinics, needle and syringe programs, prisons, mobile outreach services, community health services, mental health services, homelessness services, and other relevant locations nationwide. At enrolment, participants provide informed consent and undergo point-of-care testing (antibody and/or RNA) and complete a brief survey (community sites only). Point-of-care antibody testing is conducted using the INSTI hepatitis C antibody test or the Bioline hepatitis C test while point-of-care RNA testing is conducted via the Xpert hepatitis C Viral Load Fingerstick assay. Enrolment data includes demographics, drug use history, and hepatitis C testing and treatment history. Participants with detectable hepatitis C RNA are assessed for treatment eligibility and offered treatment per Australian guidelines. The Program began collecting data in January 2022 and data collection is ongoing as of data analysis in May 2024.

National Opioid Pharmacotherapy Statistics Annual Data Collection:

National Opioid Pharmacotherapy Statistics Annual Data (NOPSAD) collection is aggregated, standardised jurisdictional data on the number of clients accessing pharmacotherapy for the treatment of opioid dependence, the number of prescribers participating in the delivery of pharmacotherapy treatment, and quantitative information about the prescribing sector.

2.4 Data sources (continued)

NSW data linkage

Since 2003, population-level data linkage mechanisms have been used to link hepatitis C notifications to a range of administrative data sets, including hospital admissions, incarceration, opioid agonist therapy, HIV diagnosis, hepatitis C treatment, cancer registry, and deaths in NSW. Linked data have been utilised to characterise populations living with hepatitis C, including people with evidence of recent drug dependence, people who are/were incarcerated, individuals with hepatitis C/HIV coinfection, and those with advanced liver disease. Since 2003, subsequent rounds of data linkages were conducted in 2007, 2015, 2019, and 2023. Linked data from the 2023 round was used to evaluate progress with indicators, including first-time hospital admissions for hepatitis C-related decompensated cirrhosis and hepatocellular carcinoma, and deaths attributable to hepatitis C, the latter defined by death following a hospital admission for decompensated cirrhosis or hepatocellular carcinoma. Late hepatitis C diagnosis was also evaluated among people with decompensated cirrhosis and hepatocellular carcinoma, defined by diagnosis within two years prior or following the advanced liver disease complication presentation.

NSW NSP Enhanced Data Collection (NNEDC)

The NNEDC provides a systematic snapshot of people attending all primary and some secondary needle syringe programs in all local health districts in NSW. Eligible participants include all people who inject drugs attending participating centres. Participants are invited to complete a brief anonymous questionnaire, including drug use information. Since 2018, additional questions were included to collect data on participants' lifetime history of hepatitis C diagnosis and treatment uptake. Data from the NNEDC were used to evaluate progress utilising two indicators: needle-syringe coverage and hepatitis C treatment uptake.

NSW Notifiable Conditions Information Management System (NCIMS)

The NSW NCIMS is a register of diagnoses of infectious diseases and adverse events following immunisation, notified to NSW Health by laboratories, hospitals, and medical practitioners. Since 1991, the NSW NCIMS holds records of all individuals with positive hepatitis C serology who were NSW residents at the time of diagnosis, notified of diagnoses via mandatory notification procedures.

Pharmaceutical Benefits Scheme:

The Pharmaceutical Benefits Scheme (PBS) data collection contains information on prescription medicines that qualify for a benefit under the National Health Act 1953 and for which a claim has been processed. The database comprises information about PBS scripts and payments, patients, prescribers and dispensing pharmacies.

The Australian Institute of Health and Welfare (AIHW) has access to the complete dataset held by the Australian Government Department of Health and Aged Care for approved studies, including data linkage projects.

The dataset is owned and managed by the Department of Health. The Department has issued a Public Interest Certificate approving AIHW access to PBS claims and under co-payment data for research and statistical purposes.

PHASE:

The Pharmaceutical Benefits Scheme administrative data reports all hepatitis C treatment and retreatment dispensed in Australia, but does not capture retreatment reason. To overcome this limitation, a supervised machine learning model (random forest architecture; sensitivity 96%, specificity 97%) was developed using real-world standard-of-care data from the REACH-C study (10 843 treated; 350 retreated with reason available). The model was applied to Pharmaceutical Benefits Scheme data from NSW to assess trends in retreatment for reinfection and treatment failure during 2016-2023.

Screening Emergency Admissions at Risk of Chronic Hepatitis 3 Extension (SEARCH 3X)

SEARCH 3X is a hepatitis screening and linkage to care project characterised by universally offered, automated hepatitis B and C testing, optimised for implementation in the Australian emergency department setting. It is a multi-site implementation research study across six sites in NSW. SEARCH 3X testing, with around 5000 people screened at each site, commenced in 2023 and is expected to complete the last site by early 2025.

Eligible participants include all emergency department adults (aged 18 and over) with blood testing for clinical reasons. A list of patients with positive hepatitis B and C serology (surface antigen and antibody, respectively) is generated from the laboratory data system and provided regularly to the Hepatitis Clinic Nurse to provide routine clinical care follow-up. Patients with positive hepatitis B and C serology are invited to participate in the observational cohort linkage to care study and provide consent for future data data linkage research.

Data from the initial three SEARCH 3X sites (Fairfield Hospital, Liverpool Hospital, Campbelltown Hospital was used to inform indicators, including current hepatitis C infection prevalence, percentage diagnosed, and hepatitis C treatment uptake.

Stigma Indicators Monitoring Project:

The Stigma Indicators Monitoring Project aims to measure experiences of stigma and discrimination among priority groups identified by the five national strategies addressing blood borne viruses and sexually transmissible infections. These include men who have sex with men, people who inject drugs, people living with HIV, people living with hepatitis B, people living with hepatitis C, and people who engage in sex work. The project also monitors the expression of stigma towards these groups by health care workers and the general public.

Since 2018, people who inject drugs have been periodically recruited through Australian Injecting and Illicit Drug Users League member organisations in each Australian state and territory, including the NSW Users and AIDS Association (NUAA). Participants were invited to complete a questionnaire, providing information on their experiences of stigma or discrimination within the past 12 months in relation to their injecting drug use. Those who reported ever being diagnosed with hepatitis C were also asked about their experiences of stigma or discrimination within the past 12 months in relation to hepatitis C.

An indicator of expressed stigma has been included of surveys of the Australian general public using different recruitment sources since 2017. In 2017, the indicator was included in the Australian Survey of Social Attitudes (a postal survey of a representative sample of the Australian adult population). In 2020, participants were recruited via paid advertising on social media (i.e., Facebook). In 2021, participants were recruited through a market research panel facilitated by Qualtrics. Due to the different recruitment methods and sample profiles from each round of data collection, comparisons between time points should be made cautiously.

The indicator of expressed stigma has also been included in surveys of Australian health care workers. In 2018, participants were recruited via paid advertising on social media (i.e., Facebook). Since 2021, participants have been recruited through a market research panel facilitated by Qualtrics. Due to the difference in recruitment methods, comparisons between results from 2018 and later rounds should be made cautiously.

The Surveillance and Treatment of Prisoners with hepatitis C (SToP-C study):

The SToP-C study evaluated the feasibility and effectiveness of direct-acting antiviral (DAA) treatment scale-up in prisons. The study was conducted between October 2014 and November 2019 in four prisons in NSW. At enrolment, participants were tested for anti-HCV and those with a positive result were tested for hepatitis C Participants with an hepatitis C RNA positive result were offered hepatitis C treatment. Participants with an anti-HCV negative result (at risk of primary hepatitis C infection), and those with an anti-hepatitis C positive and an hepatitis C RNA negative result (at-risk of HCV re-infection) were followed and assessed by anti-hepatitis C and/or hepatitis C RNA testing every 3–6 months. The incidence of hepatitis C infection was evaluated. More details of the methodology can be found in: https://doi.org/10.1016/S2468-1253(21)00077-7.

3. Main findings

3.1 Monitoring service coverage

3.1.1 Harm Reduction

Background

Injecting drug use is the major risk factor for hepatitis C infection in Australia. High coverage of harm reduction interventions for people who inject drugs, including access to sterile injecting equipment and opioid agonist therapy is critical for reducing harms, including hepatitis C infection. Individual-level access to harm reduction interventions and recent injecting behaviours are used to monitor successful implementation of these interventions.

Key Indicators

a.
Coverage of sterile needles and syringes per person who injects drugs

b.
Percentage of receptive syringe sharing among people who inject drugs

c.1, c.2, c.3 and c.4
Uptake of opioid agonist therapy

d.
Coverage of opioid agonist therapy among people who inject drugs

e.
Coverage of opioid agonist therapy among people who inject opioids

3.1 Monitoring service coverage

3.1.1 Harm reduction

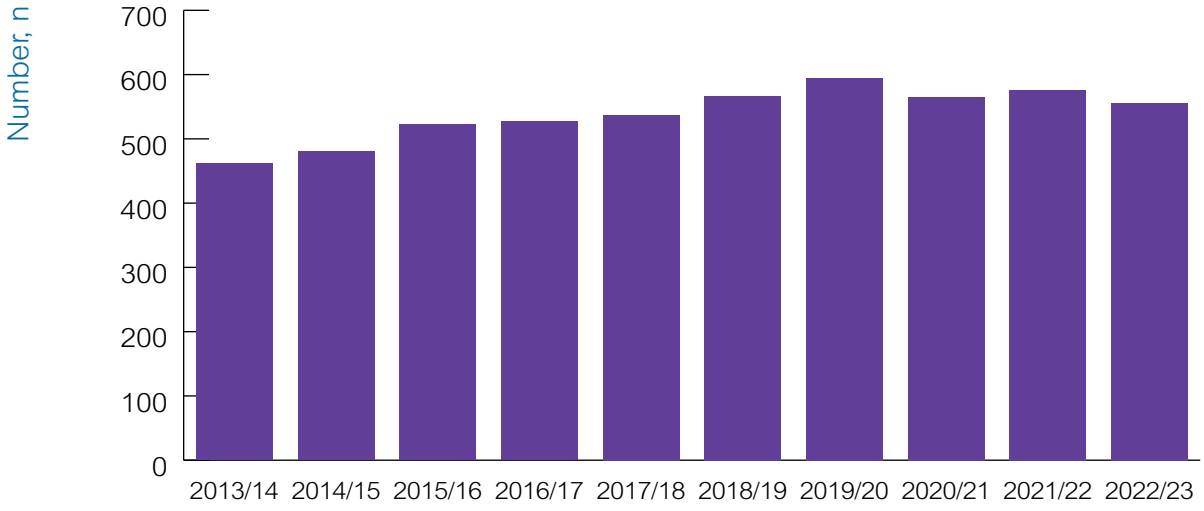
a. Coverage of sterile needles and syringes per person who injects drugs

Indicator definition

Sterile needles and syringes per person who inject drugs by year (financial) in NSW

Results: In 2022-2023, in NSW, the number of sterile needles and syringes per person who injects drugs was 556, an increase of 20% from 2013-2014 (n=462) (Figure 5).

Figure 5. Needle and syringe coverage per person who injects drugs in NSW, 2013-2023



Indicator key

Study & Design: **Mathematical modelling**

3.1 Monitoring service coverage

3.1.1 Harm reduction

b. Percentage of receptive syringe sharing among people who inject drugs

Indicator definition

Numerator

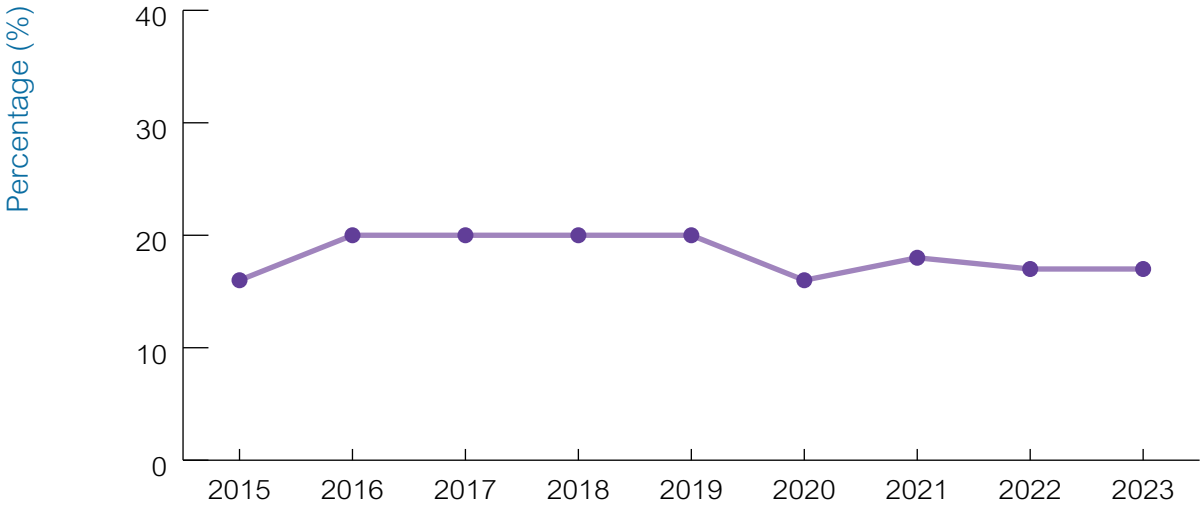
NNEDC participants who injected in the last month who reported receptive needle syringe sharing

Denominator

NNEDC participants who injected in the last month

Results: In 2023, among the 1410 NNEDC participants who reported injecting in the last month, 244 self-reported receptive needle/syringe sharing (17%). Between 2015 and 2023, the percentage of people who self-reported receptive syringe sharing was relatively stable (between 16% and 20%) (Figure 6).

Figure 6. Percentage of needle and syringe sharing among NNEDC participants who reported injecting in the last month, 2015-2023



Indicator key

Study & Design: **NNEDC, annual survey**
Sample size in 2023: **1410**
Number of sites in 2023: **47**

3.1 Monitoring service coverage

3.1.1 Harm reduction

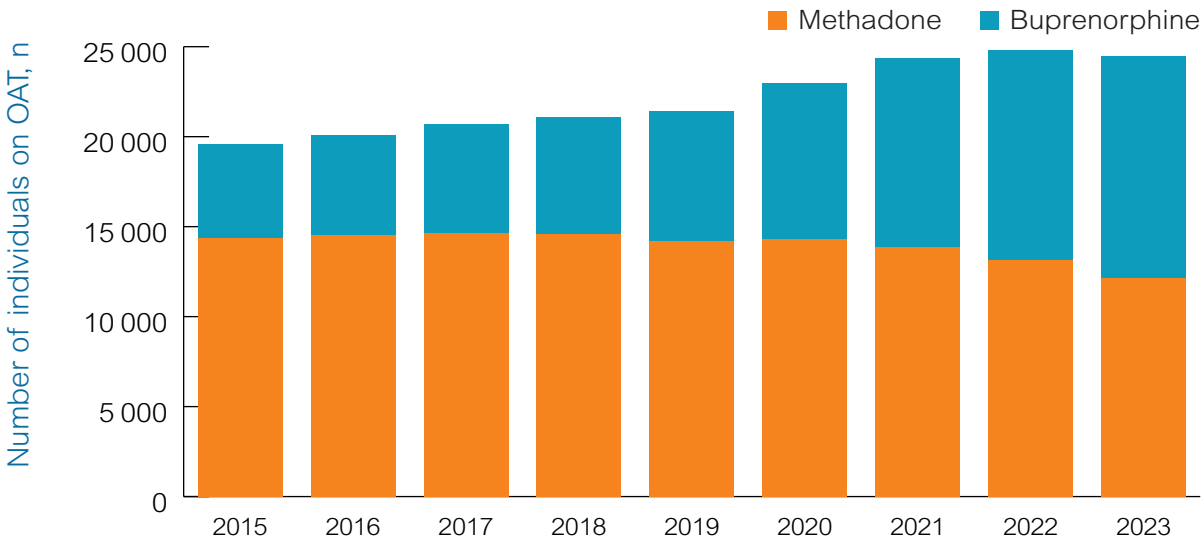
c.1 Uptake of opioid agonist therapy

Indicator definition

Individuals receiving opioid agonist therapy: methadone and buprenorphine

Results: In 2023, 24 475 individuals were receiving opioid agonist therapy in NSW on census day*. Of these, 12 119 (49.5%) were receiving methadone and 12 356 (50.5%) buprenorphine. In 2015, 19 563 individuals were receiving opioid agonist therapy with a distribution of 14 355 methadone (73%) and 5208 buprenorphine (27%). Hence, between 2015 and 2023, an additional 4912 individuals were receiving opioid agonist therapy, a 25% increase (Figure 7).

Figure 7. Individuals receiving opioid agonist therapy doses in NSW, by medicine type, 2015-2023



* Census day is a snapshot date of 30 June every year and provided to the Australian Institute of Health and Welfare to publish in the National Opioid Pharmacotherapy Statistics Annual Data Collection (NOPSAD) report

Indicator key:

Study & Design: **Pharmaceutical Benefits Scheme**

3.1 Monitoring service coverage

3.1.1 Harm reduction

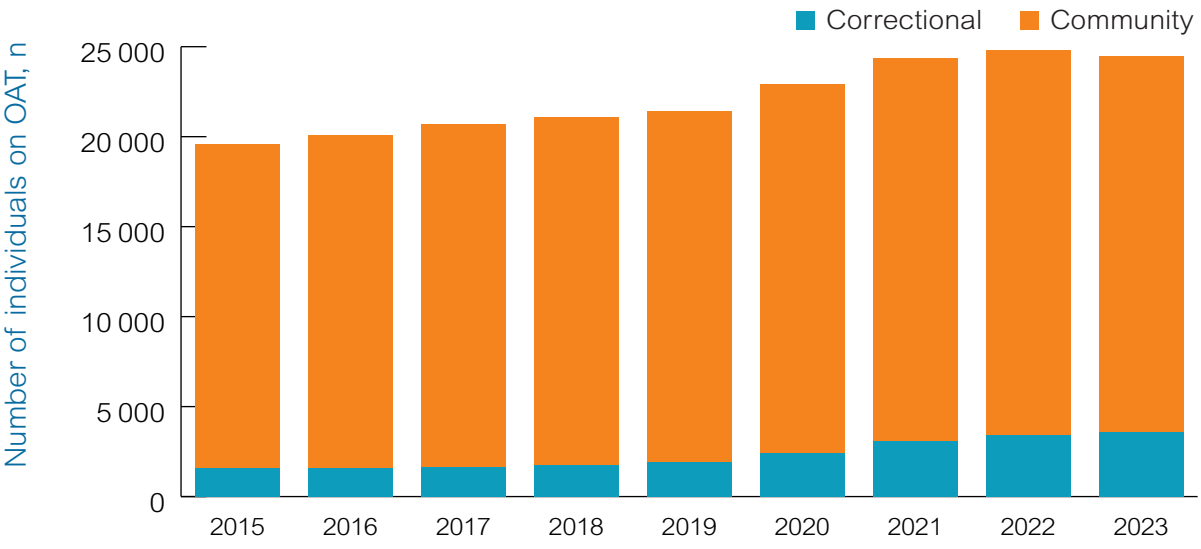
c.2 Uptake of opioid agonist therapy in community and correctional settings

Indicator definition

Individuals receiving opioid agonist therapy doses in community and in correctional settings

Results: In 2023, 24 475 individuals were receiving opioid agonist therapy in NSW on census day*. Of these, 20 869 (85%) individuals were receiving in community settings and 3606 (15%) in correctional settings. In 2015, 19 563 individuals were receiving, with 17 959 (92%) in community and 1604 (8%) in correctional settings. Hence, between 2015 and 2023, an additional 2910 and 2002 individuals were receiving opioid agonist therapy in community and correctional settings, respectively, a 16% increase in the community and 125% increase in correctional settings (Figure 8).

Figure 8. Individuals receiving opioid agonist therapy doses in NSW, by setting type, 2015-2023



* The census day is a snapshot date of 30 June every year and provided to the Australian Institute of Health and Welfare to publish in the National Opioid Pharmacotherapy Statistics Annual Data Collection (NOPSAD) report

Indicator Key:

Study & Design: **Pharmaceutical Benefits Scheme**

3.1 Monitoring service coverage

3.1.1 Harm reduction

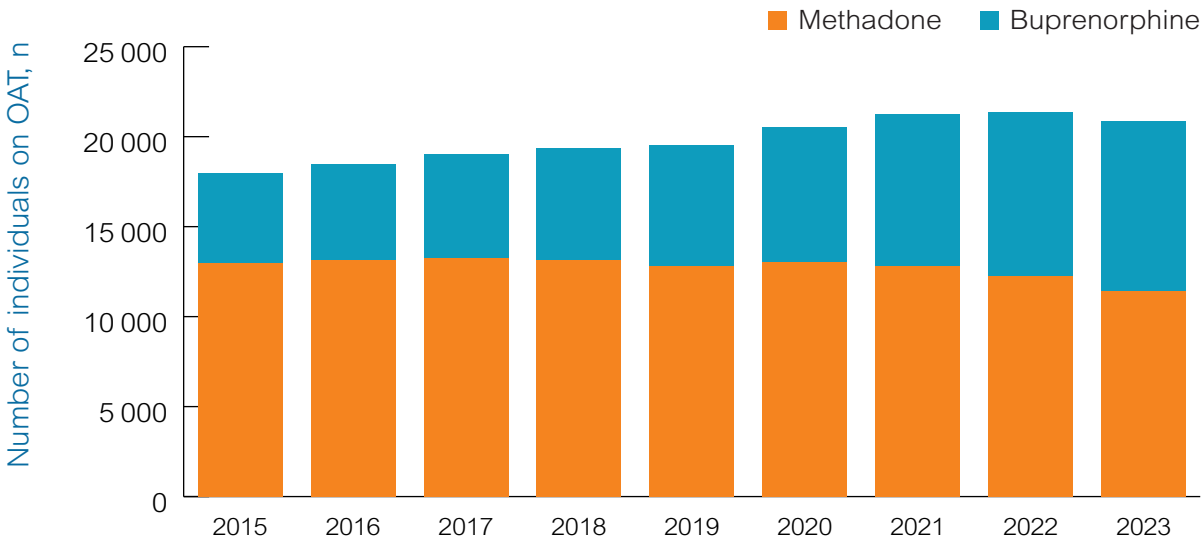
c.3 Uptake of opioid agonist therapy in community settings by medicine type

Indicator definition

Individuals receiving methadone and buprenorphine in community settings

Results: In 2023, 20 869 individuals were receiving opioid agonist therapy on census day* in community settings in NSW. Of these, 11 413 (55%) were receiving methadone and 9456 (45%) buprenorphine. In 2015, 17 959 individuals were receiving in community settings including 12 996 methadone (72%) and 4963 buprenorphine (28%). Hence, between 2015 and 2023, an additional 2910 individuals were receiving opioid agonist therapy in community settings, a 16% increase (Figure 9).

Figure 9. Individuals receiving opioid agonist therapy doses in community settings in NSW, by medicine type, 2015-2023



* The census day is a snapshot date of 30 June every year and provided to the Australian Institute of Health and Welfare to publish in the National Opioid Pharmacotherapy Statistics Annual Data Collection (NOPSAD) report

Indicator Key:

Study & Design: **Pharmaceutical Benefits Scheme**

3.1 Monitoring service coverage

3.1.1 Harm reduction

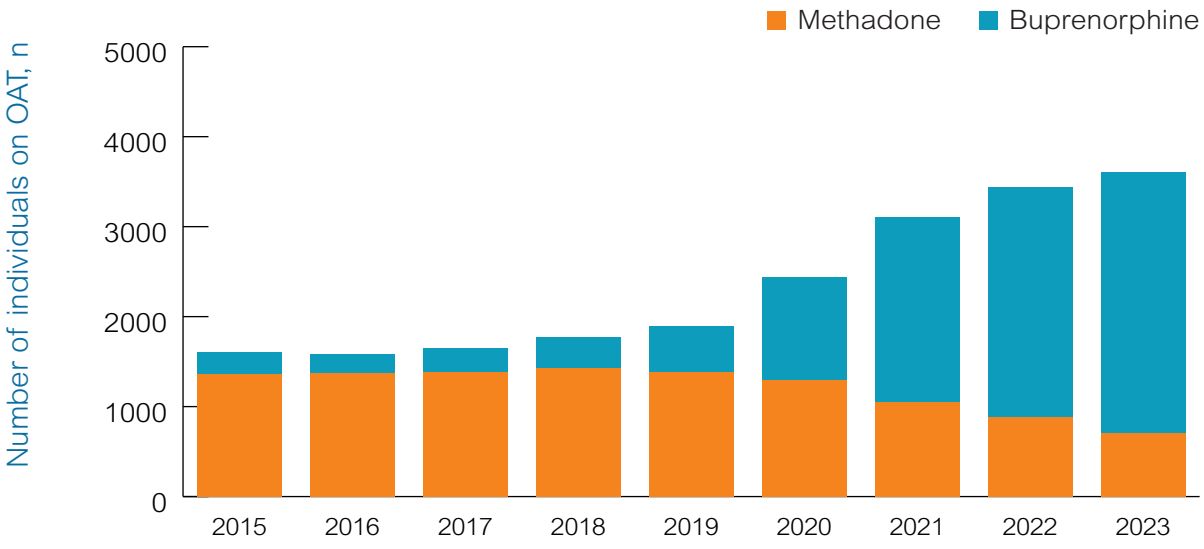
c.4. Uptake of opioid agonist therapy in correctional settings by medicine type

Indicator definition

Individuals receiving methadone and buprenorphine in correctional settings

Results: In 2023, 3606 individuals were receiving opioid agonist therapy* in correctional settings in NSW. Of these, 706 (20%) were receiving methadone and 2900 (80%) buprenorphine. In 2015, 1604 individuals were receiving opioid agonist therapy in correctional settings including 1359 methadone (85%) and 245 buprenorphine (15%). Hence, between 2015 and 2023, an additional 2247 individuals received opioid agonist therapy doses in correctional settings, a 125% increase. Over this period the number of individuals receiving buprenorphine increased by 1184% while the number receiving methadone decreased by 48% (Figure 10).

