



Progress towards hepatitis C elimination among Aboriginal and Torres Strait Islander people in Australia

Monitoring and evaluation report, 2021



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KIRBY INSTITUTE

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ABBREVIATIONS

ABS	Australian Bureau of Statistics
ACCESS	Australian Collaboration for Coordinated Enhanced Sentinel Surveillance of Sexually Transmissible Infections and Blood Borne Viruses
ACCHS	Aboriginal Community Controlled Health Services
ANSPS	Australian Needle and Syringe Program Survey
AUD	Alcohol use disorder
BBV	Blood borne viruses
DAA	Direct-acting antiviral
ESLD	End-stage liver disease
ETHOS Engage	Enhancing Treatment of Hepatitis C in Opioid Substitution Settings
NNDSS	National Notifiable Diseases Surveillance System
NSP	Needle and syringe program
OAT	Opioid agonist therapy
REACH-C	Real-world Efficacy of Antiviral therapy in Chronic Hepatitis C
SCALE-C	Strategies for hepatitis C testing and treatment in Aboriginal communities that Lead to Elimination
STI	Sexually transmissible infections
SToP-C	Surveillance and Treatment of Prisoners with hepatitis C
WHO	World Health Organization

Preface

Hepatitis C is a global public health threat.¹

The development of highly curative and tolerable direct-acting antiviral (DAA) therapy for hepatitis C and the rising burden of hepatitis C-related liver disease and death have generated considerable global and national responses to eliminate hepatitis C by 2030.

In 2015, an estimated 188 690 people were living with chronic hepatitis C in Australia, of whom 29 682 (16%) were Aboriginal and Torres Strait Islander people.² As Aboriginal and Torres Strait Islander people represent 3% of the Australian population,³ they are disproportionately affected by the burden of hepatitis C. Aboriginal and Torres Strait Islander people experience a complex array of social and cultural determinants of health contributing to inequities in healthcare access, including ongoing consequences of colonisation, racism and discrimination, over-representation in custodial settings, lower health literacy, and limited culturally, age and gender appropriate prevention and health services.^{4,6}

Unrestricted access to government subsidised DAA therapy for hepatitis C from March 2016, paved the way for adopting the goal of eliminating hepatitis C as a public health threat in Australia by 2030. This elimination goal aligns with global targets set by the World Health Organization (WHO) and targets included in Australia's Fifth National Hepatitis C Strategy 2018–2022 and Fifth National Aboriginal and Torres Strait Islander Blood Borne Viruses and Sexually Transmissible Infections Strategy 2018-2022.^{4,7,8} While Australia has made considerable progress towards hepatitis C elimination with 88 790 people receiving DAA therapy by end 2020,⁹ emerging evidence indicates progress among Aboriginal and Torres Strait Islander people is more limited with gaps in rates of new hepatitis C infections and access to prevention and treatment. Of note, disruptions associated with the COVID-19 pandemic may have impeded hepatitis C elimination efforts.

This is the first report to provide an account of progress towards hepatitis C elimination among Aboriginal and Torres Strait Islander people as framed by the Fifth National Hepatitis C Strategy 2018-2022, the Fifth National Aboriginal and Torres Strait Islander Blood Borne Viruses and Sexually Transmissible Infections Strategy 2018-2022, and WHO Global Health Sector Viral Hepatitis Strategy 2016-2021. This report aims to describe hepatitis C elimination goals, objectives, and measurable indicators to evaluate progress. Progress of hepatitis C elimination is measured against targets by service coverage indicators, including hepatitis C testing and treatment uptake and outcomes, harm reduction coverage indicators; and impact indicators, including rates of new hepatitis C infections and hepatitis C related morbidity and mortality. An estimate of the hepatitis C cascade of care, including of the number of Aboriginal and Torres Strait Islander people living with chronic hepatitis C at end of 2020, is also presented.

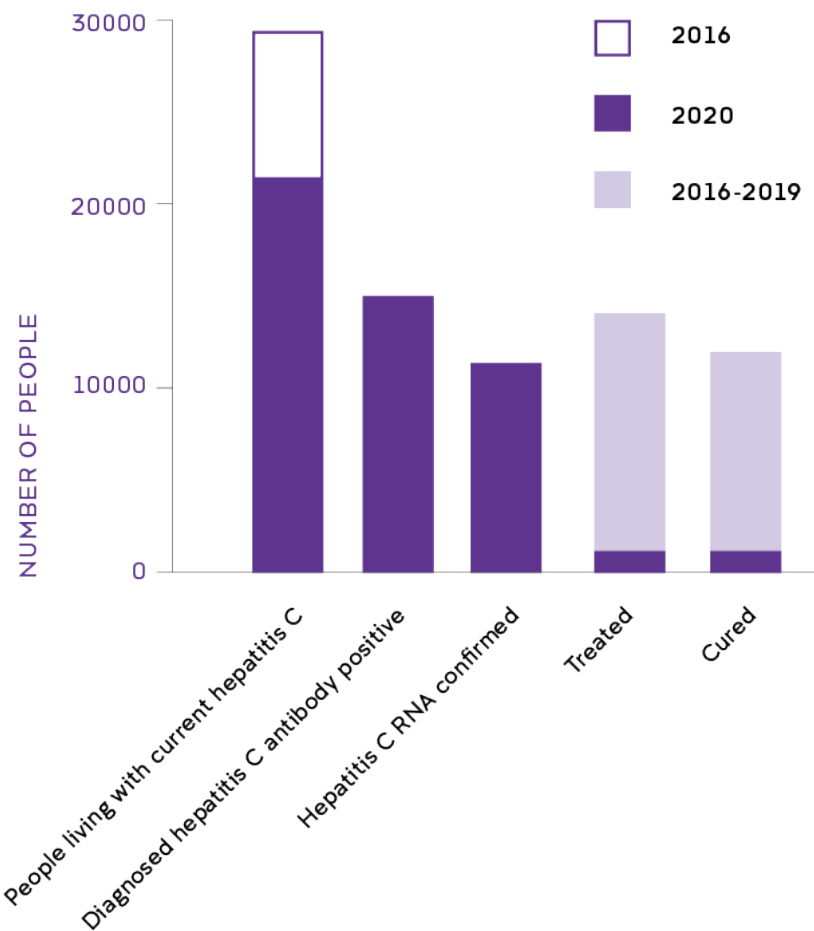
Finally, a set of strategic priorities and recommendations to enhance hepatitis C elimination among Aboriginal and Torres Strait Islander people is proposed.



Key messages

Hepatitis C cascade of care

- In 2020, 21 548 Aboriginal and Torres Strait Islander people were estimated to be living with current hepatitis C in Australia, a 17% decrease from the 29 682 at the end of 2015 (Source: Mathematical modelling).
- At end 2020, an estimated 117 810 Australians were living with current hepatitis C of whom 18% (21 548) were Aboriginal and Torres Strait Islander people. (Source: Mathematical modelling).



Service Coverage targets

1. Hepatitis C diagnosis



90% DIAGNOSED BY 2030

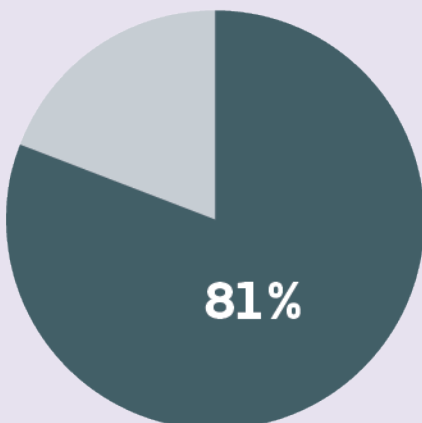


90% DIAGNOSED BY 2022

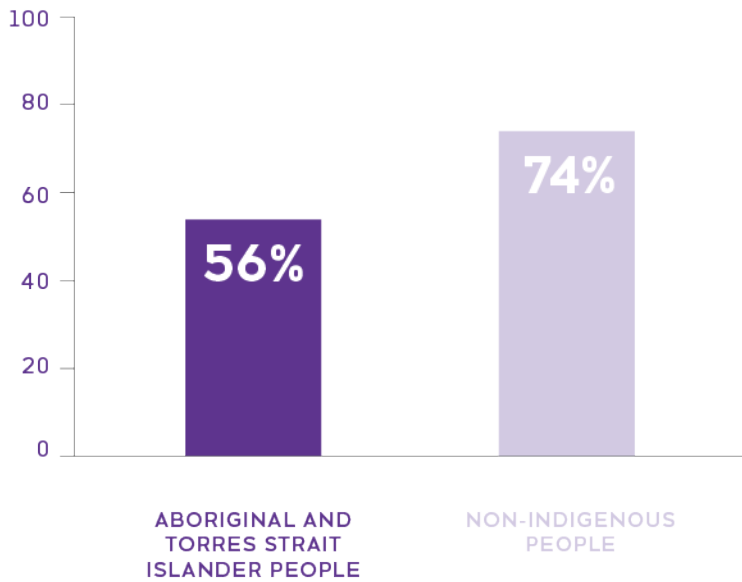
HEPATITIS C TESTING AND DIAGNOSIS

In 2016-2021, lifetime history of hepatitis C testing among Aboriginal and Torres Strait Islander people was relatively high and comparable to that among non-Indigenous population. Whereas recent testing (in the past 12 months) and confirmatory hepatitis C RNA testing was suboptimal.

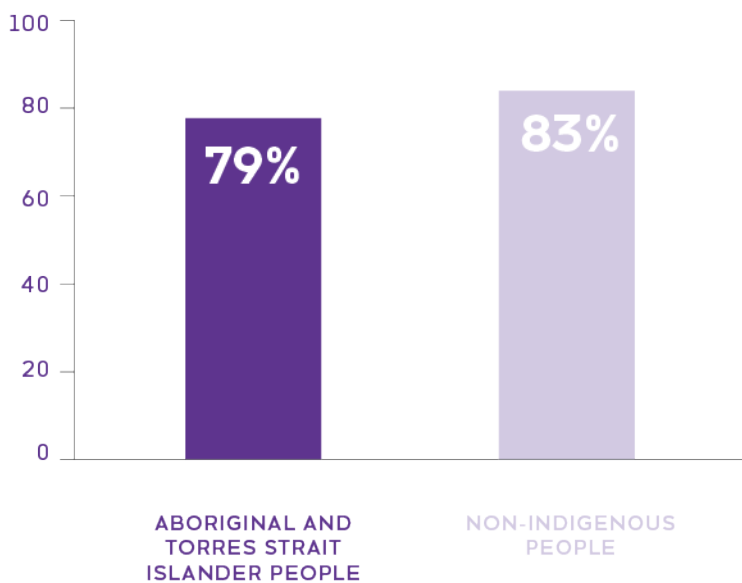
AN ESTIMATED 81% OF ABORIGINAL AND TORRES STRAIT ISLANDER PEOPLE WITH CURRENT HEPATITIS C IN AUSTRALIA HAVE BEEN DIAGNOSED SINCE 2015 (SOURCE: MATHEMATICAL MODELLING).



IN 2016-2018, HEPATITIS C RNA TESTING AMONG ABORIGINAL AND TORRES STRAIT ISLANDER PEOPLE (56%) WAS LOWER THAN THAT AMONG NON-INDIGENOUS PEOPLE (74%) (SOURCE: NSW DATA LINKAGE)



IN 2020, LIFETIME HEPATITIS C TESTING AMONG ABORIGINAL AND TORRES STRAIT ISLANDER PARTICIPANTS (79%) WAS SIMILAR TO HEPATITIS C TESTING AMONG NON-INDIGENOUS PARTICIPANTS (83%) (SOURCE: ANSPS).



HEPATITIS C TESTING AND DIAGNOSIS

IN 2019-2021, LIFETIME HISTORY OF HEPATITIS C RNA TESTING AMONG ABORIGINAL AND TORRES STRAIT ISLANDER PARTICIPANTS AND NON-INDIGENOUS PARTICIPANTS ATTENDING OPIOID AGONIST THERAPY CLINICS AND NEEDLE SYRINGE PROGRAMS WAS COMPARABLE (69% AND 70%, RESPECTIVELY). HOWEVER, HEPATITIS C RNA TESTING IN THE PAST 12 MONTHS WAS SUBOPTIMAL, 35% AND 31%, RESPECTIVELY (SOURCE: ETHOS ENGAGE).

TESTED FOR HEPATITIS C RNA, EVER



TESTED FOR HEPATITIS C RNA, PAST YEAR



SERVICE COVERAGE TARGETS

1. Hepatitis B treatment

2. Hepatitis C treatment



80% TREATED BY 2030



65% TREATED BY 2022

HEPATITIS C TREATMENT UPTAKE AND OUTCOMES

Between 2015 and 2020, treatment uptake among Aboriginal and Torres Strait Islander people has improved considerably since the availability of DAA therapy, however; it remained suboptimal and consistently lower than among non-Indigenous people. Cure proportions were high and reinfection rates low.

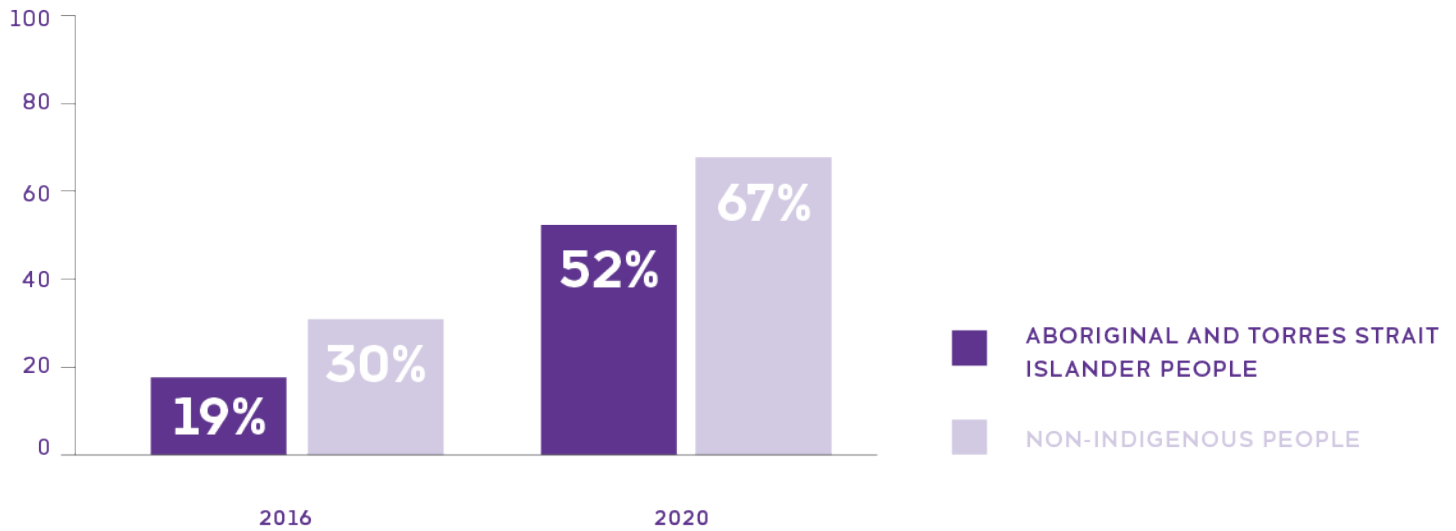
IN 2016-2018, TREATMENT UPTAKE AMONG ABORIGINAL AND TORRES STRAIT ISLANDER PEOPLE WITH CHRONIC HEPATITIS C WAS LOWER THAN TREATMENT UPTAKE AMONG NON-INDIGENOUS PEOPLE (44% VERSUS 65%) (SOURCE: NSW DATA LINKAGE).



IN 2016-2018, TREATMENT UPTAKE AMONG ABORIGINAL AND TORRES STRAIT ISLANDER PEOPLE WITH CHRONIC HEPATITIS C AND EVIDENCE OF DRUG DEPENDENCE WAS LOWER THAN TREATMENT UPTAKE AMONG NON-INDIGENOUS PEOPLE WITH CHRONIC HEPATITIS C AND EVIDENCE OF DRUG DEPENDENCE (43% VERSUS 62%) (SOURCE: NSW DATA LINKAGE).



IN 2016 -2020, LIFETIME HISTORY OF HEPATITIS C TREATMENT AMONG ABORIGINAL AND TORRES STRAIT ISLANDER PEOPLE WAS CONSISTENTLY LOWER (19% IN 2016 AND 52% IN 2020) THAN LIFETIME HISTORY OF HEPATITIS C TREATMENT AMONG NON-INDIGENOUS PARTICIPANTS (30% IN 2016 AND 67% IN 2020) (SOURCE: ANSPS).



IN 2018-2020, TREATMENT UPTAKE AMONG ABORIGINAL AND TORRES STRAIT ISLANDER PARTICIPANTS WITH CURRENT HEPATITIS C WAS LOWER THAN TREATMENT UPTAKE AMONG NON-INDIGENOUS PARTICIPANTS (38% VERSUS 50%) (SOURCE: ETHOS ENGAGE).



IN 2016-2019, AMONG ABORIGINAL AND TORRES STRAIT ISLANDER AND NON-INDIGENOUS PARTICIPANTS ATTENDING A DIVERSE NETWORK OF HEALTH SERVICES, WHO RECEIVED TREATMENT AND HAD A POST-TREATMENT TEST AVAILABLE, 94% AND 95% WERE CURED, RESPECTIVELY (SOURCE: REACH-C).

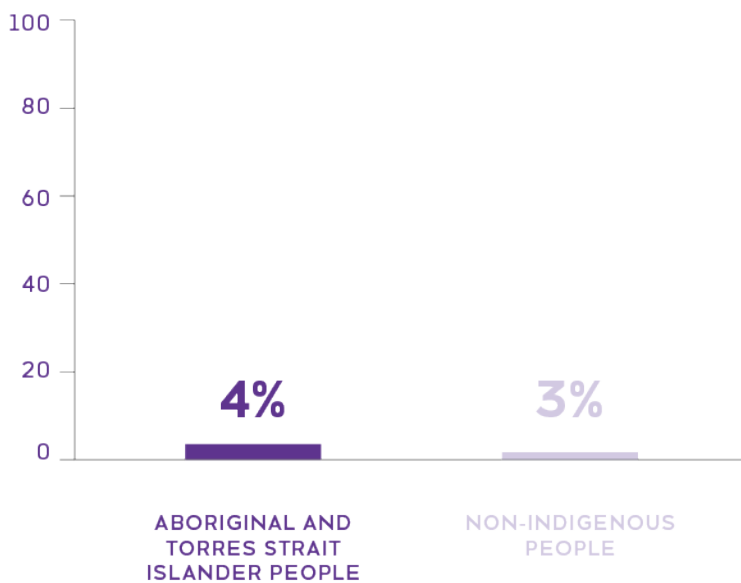


HEPATITIS C TREATMENT UPTAKE AND OUTCOMES

IN 2017-2019, AMONG ABORIGINAL AND TORRES STRAIT ISLANDER AND NON-INDIGENOUS PARTICIPANTS WHO WERE INCARCERATED WHO RECEIVED TREATMENT AND HAD A POST-TREATMENT TEST AVAILABLE, 95% AND 96% WERE CURED, RESPECTIVELY (SOURCE: STOP-C).



IN 2016-2020, AMONG ABORIGINAL AND TORRES STRAIT ISLANDER AND NON-INDIGENOUS PARTICIPANTS WHO RECEIVED DAA TREATMENT IN REACH-C, 4% AND 3% WERE RETREATED, RESPECTIVELY (SOURCE: REACH-C).



3. Harm reduction



300 STERILE NEEDLES AND SYRINGES
PROVIDED PER PERSON WHO INJECTS
DRUGS PER YEAR

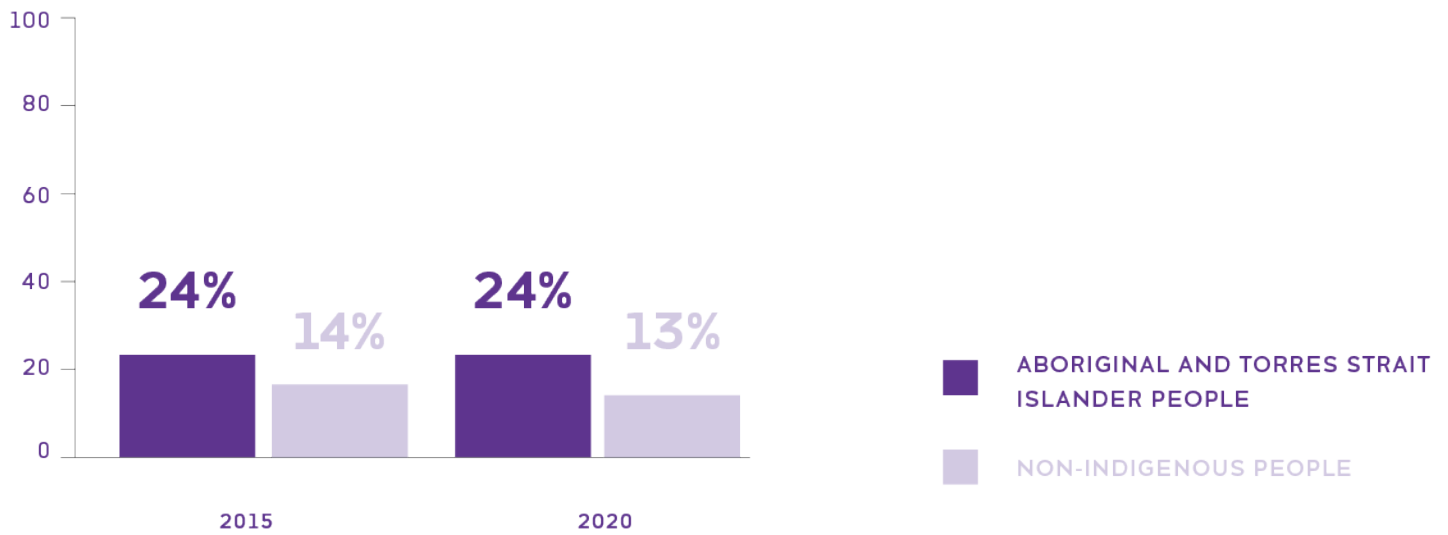


INCREASE THE USE OF STERILE
INJECTING EQUIPMENT

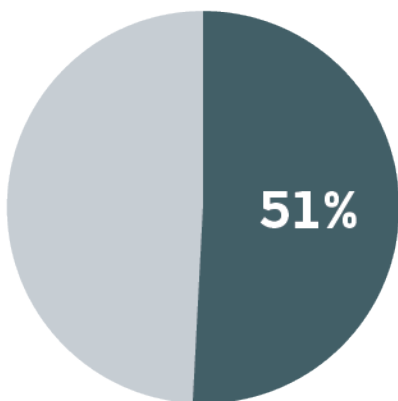
NEEDLE AND SYRINGE COVERAGE AND OPIOID AGONIST THERAPY COVERAGE

Aboriginal and Torres Strait Islander people who inject drugs had higher injecting risk behaviour compared with non-Indigenous people who inject drugs. Opioid agonist therapy coverage was comparable among Aboriginal and Torres Strait Islander people and non-Indigenous people.

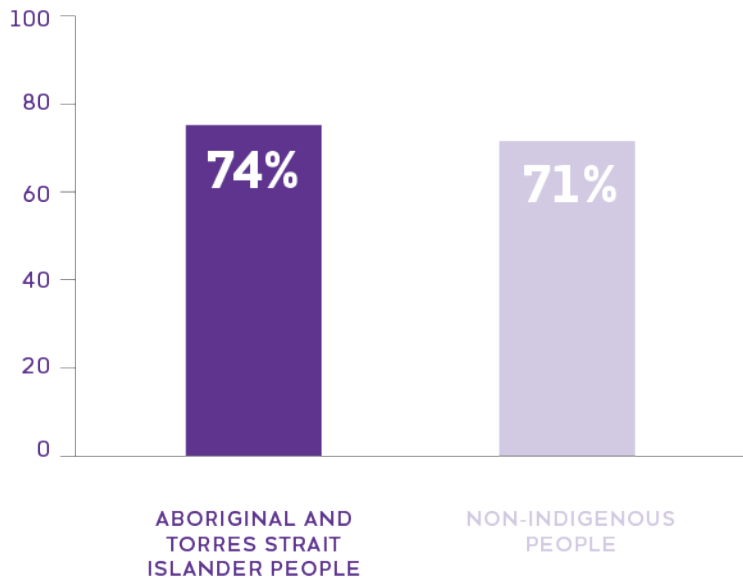
IN 2015-2020, SELF REPORTED RECEPTIVE SYRINGE SHARING AMONG ABORIGINAL AND TORRES STRAIT ISLANDER PARTICIPANTS WAS CONSISTENTLY HIGHER (24% IN 2015 AND 24% IN 2020) THAN AMONG NON-INDIGENOUS PARTICIPANTS (14% IN 2015 AND 13% IN 2020) (SOURCE: ANSPS)



IN 2019-2021, AMONG ABORIGINAL AND TORRES STRAIT ISLANDER PARTICIPANTS ATTENDING ACCHS SELF-REPORTING INJECTING DRUG USE IN THE PAST MONTH, 51% USED A NEEDLE OR A SYRINGE AFTER SOMEONE ELSE HAD ALREADY USED IT IN THE PAST MONTH (SOURCE: SCALE-C).



IN 2019-2021, RECEIPT OF OPIOID AGONIST THERAPY AMONG ABORIGINAL AND TORRES STRAIT ISLANDER AND NON-INDIGENOUS PARTICIPANTS WHO SELF-REPORTED HISTORY OF INJECTION DRUG USE WAS 74% AND 71%, RESPECTIVELY (SOURCE: ETHOS ENGAGE).



IN 2017-2019, AMONG ABORIGINAL AND TORRES STRAIT ISLANDER AND NON-INDIGENOUS PARTICIPANTS WHO WERE INCARCERATED WHO SELF-REPORTED EVER INJECTING DRUGS, 21% AND 23% SELF-REPORTED CURRENTLY RECEIVING OPIOID AGONIST THERAPY, RESPECTIVELY (SOURCE: STOP-C)



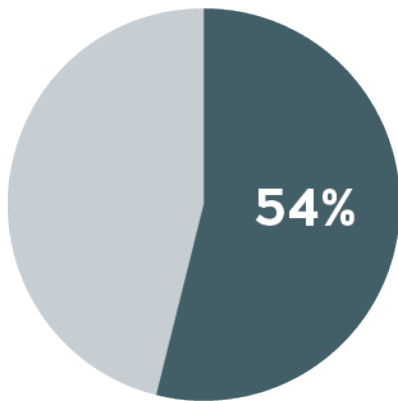
4. Stigma and discrimination



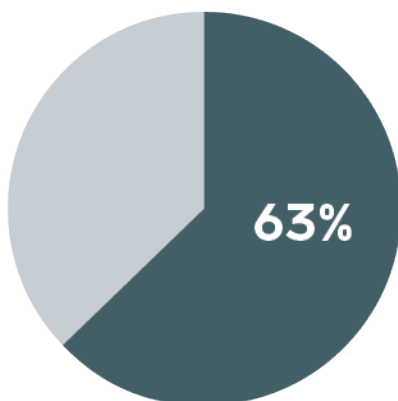
**50% REDUCTION IN STIGMA AND
DISCRIMINATION EXPERIENCES BY 2022**

Aboriginal and Torres Strait Islander people experience stigma and discrimination in relation to their hepatitis C diagnosis and Injection drug use. Aboriginal and Torres Strait Islander people experience racism and discrimination in all aspects of daily life as well as within the healthcare sector, compounding experiences of stigma and discrimination related to hepatitis C and injection drug use.

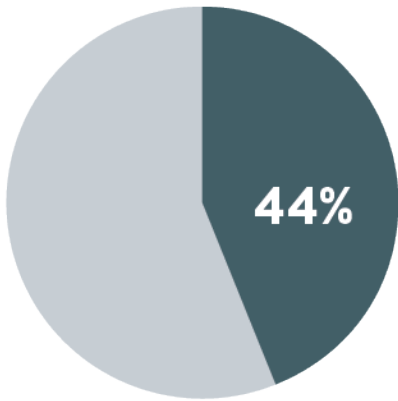
IN 2019-2021, 54% OF ABORIGINAL AND TORRES STRAIT ISLANDER PARTICIPANTS ATTENDING DRUG TREATMENT CLINICS OR NEEDLE AND SYRINGE PROGRAMS SELF-REPORTED RECENT (PAST 12 MONTHS) EXPERIENCES OF STIGMA OR DISCRIMINATION IN RELATION TO THEIR INJECTION DRUG USE (SOURCE: ETHOS ENGAGE)



IN 2019-2021, 63% OF ABORIGINAL AND TORRES STRAIT ISLANDER PARTICIPANTS ATTENDING DRUG TREATMENT CLINICS OR NEEDLE AND SYRINGE PROGRAMS SELF-REPORTED RECENT (PAST 12 MONTHS) EXPERIENCES OF STIGMA OR DISCRIMINATION IN RELATION TO THEIR HEPATITIS C DIAGNOSIS (SOURCE: ETHOS ENGAGE)



IN 2019-2021, 44% OF ABORIGINAL AND TORRES STRAIT ISLANDER PARTICIPANTS ATTENDING DRUG TREATMENT CLINICS OR NEEDLE AND SYRINGE PROGRAMS SELF-REPORTED RECENT (PAST 12 MONTHS) EXPERIENCES OF BEING TREATED NEGATIVELY OR DIFFERENT TO OTHERS BY HEALTH WORKERS (SOURCE: ETHOS ENGAGE)



Impact targets

1. Hepatitis C incidence



90% BY 2030



60% REDUCTION BY 2022

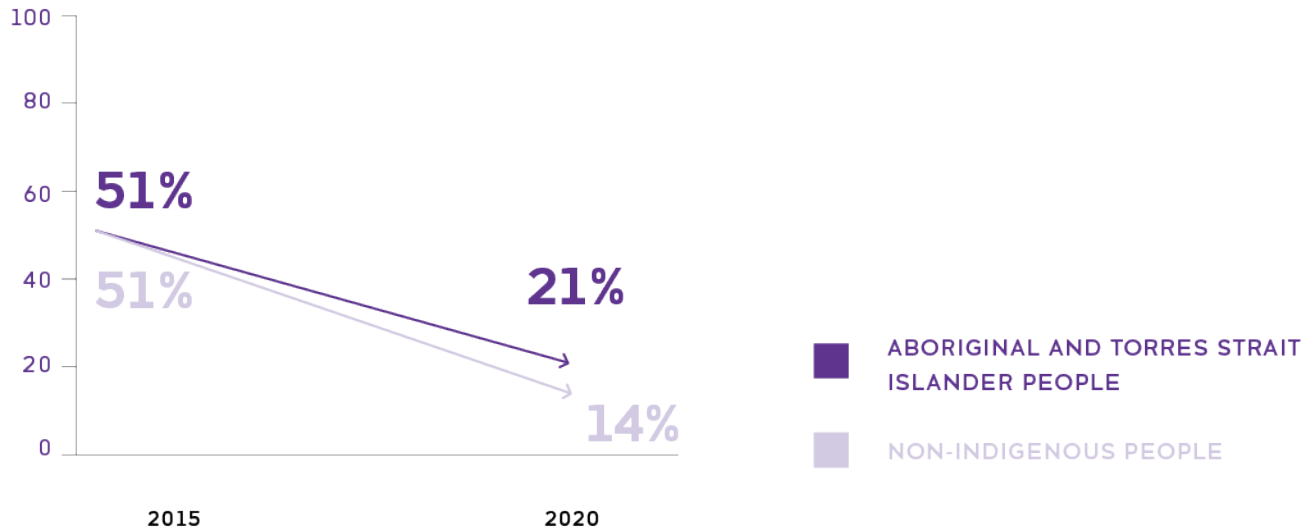
PREVALENCE OF HEPATITIS C

Although prevalence of current hepatitis C has declined markedly since 2015, a gap in the prevalence between Aboriginal and Torres Strait Islander and non-Indigenous populations has emerged.