Figure 10. Individuals receiving opioid agonist therapy doses in correctional setting in NSW, by medicine type, 2015-2023



* The dosing point data is a snapshot date of 30 June every year and provided to the Australian Institute of Health and Welfare to publish in the National Opioid Pharmacotherapy Statistics Annual Data Collection (NOPSAD) report

Indicator Key:

Study & Design: **Pharmaceutical Benefits Scheme**

3.1 Monitoring service coverage

3.1.1 Harm reduction

d. Coverage of opioid agonist therapy among people who inject drugs

Indicator definition

Numerator

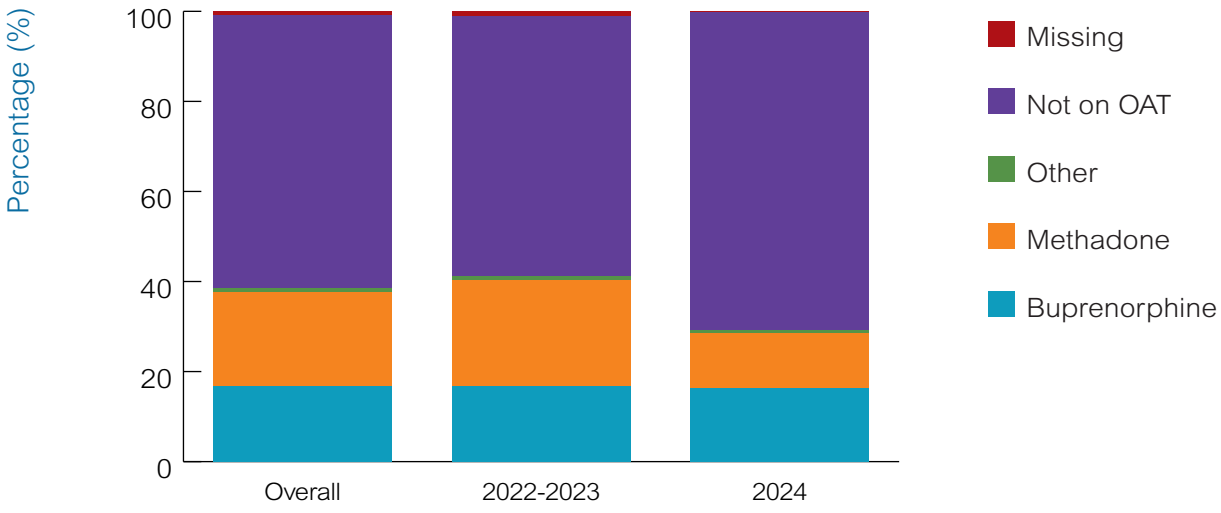
National Program participants who reported being currently on opioid agonist therapy (by medicine type) and injecting drugs in the last 6 months

Denominator

National Program participants who reported injecting drugs in the last 6 months

Results: Overall, among the 8231 National Program participants, 3382 reported having injected drugs in the last 6 months. Of these, 2051 (61%) reported not being currently on opioid agonist therapy, 564 (17%) were on buprenorphine, 710 (21%) were on methadone, 24 were undergoing another type of treatment, and 33 had missing data (Figure 11).

Figure 11. Percentage of National Program participants who reported being currently on opioid agonist therapy and have injected drugs in the last 6 months, by medicine type, overall and for each study period



* Data up to May 1st 2024

Indicator Key:

Study & Design: **National Program, observational cohort**
Sample size in NSW in 2024: **2028**
Number of sites in NSW: **92**

3.1 Monitoring service coverage

3.1.1 Harm reduction

e. Coverage of opioid agonist therapy among people who inject opioids

Indicator definition

Numerator

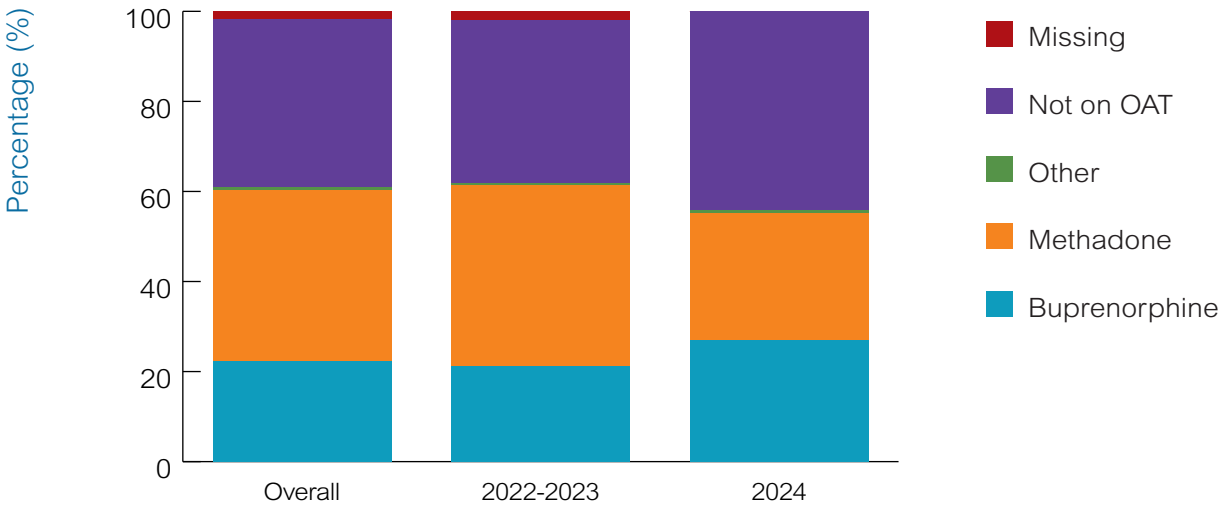
National Program participants who reported being currently on opioid agonist therapy (by medicine type) and who most frequently injected opioids in the last month

Denominator

National Program participants who reported most frequently injected opioids in the last month

Results: Overall, among the 8231 National Program participants, 936 reported they most frequently injected opioids in the last month. Of these, 360 (37%) reported not being currently on opioid agonist therapy, 214 (22%) were on buprenorphine, 367 (38%) were on methadone, 5 were undergoing another type of treatment, and 17 had missing data (Figure 12).

Figure 12. Percentage of National Program participants who reported being currently on opioid agonist therapy and most frequently injected opioids in the last month



* Data up to May 1st 2024

Indicator Key:

Study & Design: **National Program, observational cohort**
Sample size in NSW in 2024: **2028**
Number of sites in NSW: **92**

3.1 Monitoring Service Coverage

3.1.2 Hepatitis C Testing and Diagnosis

Background

Testing for current hepatitis C infection is a prerequisite for treatment. Uptake of hepatitis C testing among people who inject drugs is essential for linkage to treatment to enable individual and population (transmission reduction) benefits.

Key indicators

a.

Hepatitis C RNA testing among incarcerated people

b.1, b.2, b.3, b.4

Testing and diagnosis among people who inject drugs

c.

Late hepatitis C diagnosis among people with advanced liver disease

d.

Late hepatitis C diagnosis among people with advanced liver disease complications living in rural, outer metropolitan, and metropolitan areas

e.1 and e.2

Late hepatitis C diagnosis among people with advanced liver disease complications by NSW local health district

3.1 Monitoring Service Coverage

3.1.2 Hepatitis C Testing and Diagnosis

a. Hepatitis C RNA testing among incarcerated people

Indicator definition

Numerator

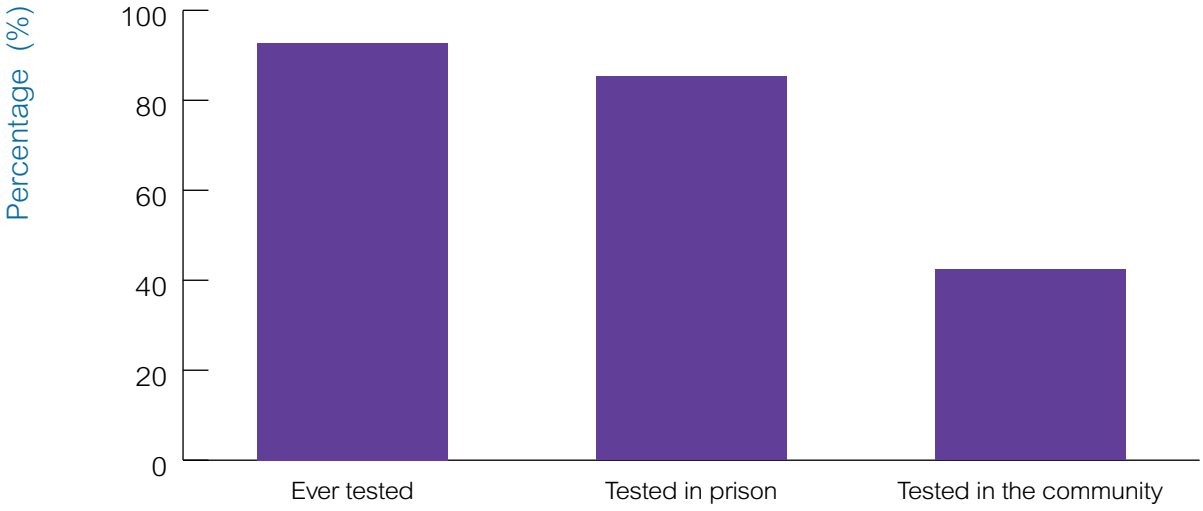
AusHep participants who reported a history of injecting drug use and ever hepatitis C tested

Denominator

AusHep participants who reported a history of injecting drug use

Results: In 2022-2023, among 168 AusHep participants that reported history of injecting drug, 155 reported ever tested for hepatitis C (93%*), 142 reported ever tested in prison settings (85%*), and 70 reported ever tested in the community (42%*) (Figure 13).

Figure 13. History of hepatitis C testing among AusHep participants in NSW, 2022-2023



* All the percentages are weighted based on the distribution of gender and Aboriginal status in NSW prisoner population (Australian Bureau of Statistics 2022)

Indicator Key:

Study & Design: **AusHep, cross-sectional bio-behavioural survey**
Sample size in NSW: **327**
Number of NSW sites: **7**

3.1 Monitoring Service Coverage

3.1.2 Hepatitis C Testing and Diagnosis

b.1 Testing and diagnosis among people who inject drugs

Indicator definition

Numerator

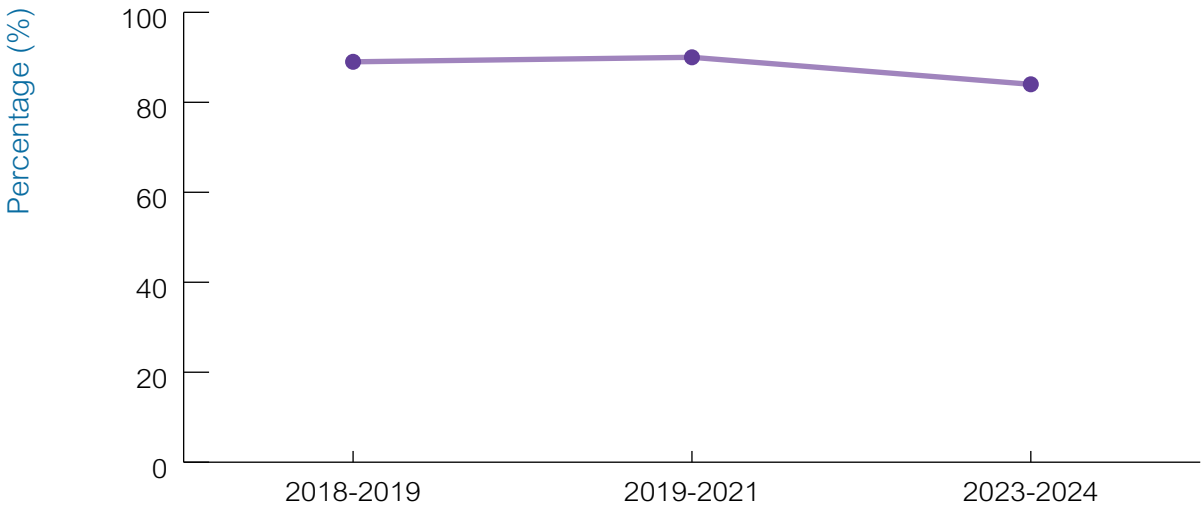
ETHOS Engage participants with a history of injecting drug use who reported ever hepatitis C tested

Denominator

ETHOS Engage participants with a history of injecting drug use

Results: In 2023-2024*, among 522 ETHOS Engage participants with a history of injecting drug use, 84% reported ever hepatitis C tested (n=438). This represents a small decrease from the first (2018-2019) (90%) and second (2019-2021) (91%) study periods (Figure 14).

Figure 14. Reported hepatitis C testing (ever) among ETHOS Engage participants in NSW with a history of injecting drug use, for each study period



* Data up to April 23rd 2024

Indicator Key:

Study & Design: **ETHOS Engage, observational cohort**
Sample size in NSW in 2023-2024*: **666**
Number of sites in NSW in 2023-2024*: **15**

3.1 Monitoring Service Coverage

3.1.2 Hepatitis C Testing and Diagnosis

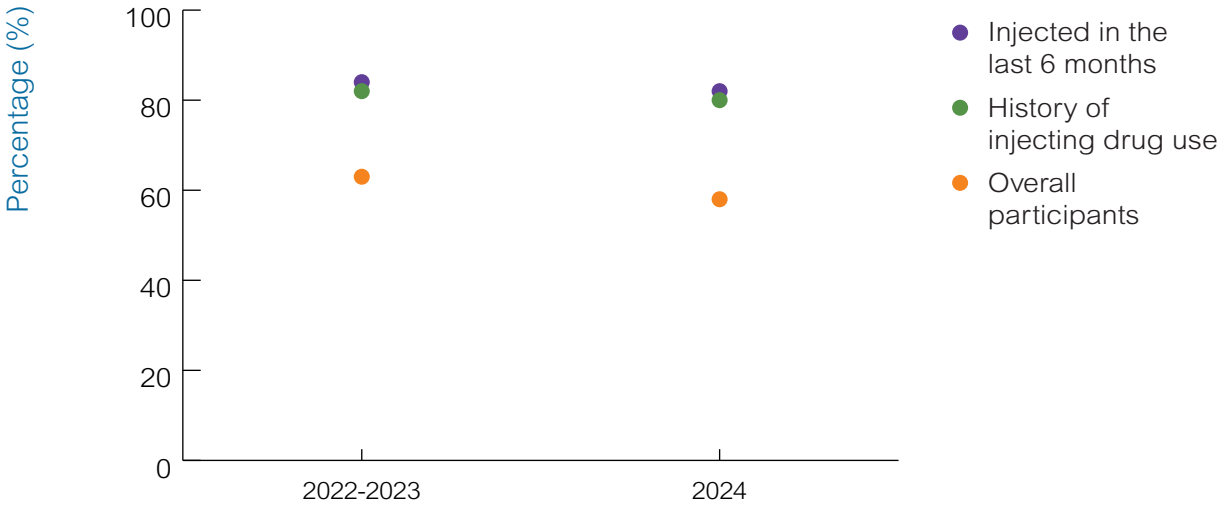
b.2 Testing and diagnosis among people who inject drugs

Indicator definition

National Program participants who reported ever hepatitis C tested. Percentages calculated among all participants, participants with history of injecting drug use, and participants who injected drugs within last 6 months.

Results: In 2024*, among 2028 National Program participants, 1185 reported ever hepatitis C tested (58%). Among 1158 participants with history of injecting drug use, 925 reported ever hepatitis C tested (80%). Among 763 participants who injected drugs in last 6 months, 623 reported ever hepatitis C tested (82%) (Figure 15).

Figure 15. Reported hepatitis C testing (ever) among National Program participants in NSW, for each study period



* Data up to May 1st 2024

Indicator Key:

Study & Design: **National Program, observational cohort**
Sample size in NSW in 2024*: **2028**
Number of sites in NSW in 2024*: **92**

3.1 Monitoring Service Coverage

3.1.2 Hepatitis C Testing and Diagnosis

b.3 Testing and diagnosis among people who inject drugs

Indicator definition

Numerator

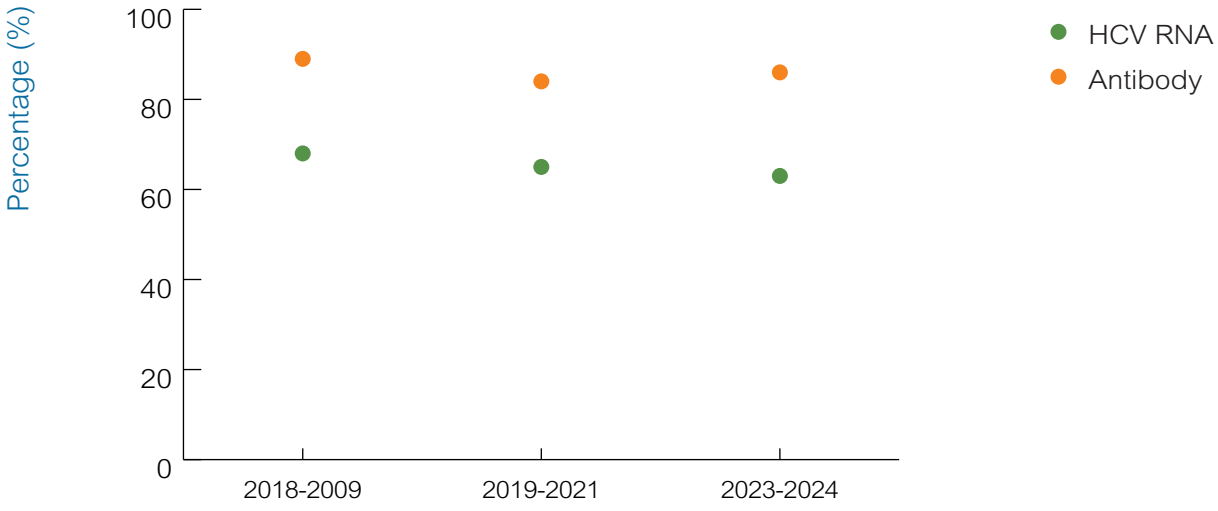
ETHOS Engage participants with history of injecting drug use and current hepatitis C infection that reported ever tested (by type of test)

Denominator

ETHOS Engage participants with history of injecting drug use and current hepatitis C infection

Results: In 2023-2024*, 86% (37/43) of people with current hepatitis C infection reported ever antibody tested and 63% (27/43) ever hepatitis C RNA tested. These figures were a small decrease for antibody (89%) and hepatitis C RNA (68%) testing from 2018-2019 (Figure 16).

Figure 16. Reported hepatitis C testing (ever) among ETHOS Engage participants in NSW with current hepatitis C infection and history of injecting drug use, by test type, for each study period



* Data up to April 23rd 2024

Indicator Key:

Study & Design: **ETHOS Engage, observational cohort**
Sample size in NSW in 2023-2024*: **666**
Number of sites in NSW in 2023-2024*: **15**

3.1 Monitoring Service Coverage

3.1.2 Hepatitis C Testing and Diagnosis

b.4 Testing and diagnosis among people who inject drugs

Indicator definition

Numerator

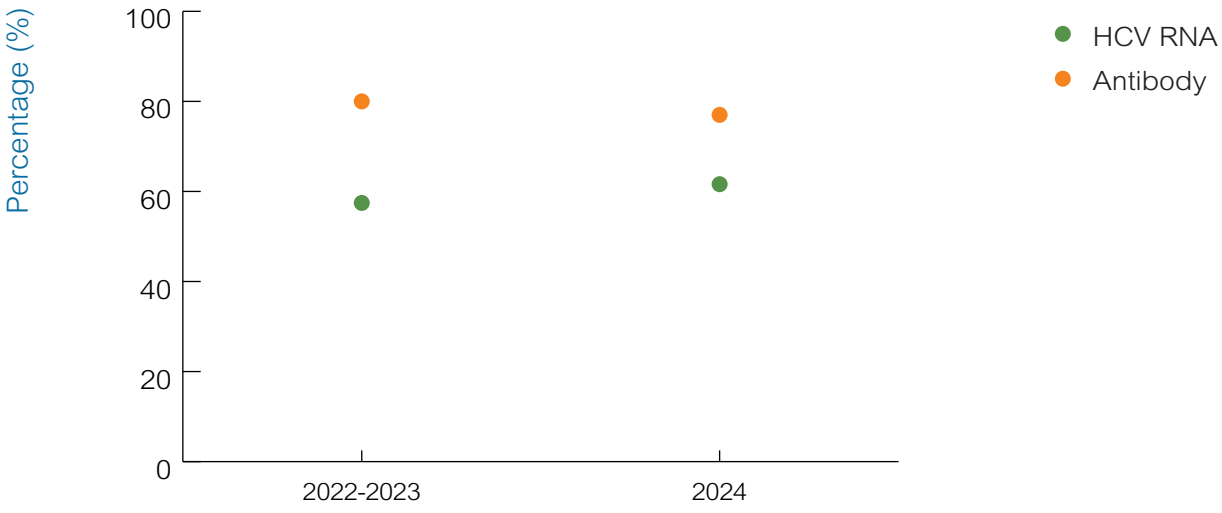
National Program participants with history of injecting drug use and current hepatitis C infection* that reported ever hepatitis C tested (by type of test)

Denominator

National Program participants with history of injecting drug use and current hepatitis C infection*

Results: In 2024**, 77% (86/112) of people with current hepatitis C infection reported ever hepatitis C antibody tested, and 62% (69/112) reported ever hepatitis C RNA tested (Figure 17).

Figure 17. Reported hepatitis C testing (ever) among National Program participants in NSW with current hepatitis C infection and history of drug use, by test type, for each study period



* For participants with multiple attendances, analysis has been restricted to first test only
** Data up to May 1st 2024

Indicator Key:

Study & Design: **National Program, observational cohort**
Sample size in NSW in 2024**: **2028**
Number of active sites in NSW 2024**: **92**

3.1 Monitoring Service Coverage

3.1.2 Hepatitis C Testing and Diagnosis

c. Late hepatitis C diagnosis among people with advanced liver disease

Indicator definition

Numerator

People with hepatitis C notification (1995-2021) within two years before or following their advanced liver disease diagnosis defined as a first-time hospital admission for decompensated cirrhosis or hepatocellular carcinoma

Denominator

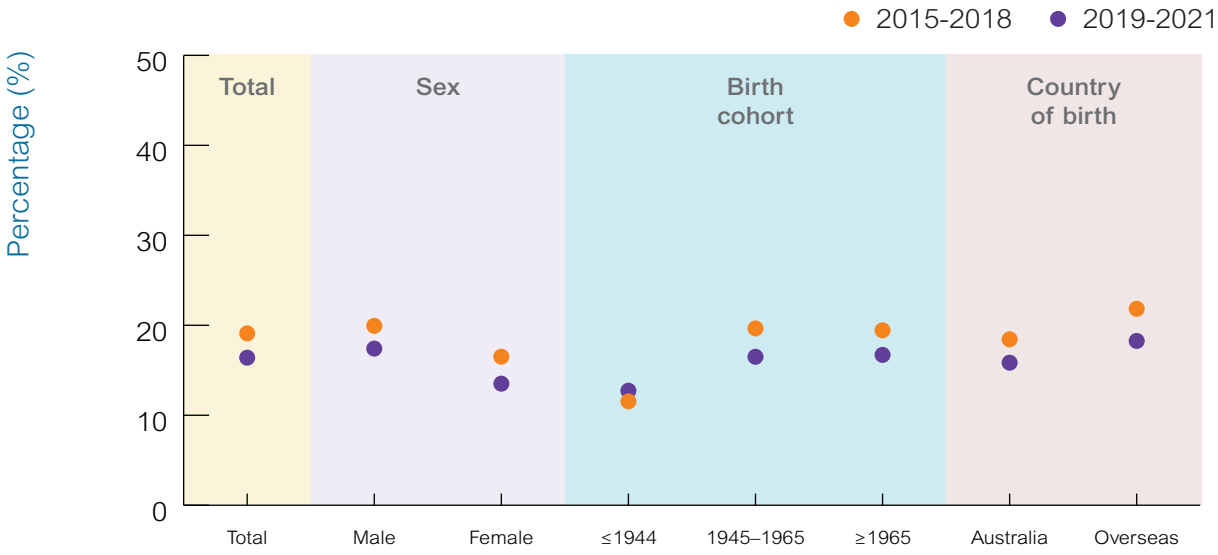
People with hepatitis C notification (1995-2021) with advanced liver disease defined as a first-time hospital admission for decompensated cirrhosis or hepatocellular carcinoma

Results: In 2019-2021, in NSW, 1129 people with hepatitis C notification (from 1995-2021) had an advanced liver disease complication, a 35% decrease from the 2015-2018 period (n=1733). Advanced liver disease complication was defined by a first-time hospital admission for decompensated cirrhosis or hepatocellular carcinoma.