NEW HEPATITIS C INFECTIONS

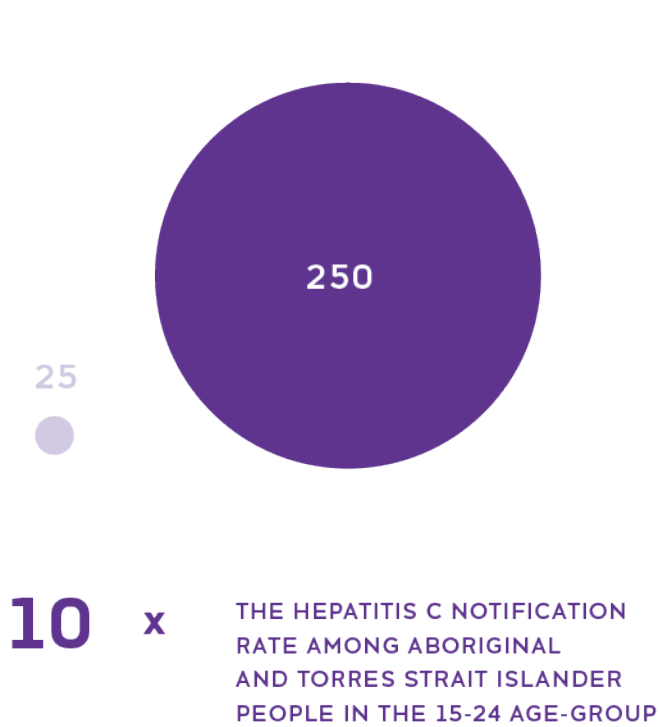
Trends in hepatitis C notification rates among younger (15-39 year age-group) Aboriginal and Torres Strait Islander people are high and increasing (men) or stable (women), while rates among non-Indigenous people in the same age groups are lower and decreasing.

IN 2015-2020, THE PREVALENCE OF CURRENT HEPATITIS C DECREASED IN ABORIGINAL AND TORRES STRAIT ISLANDER (51% TO 21%) AND NON-INDIGENOUS PARTICIPANTS (51% TO 14%) WHO INJECT DRUGS (SOURCE: ANSPS)

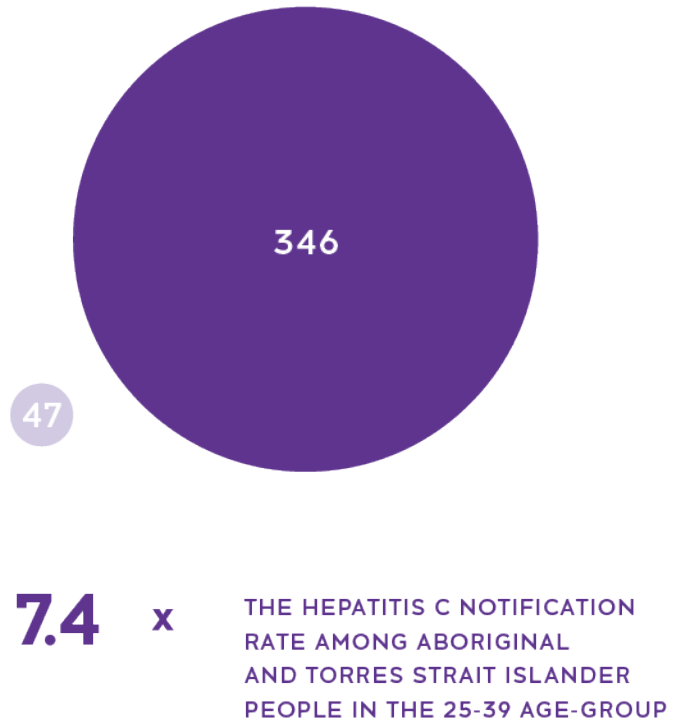


IN 2020, THE HEPATITIS C NOTIFICATION RATE AMONG ABORIGINAL AND TORRES STRAIT ISLANDER PEOPLE IN THE 15-24 AGE-GROUP WAS TEN TIMES THAT AMONG NON-INDIGENOUS PEOPLE IN THE SAME AGE-GROUP (250 VS 25 PER 100 000 POPULATION) (SOURCE: NNDSS).

IN 2020, THE NEW HEPATITIS C NOTIFICATION RATE AMONG ABORIGINAL AND TORRES STRAIT ISLANDER PEOPLE IN THE 25-39 AGE-GROUP WAS 7.4 TIMES THAT AMONG NON-INDIGENOUS PEOPLE IN THE SAME AGE-GROUP (346 VS 47 PER 100 000 POPULATION) (SOURCE: NNDSS).



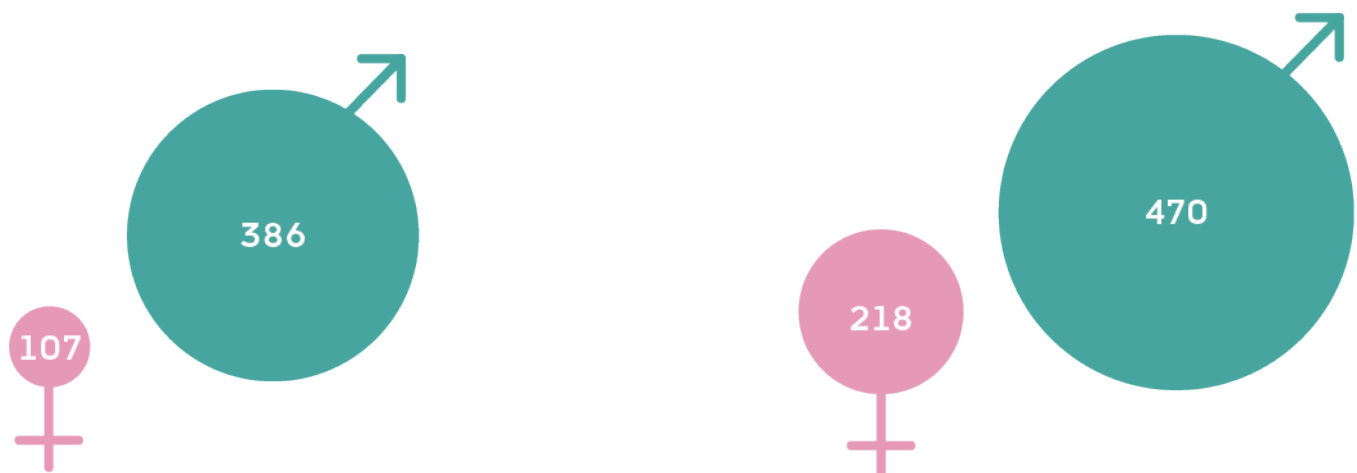
WHEN COMPARED TO NON-INDIGENOUS PEOPLE. PER 100 000 POPULATION.



WHEN COMPARED TO NON-INDIGENOUS PEOPLE. PER 100 000 POPULATION.

- ABORIGINAL AND TORRES STRAIT ISLANDER PEOPLE
- NON-INDIGENOUS PEOPLE

IN 2020, HEPATITIS C NOTIFICATION RATES WERE CONSISTENTLY HIGHER AMONG ABORIGINAL AND TORRES STRAIT ISLANDER MALES THAN ABORIGINAL AND TORRES STRAIT ISLANDER FEMALES WITH RATES 3.6 TIMES AS HIGH AMONG 15-24 AGE-GROUP MALES THAN FEMALES (386 VS 107 PER 100 000 POPULATION) AND TWICE AS HIGH AMONG 25-39 AGE-GROUP MALES THAN FEMALES (470 VS 218 PER 100 000 POPULATION) (SOURCE: NNDSS).



IN 2020, AMONG ABORIGINAL AND TORRES STRAIT ISLANDER PEOPLE, HEPATITIS C NOTIFICATION RATES WERE:

3.6 x AS HIGH AMONG 15-24 AGE-GROUP MALES THAN FEMALES

2.0 x AS HIGH AMONG 25-39 AGE-GROUP MALES THAN FEMALES

PER 100 000 POPULATION

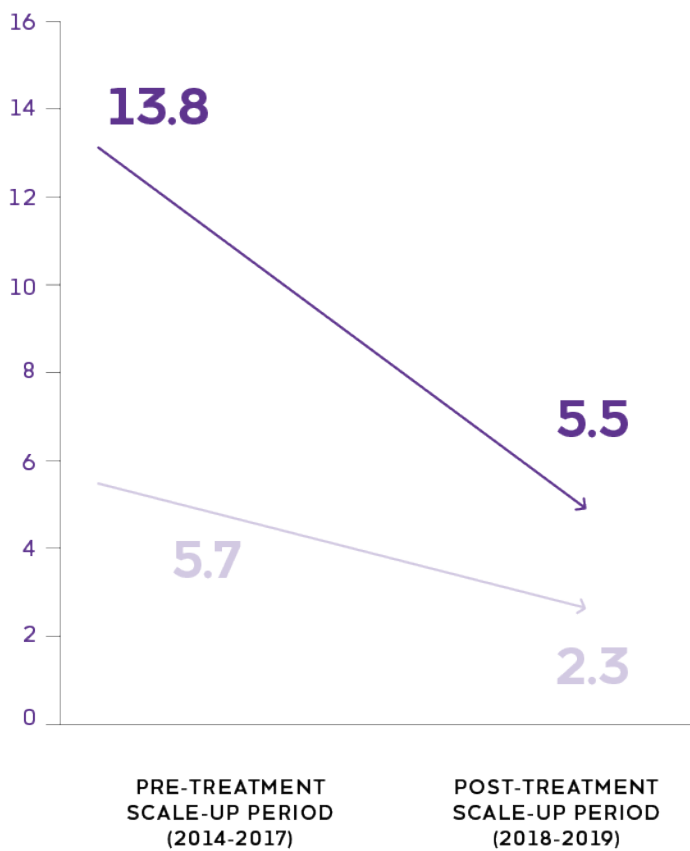
PER 100 000 POPULATION

MALE

FEMALE

NEW HEPATITIS C INFECTIONS

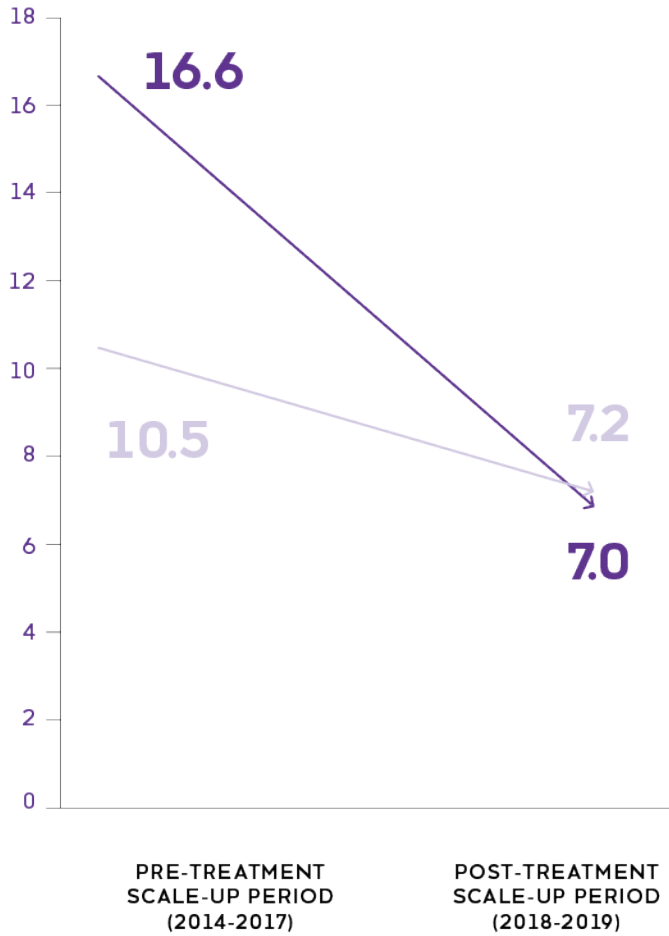
AMONG ABORIGINAL AND TORRES STRAIT ISLANDER PARTICIPANTS WHO WERE INCARCERATED, INCIDENCE OF NEW HEPATITIS C INFECTION DECREASED FROM 13.8 PER 100 PERSON-YEARS IN THE PRE-TREATMENT SCALE-UP PERIOD (2014-2017) TO 5.5 PER 100 PERSON-YEARS IN THE POST-TREATMENT SCALE-UP PERIOD (2018-2019). AMONG NON-INDIGENOUS PARTICIPANTS WHO WERE INCARCERATED, THE INCIDENCE OF NEW HEPATITIS C INFECTION DECREASED FROM 5.7 PER 100 PERSON-YEARS IN THE PRE-TREATMENT SCALE-UP PERIOD TO 2.3 PER 100 PERSON-YEARS IN THE POST-TREATMENT SCALE-UP PERIOD (SOURCE: STOP-C).



PER 100 PERSON-YEARS

- ABORIGINAL AND TORRES STRAIT ISLANDER PEOPLE
- NON-INDIGENOUS PEOPLE

AMONG ABORIGINAL AND TORRES STRAIT ISLANDER PARTICIPANTS WHO WERE INCARCERATED AND RECEIVED DAA TREATMENT AND WERE RETESTED AFTER CURE, INCIDENCE OF HEPATITIS C REINFECTION DECREASED FROM 16.6 PER 100 PERSON-YEARS IN THE PRE-TREATMENT SCALE-UP PERIOD (2014-2017) TO 7.0 PER 100 PERSON-YEARS IN THE POST-TREATMENT SCALE-UP PERIOD (2018-2019). AMONG NON-INDIGENOUS PARTICIPANTS, THE INCIDENCE OF HEPATITIS C REINFECTION DECREASED FROM 10.5 PER 100 PERSON-YEARS IN THE PRE-TREATMENT SCALE-UP PERIOD TO 7.2 PER 100 PERSON-YEARS IN THE POST-TREATMENT SCALE-UP PERIOD (SOURCE: STOP-C).



PER 100 PERSON-YEARS

- ABORIGINAL AND TORRES STRAIT ISLANDER PEOPLE
- NON-INDIGENOUS PEOPLE

2. Hepatitis C related mortality



65% REDUCTION BY 2030



65% REDUCTION BY 2022

HEPATITIS C RELATED MORBIDITY AND MORTALITY

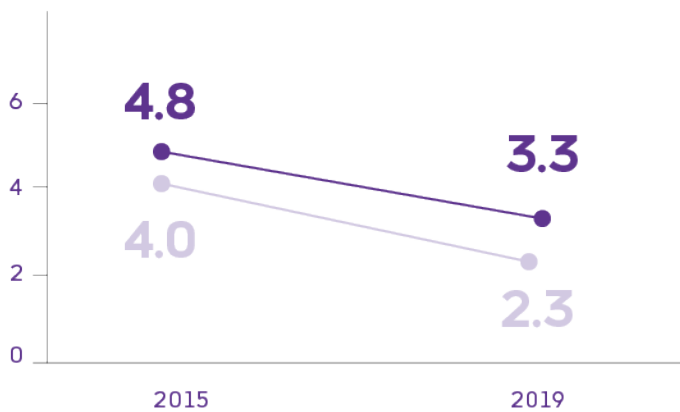
Hepatitis C related end-stage liver disease and mortality have declined since 2015, with mortality rates similar among Aboriginal and Torres Strait Islander people and non-Indigenous people.

A higher proportion of Aboriginal and Torres Strait Islander people with an end-stage liver disease and who have died had a history of alcohol use disorder compared with the non-Indigenous population.

IN 2010-2020, A HIGHER PROPORTION OF ABORIGINAL AND TORRES STRAIT ISLANDER PEOPLE WITH AN END-STAGE LIVER DISEASE DIAGNOSIS HAD A HISTORY OF ALCOHOL USE DISORDER (77%) COMPARED WITH THE PROPORTION OF NON-INDIGENOUS PEOPLE WITH END-STAGE LIVER DISEASE DIAGNOSIS WHO HAD A HISTORY OF ALCOHOL USE DISORDER (55%) (SOURCE: NSW DATA LINKAGE).



IN 2015-2019, AGE-STANDARDISED INCIDENCE OF DECOMPENSATED CIRRHOSIS DIAGNOSIS AMONG ABORIGINAL AND TORRES STRAIT ISLANDER PEOPLE DECLINED BY 31% (4.8 TO 3.3 PER 1000 PERSON-YEARS, RESPECTIVELY) AND BY 41% AMONG NON-INDIGENOUS PEOPLE (4.0 TO 2.3 PER 1000 PERSON-YEARS, RESPECTIVELY). THE AGE-STANDARDISED INCIDENCE OF DECOMPENSATED CIRRHOSIS DIAGNOSIS WAS CONSISTENTLY HIGHER AMONG THOSE WITH HISTORY OF ALCOHOL USE DISORDER COMPARED TO THOSE WITHOUT HISTORY OF ALCOHOL USE DISORDER (SOURCE: NSW DATA LINKAGE).

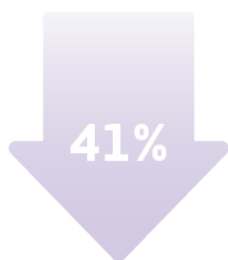


PER 1 000 PERSON-YEARS

- ABORIGINAL AND TORRES STRAIT ISLANDER PEOPLE
- NON-INDIGENOUS PEOPLE

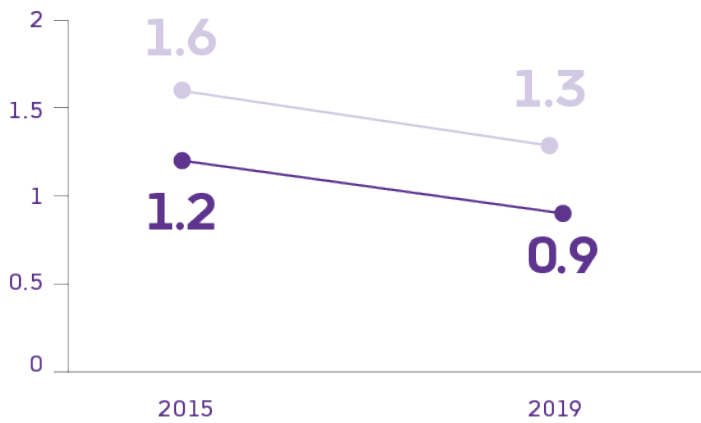


ABORIGINAL AND TORRES STRAIT ISLANDER PEOPLE



NON-INDIGENOUS PEOPLE

IN 2015-2019, AGE-STANDARDISED INCIDENCE OF HEPATOCELLULAR CARCINOMA DIAGNOSIS AMONG ABORIGINAL AND TORRES STRAIT ISLANDER PEOPLE DECLINED BY 25% (1.2 TO 0.9 PER 1000 PERSON-YEARS, RESPECTIVELY), AND BY 29% AMONG NON-INDIGENOUS PEOPLE (1.6 TO 1.3 PER 1000 PERSON-YEARS) (SOURCE: NSW DATA LINKAGE).



PER 1 000 PERSON-YEARS

- ABORIGINAL AND TORRES STRAIT ISLANDER PEOPLE
- NON-INDIGENOUS PEOPLE

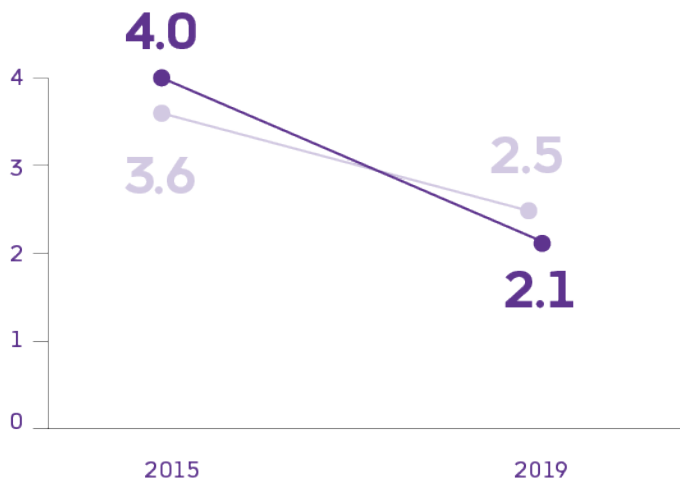


ABORIGINAL AND TORRES STRAIT ISLANDER PEOPLE



NON-INDIGENOUS PEOPLE

IN 2015-2019, AGE-STANDARDISED INCIDENCE OF LIVER-RELATED MORTALITY DECREASED BY 46% AMONG ABORIGINAL AND TORRES STRAIT ISLANDER PEOPLE (4.0 TO 2.1 PER 1000 PERSON-YEARS) AND BY 28% AMONG NON-INDIGENOUS PEOPLE (3.6 AND 2.5 PER 1000 PERSON-YEARS) (SOURCE: NSW DATA LINKAGE).

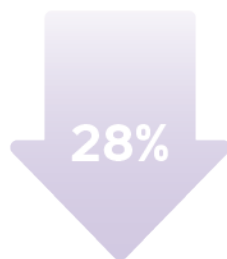


PER 1 000 PERSON-YEARS

- ABORIGINAL AND TORRES STRAIT ISLANDER PEOPLE
- NON-INDIGENOUS PEOPLE



ABORIGINAL AND TORRES STRAIT ISLANDER PEOPLE



NON-INDIGENOUS PEOPLE

Monitoring and evaluation indicators

This report aligns with the Fifth National Hepatitis C Strategy 2018-2022⁸ and the Fifth National Aboriginal and Torres Strait Islander Blood Borne Viruses and Sexually Transmissible Infections Strategy.⁴ Aboriginal and Torres Strait Islander people, people who inject drugs and people in custodial settings are priority populations in hepatitis C elimination efforts. This report also addresses priority areas in both strategies including: ensuring equitable access and coordination of care; and data, surveillance, research, and evaluation.

THE NATIONAL STRATEGIES STATE THAT KEY AREAS FOR ACTION ARE TO:

- Investigate opportunities to better measure incidence and prevalence of hepatitis C in the community
- Identify gaps in surveillance data for measuring and monitoring the implementation of this strategy and prioritise these for action
- Identify and prioritise strategies that address gaps in data to support the implementation and monitoring of this strategy

2.1 National Hepatitis C Strategy 2018-2022

The Fifth National Hepatitis C Strategy 2018-2022 has overarching goals, targets and priority areas which guide the national response to hepatitis C for 2018-2022. Aboriginal and Torres Strait Islander people have been identified as a priority population in this strategy.

THE GOALS OF THE NATIONAL HEPATITIS C STRATEGY 2018-2022 ARE TO:

- Make significant progress towards eliminating hepatitis C as a public health threat
- 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 impact of hepatitis C

BY THE END OF 2022, TARGETS OF THIS STRATEGY ARE TO:

1. Reduce the number of newly acquired hepatitis C infections, with a focus on priority populations ^a, by 60% ^b
2. Increase the proportion of people living with hepatitis C who are diagnosed to 90%
3. Increase the cumulative proportion of people living with chronic hepatitis C who have initiated direct-acting antiviral treatment to 65% ^b
4. Reduce hepatitis C attributable mortality overall by 65% ^b
5. Reduce by 50% the reported experience of stigma among people living with hepatitis C, and the expression of stigma, in respect to hepatitis C status.

^aSpecific targets for Aboriginal and Torres Strait Islander people are included in the Fifth National Aboriginal and Torres Strait Islander Blood Borne Viruses and Sexually Transmissible Infections Strategy 2018-2022.

^bCompared with / based on 2016 data



2.2 National Aboriginal and Torres Strait Islander Blood Borne Viruses and Sexually Transmissible Infections Strategy 2018-2022

THE GOALS OF THIS STRATEGY ARE TO:

- Significantly reduce the transmission of blood borne viruses (BBV) and sexually transmissible infections (STI) among Aboriginal and Torres Strait Islander people
- Close the gap in BBV and STI incidence, prevalence, testing and treatment rates between Aboriginal and Torres Strait Islander and non-Indigenous populations
- Reduce morbidity and mortality related to BBV and STI
- Minimise the personal and social impact of BBV and STI
- Minimise the negative impact of stigma, racism, discrimination, and legal and human rights issues on Aboriginal and Torres Strait Islander people's health

BY THE END OF 2022, HEPATITIS C RELATED TARGETS OF THIS STRATEGY ARE TO:

1. Increase the use of sterile injecting equipment for every injecting episode (compared to 2016 data)
2. Reduce the number of newly acquired hepatitis C infections by 60% (compared to 2016 data)
3. Increase the proportion of people living with hepatitis C who are diagnosed to 90% and the cumulative proportion who have initiated direct acting antiviral treatment to 65%
4. Reduce hepatitis C attributable mortality by 65% (compared to 2016 target)
5. Reduce the reported experience of stigma among Aboriginal and Torres Strait Islander people with BBV and STI, and the expression of stigma, in relation to BBV and STI status



2.3 Global Sector Strategy on Hepatitis C 2016-2021

Selection of indicators to monitor and evaluate the health sector response to hepatitis C were based on indicators proposed by the WHO "Monitoring and Evaluation for Viral Hepatitis B and C: Recommended Indicators and Framework".¹⁰ The monitoring and evaluation framework recommends a minimum set of 10 core indicators, including prevalence, infrastructure for testing, needle-syringe distribution, people diagnosed, treatment coverage/initiation, hepatitis C cure, incidence, and attributable hepatocellular carcinoma,

cirrhosis, and chronic liver disease mortality (Appendix 1).¹⁰ The framework also recommends 27 additional indicators including hepatitis C testing, reuse of injection equipment, and opioid agonist therapy coverage. By 2020 and 2030, the impact targets of the Global health sector viral hepatitis strategy include a 25% and 90% reduction in new hepatitis C cases and a 10% and 65% reduction in the number of hepatitis C-related deaths, respectively.^{7,10}

2.4 Indicator definitions and data sources

TABLE 1. HEPATITIS C INDICATORS AND DATA SOURCES FOR MONITORING SERVICE COVERAGE TARGETS

TARGET	PROPOSED INDICATORS	PROPOSED DEFINITIONS	PRE 2015 ESTIMATES	2015 ESTIMATES	2016-2020 ESTIMATES
HEPATITIS C DIAGNOSIS	People living with hepatitis C who have been diagnosed	Proportion of people who received hepatitis C antibody and/or RNA testing		ACCESS ANSPS	ACCESS ANSPS ATLAS ETHOS Engage NSW Data Linkage
		Proportion of people living with current hepatitis C who have been diagnosed	Mathematical modelling	Mathematical modelling	Mathematical modelling
HEPATITIS C TREATMENT	Hepatitis C Treatment uptake	Proportion of people with a hepatitis C diagnosis who received treatment during a specified time frame (e.g., DAA era, 2016–2018)			NSW Data linkage
		Proportion of people attending ACCHS with a hepatitis C diagnosis who received treatment			SCALE-C
		Proportion of people who inject drugs who received hepatitis C treatment	ANSPS	ANSPS	ANSPS NSW Data linkage ETHOS Engage
		Proportion of incarcerated people who received hepatitis C treatment			NSW Data linkage
		Proportion of people who achieved cure			SToP-C REACH-C
		Proportion of people who were retreated			REACH-C
HARM REDUCTION	Needle and Syringe coverage	Proportion of people who inject drugs who reported receptive syringe sharing in the past month	ANSPS	ANSPS	ANSPS SCALE-C
	Opioid agonist therapy coverage	Proportion of people who inject drugs who reported currently receiving opioid agonist therapy			ETHOS Engage SToP-C
STIGMA AND DISCRIMINATION	Experience of stigma and discrimination	Proportion of people who inject drugs who experienced stigma and discrimination in relation to injection drug use			ETHOS Engage
		Proportion of people who had a hepatitis C diagnosis who experienced stigma and discrimination in relation to hepatitis C infection			ETHOS Engage