Of these individuals, 16% (n=185) were late diagnosed, a decrease from 2015-2018 (19%). A late diagnosis is hepatitis C diagnosis within 2 years before or after an advanced liver disease complication first-time hospital admission.

In 2019-2021, 17% of males and 14% of females* with hepatitis C notification and an advanced liver disease complication were considered late diagnosed. Late diagnosis among people born before 1945**, between 1945 and 1964**, and after 1964, were 13%, 17% and 17%, respectively. Among individuals born overseas and in Australia, late diagnosis was 18% and 22%, respectively *** (Figure 18).

Figure 18. Late hepatitis C diagnosis among people with advanced liver disease complications in NSW, 2015-2018 and 2019-2021



* Missing sex :<1%
** Missing date of birth: <1%
*** Missing country of birth: 22%

Indicator Key:

Study & Design: **Population-level data linkage**
Sample size: **113 335 people with a hepatitis C notification 1995-2021**

3.1 Monitoring Service Coverage

3.1.2 Hepatitis C Testing and Diagnosis

d. Late hepatitis C diagnosis among people with advanced liver disease complications living in rural, outer metropolitan, and metropolitan areas

Indicator definition

Numerator

People with hepatitis C notification (1995-2021) within 2 years before or following their first-time hospital admission for decompensated cirrhosis or hepatocellular carcinoma

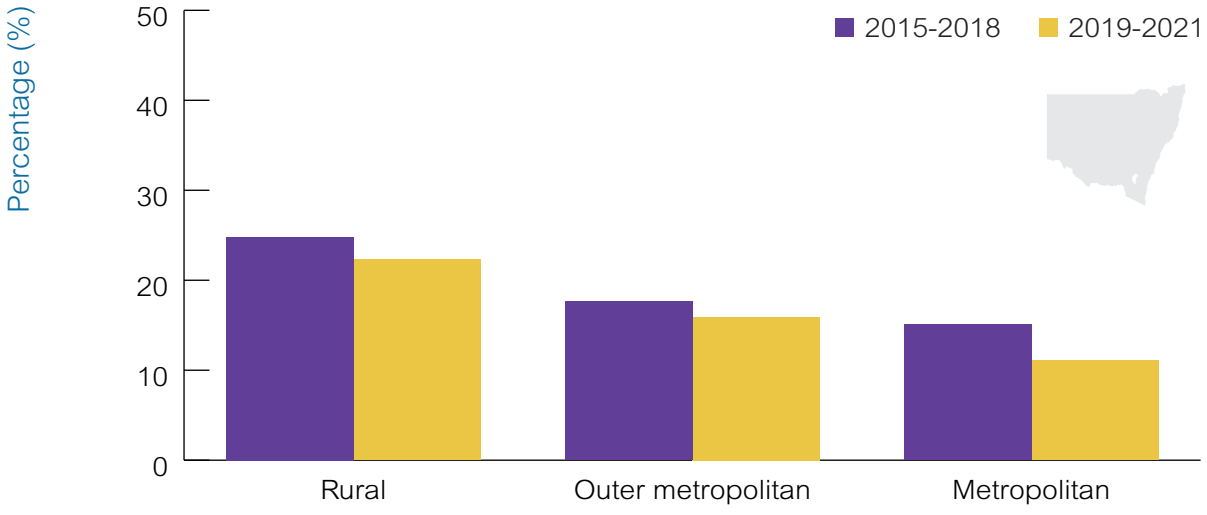
Denominator

People with hepatitis C notification (1995-2021) with a first-time hospital admission for decompensated cirrhosis or hepatocellular carcinoma

Results: In 2019-2021, among 1129 individuals with advanced liver disease complications, late diagnosis was higher among those who lived in rural areas* (22%, n=75), compared to those in outer metropolitan areas* (16%, n=60), and metropolitan areas* (11%, n=45) (Figure 1).

A similar pattern was seen in 2015-2018, among 1733 individuals with advanced liver disease complications, with late diagnosis of 25% (n=128) in rural areas*, 18% (n=108) in outer metropolitan areas*, and 15% (n=88) in metropolitan areas* (Figure 1).

Figure 1 Late hepatitis C diagnosis among people with advanced liver disease complications in NSW, by residence, 2015-2018 and 2019-2021



* Missing residence: 7%

Indicator key:

Study & Design: **Population-level data linkage**
Sample size: **113 335 people with a hepatitis C notification 1995-2021**

3.1 Monitoring Service Coverage

3.1.2 Hepatitis C Testing and Diagnosis

e.1 Late hepatitis C diagnosis among people with decompensated cirrhosis by NSW local health district

Indicator definition

Numerator

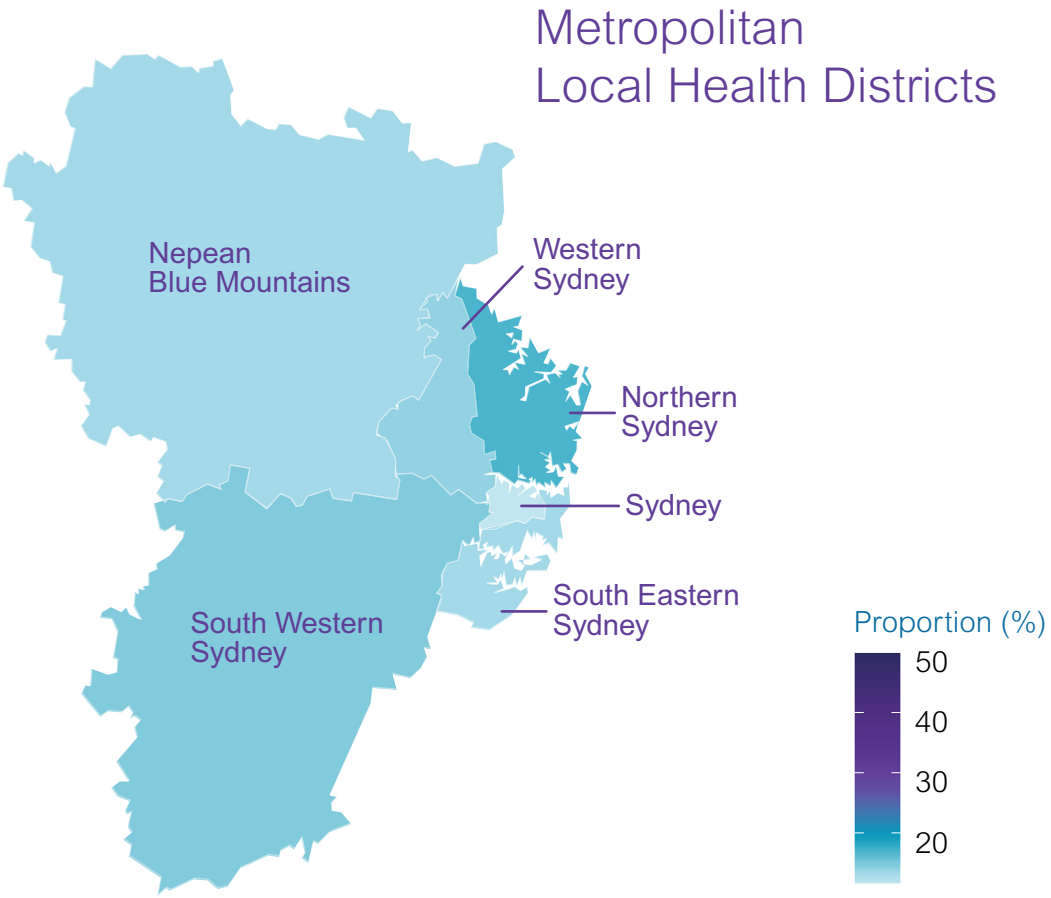
People with a hepatitis C notification (1995-2021) within two years before or following a first-time hospital admission for decompensated cirrhosis

Denominator

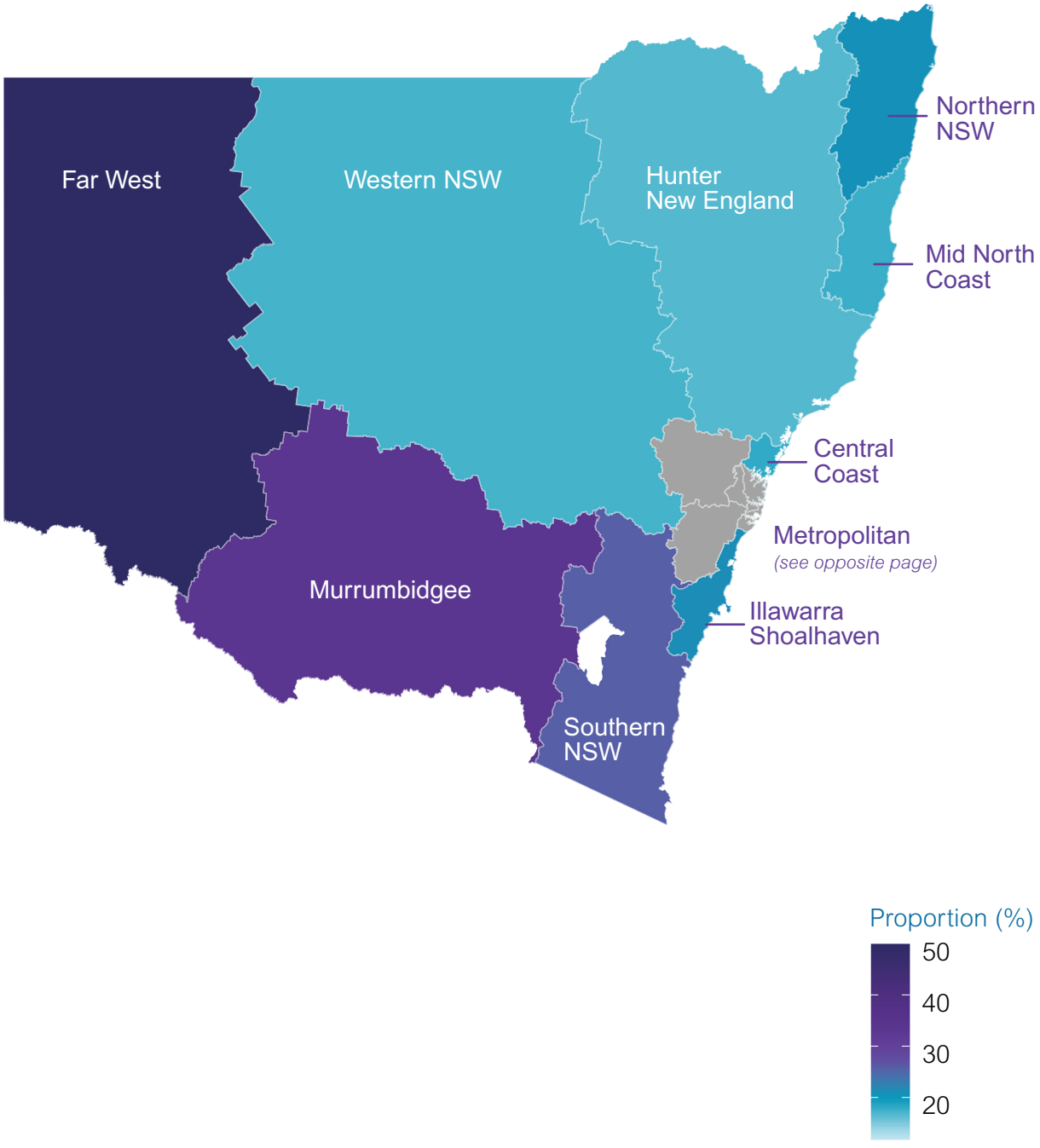
People with a hepatitis C notification (1995-2021) with a first-time hospital admission for decompensated cirrhosis

Results: In 2015-2021, the Far West local health district (LHD) had the highest proportion of hepatitis C late diagnoses among people with decompensated cirrhosis, with 3 of 6 cases (50%). The second highest proportion LHD was Murrumbidgee, with 26 of 77 cases (34%). The lowest proportion LHD was Sydney, with 22 of 186 cases (12%) (Figure 19).

Figure 19. Late hepatitis C diagnoses among people with decompensated cirrhosis, by NSW local health district, 2015-2021



Regional and rural
NSW Local Health Districts



Indicator key:

Study & Design: **Population-level data linkage**
Sample size: **113 335 people with a hepatitis C notification 1995-2021**

3.1 Monitoring Service Coverage

3.1.2 Hepatitis C Testing and Diagnosis

e.2 Late hepatitis C diagnosis among people with hepatocellular carcinoma by NSW local health district

Indicator definition

Numerator

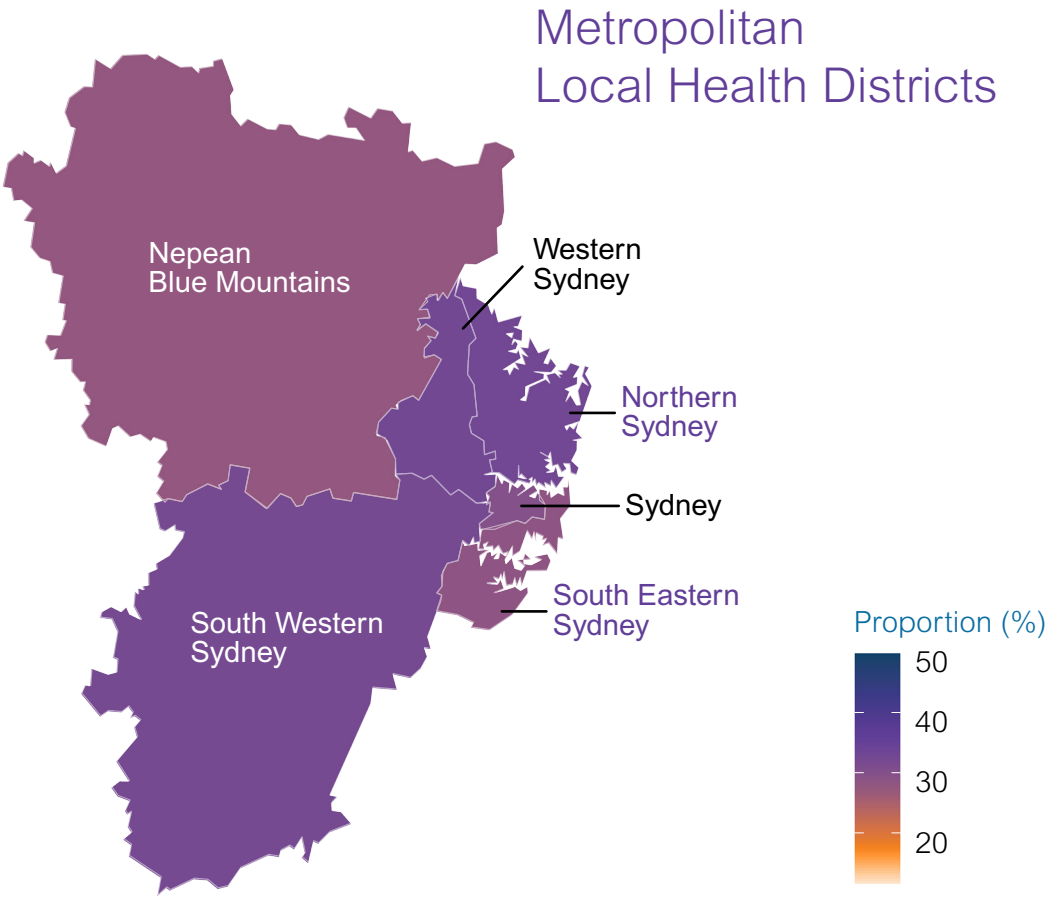
People with hepatitis C notification (1995-2021) within two years before or following a first-time hospital admission for hepatocellular carcinoma

Denominator

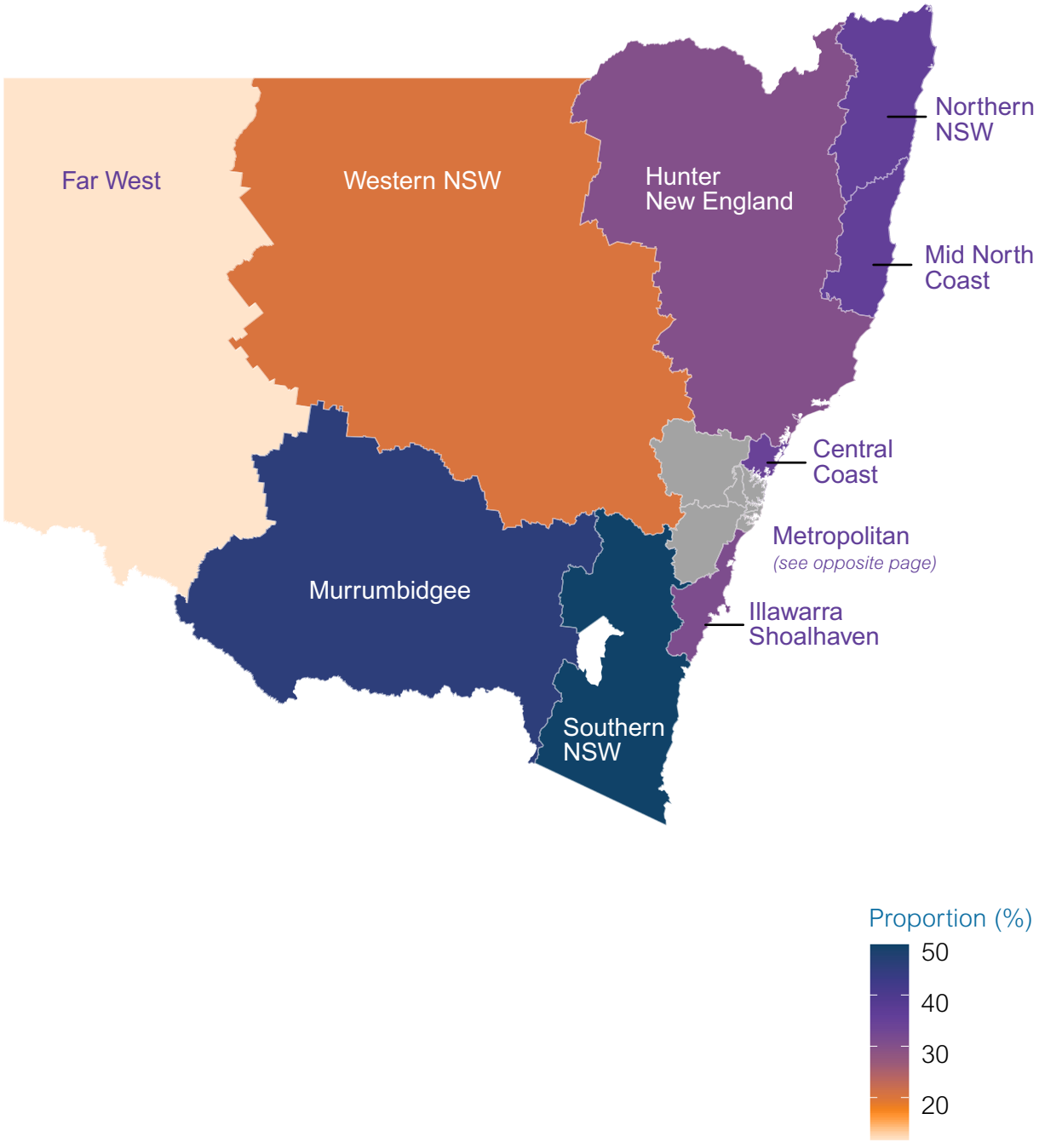
People with hepatitis C notification (1995-2021) with a first-time hospital admission for hepatocellular carcinoma

Results: In 2015-2021, Southern NSW LHD had the highest proportion of hepatitis C late diagnoses among people with hepatocellular carcinoma, with 11 of 38 cases (29%). The second highest proportion LHD was Murrumbidgee, with 7 of 27 cases (26%). The lowest proportion LHD was Far West, with 0 of 4 cases (Figure 20).

Figure 20. Late hepatitis C diagnoses among people with hepatocellular carcinoma, by NSW local health district, 2015-2021



Regional and rural NSW Local Health Districts



Indicator key:

Study & Design: **Population-level data linkage**

Sample size: **113 335 people with a hepatitis C notification 1995-2021**

3.1 Monitoring Service Coverage

3.1.3 Hepatitis C treatment

Background

The advent of DAA therapy has markedly increased population level hepatitis C treatment uptake; however, it is essential to monitor treatment uptake among key populations, including people who inject drugs, people incarcerated, and people with hepatitis C/HIV coinfection. Information on broader population-level hepatitis C treatment uptake can be gathered through emergency department hepatitis C screening programs. Along with treatment uptake, it is also important to monitor treatment completion, treatment outcomes, and retreatment due to virological failure or hepatitis C reinfection.

Key indicators

a.

Hepatitis C treatment uptake among people in emergency department screening programs

b.1, b.2, b.3 and b.4

Hepatitis C treatment uptake among people who inject drugs

c.1 and c.2

Hepatitis C treatment delivery in community and prison settings

d.

History of hepatitis C treatment uptake among incarcerated people

e.1 and e.2

Hepatitis C retreatment among those who received direct acting antiviral therapy

3.1 Monitoring Service Coverage

3.1.3 Hepatitis C treatment

a. Hepatitis C treatment uptake among people in emergency department screening programs

Indicator definition

Numerator

SEARCH 3X participants who reported ever received hepatitis C treatment

Denominator

SEARCH 3X participants hepatitis C antibody positive and ever treatment eligible: reported ever received hepatitis C treatment or have current hepatitis C infection

Results: In 2023-2024*, among 15 312 SEARCH 3X emergency department screened participants, 316 (2%) were hepatitis C antibody positive. Of these, 214 were ever treatment eligible, including 177 who reported ever received hepatitis C treatment and 37 with current hepatitis C infection. Hepatitis C treatment uptake was 83% (174/203).