TABLE 2. HEPATITIS C INDICATORS AND DATA SOURCES FOR MONITORING IMPACT TARGETS

TARGET	INDICATOR	DEFINITION	PRE 2015 ESTIMATES	2015 ESTIMATES	2016-2020 ESTIMATES
HEPATITIS C INCIDENCE	Prevalence of chronic hepatitis C	Number and proportion of people living with current hepatitis C (hepatitis C RNA positive)	Mathematical modelling	Mathematical modelling	Mathematical modelling
		Prevalence of current hepatitis C among people attending various healthcare settings			ACCESS ATLAS SCALE-C
		Prevalence of current hepatitis C among people who inject drugs	ANSPS	ANSPS	ANSPS ETHOS Engage
		Prevalence of current hepatitis C among people who are incarcerated			SToP-C
	Newly acquired hepatitis C infections	Number of hepatitis C notifications, by age (15-24 and 25-39 age-groups) and sex	NNDSS	NNDSS	NNDSS
		Incidence of hepatitis C among people who are incarcerated	SToP-C	SToP-C	STOP-C
		Incidence of hepatitis C reinfection among people who are incarcerated	SToP-C	SToP-C	STOP-C
HEPATITIS C RELATED MORTALITY	Deaths attributable to hepatitis C infection (Deaths from hepatocellular carcinoma, cirrhosis, and chronic liver diseases attributable to hepatitis C)	Number and incidence rates of hepatitis C-related decompensated cirrhosis diagnoses	NSW Data Linkage	NSW Data Linkage	NSW Data Linkage
		Number and incidence rates of hepatitis C-related hepatocellular carcinoma diagnoses	NSW Data Linkage	NSW Data Linkage	NSW Data Linkage
		Number and incidence rates of deaths related to hepatitis-C related liver disease	NSW Data Linkage	NSW Data Linkage	NSW Data Linkage

2.5 Data sources

AUSTRALIAN COLLABORATION FOR COORDINATED ENHANCED SENTINEL SURVEILLANCE OF SEXUALLY TRANSMISSIBLE INFECTIONS AND BLOOD BORNE VIRUSES (ACCESS)

ACCESS was established to monitor STI and BBV testing and test outcomes among priority populations.¹¹⁻¹³ ACCESS focusses on recruiting sites that serve priority populations, including people who inject drugs and HIV-positive gay and bisexual men. ACCESS collates data on consultations, hepatitis C testing and test outcomes from participating sites. Data from ten sexual health clinics were included in this report: one in VIC, six in NSW, one in SA, one in ACT, and one in TAS.

ACCESS data was used to evaluate progress with two indicators: people living with hepatitis C who have been diagnosed; and prevalence of chronic hepatitis C.

AUSTRALIAN NEEDLE AND SYRINGE PROGRAM SURVEY (ANSPS)

Established in 1995, the ANSPS is an annual bio-behavioural sentinel surveillance project that provides serial point prevalence estimates of hepatitis C antibody prevalence, hepatitis C RNA prevalence and monitors injecting behaviour among people who inject drugs. The ANSPS is conducted over 1–2-week period annually at selected needle and syringe programs (~50 needle and syringe programs each year) in all states and territories. Eligible participants include all people attending the needle and syringe programs. At enrolment, participants are invited to complete a brief, anonymous questionnaire, providing information on Aboriginal and Torres Strait identity, injecting drugs behaviour, self-reported hepatitis C testing, hepatitis C infection, and hepatitis C treatment uptake. Participants provide a capillary dried blood spot for hepatitis C antibody and RNA testing (since 2015).

ANSPS data was used to evaluate progress with four indicators: people living with hepatitis C who have been diagnosed; hepatitis C treatment uptake; needle and syringe coverage; and prevalence of chronic hepatitis C.

ATLAS NETWORK

The Centre for Research Excellence in Aboriginal Sexual Health and Blood Borne Viruses (NHMRC #1100302; 2016–2020) established a sexually transmissible infection and blood borne virus sentinel surveillance network representative of Aboriginal Community Controlled Health Services (ACCHS) – known as the ATLAS network. ATLAS aims to augment the NNDSS and help in understanding the burden of disease due to sexually transmissible infections and blood

borne viruses among Aboriginal and Torres Strait Islander people. The ATLAS network now operates from the University of Queensland and currently includes 34 ACCHS focused in five 'clinical hubs' across QLD (two hubs), NSW, SA, and the Kimberley, WA. Regular reports addressing 12 performance measures are provided to ACCHS to assess clinical practice and drive continuous quality improvement initiatives internally. Data were also aggregated at the hub, jurisdictional and national level and used to inform clinical guidelines and to guide future research questions. Currently, three performance measures focus on hepatitis C testing and management: proportion of individuals receiving a hepatitis C antibody test and among those testing positive, the proportion then tested for hepatitis C RNA, proportion of hepatitis C positive individuals prescribed DAA treatment, and proportion of individuals who, after having been prescribed DAA treatment, achieve cure.

ATLAS data was used to evaluate progress with two indicators: people living with hepatitis C who have been diagnosed; and prevalence of chronic hepatitis C.

ETHOS ENGAGE: ENHANCING TREATMENT OF HEPATITIS C IN OPIOID SUBSTITUTION SETTINGS

ETHOS Engage is an observational cohort study evaluating testing, treatment, and hepatitis C prevalence among people attending drug treatment clinics and needle syringe programs in NSW, QLD, SA, and WA. Participants were enrolled in two waves: Wave 1, May 2018-September 2019 (25 sites) and Wave 2, November 2019- June 2021 (21 sites). Eligible participants are people 18 years or older and self-report a history of injection drug use, either injection drug use in the previous 6 months or current opioid agonist therapy. On enrolment participants are invited to complete a questionnaire, providing information on demographics, Aboriginal and Torres Strait Islander identity, history of injecting drugs and incarceration. Participants provide finger-stick capillary whole-blood sample for point of care hepatitis C RNA testing on Xpert® VL FS Assay.

ETHOS Engage data was used to evaluate progress of five indicators: people living with hepatitis C who have been diagnosed; hepatitis C treatment uptake; opioid agonist therapy coverage; experience of stigma and discrimination; and prevalence of hepatitis C infection.

MATHEMATICAL MODELLING

Data from the ANSPS, NSW Data Linkage study, National Notifiable Diseases Surveillance System (NNDSS), and Real-world Efficacy of Antiviral therapy in Chronic Hepatitis C (REACH-C) study were used to produce the model estimates for the number of Aboriginal and Torres Strait Islander people living with current hepatitis C in Australia at end 2020. The modelling approach has been described elsewhere.^{2, 14} To estimate the number of Aboriginal and Torres Strait Islander who are living with current hepatitis C in Australia, the Bright model developed by the Center for Disease Analysis (CDA), and adapted to the Australian context, was used.² The model uses the estimated

hepatitis C prevalence at the end of 2015 as a calibration target and as a starting point for estimating the number of people living with current hepatitis C to the end of 2020. Key inputs into the model are estimates for the number of people living with hepatitis C who have been diagnosed, the annual number of hepatitis C diagnoses, and the annual number treated and cured.

Mathematical modelling was used to evaluate progress with two indicators: people living with hepatitis C who have been diagnosed; and prevalence of chronic hepatitis C. A hepatitis C cascade of care among Aboriginal and Torres Strait Islander people was also estimated.

NSW DATA LINKAGE PROJECT

Since 2003, well-established population-level data linkage mechanisms have been used to link hepatitis C notifications (positive hepatitis C serology) to a range of administrative data sets, including hospital admissions, incarceration, opioid agonist therapy, hepatitis C treatment, cancer registry, and deaths in NSW. Linked data were used to characterise populations living with hepatitis C, including people with evidence of recent drug dependence, people who were incarcerated, and individuals with end-stage liver disease. Since 2003, subsequent rounds of data linkages were conducted in 2007, 2012, 2015, 2019, and 2021. In the 2019 round, Aboriginal and Torres Strait Islander identity was ascertained by a method developed by NSW Health. Whereas in the 2021 round, Aboriginal and Torres Strait Islander identity was determined based on Aboriginal and Torres Strait Islander identity reporting frequency among available hepatitis C notifications and hospital admissions.

Linked data from the 2019 round was used to evaluate progress with two indicators: people living with hepatitis C who have been diagnosed; and hepatitis C treatment uptake. Linked data from the 2021 round was used to evaluate progress with one indicator: deaths attributable to hepatitis C infections.

NATIONAL NOTIFIABLE DISEASES SURVEILLANCE SYSTEM (NNDSS)

Hepatitis C infection (unspecified) and newly acquired hepatitis C are notifiable conditions in all jurisdictions in Australia. Cases are notified by the diagnosing laboratory, medical practitioner, hospital, or a combination of these sources, through State/Territory health authorities, to the NNDSS, maintained by the Australian Government Department of Health. Notification rates by Aboriginal and Torres Strait Islander identity were only included in this report if data provided by jurisdictions where Aboriginal and Torres Strait Islander identity was reported for $\geq 50\%$ of diagnoses for each of the reported years. The jurisdictions included in newly notified hepatitis C rates by Aboriginal and Torres Strait Islander identity were ACT, NT, QLD, SA, TAS, and WA. The jurisdictions included in newly acquired hepatitis C rates by Aboriginal and Torres Strait Islander identity were ACT, NSW, NT, QLD, SA, TAS, VIC, and WA.

NNDSS data was used to evaluate progress with one indicator: incidence of hepatitis C infection.

REAL-WORLD EFFICACY OF ANTIVIRAL THERAPY IN CHRONIC HEPATITIS C (REACH-C)

The REACH-C project is a national observational cohort study of people who have initiated DAA therapy on the Pharmaceutical Benefits scheme and assessed for treatment outcomes, including treatment failures. Between, 2016 and 2019, eligible participants were enrolled from a national network of diverse clinical services, including tertiary services (specialist liver clinics), primary care services (general practice, community health clinics, sexual health clinics, drug and alcohol clinics, outreach services, telehealth services, Aboriginal Medical Services, mental health services), and prisons. There were 33 health services from ACT, NSW, NT, QLD, SA, TAS, VIC and WA. Demographic and clinical information were collected by medical records review.

Data from REACH-C was used to evaluate progress with one indicator: hepatitis C treatment uptake.

STRATEGIES FOR HEPATITIS C TESTING AND TREATMENT IN ABORIGINAL COMMUNITIES THAT LEAD TO ELIMINATION (SCALE-C)

SCALE-C is a study evaluating the impact of a community-based “test and treat” intervention on hepatitis C prevalence among Aboriginal and Torres Strait Islander people attending participating Aboriginal Health Services. The study is implemented at four Aboriginal Medical Services (2 in NSW and 2 in SA). Eligible participants are 18 years and older Aboriginal and Torres Strait Islander people with current hepatitis C infection (hepatitis C RNA positive) and those at-risk of hepatitis C infection defined as self-report of history of injection drug use, incarceration, or receipt of opioid agonist therapy within 12 months of screening. Participants are followed up longitudinally for treatment initiation (RNA positive) and hepatitis C incidence evaluation (high-risk hepatitis C RNA negative). Participants completed enrolment questionnaire providing information on demographic, drug use and injecting risk behaviour. Participants were screened for hepatitis C infection using point of care testing (anti-hepatitis C virus antibody and/or hepatitis C RNA). Participants at-risk of hepatitis C infection received hepatitis C RNA test.

SCALE-C data were used to evaluate progress with three indicators: hepatitis C treatment uptake; needle and syringe coverage; and prevalence of chronic hepatitis C.

THE SURVEILLANCE AND TREATMENT OF PRISONERS WITH HEPATITIS C (STOP-C)

SToP-C is a prospective study, including before-and-after analysis, evaluating the feasibility and impact of a rapid scale-up of DAA therapy from mid-2017 on the incidence of hepatitis C infection in four prisons in NSW between 2014 and 2019. Eligible Participants were all prison inmates ≥ 18 years of age. After hepatitis C testing, participants were monitored for risk behaviours and hepatitis C infection, among three sub-populations: uninfected (hepatitis C antibody-negative); previously infected (hepatitis C antibody-positive, hepatitis C RNA-negative); and infected (hepatitis C antibody and hepatitis C RNA-positive). At enrolment and follow-up, a demographic, clinical, and risk behaviour interview was administered to all participants by the research nurses.

SToP-C data were used to evaluate progress with four indicators: hepatitis C treatment uptake; opioid agonist therapy coverage; prevalence of chronic hepatitis C infection; and incidence of hepatitis C.

Main findings

3.1 Monitoring service coverage

3.1.1 Hepatitis C testing and diagnosis

BACKGROUND

Hepatitis C testing and diagnosis of current hepatitis C infection are necessary steps to link people to treatment and care and prevent onward transmission of hepatitis C virus.

“The best thing we can do is try and offer testing when someone is attending the service. Having hepatitis C testing always available; catching them on the run. We utilised [the NSP Health Worker] who works in community health and looks after the needle exchange rooms, to do a lot of hepatitis C testing promotion. If we have staff, then we generally find we’ll capture more people. You’ve just got to be there and have that staff availability to do the testing.”

– Practice Nurse

a. Testing and diagnosis among Aboriginal and Torres Strait Islander people with a hepatitis C notification

A.1 INDICATOR DEFINITION

Proportion of Aboriginal and Torres Strait Islander people who received hepatitis C RNA testing

NUMERATOR

People with a hepatitis C notification in NSW who received hepatitis C RNA test

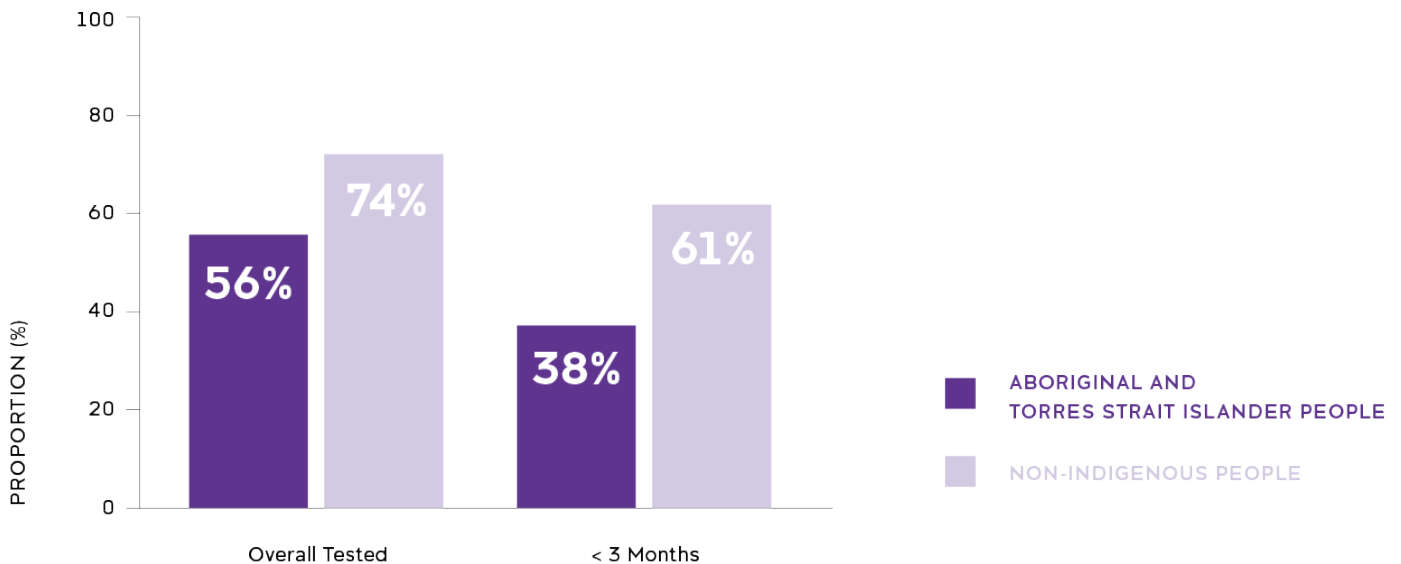
DENOMINATOR

People with a hepatitis C notification in NSW linked to Medicare Benefits Schedule

RESULTS

Among 4 827 hepatitis C notifications in 2016-2017 in NSW*, 25% (n=1 183) were among Aboriginal and Torres Strait Islander people. Hepatitis C RNA testing uptake in 2016-2018 was lower among Aboriginal and Torres Strait Islander people (56%; n=660) than non-Indigenous people (74%; n=2693). Uptake of hepatitis C RNA testing within 3 months of hepatitis C notification among Aboriginal and Torres Strait Islander people was lower (38%; n=448) compared to hepatitis C RNA uptake among non-Indigenous people (61%; n=2 213). (Figure 1)

FIGURE 1. HEPATITIS C RNA TESTING AMONG ABORIGINAL AND TORRES STRAIT ISLANDER PEOPLE AND NON-INDIGENOUS PEOPLE WITH A HEPATITIS C NOTIFICATION IN NSW, 2016-2018



INDICATOR KEY

Study and design: NSW Data Linkage, population-level data linkage

Sample size: 4 827 people with a hepatitis C notification in 2016-2017, of whom an estimated 3 503 have chronic hepatitis C.

States and territories: NSW

*Hepatitis C notifications with unknown Indigenous identity were excluded; hepatitis C RNA testing information was not available for people who were incarcerated, and 54% of Aboriginal and Torres Strait Islander people notified with hepatitis C in 2016-2017 were incarcerated in the same period

b. Testing and diagnosis among Aboriginal and Torres Strait Islander people who inject drugs

B.1 INDICATOR DEFINITION

Proportion of Aboriginal and Torres Strait Islander people who inject drugs who received a hepatitis C test

NUMERATOR

ANSPS participants who self-reported hepatitis C testing

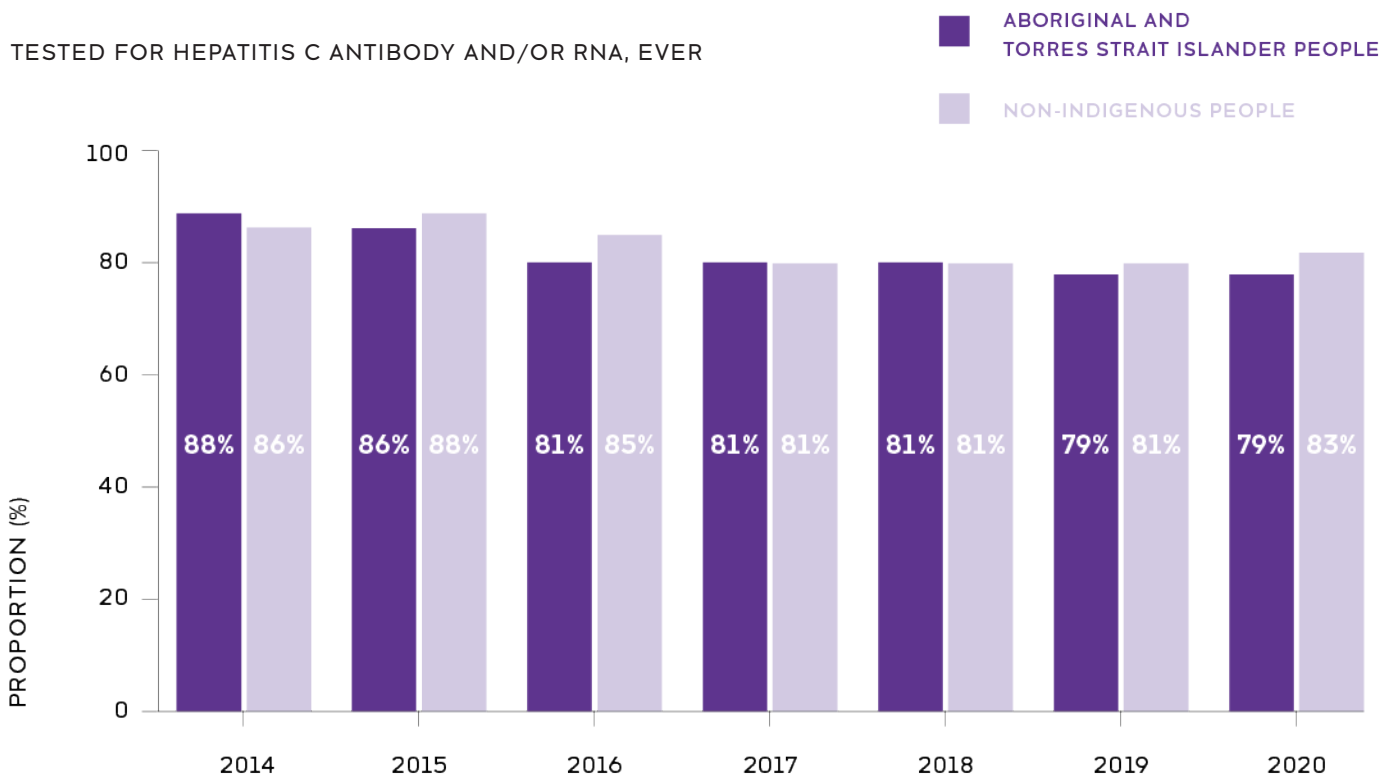
DENOMINATOR

All ANSPS participants

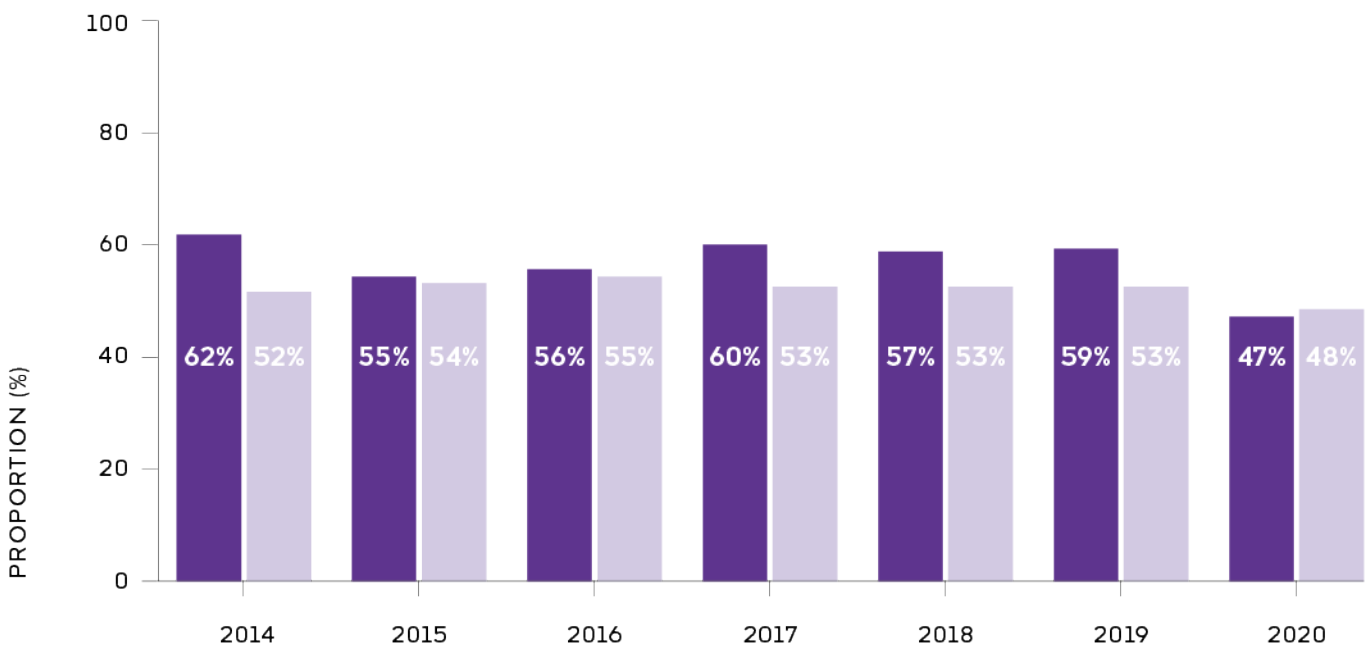
RESULTS

In 2020, among 1 324 ANSPS participants, 290 (22%) identified as Aboriginal and Torres Strait Islander, 982 (74%) as non-Indigenous, and 50 (4%) did not report. In 2020, self-reported lifetime hepatitis C testing (hepatitis C antibody and/or RNA) was slightly lower among Aboriginal and Torres Strait Islander participants compared to non-Indigenous participants (79%; n=228 vs 83%; n=818, respectively). Self-reported hepatitis C testing in the 12 months before the survey among Aboriginal and Torres Strait Islander participants and non-Indigenous participants was comparable in 2020 (47%, n=137 vs 48%; n=471, respectively). Between 2015 and 2019, past year hepatitis C testing among Aboriginal and Torres Strait Islander participants remained relatively stable, with a decline observed in 2020 (Figure 2)

FIGURE 2. LIFETIME AND RECENT HEPATITIS C TESTING AMONG ABORIGINAL AND TORRES STRAIT ISLANDER AND NON-INDIGENOUS ANSPS PARTICIPANTS, 2014-2020



TESTED FOR HEPATITIS C ANTIBODY AND/OR RNA, PAST YEAR



INDICATOR KEY

Study and design: ANSPS, cross-sectional annual survey

Sample size: Range 2014-2020: Overall 1 324-2 609 annually, Aboriginal and Torres Strait Islander 290-568 annually

Number of sites and locations: Range 38-54 sites across all states and territories (VIC sites did not participate in 2020 due to COVID-19 related impacts)

3.1 MONITORING SERVICE COVERAGE

3.1.1 HEPATITIS C TESTING AND DIAGNOSIS

B.2 INDICATOR DEFINITION

Proportion of Aboriginal and Torres Strait Islander people who inject drugs who received a hepatitis C test

NUMERATOR

ETHOS Engage participants who self-reported hepatitis C testing

DENOMINATOR

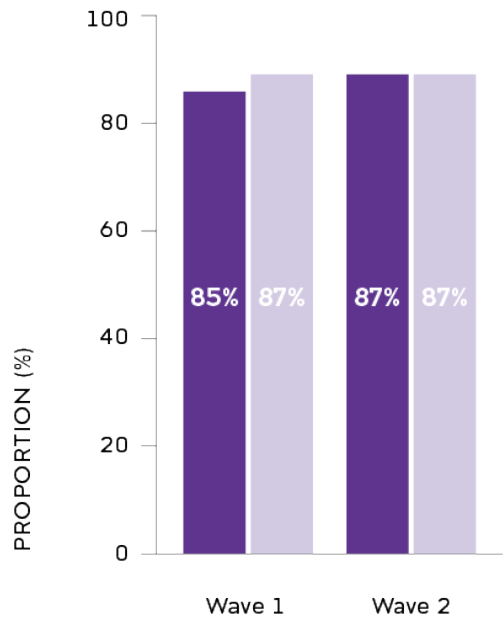
All ETHOS Engage participants

RESULTS

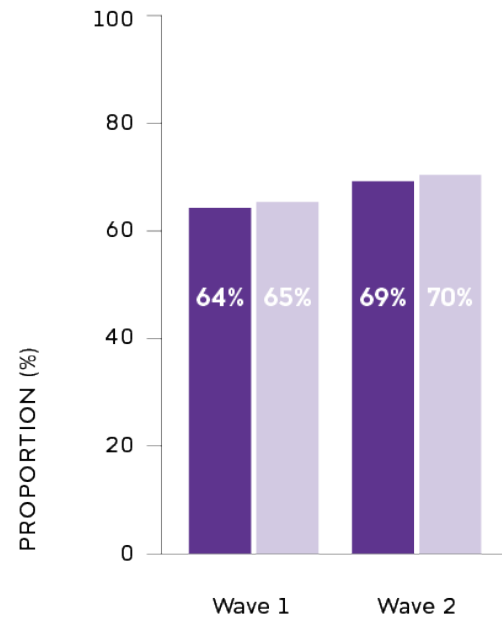
Lifetime history of hepatitis C antibody testing among Aboriginal and Torres Strait Islander participants and non-Indigenous participants was comparable in wave 1 (85%; n=288 vs 87%; n=962, respectively) and in wave 2 (87%; n=252 vs 87%; n=801, respectively). Similarly, lifetime history of hepatitis C RNA testing among Aboriginal and Torres Strait Islander participants and non-Indigenous participants was comparable in wave 1 (64%; n=215 vs 65%; n=723) and in wave 2 (69%; n=201 vs 70%; n=624). Self-reported hepatitis C antibody testing in the 12 months preceding the survey among Aboriginal and Torres Strait Islander participants and non-Indigenous participants was comparable in wave 1 (52%; n=176 vs 50%; n=552, respectively) and in wave 2 (46%; n=133 vs 42%; n=382, respectively). Overall, hepatitis C antibody and RNA testing was slightly lower in wave 2 compared to wave 1 among both Aboriginal and Torres Strait Islander participants and non-Indigenous participants (Figure 3).