* Data up to July 19th 2024

Indicator Key

Study & Design: **SEARCH 3X, observational cohort**
Sample size in NSW in 2023-2024: **15 312**
Number of sites in NSW in 2023-2024: **3**

3.1 Monitoring Service Coverage

3.1.3 Hepatitis C treatment

b.1 Hepatitis C treatment uptake among people who inject drugs

Indicator definition

Numerator

ANSPS participants who reported ever received hepatitis C treatment

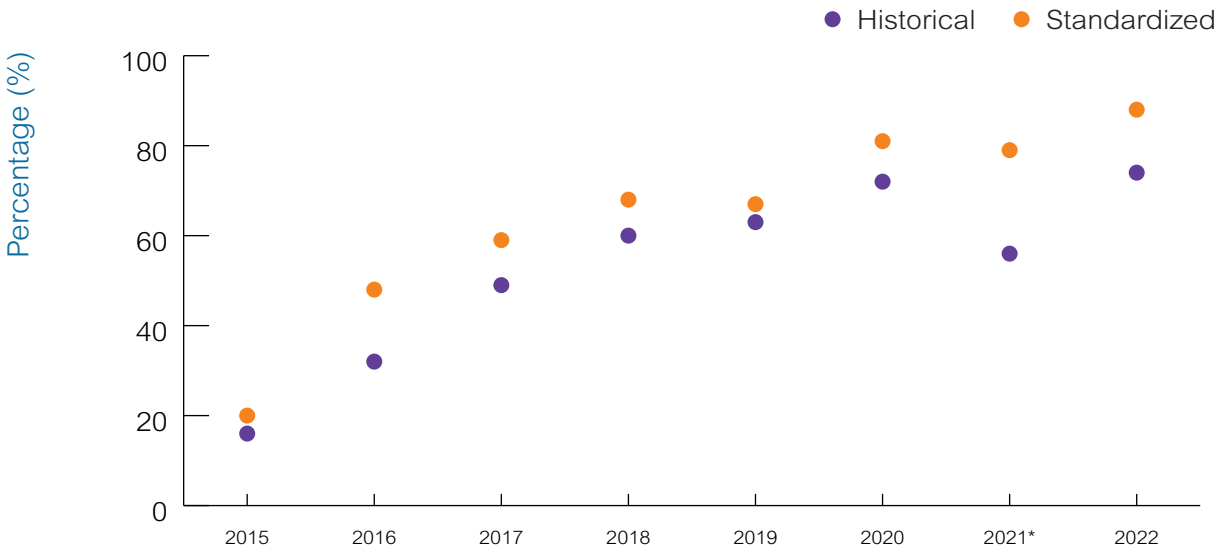
Denominator

ANSPS participants who reported ever received hepatitis C treatment or had current hepatitis C infection

Results: In 2022, 131 ANSPS participants reported ever hepatitis C treatment (=115) or had current hepatitis C infection (n=16) (i.e. treatment eligible by standardized definition). Thus, ever hepatitis C treatment was 88%, a continuous increase from 2015 (20%) (Figure 21).

In 2022, ever hepatitis C treatment was similar among men (86%) and women (89%); among people under 45 years (87%) and 45 years and above (88%); and among Aboriginal and Torres Strait Islander people (85%) and non-Indigenous Australians (85%). There were differences in ever hepatitis C treatment by major last drug injected: opioids (82%), stimulants (92%), and did not inject within last month (88%) (Figure 22).

Figure 21. Ever hepatitis C treatment uptake among ANSPS participants in NSW, 2015-2022, by "treatment eligible" definition*

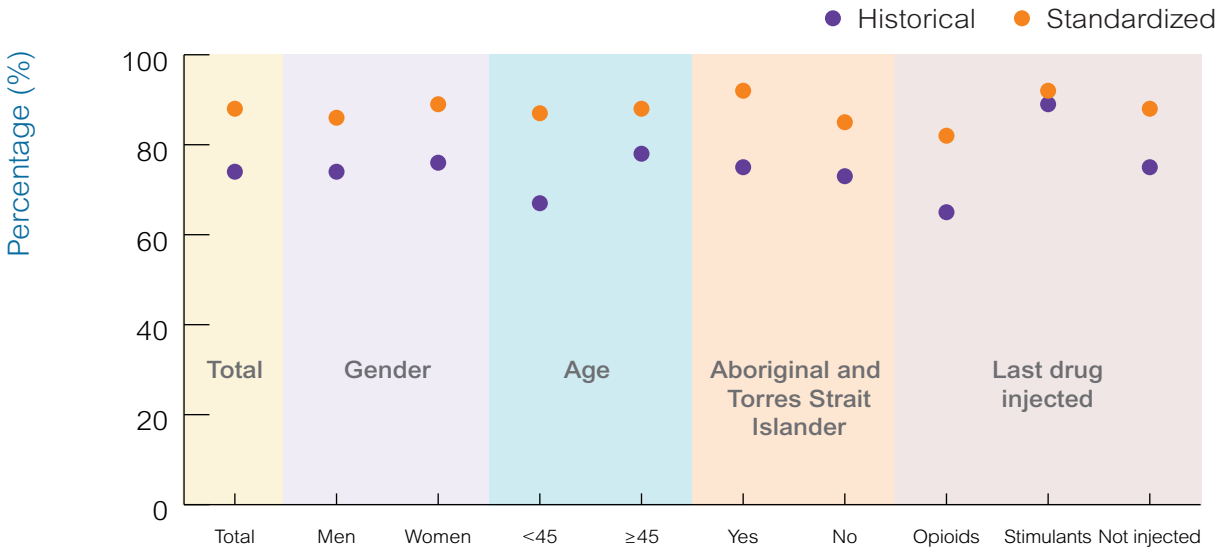


* 2021 data: Public health measures due to the impact of COVID-19 significantly impacted data collection in NSW in 2021 as only 3 sites had capacity to participate, and these had reduced numbers compared to previous years. Therefore 2021 data should be interpreted with caution.

Indicator Key:

Study & Design: **ANSPS, annual survey**
Sample size in NSW in 2022: **420**
Number of sites in NSW in 2022: **18**

Figure 22. Ever hepatitis C treatment uptake among ANSPS participants in NSW, 2022, by “treatment eligible” definition*, gender, age, Aboriginal and Torres Strait Islander status, last drug injected



* For this report, a standardized “treatment eligibility” definition has been used and consists of participants who reported ever received hepatitis C treatment or had current hepatitis C infection. Historically, “treatment eligibility” in ANSPS has been defined as being among people who tested hepatitis C antibody positive and did not report spontaneous clearance.

Indicator Key:

Study & Design: **ANSPS, annual survey**
Sample size in NSW in 2022: **420**
Number of sites in NSW in 2022: **18**

3.1 Monitoring Service Coverage

3.1.3 Hepatitis C treatment

b.2 Hepatitis C treatment uptake among people who inject drugs

Indicator definition

Numerator

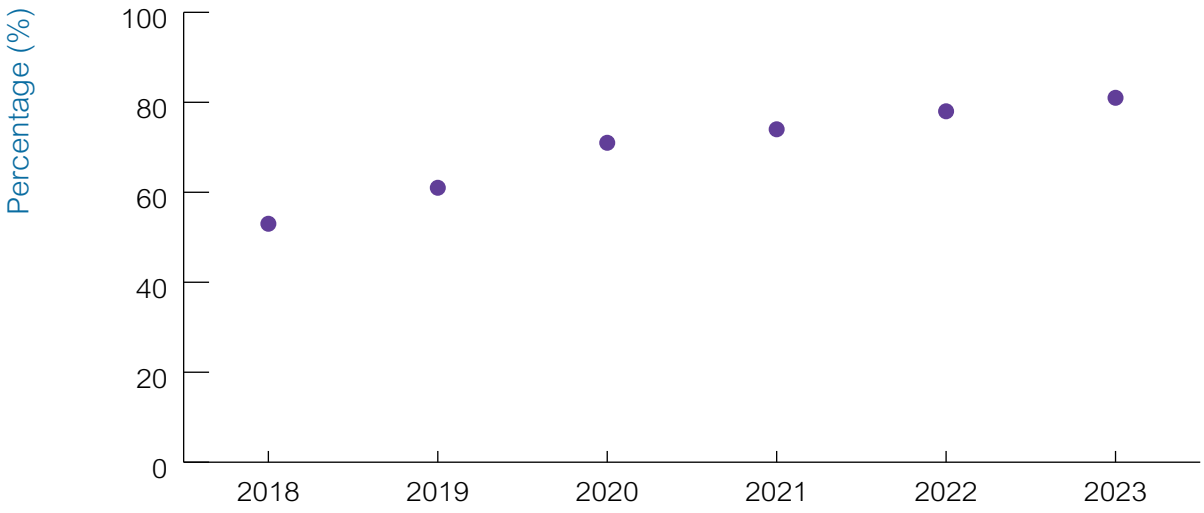
NNEDC participants who reported ever received DAA therapy

Denominator

NNEDC participants with hepatitis C diagnosis and no reported spontaneous clearance

Results: In 2023, among the 1587 participants, 426 were ever eligible for hepatitis C treatment*, and 344 (81%) reported ever DAA therapy. This represents a considerable increase in ever DAA therapy from 2018 (53%) (Figure 23).

Figure 23. Lifetime direct-acting antiviral therapy uptake among treatment eligible NNEDC participants in NSW, 2018-2023



* Assuming a 55% cure among respondents who reported Interferon-based therapy. Denominator excludes this group, those who reported spontaneous clearance and those with no valid response.

Indicator key

Study & Design: **NNEDC, annual survey**
Sample size in 2023: **1587**
Number of sites in 2023: **47**

3.1 Monitoring Service Coverage

3.1.3 Hepatitis C treatment

b.3 Hepatitis C treatment uptake among people who inject drugs

Indicator definition

Numerator

ETHOS Engage participants with a history of injecting drug use and reported ever received hepatitis C treatment

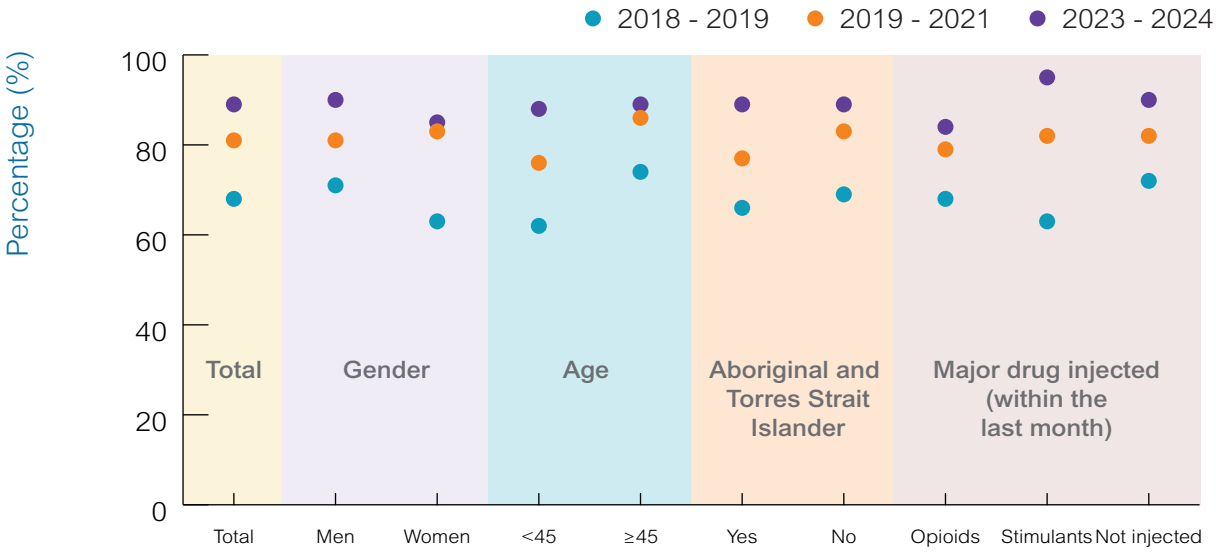
Denominator

ETHOS Engage participants with a history of injecting drug use and reported ever received hepatitis C treatment or had current hepatitis C infection

Results: In 2023-2024*, 248 ETHOS participants had a history of injecting drug use and reported ever hepatitis C treatment (n=220) or had current hepatitis C infection (n=28) (i.e. treatment eligible). Thus, ever hepatitis C treatment was 89%, a continued increase from 2019-2021 (81%), and 2018-2019 (68%).

In 2023-2024, ever hepatitis C treatment differences were noted among women (85%) and men (90%)**; and by major drug injected in last month: opioids (84%), stimulants (95%), and did not inject (90%)***. Hepatitis C treatment uptake was the same among Aboriginal and Torres Strait Islander people and non-Indigenous Australians (88%) and among people under 45 years (88%) and above 45 years (88%) (Figure 24).

Figure 24. Ever hepatitis C treatment uptake among ETHOS Engage participants in NSW, by gender, age group, Aboriginal and Torres Strait Islander status, and main drug injecting within the last month, for each study period



* Data up to April 23rd 2024
** Transgender people/gender missing: n=14
*** Due to small sample size, data from participants who did not primarily inject non-opioids or non-stimulants in the past month is not displayed.

Indicator key:

Study & Design: **ETHOS Engage, observational cohort**
Sample size in NSW in 2023-2024*: **666**
Number of sites in NSW in 2023-2024*: **15**

3.1 Monitoring Service Coverage

3.1.3 Hepatitis C treatment

b.4 Hepatitis C treatment uptake among people who inject drugs

Indicator definition

Numerator

National Program participants with history of injecting drug use and reported ever received hepatitis C treatment

Denominator

National Program participants with history of injecting drug use and reported ever received hepatitis C treatment or have current hepatitis C infection

Results: In 2024*, 392 National Program participants had a history of injecting drug use and reported ever received hepatitis C treatment or had current hepatitis C infection (i.e. treatment eligible). Among them, hepatitis C treatment uptake was 86% (n=338), a small increase from 2022-2023 (84%) (Figure 25).

In 2024*, similar uptake was noted among women (85%) and men (87%); among people under the age of 45 years old (87%) and above 45 years old (86%); among Aboriginal and Torres Strait Islander people (84%) and non-Indigenous Australians (87%). The only category with notable ever hepatitis C treatment uptake differences was between people who injected within the last month (81%) and people who did not inject (94%) (Figure 25).

Figure 25. Ever hepatitis C treatment uptake among National Program participants in NSW with a history of injecting drug use, by gender, age group, Aboriginal and Torres Strait Islander status, and injecting behaviour in the last month, for each study period

* Data up to May 1st 2024

Indicator Key:

Study & Design: **National Program, observational cohort**
Sample size in NSW in 2024*: **2028**
Number of sites in NSW in 2024*: **92 active sites**

3.1 Monitoring Service Coverage

3.1.3 Hepatitis C treatment

c. Hepatitis C treatment delivery in community and prison settings

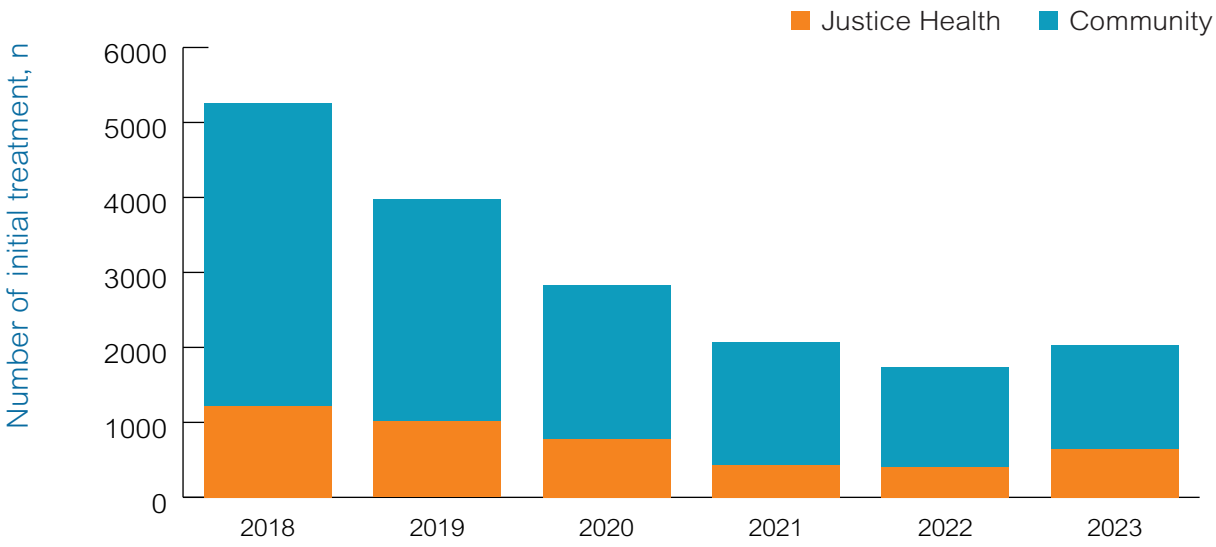
Indicator definition

Number of hepatitis C treatment initial and retreatment courses in NSW

Results: In 2023 in NSW, 2034 individuals received initial DAA therapy and there were 964 total retreatment courses, giving 2998 total DAA therapy courses delivered. Of these DAA therapy courses, 1968 (66%) courses were delivered in the community and 1030 (34%) in Justice Health. Following progressive declines in number of individuals receiving initial DAA therapy over the period 2018-2022, there was an increase in 2023 (Figure 26).

There has been an increasing trend in total DAA retreatment courses over the period 2021-2023, with a marked increase in courses delivered in the prison setting in 2023. In 2023 581 (60%) retreatment courses were delivered in community and 383 (40%) in Justice Health settings (Figure 27)

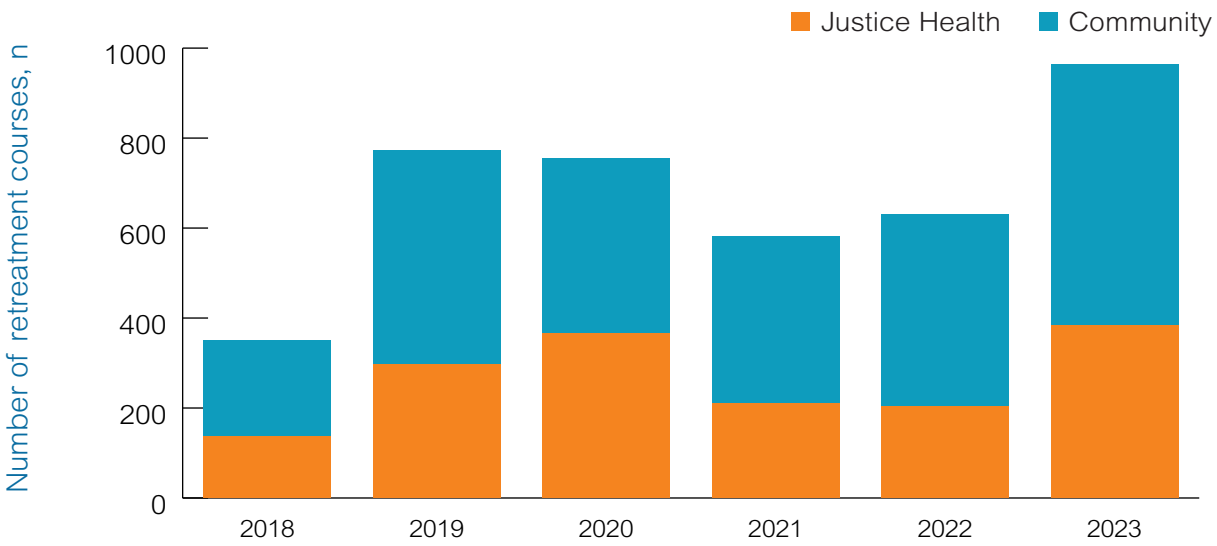
Figure 26. Number of initial treatments in NSW, by setting type, 2018-2023



Indicator Key:

Study & Design: **Pharmaceutical Benefits Scheme**

Figure 27. Number of retreatment courses in NSW, by setting type, 2018-2023



Indicator Key:

Study & Design: **Pharmaceutical Benefits Scheme**

3.1 Monitoring Service Coverage

3.1.3 Hepatitis C treatment

d. History of hepatitis C treatment uptake among incarcerated people

Indicator definition

Numerator

AusHep participants who reported ever received hepatitis C treatment

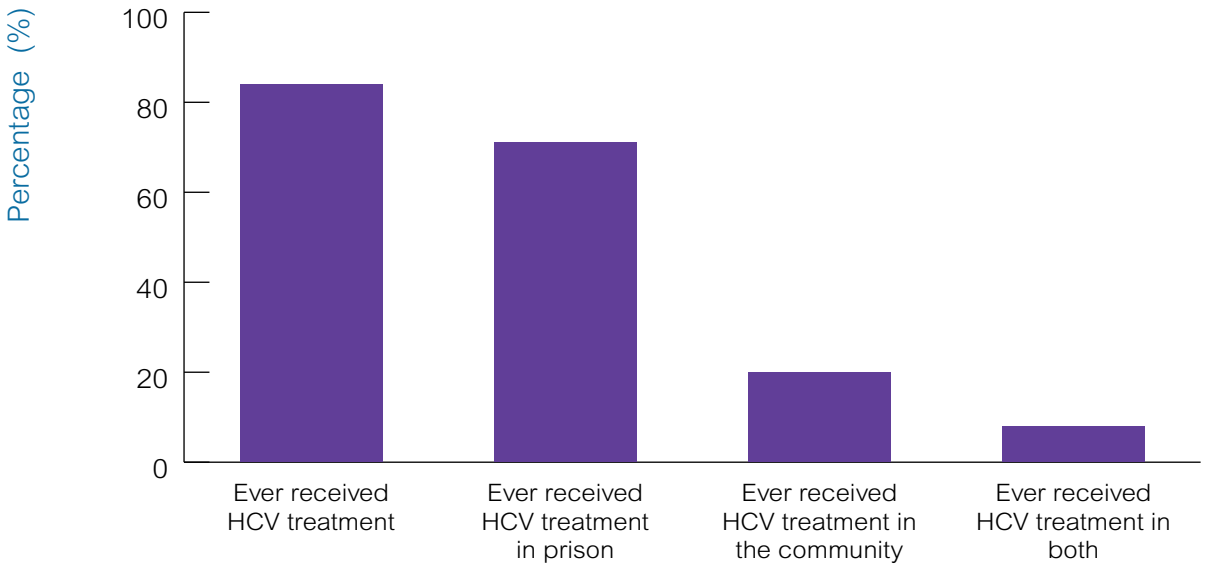
Denominator

AusHep participants who were hepatitis C antibody positive and ever treatment eligible: reported ever received hepatitis C treatment or had current hepatitis C infection

Results: In 2022-2023, among 327 AusHep participants 111 (34%*) were hepatitis C antibody positive. Among these, 85 were ever hepatitis C treatment eligible, including 71 who reported ever hepatitis C treatment and 14 untreated with current hepatitis C infection. Thus, treatment uptake was 84%**. Among those ever treatment eligible, 61 (71%) reported ever received hepatitis C treatment in prison, 17 (20%) reported ever received treatment in the community, and 7 (8%) in both (Figure 28).

Among all individuals treated, 86% reported ever received hepatitis C treatment in prison, 24% reported ever receiving treatment in the community and 10% reported receiving treatment both in prison and in the community.

Figure 28. Hepatitis C treatment uptake among AusHep participants in NSW, 2022-2023



* Weighted percentage based on the distribution of gender and Aboriginal Status in NSW prisoner population (ABS 2022) = 31%
** Weighted percentage based on the distribution of gender and Aboriginal Status in NSW prisoner population (ABS 2022) = 85%

Indicator Key:

Study & Design: **AusHep, cross-sectional bio-behavioural survey**
Sample size in NSW: **327**
Number of NSW sites: **7**

3.1 Monitoring Service Coverage

3.1.3 Hepatitis C treatment

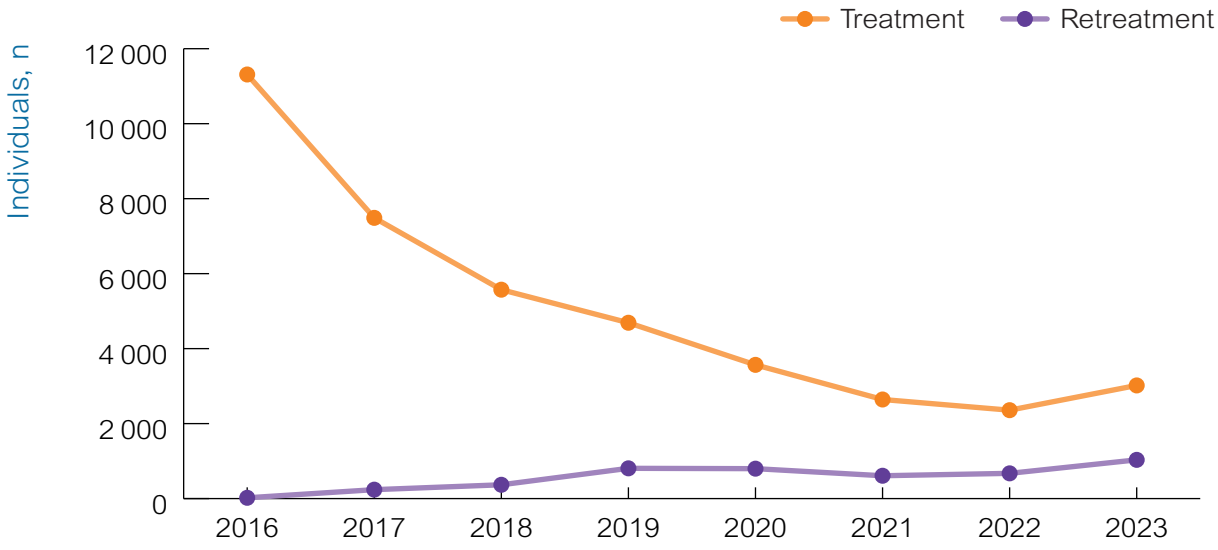
e.1 Hepatitis C retreatment among those who received direct acting antiviral therapy

Indicator definition

Number of individuals who initiated direct acting antiviral therapy (through the Pharmaceutical Benefits Scheme administrative data) and number of individuals who received retreatment

Results: All instances of DAA treatment and retreatment in Australia are reported in Pharmaceutical Benefits Scheme administrative data. From 2016 to 2023, 36 101 people initiated hepatitis C treatment in NSW. The number of people initiating treatment decreased over time, from 11 312 in 2016 to 3018 in 2023. Conversely, the number of individuals retreated increased from 21 in 2016 to 678 in 2023. By 2023, 10% (n=3588) of the treated population had been retreated at least once (Figure 29).