FIGURE 3. LIFETIME AND RECENT HEPATITIS C ANTIBODY AND RNA TESTING AMONG ABORIGINAL AND TORRES STRAIT ISLANDER AND NON-INDIGENOUS ETHOS ENGAGE PARTICIPANTS, 2018-2021

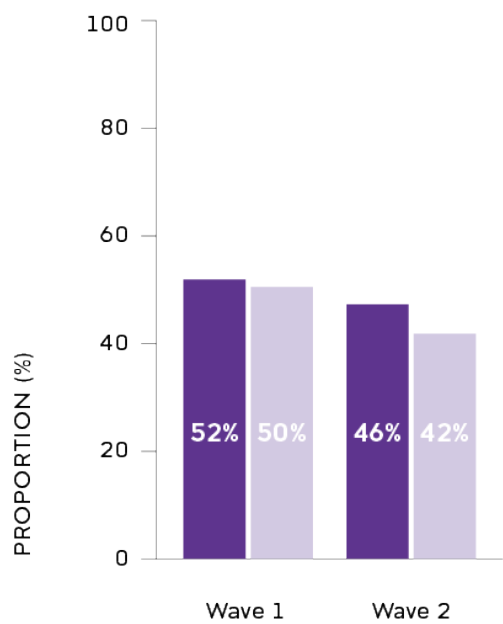
TESTED FOR HEPATITIS C ANTIBODY, EVER



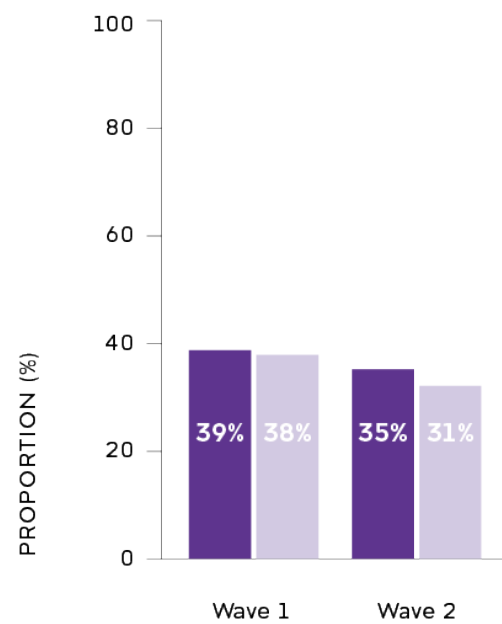
TESTED FOR HEPATITIS C RNA, EVER



TESTED FOR HEPATITIS C ANTIBODY, PAST YEAR



TESTED FOR HEPATITIS C RNA, PAST YEAR



ABORIGINAL AND TORRES STRAIT ISLANDER PEOPLE

NON-INDIGENOUS PEOPLE

INDICATOR KEY

Study and design: ETHOS Engage; observational cohort

Sample size: Wave 1 (May 2018-Sept 2019): 1 443 participants, of whom 23% (n=337) identified as Aboriginal and Torres Strait Islander; Wave 2 (Nov 2019-Jun 2021): 1 211 participants, of whom 24% (n=290) identified as Aboriginal and Torres Strait Islander

Number of sites and locations: Wave 1: 25 sites (21 OAT clinics; 4 NSP); Wave 2: 21 sites (19 OAT clinics, 2 NSP). Wave 1: 17 sites in NSW, 4 in QLD, 2 in SA, 2 in WA; Wave 2: 15 sites in NSW, 2 in QLD, 2 in SA, 2 in WA

3.1 MONITORING SERVICE COVERAGE

3.1.1 HEPATITIS C TESTING AND DIAGNOSIS

c. Testing and diagnosis among Aboriginal and Torres Strait Islander people attending ACCHS

C.1 INDICATOR DEFINITION

Proportion of Aboriginal and Torres Strait Islander people attending ACCHS who received a hepatitis C antibody test

NUMERATOR

People with a record of hepatitis C antibody test

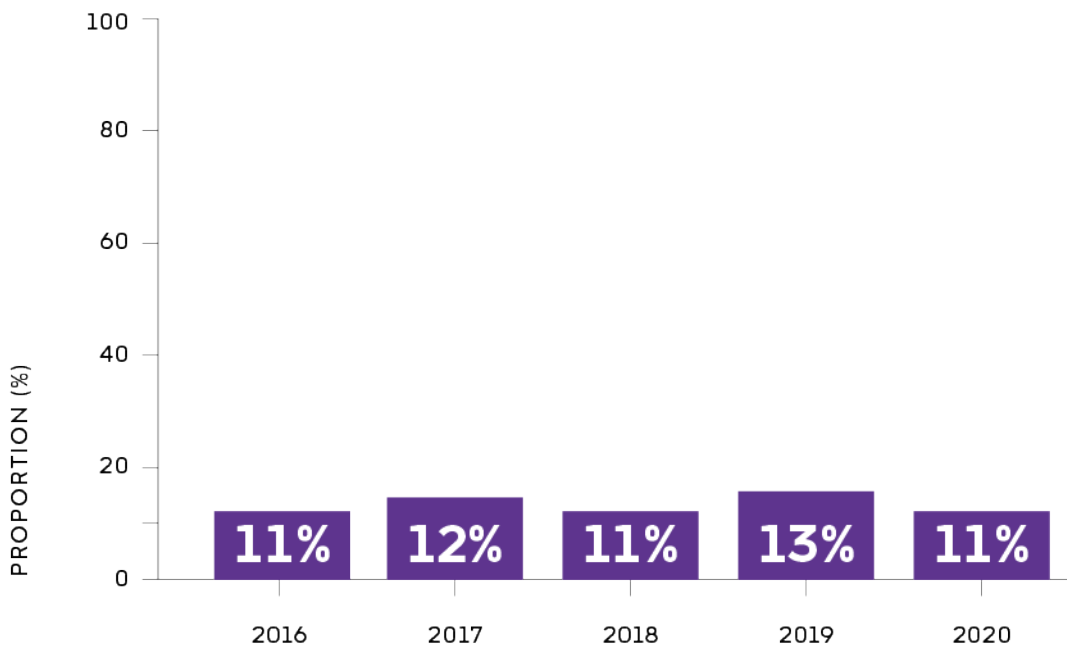
DENOMINATOR

All people attending a medical consultation at participating ACCHS

RESULTS

Between 2016 and 2020, the proportion of people aged 15 years and older attending ACCHS participating in the ATLAS sentinel surveillance network who received hepatitis C antibody testing remained stable; 11% (5 194/49 088) in 2016 to 11% (6 366/58 895) in 2020 (Figure 4).

FIGURE 4. HEPATITIS C ANTIBODY TESTING AMONG PEOPLE ATTENDING ATLAS NETWORK ACCHS, 2016-2020



INDICATOR KEY

Study and design: ATLAS sexual health surveillance network, blood-borne viruses and sexually transmissible infections sentinel surveillance

Sample size: Range 49 088 to 58 895 individuals aged 15 years and older attending participating ACCHS

Number of sites and locations: 34 ACCHS focused in five 'clinical hubs' across QLD (2 hubs), NSW, SA, and the Kimberley, WA

3.1 MONITORING SERVICE COVERAGE

3.1.1 HEPATITIS C TESTING AND DIAGNOSIS

d. Testing and diagnosis among Aboriginal and Torres Strait Islander people attending sexual health clinics

D.1 INDICATOR DEFINITION

Proportion of Aboriginal and Torres Strait Islander people attending sexual health clinics who received a hepatitis C test

NUMERATOR

People with a record of hepatitis C test

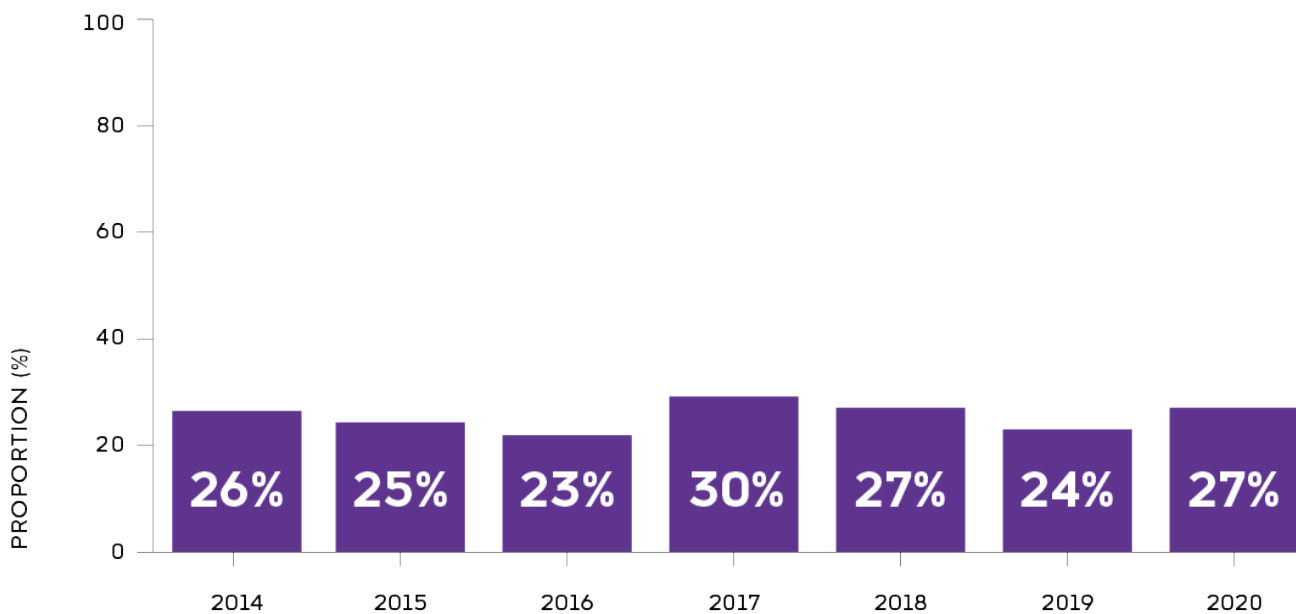
DENOMINATOR

All people attending medical consultation at ACCESS sexual health clinics and receiving hepatitis C antibody test

RESULTS

Between 2015 and 2020, the proportion of Aboriginal and Torres Strait Islander people attending sexual health clinics who received hepatitis C antibody and/or RNA testing remained relatively stable; 25% (478/1 946) in 2016 to 27% (442/1 623) in 2020 (Figure 5).

FIGURE 5. HEPATITIS C TESTING (ANTIBODY AND/OR RNA) AMONG ABORIGINAL AND TORRES STRAIT ISLANDER PEOPLE ATTENDING ACCESS NETWORK OF SEXUAL HEALTH CLINICS, 2014-2020



INDICATOR KEY

Study and design: ACCESS network, blood borne viruses and sexually transmissible infections sentinel surveillance

Sample size: Range 1 833 to 2 333 Aboriginal and Torres Strait Islander people aged 15 years and older attending sexual health clinics in-person or via telehealth

Number of sites and locations: 10 sexual health clinics: 6 in NSW, 1 in VIC, 1 in ACT, 1 in SA, and 1 in TAS

3.1.2 Hepatitis C treatment uptake and outcomes

BACKGROUND

The availability of highly curative DAA treatment has the potential to remarkably reduce population-level morbidity and mortality and new hepatitis C infections. Monitoring treatment uptake and outcomes is critical in measuring progress of hepatitis C elimination and identifying barriers to hepatitis C care.

“Over the years I’ve had people say, “Oh well, I’ve gotta die of something, I might as well die from hep C or whatever”. But, until you get them on a good day when they can have a yarn with you where you can say to them that “it doesn’t need to be like this”, especially now with the new treatments you know 8 to 12 weeks with a 95% cure rate. You know, it’s over and done with in no time.”
- Aboriginal Sexual and Blood Borne Viruses Health Worker

a. Treatment uptake among Aboriginal and Torres Strait Islander people with a hepatitis C notification

A.1 INDICATOR DEFINITION

Proportion of Aboriginal and Torres Strait Islander people with a hepatitis C notification estimated to have chronic hepatitis C who received treatment

NUMERATOR

People with a hepatitis C notification who received hepatitis C treatment

DENOMINATOR

People with a hepatitis C notification estimated to have chronic hepatitis C linked to pharmaceutical benefits scheme

RESULTS

Among 3 503 people with a hepatitis C notification in 2016-2017 estimated to have chronic hepatitis C, 24% (n=852) identified as Aboriginal and Torres Strait Islander. In 2016-2018, treatment uptake among Aboriginal and Torres Strait Islander people (44%; n=376) was lower compared to treatment uptake among non-Indigenous people (65%; n=1 709). Treatment uptake and time to treatment among Aboriginal and Torres Strait Islander people who were incarcerated and in the community were consistently lower than treatment uptake among non-Indigenous people who were incarcerated and in the community. (Figure 6 and Figure 7)

FIGURE 6. HEPATITIS C TREATMENT UPTAKE AMONG ABORIGINAL AND TORRES STRAIT ISLANDER PEOPLE AND NON-INDIGENOUS PEOPLE WITH A HEPATITIS C NOTIFICATION IN NSW, 2016-2018, BY INCARCERATION HISTORY

A TREATMENT RECEIVED, OVERALL

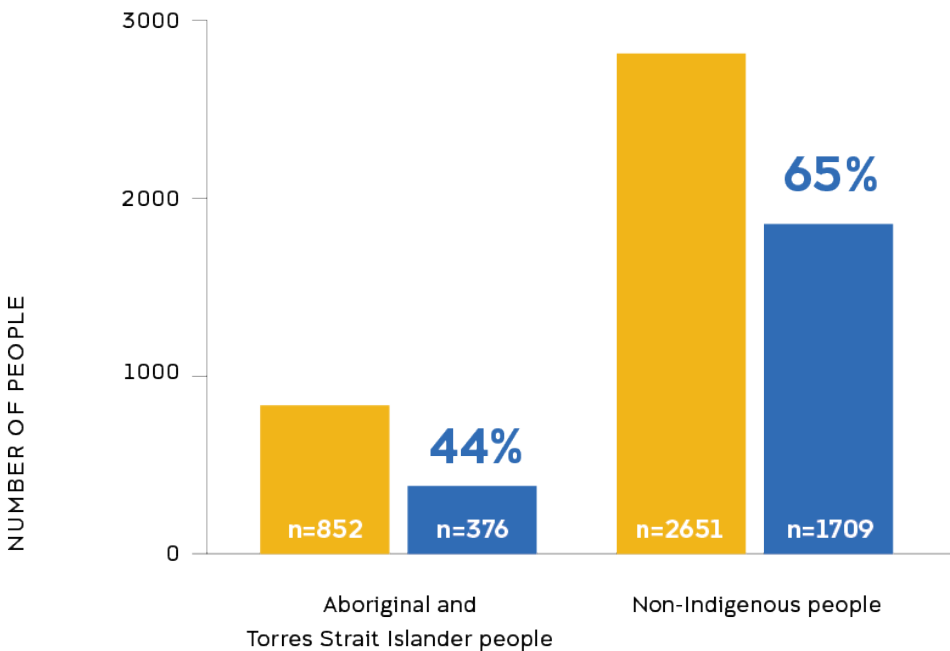
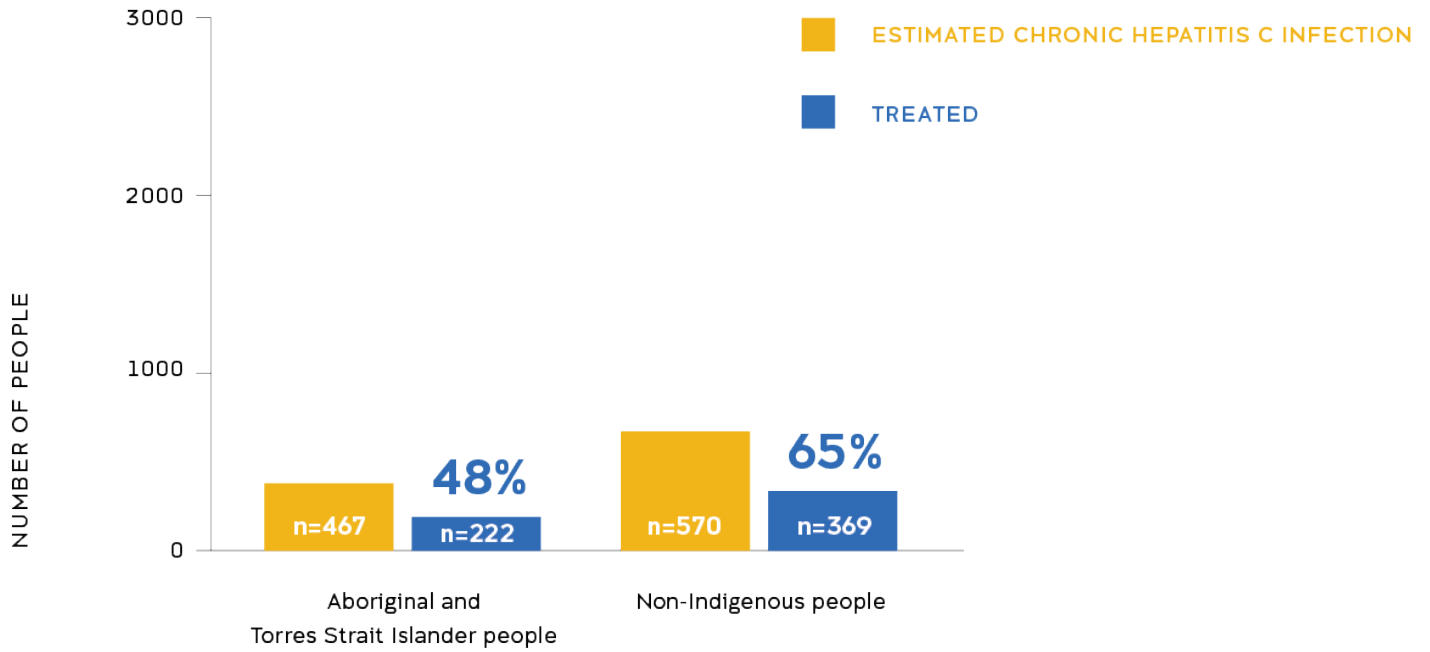