Figure 29. Trends in hepatitis C treatment initiation and retreatment in NSW, 2016-2023



Indicator Key:

Study & Design: **PHASE**

Sample size in NSW in 2016-2023: **40 648**

3.1 Monitoring Service Coverage

3.1.3 Hepatitis C treatment

e.2 Hepatitis C retreatment among those who received direct acting antiviral therapy

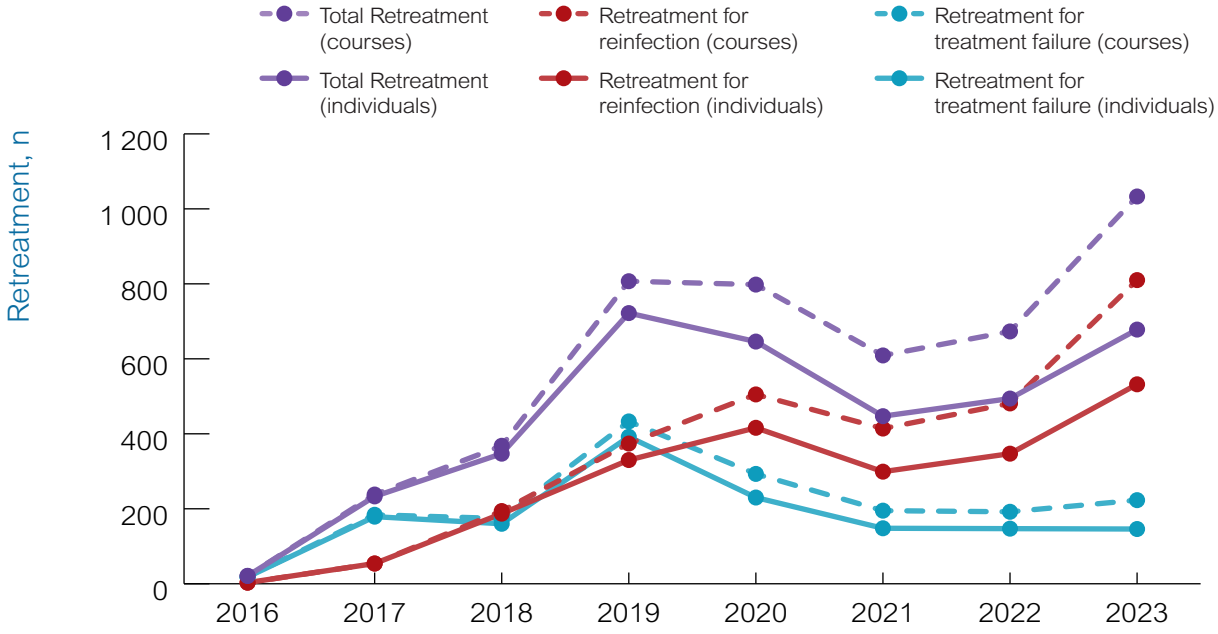
Indicator definition

Total number of retreatments, number due to reinfection and number due to treatment failure

A supervised machine learning model was developed using real-word standard-of-care data from the REACH-C study. The model was applied to Pharmaceutical Benefits Scheme data from NSW to assess trends in retreatment for reinfection and treatment failure.

From 2016 to 2023, among 3588 individuals retreated, 2168 were for reinfection and 1421 for treatment failure. An increasing trend in retreatment for reinfection was observed, with distinct acceleration during 2022-2023 (following potential COVID-19 restriction related declines in 2021). Retreatment for treatment failure peaked in 2019, when a specific DAA retreatment regimen for failure became available, then stabilised from 2020 onwards. The 3588 individuals retreated have received a total of 4552 retreatment courses, including 2835 for reinfection and 1712 for treatment failure (Figure 30).

Figure 30. Estimated number of individuals undergoing retreatment for hepatitis C due to reinfection or treatment failure in NSW, 2016-2023



Indicator Key:

Study & Design: **PHASE project**

Sample size in NSW in 2016-2023: **40 648**

3.1 Monitoring Service Coverage

3.1.4 Stigma and discrimination

Background

Among people who inject drugs and people with hepatitis C, experience of stigma has a major impact on health seeking behaviour and health outcomes. In the context of hepatitis C, perceptions of stigma and discrimination may impact a person's willingness to engage with testing and treatment. Monitoring experiences of stigma and discrimination helps to understand the broader picture behind engagement with harm reduction, testing, and treatment uptake

Key indicators

a.1 and a.2

Stigma and discrimination due to injection drug use

b1. and b.2

Stigma and discrimination due to hepatitis C infection

c.1 and c.2

Stigma experienced from health workers by people with a history of injecting drug use

d.1, d.2, d.3 and d.4

Likelihood of behaving negatively toward other people because of their injecting drug use or hepatitis C infection

e.1 and e.2

Likelihood of behaving negatively toward other people because of their hepatitis C infection

3.1 Monitoring Service Coverage

3.1.4 Stigma and discrimination

a.1 Stigma and discrimination due to injecting drug use

Indicator definition

Numerator

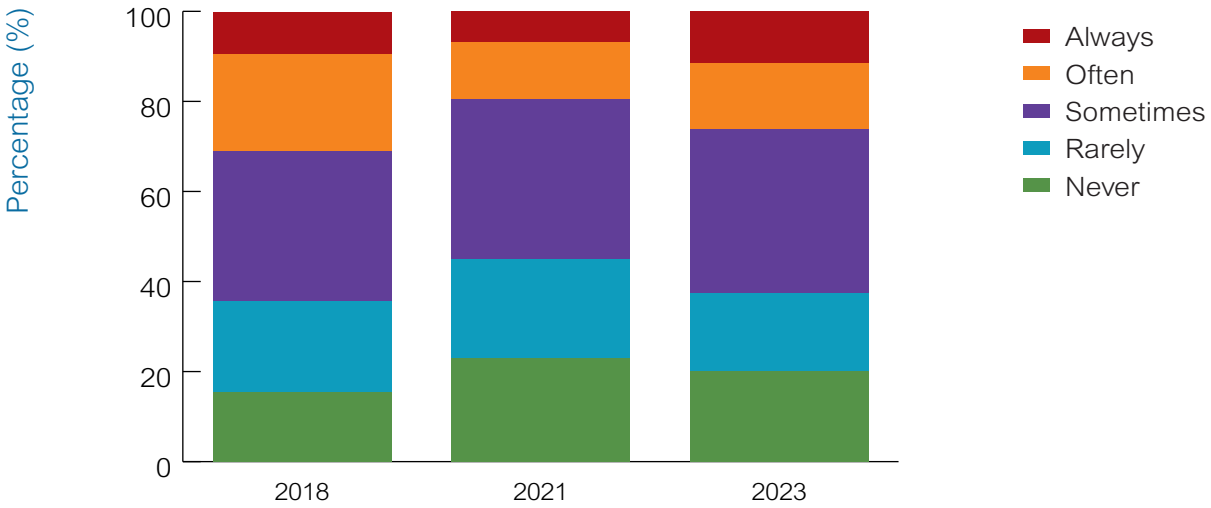
Stigma Indicators Monitoring Project participants with a history of injecting drug use who reported experiencing stigma and discrimination

Denominator

Stigma Indicators Monitoring Project participants with a history of injecting drug use

Results: In 2023, among 198* participants with a history of injecting drug use, 158 (80%) reported recent (in the last 12 months) experiences of stigma or discrimination related to their injecting drug use, including 15% (29/198) and 12% (23/198) who reported they "often" or "always" experienced stigma, respectively (Figure 31).

Figure 31. Experience of recent stigma or discrimination in relation to injecting drug use among Stigma Indicators Monitoring Project participants in NSW, for each study period



* Missing data have been excluded from analysis

Indicator Key:

Study & Design: **Stigma Indicators Monitoring Project, survey**
Sample size in NSW in 2023: **199**

3.1 Monitoring Service Coverage

3.1.4 Stigma and discrimination

a.2 Stigma and discrimination due to injection drug use

Indicator definition

Numerator

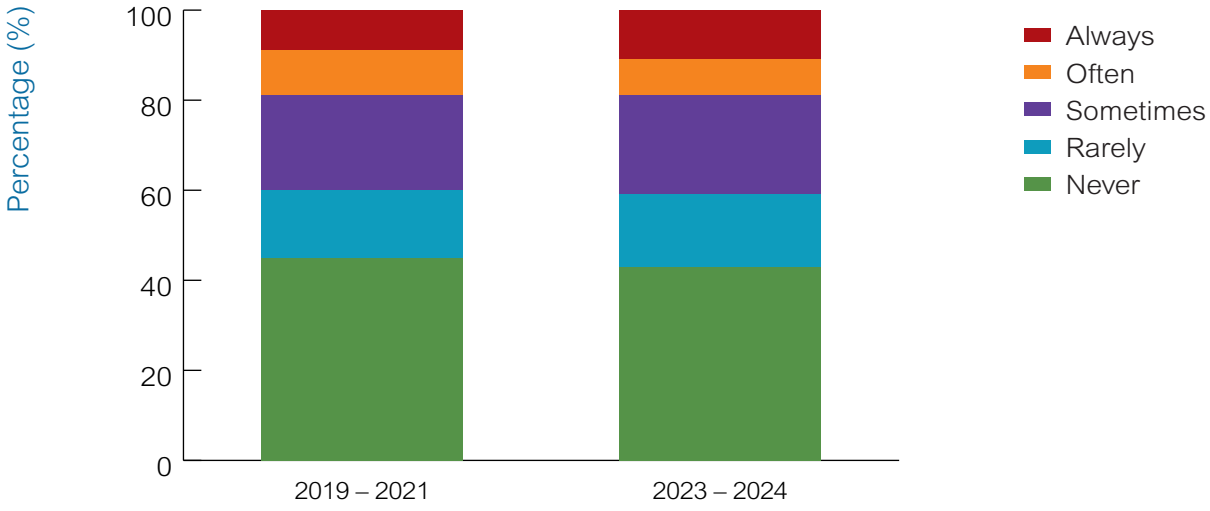
ETHOS Engage participants with a history of injecting drug use who reported experiencing stigma and discrimination

Denominator

ETHOS Engage participants with a history of injecting drug use

Results: In 2023-2024*, among the 522 participants with a history of injecting drug use, 298 (57%) reported recent (in the last 12 months) experiences of stigma or discrimination related to their injecting drug use, including 8% (44/522) and 2% (11/522) who reported they "often" or "always" experienced stigma, respectively (Figure 32).

Figure 32. Experience of stigma or discrimination in relation to injecting drug use among ETHOS Engage participants in NSW, for each study period



* Data up to April 23rd 2024

Indicator key:

Study & Design: **ETHOS Engage, observational cohort**
Sample size in NSW in 2023-2024*: **666**
Number of sites in NSW in 2023-2024*: **15**

3.1 Monitoring Service Coverage

3.1.4 Stigma and discrimination

b1. Stigma and discrimination due to hepatitis C infection

Indicator definition

Numerator

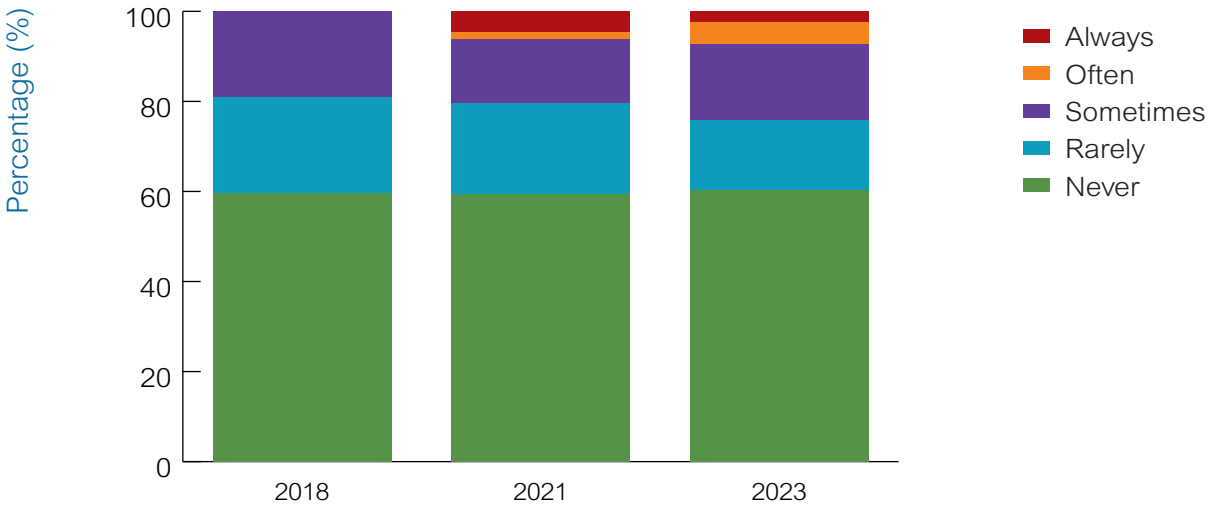
Stigma Indicators Monitoring Project participants with a history of injecting drug use who reported ever being told they had hepatitis C infection and reported experiencing stigma and discrimination

Denominator

Stigma Indicators Monitoring Project participants with a history of injecting drug use who reported ever being told they had hepatitis C infection

Results: In 2023, among 83* participants with a history of injecting drug use who reported ever being told they had hepatitis C infection, 33 (40%) reported recent (in the last 12 months) experiences of stigma or discrimination related to their hepatitis C, including 5% (4/83) and 2% (2/83) who reported they "often" or "always" experienced stigma, respectively (Figure 33).

Figure 33. Experience of stigma or discrimination in relation to their hepatitis C status among Stigma Indicators Monitoring Project participants in NSW, for each study period



* Missing data have been excluded from analysis

Indicator Key:

Study & Design: **Stigma Indicators Monitoring Project, survey**
Sample size in NSW in 2023: **199**

3.1 Monitoring Service Coverage

3.1.4 Stigma and discrimination

b2. Stigma and discrimination due to hepatitis C infection

Indicator definition

Numerator

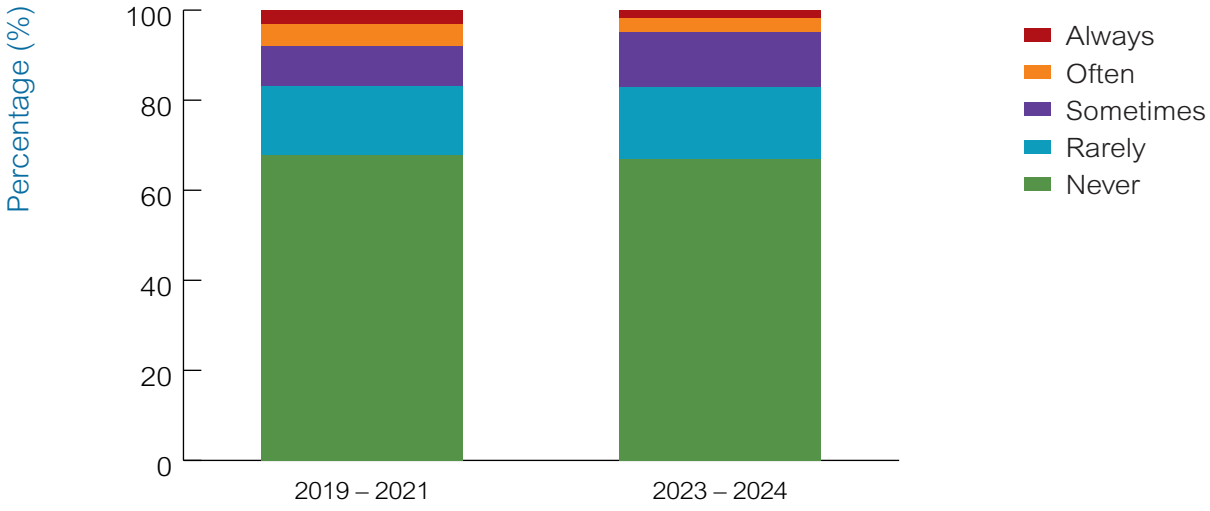
ETHOS Engage participants with a history of injecting drug use who reported ever being told they had hepatitis C infection and reported experiencing stigma and discrimination

Denominator

ETHOS Engage participants with a history of injecting drug use who reported ever being told they had hepatitis C infection

Results: In 2023-2024*, among 326 participants with a history of injecting drug use who reported ever being told they had hepatitis C infection, 108 (33%) reported recent (in the last 12 months) experiences of stigma or discrimination related to their hepatitis C, including 3% (10/326) and 2% (6/326) who reported they "often" or "always" experienced stigma, respectively (Figure 34).

Figure 34. Experience of stigma or discrimination in relation to their hepatitis C status among ETHOS Engage participants in NSW, for each study period



* Data up to April 23rd 2024

Indicator key:

Study & Design: **ETHOS Engage, observational cohort**
Sample size in NSW in 2023-2024*: **666**
Number of sites in NSW in 2023-2024*: **15**

3.1 Monitoring Service Coverage

3.1.4 Stigma and discrimination

c.1 Stigma experienced from health workers by people with a history of injecting drug use

Indicator definition

Numerator

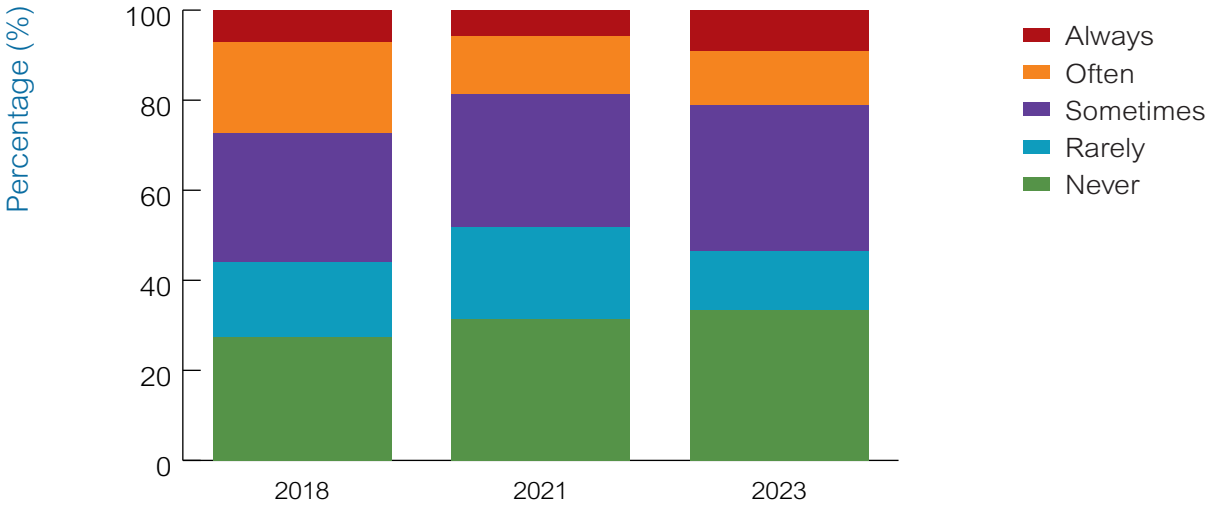
Stigma Indicators Monitoring Project participants with a history of injecting drug use who reported experiencing negative or different treatment from health workers

Denominator

Stigma Indicators Monitoring Project participants with a history of injecting drug use

Results: In 2023, among 198* participants with a history of injecting drug use, 132 (67%) reported recent (in the last 12 months) experiences of negative or different treatment from health workers, including 12% (24/198) and 9% (18/198) who reported they "often" or "always" experienced negative or different treatment, respectively (Figure 35).

Figure 35. Negative treatment by health workers experienced by Stigma Indicators Monitoring Project participants in NSW, for each study period



* Missing data have been excluded from analysis

Indicator Key:

Study & Design: **Stigma Indicators Monitoring Project, survey**
Sample size in NSW in 2023: **199**

3.1 Monitoring Service Coverage

3.1.4 Stigma and discrimination

c.2 Stigma experienced from health workers by people with a history of injecting drug use

Indicator definition

Numerator

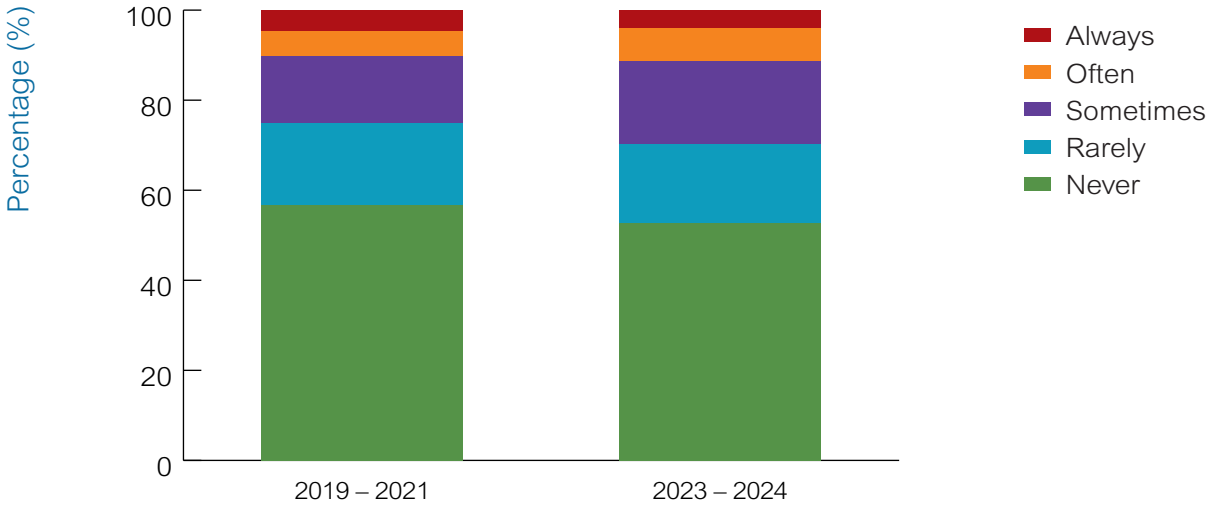
ETHOS Engage participants with a history of injecting drug use who reported experiencing negative or different treatment from health workers

Denominator

ETHOS Engage participants with a history of injecting drug use

Results: In 2023-2024*, among 522 ETHOS participants with a history of injecting drug use, 247 (47%) reported recent (in the last 12 months) experiences of negative or different treatment from health workers, including 7% (38/522) and 4% (21/522) who reported they "often" or "always" experienced negative or different treatment, respectively (Figure 36).

Figure 36. Negative treatment by health workers experienced by ETHOS Engage participants, for each study period



* Data up to April 23rd 2024

Indicator key:

Study & Design: **ETHOS Engage, observational cohort**
Sample size in NSW in 2023-2024*: **666**
Number of sites in NSW in 2023-2024*: **15**

3.1 Monitoring Service Coverage

3.1.4 Stigma and discrimination

d.1. Likelihood of behaving negatively toward other people because of their injecting drug use

Indicator definition

Numerator

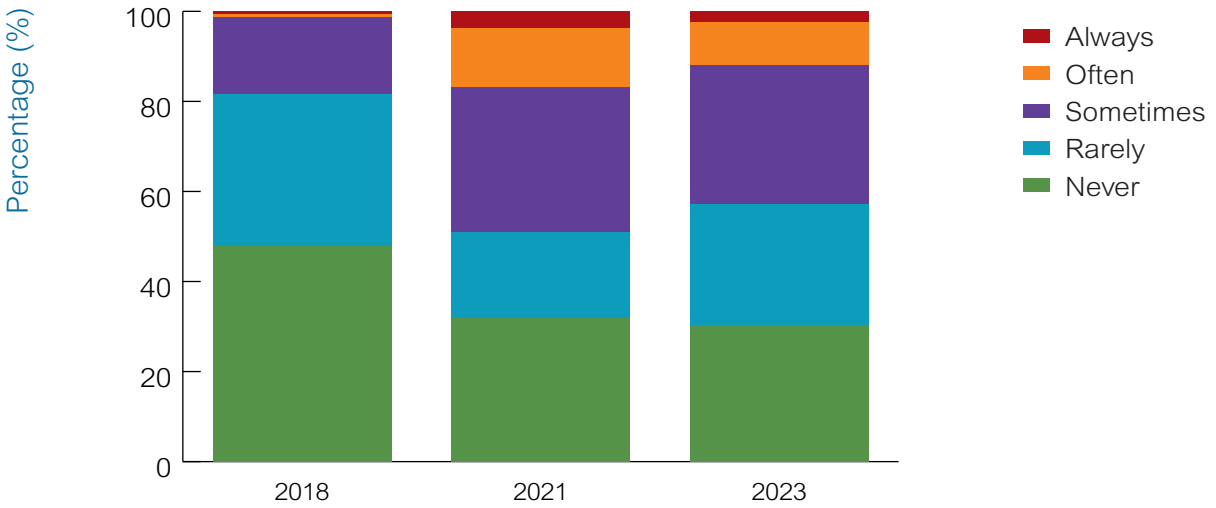
Stigma Indicators Monitoring Project health care worker participants who reported likelihood of behaving negatively toward other people because of their injecting drug use

Denominator

Stigma Indicators Monitoring Project health care worker participants

Results: For each year*, most health care workers reported to likely behave negatively towards other people because of their injecting drug use: 52% (82/157) in 2018, 68% (182/267) in 2021 and 70% (410/589) in 2022. Although most of these negative responses were categorized as rarely or sometimes, in 2022, 12% (70/589) of health care workers reported they would likely "often" or "always" behave negatively toward other people because of their injecting drug use (Figure 37).

Figure 37. Self-reported likelihood of behaving negatively towards other people because of their injecting drug use among NSW health care workers, for each study period



Please note that the recruitment approach was different in 2018, resulting in different a demographic profile for the participants. Hence, comparison between those years need to be made carefully
Missing data have been excluded from analysis

Indicator Key:

Study & Design: **Stigma Indicators Monitoring Project, survey**
Sample size in NSW in 2022: **589**

3.1 Monitoring Service Coverage

3.1.4 Stigma and discrimination

d.2. Likelihood of behaving negatively toward other people because of their injecting drug use

Indicator definition

Numerator

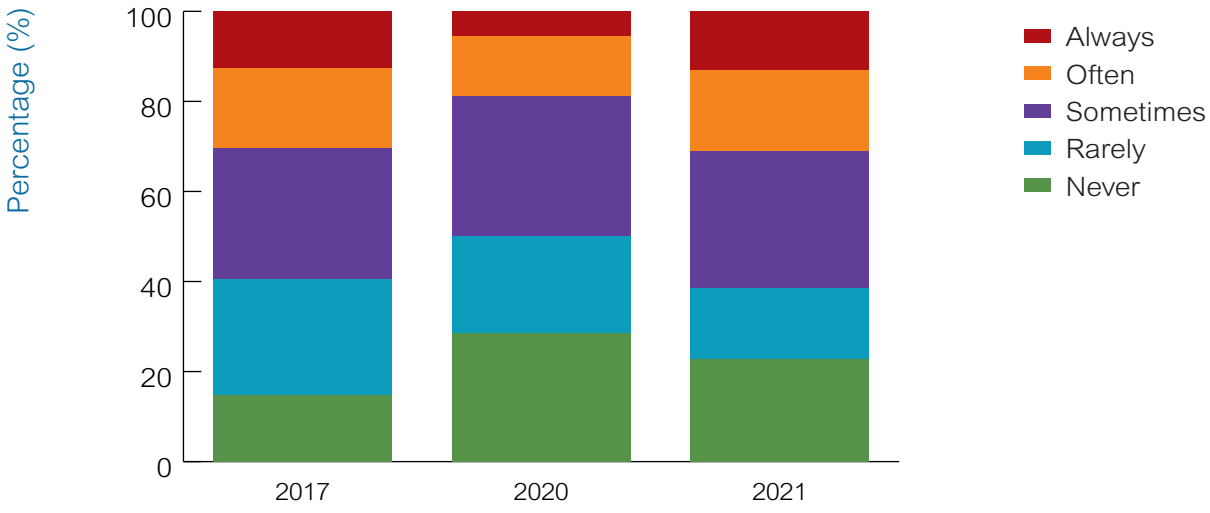
Stigma Indicators Monitoring Project participants (general public) who reported likelihood of behaving negatively toward other people because of their injecting drug use

Denominator

Stigma Indicators Monitoring Project health care (general public)

Results: For each year, most of the general public reported to likely behave negatively towards other people because of their injecting drug use: 85% (259/304) in 2017, 71% (143/758) in 2020, and 77% (213/688) in 2021. Although most of these negative responses were categorized as rarely or sometimes in 2021, 31% (213/688) of participants reported they would likely "often" or "always" behave negatively toward other people because of their injecting drug use (Figure 38).

Figure 38. Self-reported likelihood of behaving negatively towards other people because of their injecting drug use among NSW general public, for each study period



Please note that the recruitment approach was different across the three surveys, resulting in different demographic profiles for the participants. Hence, comparison between those years need to be made carefully
Missing data have been excluded from analysis

Indicator Key:

Study & Design: **Stigma Indicators Monitoring Project**
Sample size in NSW in 2021: **688**

3.1 Monitoring Service Coverage

3.1.4 Stigma and discrimination

d.3 Likelihood of behaving negatively toward other people because of their hepatitis C

Indicator definition

Numerator

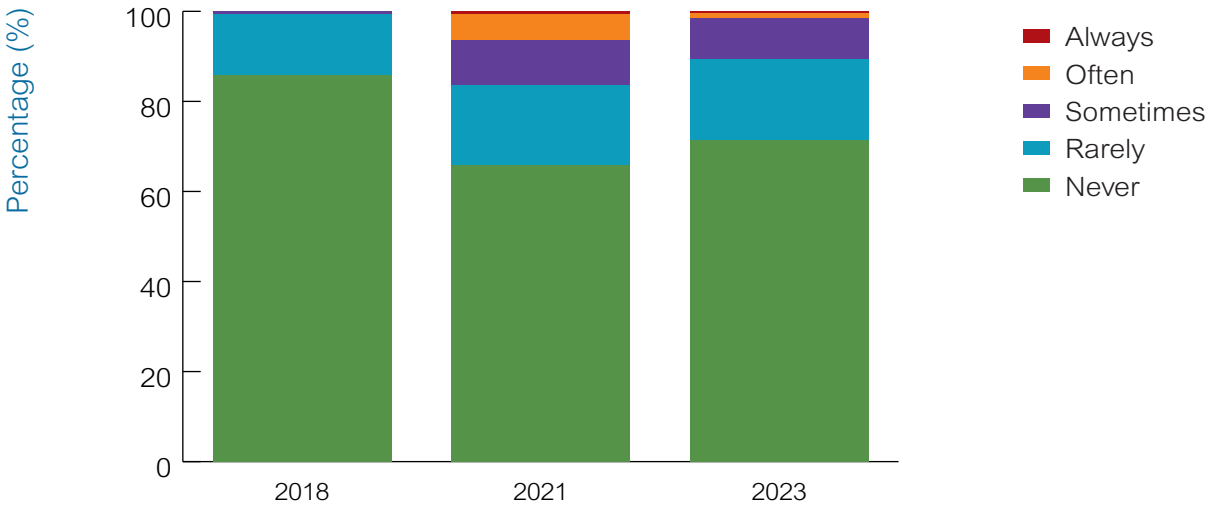
Stigma Indicators Monitoring Project health care worker participants who reported likelihood of behaving negatively toward other people because of their hepatitis C

Denominator

Stigma Indicators Monitoring Project health care worker participants

Results: The proportion of health care worker participants who reported to likely behave negatively toward other people because of their hepatitis decreased from 34% (91/267) in 2021 to 29% (169/589) in 2022 (Figure 39). This includes for 2022, 2% (9/589) of health care worker participants that reported they would likely "often" or "always" behave negatively toward other people because of their hepatitis C infection (Figure 39).

Figure 39. Self-reported likelihood of behaving negatively towards other people because of their hepatitis C among NSW health care workers, for each study period



Please note that the recruitment approach was different in 2018, resulting in different demographic profiles for the participants. Hence, comparison between those years need to be made carefully
Missing data have been excluded from analysis

Indicator Key:

Study & Design: **Stigma Indicators Monitoring Project, survey**
Sample size in NSW in 2022: **589**

3.1 Monitoring Service Coverage

3.1.4 Stigma and discrimination

d.4 Likelihood of behaving negatively toward other people because of their hepatitis C

Indicator definition

Numerator

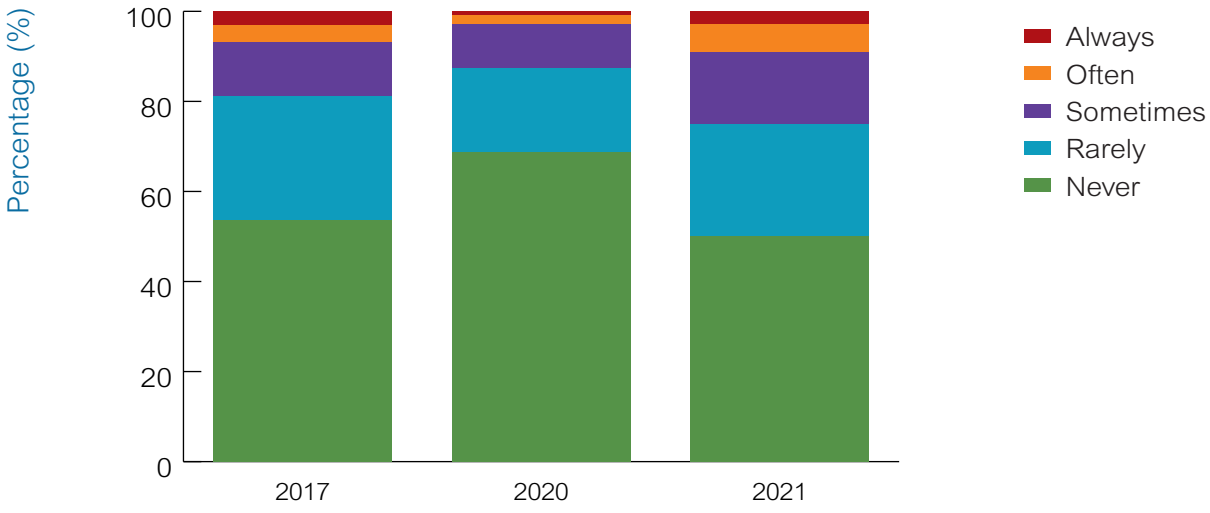
Stigma Indicators Monitoring Project participants (general public) who reported likelihood of behaving negatively toward other people because of their hepatitis C

Denominator

Stigma Indicators Monitoring Project health care (general public)

Results: The proportion of general public participants who reported to likely behave negatively toward other people because of their hepatitis increased from 31% (236/757) in 2020 to 50% (343/688) in 2021 (Figure 40). This includes for 2021, 6% (42/688) of participants that reported they would likely "often" or "always" behave negatively toward other people because of their hepatitis C infection (Figure 40).

Figure 40. Self-reported likelihood of behaving negatively towards other people because of their hepatitis C among NSW general public, for each study period



Please note that the recruitment approach was different across the three surveys, resulting in different demographic profiles for the participants. Hence, comparison between those years need to be made carefully
Missing data have been excluded from analysis

Indicator Key:

Study & Design: **Stigma Indicators Monitoring Project**
Sample size in NSW in 2021: **688**

3.2.1 People living with current hepatitis C

Background

Population-level DAA treatment scale-up is expected to reduce current hepatitis C infection (hepatitis C RNA prevalence). Numbers of people who are living with hepatitis C is used to monitor the impact of treatment scaleup on overall hepatitis C infection and in different populations, including people who inject drugs and people living with HIV.

Key Indicators

a.
People living with current hepatitis C infection

b.
Hepatitis C RNA prevalence among people attending emergency departments

c.1, c.2, c.3
Hepatitis C RNA prevalence among people who inject drugs

d.1 and d.2
Hepatitis RNA prevalence among incarcerated people

e.
Hepatitis C RNA prevalence among people living with HIV

3.2 Monitoring Impact

3.2.1 People living with current hepatitis C infection

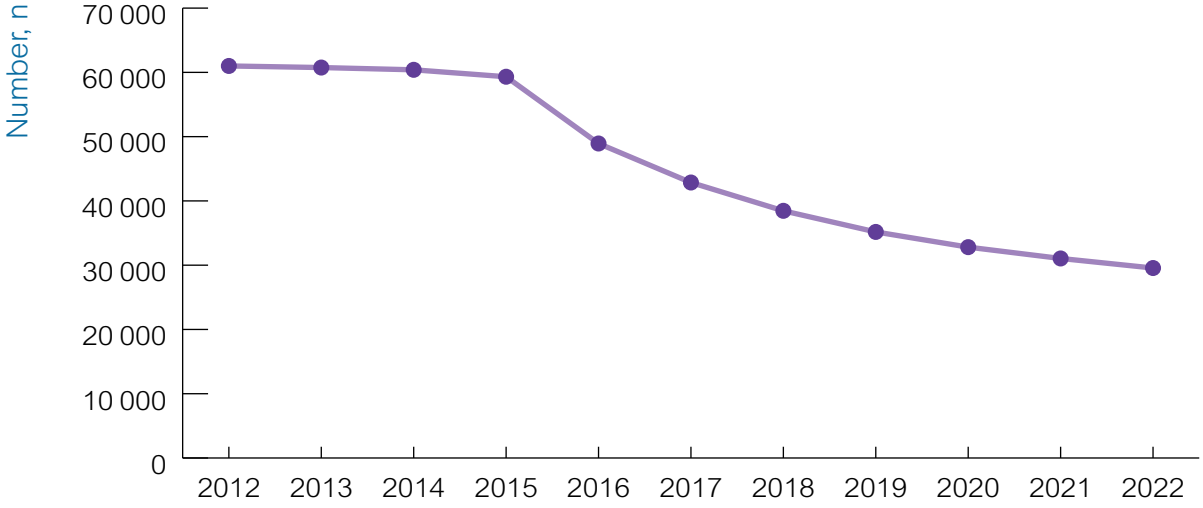
a. People living with current hepatitis C infection

Indicator definition

People living with current hepatitis C infection, adjusted for spontaneous hepatitis C clearance mortality, hepatitis C cure through treatment, undiagnosed hepatitis C, and new hepatitis C infections

Results: In 2022, 29 557 people were estimated to be living with hepatitis C, a 50% decline from 59 321 in 2015 (Figure 41).

Figure 41. People living with current hepatitis C infection in NSW, 2012-2022



Indicator Key

Study & Design: **Mathematical modelling**

3.2 Monitoring Impact

3.2.1 People living with current hepatitis C infection

b. Hepatitis C RNA prevalence among people attending emergency departments

Indicator definition

Numerator

SEARCH 3X participants who had current hepatitis C infection

Denominator

SEARCH 3X participants

Results: In 2023-2024*, among 15 312 eligible emergency department patients, 316 (2%) were hepatitis C antibody positive. Among the antibody positive population, 265 were hepatitis C RNA tested and 14% (37/265) had current hepatitis C infection.

* Data up to July 19th 2024

Indicator Key

Study & Design: **SEARCH 3X, observational cohort**
Sample size in NSW in 2024: **15 312**
Number of sites in NSW in 2024: **3**

3.2 Monitoring Impact

3.2.1 People living with current hepatitis C infection

c.1 Hepatitis C RNA prevalence among people who inject drugs

Indicator definition

Numerator

ANSPS participants with current hepatitis C infection

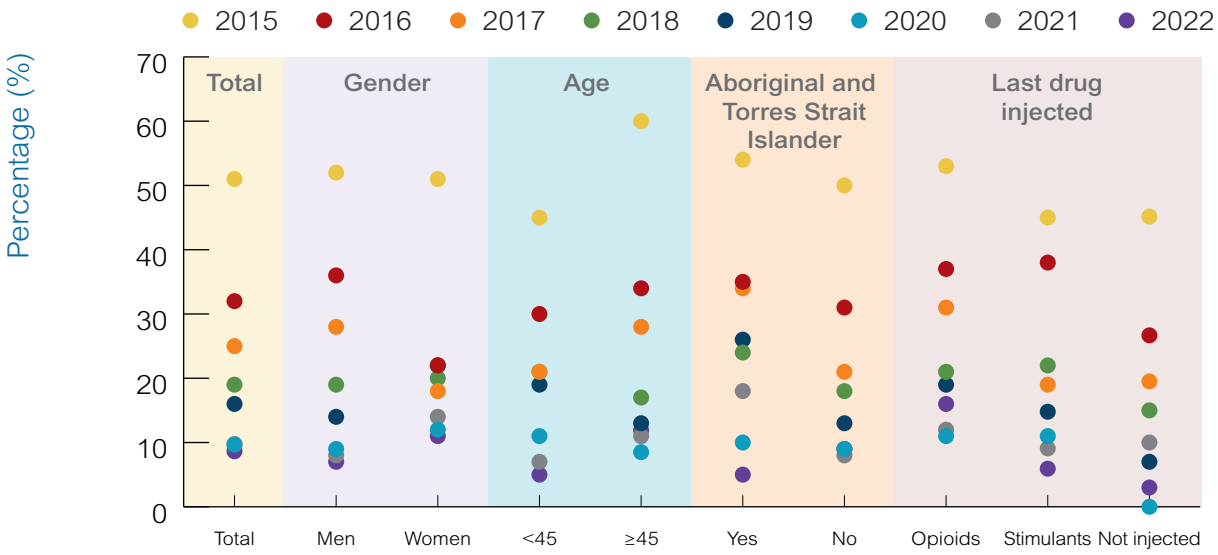
Denominator

ANSPS participants with hepatitis C RNA testing results

Results: In 2022, among 405 ANSPS participants with sufficient dried blood spot sample for testing HIV/HCV antibody and hepatitis C RNA, 35 (9%) had current hepatitis C infection (hepatitis C RNA positive). This represents a marked decline from 2015 when 132 of 259 (51%) ANSPS participants with hepatitis C RNA testing results had current hepatitis C infection (Figure 42).

In 2022, differences in prevalence of current hepatitis C infection were noted by gender: 7% (19/262) prevalence among men and 11% (14/131) among women; age group: 5% (10/195) prevalence among younger than 45 years and 12% (25/210) among 45 years and above. Among Aboriginal and Torres Strait Islander people current hepatitis C infection prevalence was 5% (5/93), and among non-Indigenous Australians was 9% (28/301). Differences in prevalence were also noted by last drug injected: 16% (25/161) for opioid injection, 6% (8/135) for stimulant injection, and 3% (2/62) for those who did not inject within the last month (Figure 42).

Figure 42. Prevalence of current hepatitis C infection among ANSPS participants in NSW, 2015-2022, by sex, age group, Aboriginal and Torres Strait Islander status, and last drug injected



* 2015-2019: Samples weighted for gender and hepatitis C Ab Status. Samples from 2020 onwards not weighted as yield >90%

** 2021 data: Public health measures due to the impact of COVID-19 significantly impacted data collection in NSW in 2021 as only 3 sites had capacity to participate, and these had reduced numbers compared to previous years. Therefore 2021 data should be interpreted with caution.

Indicator Key:

Study & Design: **ANSPS, annual survey**
Sample size in NSW in 2022: **420**
Number of sites in NSW in 2022: **18**

3.2 Monitoring Impact

3.2.1 People living with current hepatitis C infection

c.2 Hepatitis C RNA prevalence among people who inject drugs

Indicator definition

Numerator

ETHOS Engage participants with current hepatitis C infection

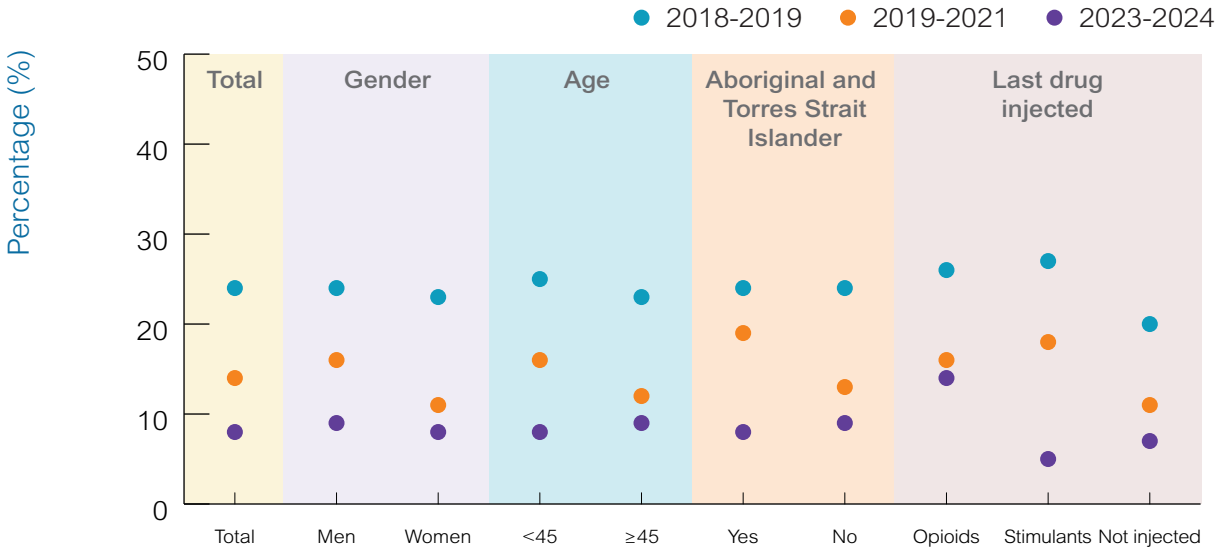
Denominator

ETHOS Engage participants with hepatitis C RNA testing results

Results: In 2023-2024*, among 509 ETHOS Engage participants with point-of-care hepatitis C RNA testing results**, 43 (8%) had current hepatitis C infection (hepatitis C RNA positive). The current hepatitis C infection prevalence has declined from 14% (113/785) in 2021-2019 and 24% (233/975) in 2018-2019 (Figure 43).

In 2023-2024, prevalence of current infection was similar by gender: 9% (30/334) among men and 8% (13/171) among women, age group: 8% (19/244) among those under 45 years and 9% (24/265) for 45 years and older, or Aboriginal and Torres Strait Islander status: 8% (13/161) among Aboriginal and Torres Strait Islander people and 9% (30/348) among non-Indigenous Australians. However, differences were noted by major drug injected in last month: 14% (22/162) among those injecting opioids, 5% (6/133) among those injecting stimulants, and 7% (14/206) among those not injecting in last month (Figure 43).

Figure 43. Prevalence of current hepatitis C infection among ETHOS Engage participants in NSW, for each study period, by sex, age group, Aboriginal and Torres Strait Islander status, and major drug injected within the last month.



* Xpert hepatitis C Viral Load Fingerstick Point-of-Care Assay were used for hepatitis C RNA testing
** Data up to April 23rd 2024
*** Due to small sample size, data from participants who did not primarily inject non-opioids or non-stimulants in the past month is not displayed.

Indicator key:

Study & Design: **ETHOS Engage, observational cohort**
Sample size in NSW in 2023-2024*: **666**
Number of sites in NSW in 2023-2024*: **15**

3.2 Monitoring Impact

3.2.1 People living with current hepatitis C infection

c.3 Hepatitis C RNA prevalence among people who inject drugs

Indicator definition

Numerator

National Program participants with history of injecting drug use and current hepatitis C infection

Denominator

National Program participants with history of injecting drug use and hepatitis C testing results

Results: In 2024*, among 613 National Program participants with history of injecting drug use and hepatitis C testing results, 514 (84%) were antibody positive and 102 (17%) had current hepatitis infection (hepatitis C RNA positive) (Figure 44).

In 2024*, differences in prevalence of current hepatitis C infection were noted by gender: 18% among men and 14% among women, and Aboriginal and Torres Strait Islander status: 18% among Aboriginal and Torres Strait Islander people and 16% among non-Indigenous Australians (Figure 44).

Figure 44. Prevalence of antibody positive and current hepatitis C infection among National Program participants in NSW, for each study period, by sex and Aboriginal and Torres Strait Islander status

* Data up to May 1st 2024
** Data is only for first instance of a person in the dataset, repeat testing is excluded

Indicator Key:

Study & Design: **National Program, observational cohort**
Sample size in NSW in 2024*: **2028**
Number of sites in NSW in 2024*: **92 active sites**

3.2 Monitoring Impact

3.2.1 People living with current hepatitis C infection

d.1 Hepatitis RNA prevalence among incarcerated people

Indicator definition

Numerator

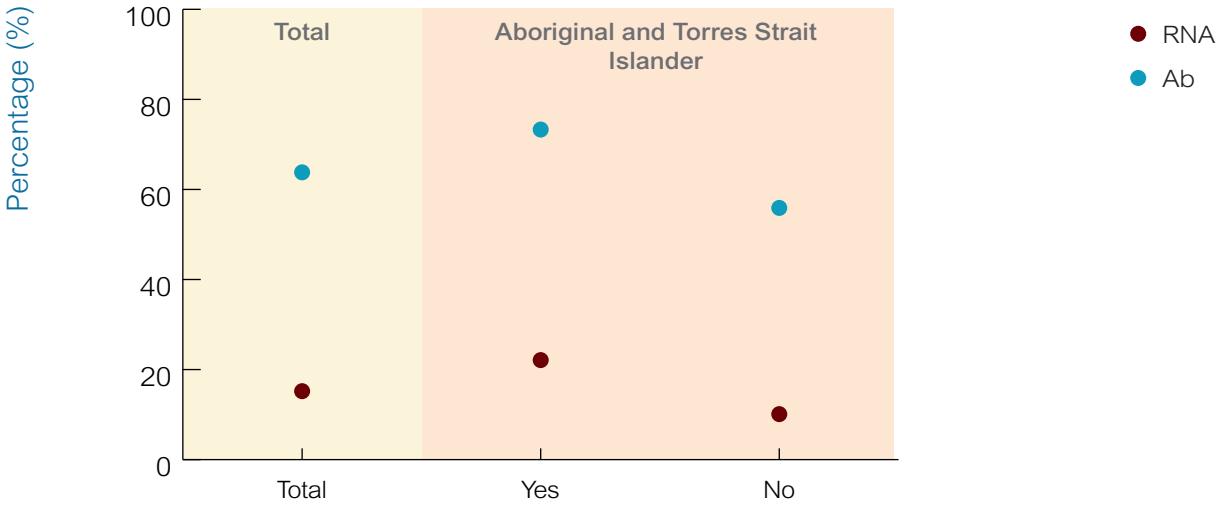
AusHep participants with a history of injecting drug use and current hepatitis C infection

Denominator

AusHep participants with a history of injecting drug use and hepatitis C testing results

Results: In 2022-2023, among 168 AusHep participants with history of injecting drug use or ever receiving opioid agonist therapy, 110 (64%) were antibody positive and 28 (17%) had current hepatitis C infection. Differences in hepatitis C prevalence were noted by Indigenous ethnicity: among Aboriginal and Torres Strait Islander people 73% (66/90) antibody positive and 22% (20/90) current hepatitis C infection, for non-Indigenous Australians 56% (44/78) antibody positive and 10% (8/78) current hepatitis C infection, respectively (Figure 45).

Figure 45. Prevalence of antibody positive and current hepatitis C infection among AusHep participants in NSW, 2022-2023, by Aboriginal and Torres Strait Islandert status



Indicator Key:

Study & Design: **AusHep, cross-sectional bio-behavioural survey**
Sample size in NSW: **309**
Number of NSW sites: **7**

3.2 Monitoring Impact

3.2.1 People living with current hepatitis C

d.2 Hepatitis RNA prevalence among incarcerated people

Indicator definition

Numerator

National Program incarcerated participants with current hepatitis C infection

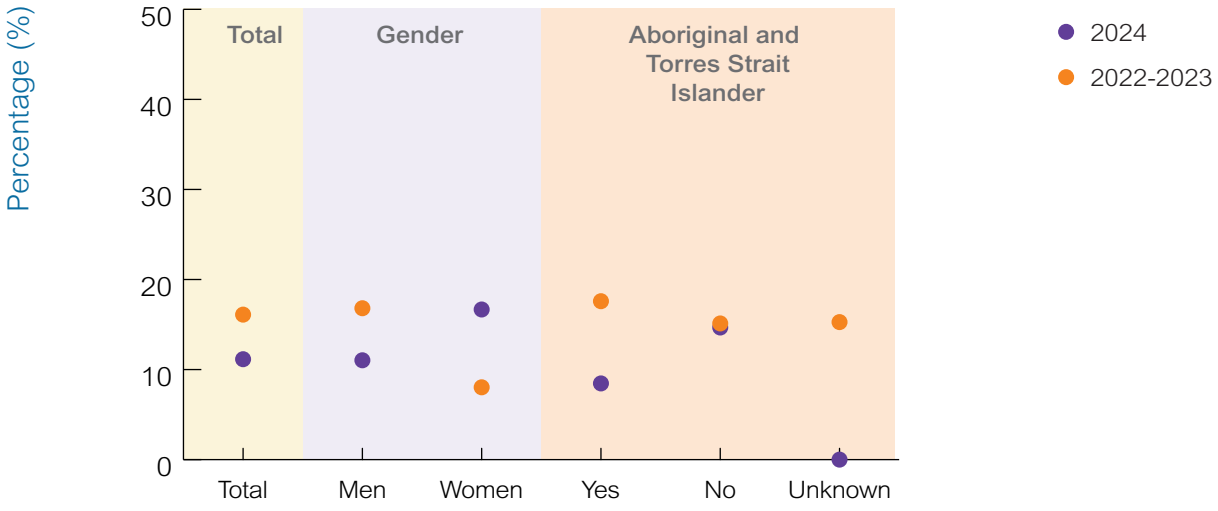
Denominator

National Program incarcerated participants with hepatitis C test results

Results: In 2024*, among 278 National Program incarcerated participants with hepatitis C tests, 31 (11%) had current hepatitis C infection. In 2022-2023, among 7384 National Program incarcerated participants with hepatitis C tests, 1189 (16%) had current hepatitis C infection (Figure 46).

In 2024*, differences in current hepatitis C prevalence were noted by gender: among women (17%) and men (11%) and Aboriginal and Torres Strait Islander status: among Aboriginal and Torres Strait Islander people (5%) and non-Indigenous Australians (15%) (Figure 46).

Figure 46. Prevalence of current hepatitis C infection among National Program incarcerated participants in NSW, for each study period, by gender, Indigenous ethnicity



* Data up to May 1st 2024

Participants that answered "other" for gender and participants that had an unknown Aboriginal and Torres Strait Islander status were removed from the analysis.

Indicator Key:

Study & Design: **National Program, observational cohort**

Sample size in NSW in 2024*: **2028**

Number of sites in NSW in 2024*: **8 active sites**

3.2 Monitoring Impact

3.2.1 People living with current hepatitis C

e. Hepatitis C RNA prevalence among people living with HIV

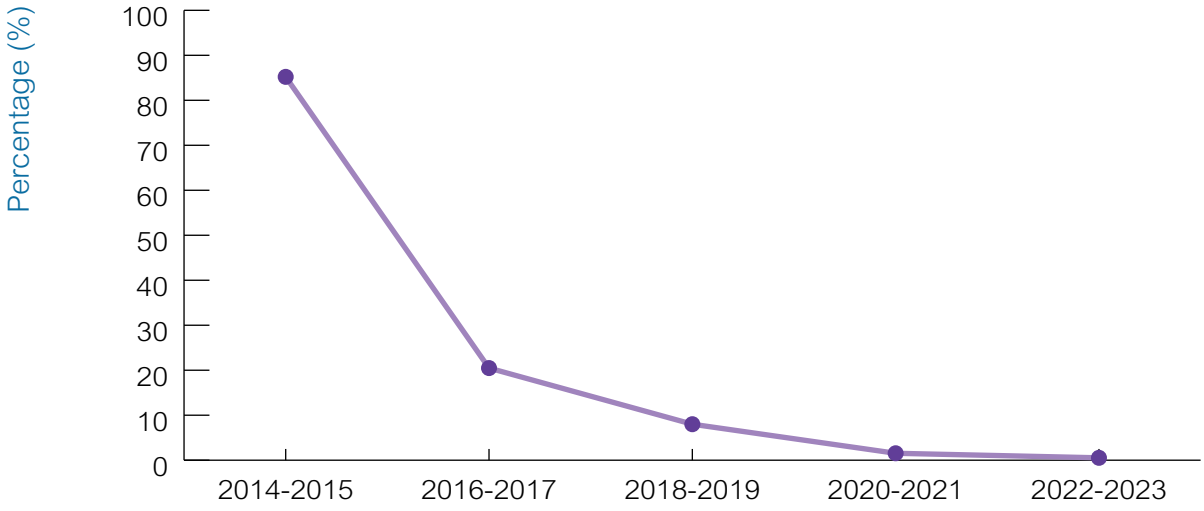
Indicator definition

Numerator
CEASE participants with current hepatitis C infection

Denominator
CEASE participants with hepatitis C RNA testing

Results: In 2014-2015 among 263 CEASE participants (HIV and hepatitis C antibody positive) prevalence of current hepatitis C infection was 85% (223/263). In 2022-2023 prevalence of current hepatitis C infection had declined to 0.5% (1/188) (Figure 47).

Figure 47. Prevalence of current hepatitis C infection among CEASE participants, for each study period



Indicator Key

Study & Design: **CEASE, observational cohort**
Sample size in NSW in 2022-2023: **188**
Number of sites in NSW in 2022-2023: **11**

3.2 Monitoring impact

3.2.2 Incidence of hepatitis C infection

Background

In the DAA era, higher numbers of people with ongoing hepatitis C transmission risk are receiving treatment. Numbers of newly acquired hepatitis C infections among different populations is used to monitor the impact of DAA scale-up, including community-based cohorts, people who inject drugs re-tested in context of sentinel surveillance, and people who have received prior hepatitis C treatment. Younger age hepatitis C notifications are also used as a surrogate of hepatitis C incidence, given probable more recent acquisition of infection.

Key indicators

a.
Younger age (15-24 years) hepatitis C notifications

b.
Trends in hepatitis C incidence

c.
Hepatitis C incidence among incarcerated people

d.
Hepatitis C reinfection incidence among people living with HIV

3.2 Monitoring impact

3.2.2 Incidence of hepatitis C infection

a. Younger age (15-24 years) hepatitis C notification

Indicator definition

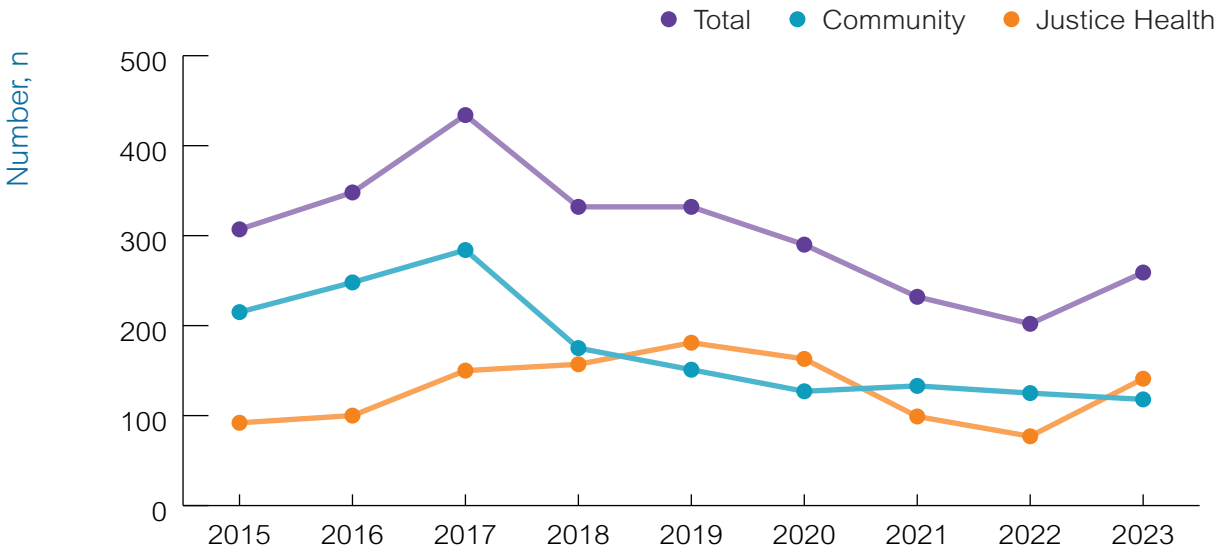
Hepatitis C notifications among NSW residents aged 15-24 years

Results: In 2023, number of hepatitis C notification in 15-24 years age group was 259. Between 2015 and 2023, number of notifications in this age group decreased (307 to 259) (Figure 48).

In 2023, in Justice Health settings, number of hepatitis C notifications in 15-24 years age group was 141, 54% of all notifications in this age group. In 2015, number of hepatitis C notifications in 15-25 years age group was 92, 30% of all notifications in this age group (Figure 48).

In the community, the trend is going toward a diminution from 2017 (n=284), and then stabilize from 2020 (n=127) onwards (2021 n=133; 2022 n=125; 2023 n=118).

Figure 48. Hepatitis C notifications among younger age (15-24 years) in NSW, 2015-2023



Indicator Key

Study & Design: **NCIMS database, register of diagnosis of notifiable infectious disease**

3.2 Monitoring impact

3.2.2 Incidence of hepatitis C infection

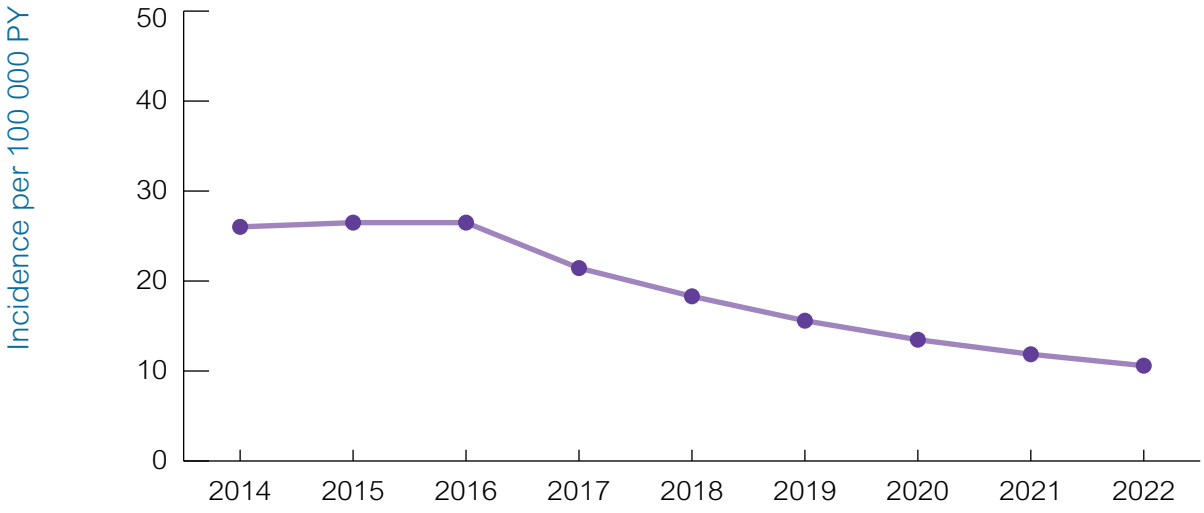
b. Trends in hepatitis C incidence

Indicator definition

Estimated number of new hepatitis C infections per 100 000 population in NSW

Results: During 2014-2022, hepatitis C incidence was relatively stable from 2014 to 2016 then declined from 26 per 100 000-person year (PY) to 11 per 100 000 PY in 2022 (Figure 3).

Figure 3 Estimated hepatitis C incidence in NSW, 2014-2022



Indicator Key

Study & Design: **Mathematical modelling**

3.2 Monitoring impact

3.2.2 Incidence of hepatitis C infection

c. Hepatitis C incidence among incarcerated people

Indicator definition

Numerator

Hepatitis C incidence cases among STOP-C NSW participants, by injecting history

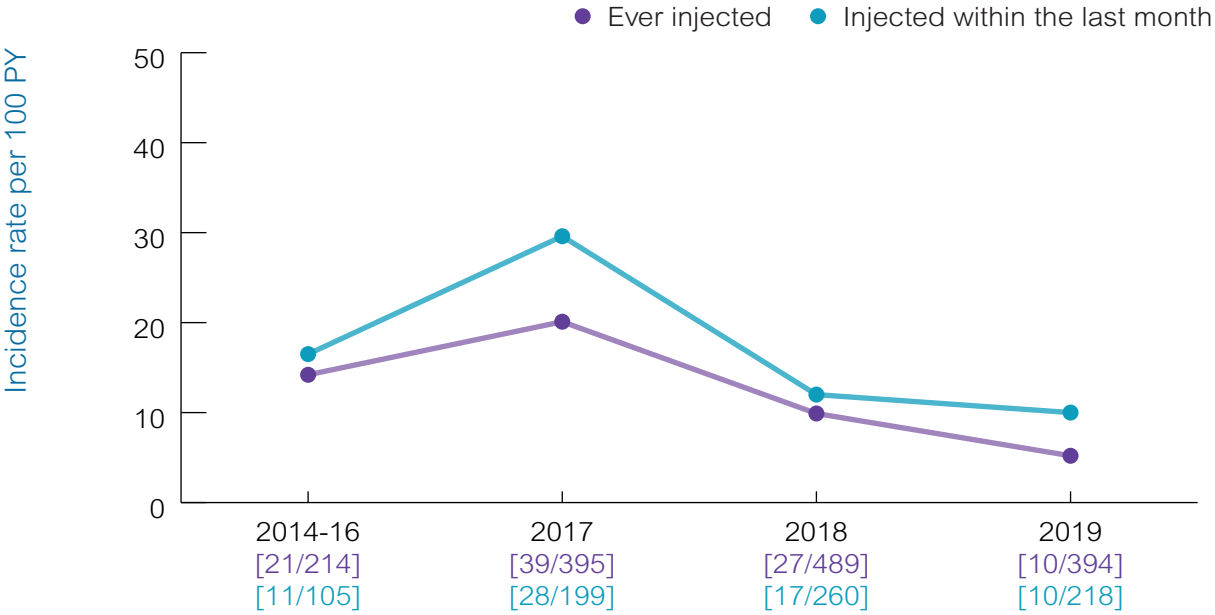
Denominator

STOP-C NSW participants

Results: In 2019, hepatitis C incidence was 5 per 100 person-year (PY) among STOP-C participants with a history of injecting drug use (10/394) and 10 per 100 PY (10/218) among the sub-population who injected in the last month (Figure 49).

In both groups, the hepatitis C incidence rate declined from 2017 due to a rapid scale-up of DAA therapy, among participants with a history of inject drug use from 20 per 100 PY in 2017 to 5 per 100 PY in 2019 and among the sub-population who injected within the last month from 30 per 100 PY in 2017 to 10 per 100 PY in 2019 (Figure 49).

Figure 49. Hepatitis C incidence among STOP-C incarcerated participants in NSW, 2014-2019



Indicator Key

Study & Design: **STOP-C, observational cohort**
Sample size in NSW in 2019: **3691**
Number of sites in NSW in 2022-2023: **4**

3.2 Monitoring impact

3.2.2 Incidence of hepatitis C infection

d. Hepatitis C reinfection incidence among people living with HIV

Indicator definition

Numerator

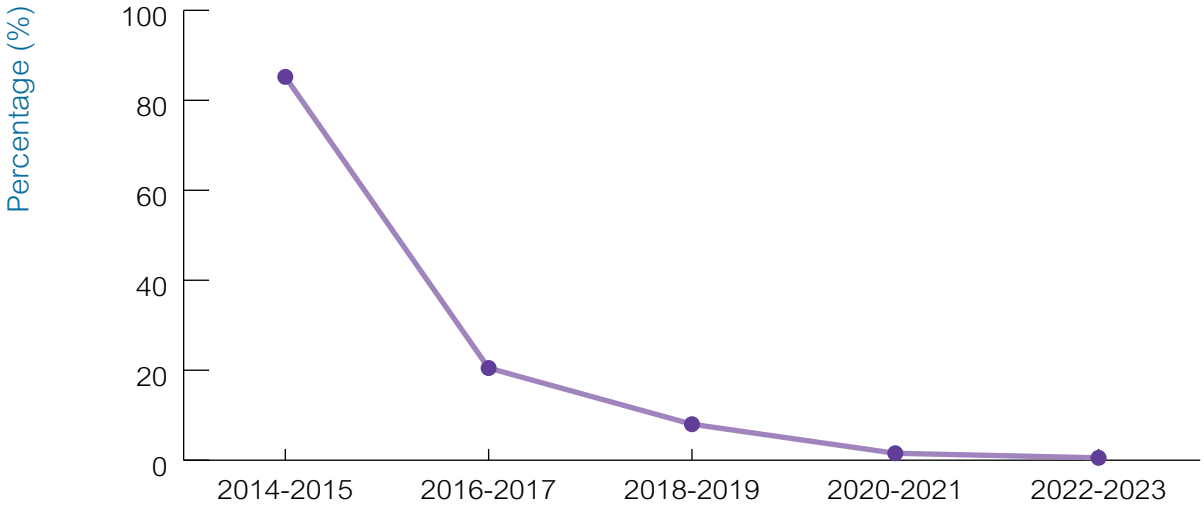
CEASE participants with hepatitis C reinfection after treatment-induced cure

Denominator

CEASE participants retested for hepatitis C RNA after treatment-induced cure

Results: Among 294 CEASE participants who received hepatitis C treatment and were retested after treatment-induced cure, reinfection incidence declined from 4 per 100 PY in 2014-2015 to 0 per 100 PY in 2022-2023 (Figure 50).

Figure 50. Hepatitis C reinfection incidence among CEASE participants, for each study period



Indicator Key

Study & Design: **CEASE, observational cohort**
Sample size in NSW: **289**
Number of sites in NSW: **11**

3.2 Monitoring impact

3.2.3 Quality of life

Background

Current hepatitis C infection has been associated with reductions in health-related quality of life, particularly in the setting of more advanced liver disease. Injecting drug use has also been associated with reductions in health-related quality of life. It has been difficult to evaluate the impact of hepatitis C on health-related quality of life due to the high prevalence of co-morbidities including alcohol use disorder and injecting drug use-related harm.

Key indicators

a.

Quality of life by current hepatitis C infection status

b.

Quality of life by recent injecting drug use status

3.2 Monitoring impact

3.2.3 Quality of life

a. Quality of life by current hepatitis C infection status

Indicator definition

Numerator

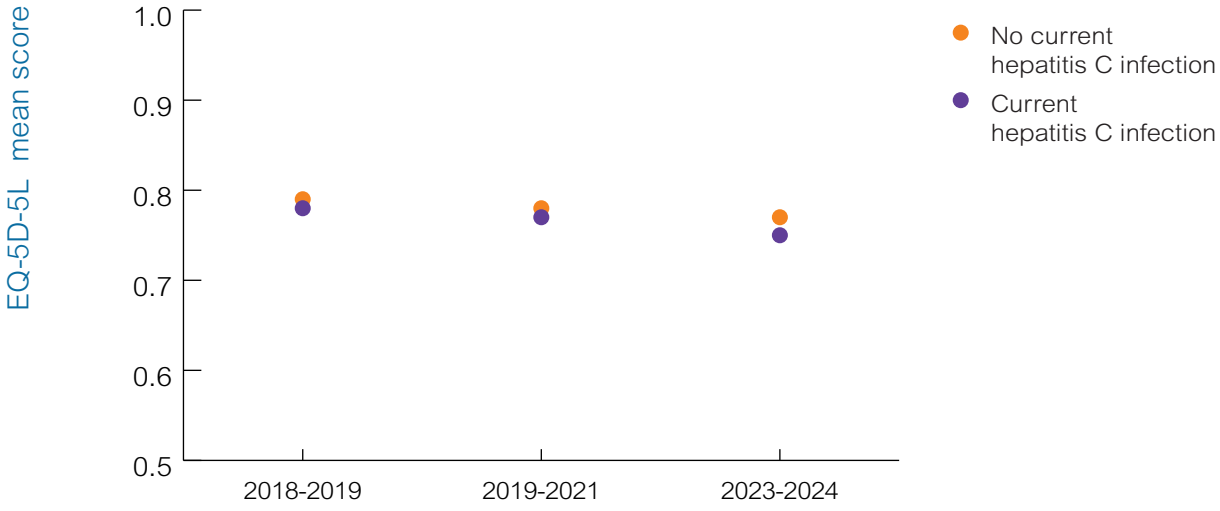
ETHOS Engage participants EQ-5D-5L mean score, by current hepatitis C infection status

Denominator

ETHOS Engage participants with EQ-5D-5L mean scores

Results: For all three periods, mean EQ-5D-5L scores used to evaluate quality of life are similar between participants with and without current hepatitis C infection (Figure 51).

Figure 51. Mean EQ-5D-5L score among ETHOS participants, for each study period by current hepatitis C infection status



* Data up to April 23rd 2024

Participants with missing hepatitis C status were excluded from the analysis (2018-2019: n=40; 2019-2021: n=31; 2023-2024: n=16)

Indicator key:

Study & Design: **ETHOS Engage, observational cohort**

Sample size in NSW in 2023-2024*: **666**

Number of sites in NSW in 2023-2024*: **15**

3.2 Monitoring impact

3.2.3 Quality of life

b. Quality of life by recent injecting drug use status

Indicator definition

Numerator

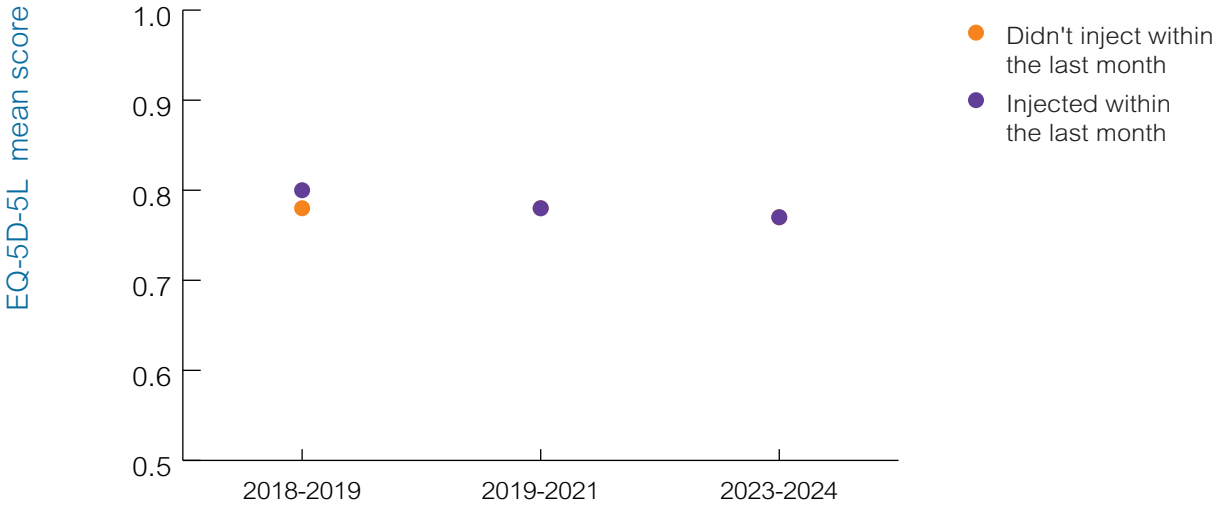
ETHOS Engage participants EQ-5D-5L mean scores, by recent injecting drug use status

Denominator

ETHOS Engage participants with EQ-5D-5L mean scores

Results: For all three periods, mean EQ-5D-5L scores are similar between participants that injected and didn't inject within the last month (Figure 52).

Figure 52. Mean EQ-5D-5L score among ETHOS participants, for each study period, by recent injecting drug use status



* Data up to April 23rd 2024

Indicator key:

Study & Design: **ETHOS Engage, observational cohort**
Sample size in NSW in 2023-2024*: **666**
Number of sites in NSW in 2023-2024*: **15**

3.2 Monitoring Impact

3.2.4 Morbidity and mortality

Background:

In the era of interferon-based therapies, suboptimal treatment uptake and outcomes contributed to the rising liver disease burden of hepatitis C. Increased uptake of DAA therapy is expected to lower hepatitis C liver-related morbidity and mortality at the population level. Hepatitis C-related liver morbidity and mortality are used to monitor the impact of DAA treatment scale-up.

Key Indicators:

a.

Hepatitis C-related decompensated cirrhosis diagnosis

b.

Hepatitis C-related hepatocellular carcinoma diagnosis

c.

Hepatitis C-related liver mortality

3.2 Monitoring Impact

3.2.4. Morbidity and mortality

a. Hepatitis C-related decompensated cirrhosis diagnosis

Indicator definition

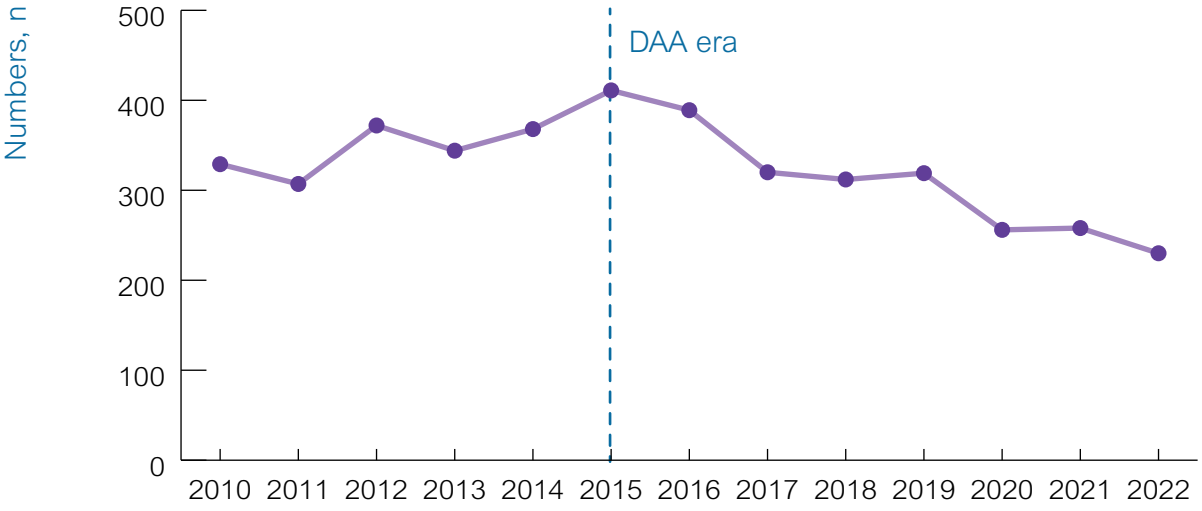
Numerator

People with hepatitis C notification and first-time hospital admission for decompensated cirrhosis

Results: In 2010-2022, 4215 people with hepatitis C notification during 1995-2022 had a decompensated cirrhosis diagnosis, characterised by a first-time hospital admission (Figure 53).

Between 2015 and 2022, number of people with decompensated cirrhosis diagnosis decreased (411 to 230) (Figure 53).

Figure 53. Decompensated cirrhosis diagnosis among people with hepatitis C notification in NSW, 2010-2022



Indicator Key

Study & Design: **Population-level data linkage**
Sample size: **113 716 people with a hepatitis C notification 1995-2022**

3.2 Monitoring Impact

3.2.4. Morbidity and mortality

b. Hepatitis C-related hepatocellular carcinoma diagnosis

Indicator definition

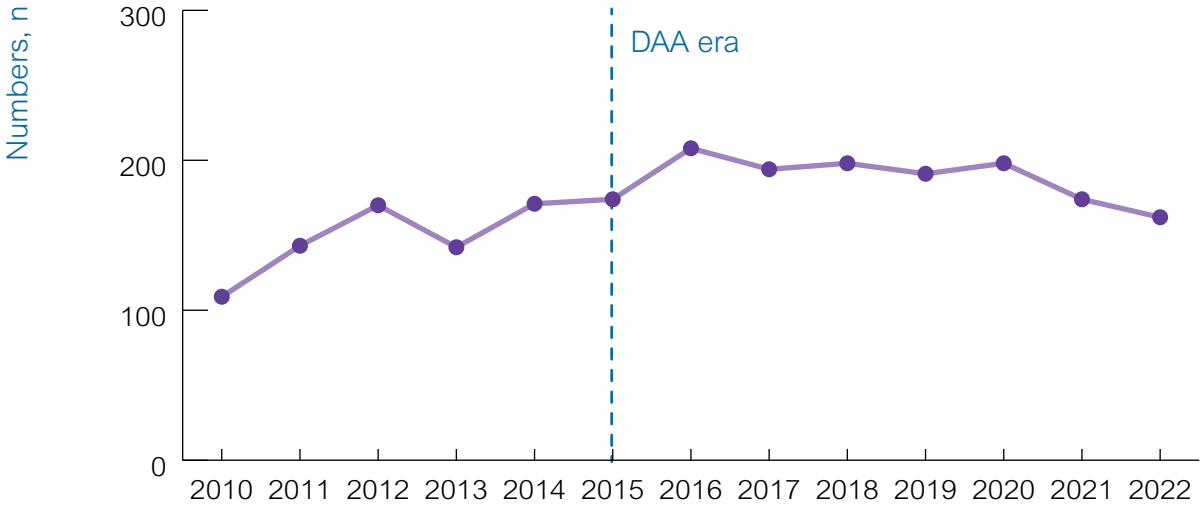
Numerator

People with hepatitis C notification and first-time hospital admission or cancer registry notification for hepatocellular carcinoma

Results: In 2010-2022, 2234 people with hepatitis C notification 1995-2022 had a hepatocellular carcinoma diagnosis, characterized by a first-time hospital admission or diagnosis through cancer registry (Figure 54).

Between 2015 and 2022, number of people with hepatocellular carcinoma diagnosis decreased (174 to 162) (Figure 54).

Figure 54. Hepatocellular carcinoma diagnosis among people with hepatitis C notification in NSW, 2010-2022



Indicator Key

Study & Design: **Population-level data linkage**
Sample size: **113 716 people with a hepatitis C notification 1995-2022**

3.2 Monitoring Impact

3.2.4. Morbidity and mortality

c. Hepatitis C-related liver mortality

Indicator definition

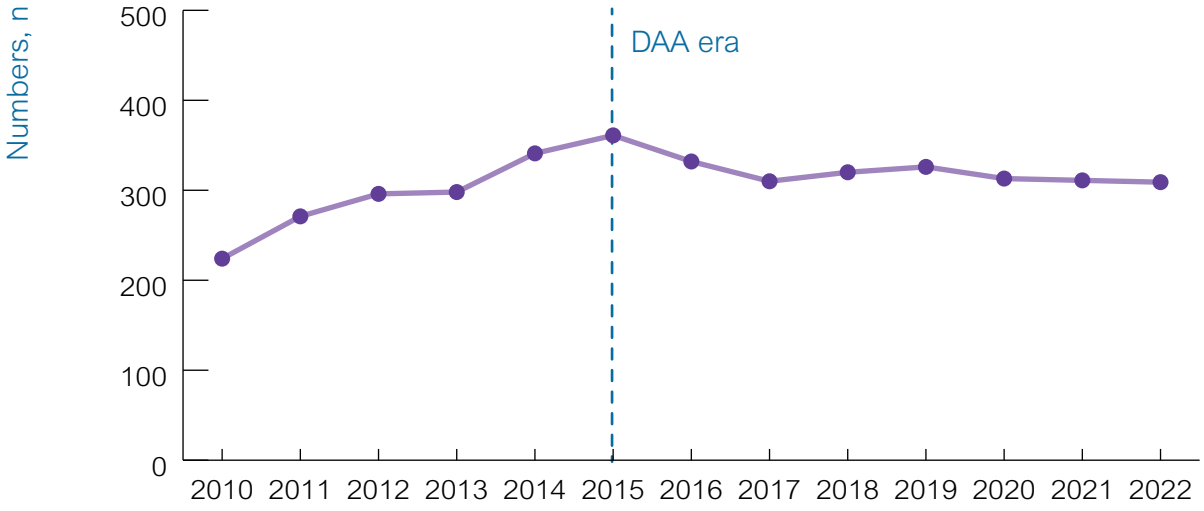
Numerator

People with a hepatitis C notification who died due to liver-related causes

Results: In 2010-2022, 4012 people with hepatitis C notification 1995-2022 had died due to liver-related causes, characterised by deaths following decompensated cirrhosis or hepatocellular carcinoma diagnosis* (Figure 55).

Between 2015 and 2022, number of people who died due to liver-related causes decreased (361 to 309) (Figure 55).

Figure 55. Liver-related deaths among people with hepatitis C notification in NSW, 2010-2022



Indicator Key

Study & Design: **Population-level data linkage**
Sample size: **113 716 people with a hepatitis C notification 1995-2022**

3.2 Monitoring impact

3.2.5 Cascade of care

The use of cascade of care for hepatitis C is crucial for gaining a deeper understanding of patients' journeys through the healthcare system, from their initial hepatitis C testing and diagnosis to their treatment initiation and eventual recovery. This model allows to identify gaps in care, such as instances where patients are diagnosed with a current hepatitis C infection but remain untreated, or cased where patients have received treatment yet are tested RNA positive. As an important tool for monitoring hepatitis C strategies, cascades of care play a significant role in highlighting gaps within the healthcare process.

Key indicators

a.

Estimated hepatitis C cascade of care in NSW

b.

Hepatitis C cascade of care in emergency departments

3.2 Monitoring impact

3.2.5 Cascade of care

a. Estimated hepatitis C cascade of care in NSW

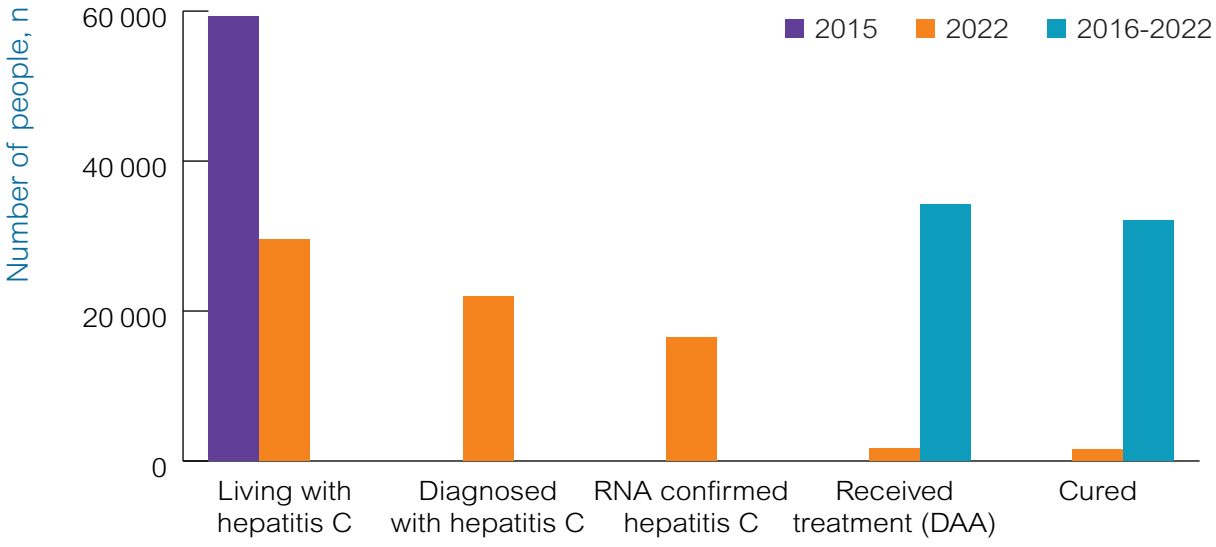
Indicator definition

Estimated hepatitis C cascade of care among people living in NSW

Results: At end 2022, an estimated 29 557 people were living with current hepatitis C infection in NSW, a 50% decrease from 59 321 in 2015. Among them, an estimated 21 979 (74%) were hepatitis C antibody diagnosed and an estimated 16 484 (56%) had hepatitis C RNA test confirmed current hepatitis C (Figure 56).

In 2016-2022, the number of people treated for hepatitis C was 34 186 with an estimated 32 113 people cured. For 2022, number treated and cured were 1689 and 1586, respectively (Figure 56).

Figure 56. Estimated hepatitis C cascade of care in NSW



Indicator Key

Study & Design: **Mathematical modelling**

3.2 Monitoring impact

3.2.5 Cascade of care

b. Hepatitis C cascade of care in emergency departments

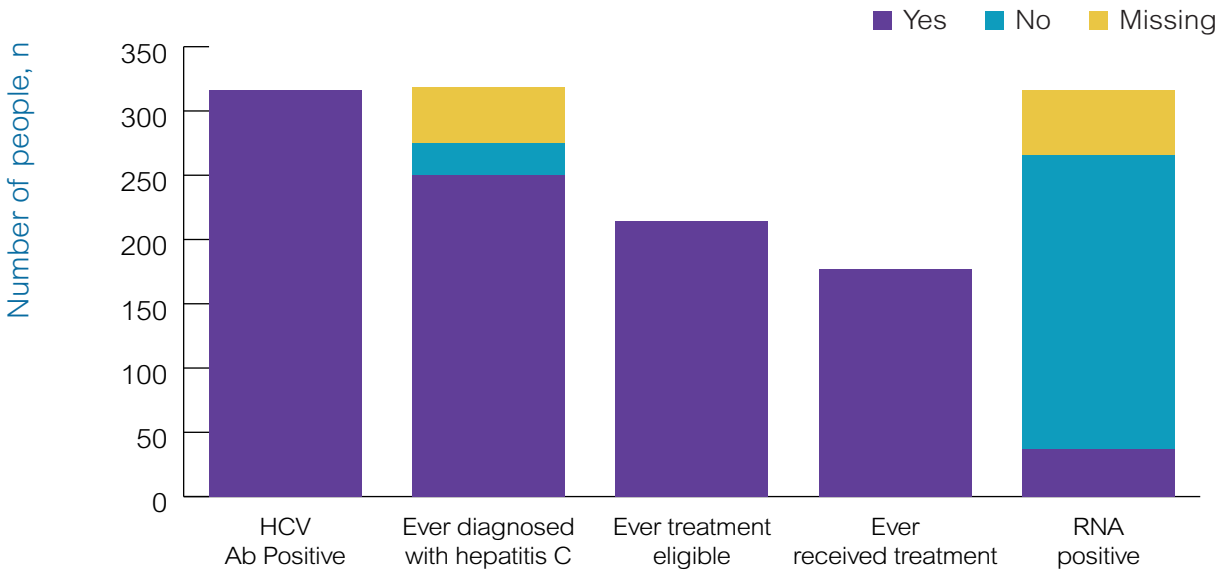
Indicator definition

Hepatitis C cascade of care among people attending emergency departments in NSW

Results: In 2023-2024*, among 15 312 patients attending three emergency departments in Sydney that were hepatitis C tested in non-targeted screening program (SEARCH 3X), 316 (2.1%) were hepatitis C antibody positive. Among those 316 patients, 78% had been diagnosed with hepatitis C, 8% were unaware of their diagnosis, and 14% had missing information on prior diagnosis (Figure 57).

Of 316 hepatitis C antibody positive SEARCH 3X participants, 214 (68%) were ever treatment eligible, as defined by reported previous hepatitis C treatment or current hepatitis C infection. Among 214 participants ever treatment eligible, 177 (83%) reported ever received hepatitis C treatment. Among 316 hepatitis C antibody positive participants, 265 were hepatitis C RNA tested. Among them, 37 (14%) were hepatitis C RNA positive and 228 (86%) were negative. Among 37 participants with positive hepatitis C RNA test, 10 (27%) reported prior hepatitis C treatment (Figure 57).

Figure 57. Cascade of care among people attending emergency departments in NSW, 2023-2024



* Data up to July 19th 2024

Indicator Key

Study & Design: **SEARCH 3X, observational cohort**
Sample size in NSW in 2023-2024*: **15 312**
Number of sites in NSW in 2023-2024: **3**

4. Discussion

The initial eight years of the DAA era in NSW have provided considerable impetus towards achievement of hepatitis C elimination targets. There are several areas that demonstrate highly encouraging service and impact outputs. Despite concerns highly curative DAA therapy could lead to increases in hepatitis C risk behaviour, evidence indicates relatively unchanged risk behaviour. Needle syringe coverage among people who inject drugs in the community is high and the around one in five who report a recent sharing event remains stable. Further, there has been expansion of opiate agonist therapy access, including through the recent introduction of depot-buprenorphine formulations. Thus, primary prevention remains strong and a key foundation for hepatitis C elimination in the community setting. In the prison setting, depot-buprenorphine has contributed to rapid expansion in opiate agonist therapy access, with a doubling of individuals receiving therapy over the last five years. But high numbers of reinfection retreatments in the prison setting reflect much higher levels of needle syringe sharing and the need to further enhance prevention.

Hepatitis C testing and diagnosis levels are high, despite the recent COVID pandemic. In recent years, there has been enhanced efforts for screening within the Justice Health setting. Although levels of hepatitis C testing and diagnosis are high, an important minority of people with hepatitis C who develop decompensated cirrhosis (liver failure) or hepatocellular carcinoma (liver cancer) are diagnosed late: at time of this presentation or within the two years prior. Late hepatitis C diagnosis is a clear missed opportunity for prevention of liver disease progression and advanced disease complications through earlier therapeutic intervention.

Unrestricted access to DAA therapy has provided high and relatively equitable uptake, with encouragingly high uptake among key marginalised populations. Most people with hepatitis C who were treatment eligible within the DAA era have been treated. The estimates of treatment coverage vary, from around 60% from mathematical modelling to more than 80% from cross-sectional surveys and cohorts of people who inject drugs and emergency department screening programs. The emergency department surveillance data is potentially the most representative for estimating treatment coverage, given the broader population screened and the inclusion of those hepatitis C diagnosed and undiagnosed.

The high proportion of people with hepatitis C who have received DAA therapy, the high cure rate, and a large population with ongoing risk behaviour, have led to an increasing number of people receiving hepatitis C retreatment for reinfection and an increasing proportion of overall treatment that is retreatment. The proportion of treatment that is reinfection retreatment is particularly high in the prison setting. It should be noted, however, that monitoring for and detection of hepatitis C reinfection with rapid linkage to retreatment is a major aspect of hepatitis C elimination strategy.

A remarkable hepatitis C elimination outcome has been achieved among people with hepatitis C/HIV coinfection, with the reduction in hepatitis C RNA prevalence from more than 80% to less than 1% over the DAA era, and the associated elimination of hepatitis C reinfection. Ongoing hepatitis C testing will be required in this population, as renewed transmission is clearly possible. Although the decline in hepatitis C RNA prevalence among people who inject drugs is less dramatic, a decline from half with current hepatitis C infection in 2015 to around 10% is impressive, supports Australia's international leadership in this key area of elimination, and demonstrates what can be achieved to provide effective prevention and treatment to highly marginalised populations. The declining hepatitis C RNA prevalence among at-risk populations is driving declines in numbers of new hepatitis C infections, with good prospects of achieving both the population-level incidence target (5/100 000 per year) and the specific people who inject drugs incidence target (2/100 per year) during this decade.

There is clear evidence that advanced liver disease burden, which had been progressively rising in the pre-DAA era, continues to decline. Reductions in liver-related mortality are probably a combination of reduced cases of decompensated cirrhosis, a plateauing of hepatocellular carcinoma, and improved survival following these advanced liver disease complications. The relatively smaller declines in hepatocellular carcinoma compared with decompensated cirrhosis relate to the ongoing liver cancer risk, albeit reduced, in those with cirrhosis who are cured. This highlights the need for enhanced hepatocellular carcinoma screening to enable earlier diagnosis and curative management, and strategies to reduce late hepatitis C diagnosis to ensure earlier therapeutic intervention and prevention of progression to advanced liver disease. Concerted efforts will be required to reduce hepatitis C-related deaths to 2/100 000 during this decade, given current incidence is more than double this figure.

Despite these encouraging findings in relation to hepatitis C elimination, there are relative gaps for some hepatitis C sub-populations in service and impact measures. Stigma and discrimination levels remain incredibly high, although there has been a small reduction in stigma related to hepatitis C. Further efforts are required to specifically address stigma related to injecting drug use, and stigma from healthcare workers.

This second report does have some key limitations, and areas that can be enhanced or included within subsequent reports. There is some inclusion of data, including late hepatitis C diagnosis, by geographical area, but further evaluation is required. Further data on incidence of reinfection in different populations and settings is a priority, as this is crucial for targeted prevention and treatment interventions. In conclusion, this report outlines considerable progress regarding implementation of strategies to achieve the New South Wales Government's goal of eliminating hepatitis C this decade. The framework for evaluation has been established through a very active process led by the Kirby Institute – New South Wales Health Working Group that includes membership from many stakeholder groups and provides the foundation to provide policy direction over the coming years.

5. Strategy References:

https://www.who.int/teams/global-hiv-hepatitis-and-stis-programmes/strategies/global-health-sector-strategies

https://www.health.gov.au/sites/default/files/2023-05/sixth-national-hepatitis-c-strategy-2023-2030.pdf

https://www.health.nsw.gov.au/hepatitis/Pages/hepatitiscstrategy.aspx