FIGURE 6. HEPATITIS C TREATMENT UPTAKE AMONG ABORIGINAL AND TORRES STRAIT ISLANDER PEOPLE AND NON-INDIGENOUS PEOPLE WITH A HEPATITIS C NOTIFICATION IN NSW, 2016-2018, BY INCARCERATION HISTORY

B TREATMENT RECEIVED AMONG PEOPLE INCARCERATED ANYTIME DURING 2016-2017



C TREATMENT RECEIVED AMONG PEOPLE IN COMMUNITY DURING 2016-2017

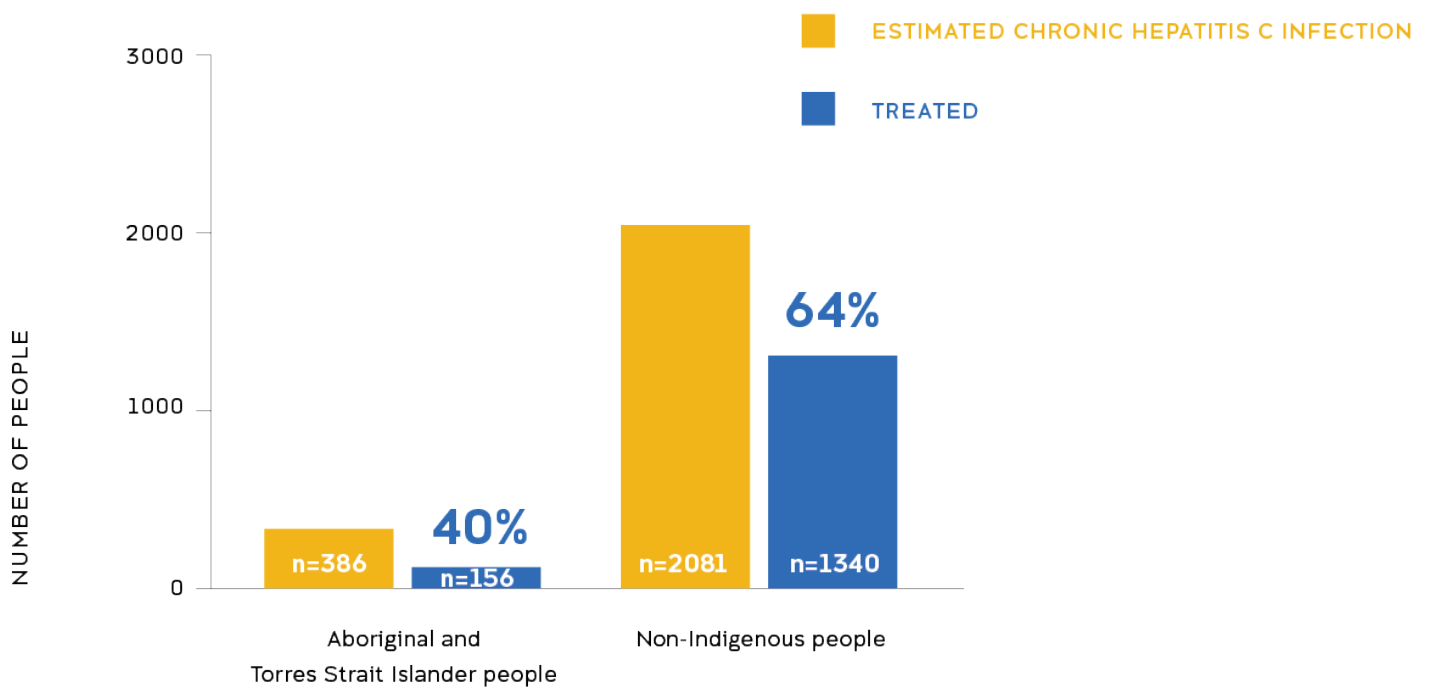
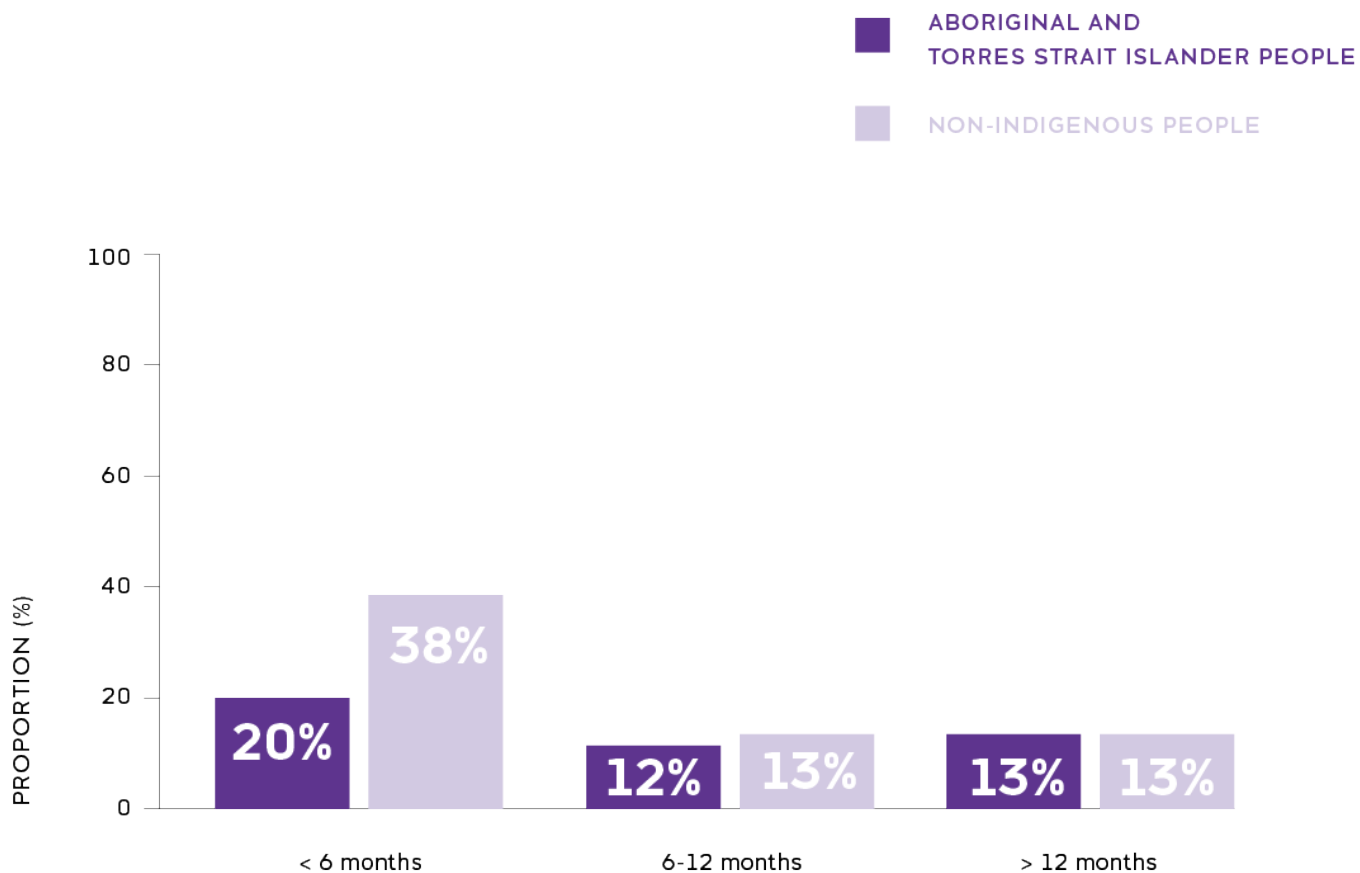


FIGURE 7. TIME TO HEPATITIS C TREATMENT UPTAKE AMONG ABORIGINAL AND TORRES STRAIT ISLANDER PEOPLE AND NON-INDIGENOUS PEOPLE WITH A HEPATITIS C NOTIFICATION IN NSW, 2016-2018*



INDICATOR KEY

Study and design: NSW Data Linkage, population-level data linkage

Sample size: 4 827 people with a hepatitis C notification in 2016-2017, of whom an estimated 3 503 people have chronic hepatitis C

States and territories: NSW

*Per cent figures relate to people with notifications who were eligible to receive therapy (estimated chronic hepatitis C) and received therapy in each time-period following notification.

3.1 MONITORING SERVICE COVERAGE

3.1.2 HEPATITIS C TREATMENT UPTAKE AND OUTCOMES

A.2 INDICATOR DEFINITION

Proportion of Aboriginal and Torres Strait Islander people with a hepatitis C notification estimated to have chronic hepatitis C and evidence of drug dependence who received treatment

NUMERATOR

People with a hepatitis C notification and evidence of recent drug dependence who received hepatitis C treatment

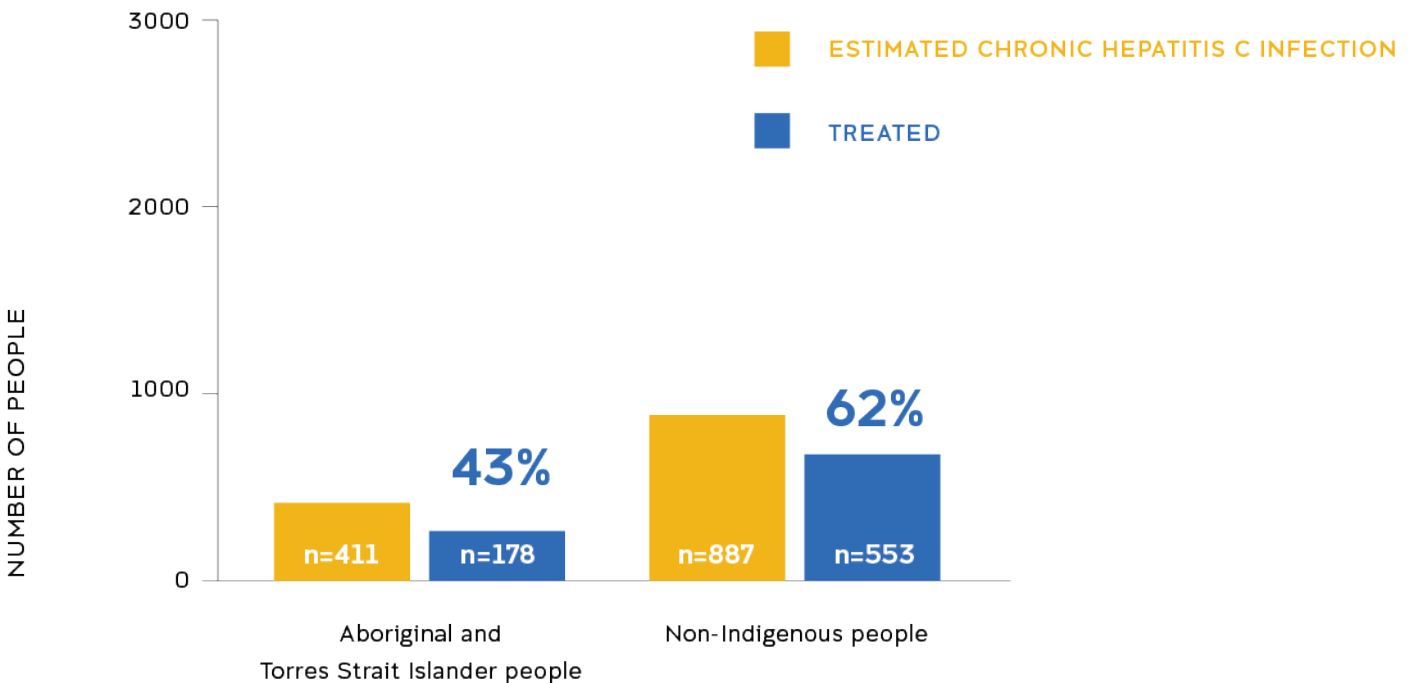
DENOMINATOR

People with a hepatitis C notification estimated to have chronic hepatitis C and evidence of recent drug dependence

RESULTS

Among 1 299 people with a hepatitis C notification 2016-2017 estimated to have chronic hepatitis C and evidence of recent drug dependence, 32% (n=411) identified as Aboriginal and Torres Strait Islander. In 2016-2018, treatment uptake among Aboriginal and Torres Strait Islander people (43%; n=178) was lower compared to treatment uptake among non-Indigenous people (62%; n=553) (Figure 8).

FIGURE 8. HEPATITIS C TREATMENT UPTAKE AMONG ABORIGINAL AND TORRES STRAIT ISLANDER PEOPLE AND NON-INDIGENOUS PEOPLE WITH A HEPATITIS C NOTIFICATION AND EVIDENCE OF RECENT DRUG DEPENDENCE, IN NSW, 2016-2018



INDICATOR KEY

Study and design: NSW Data Linkage, Population-level data linkage

Sample size: 1 299 people with a hepatitis C notification in 2016-2017 estimated to have chronic hepatitis C and evidence drug dependence in 2016-2018

States and territories: NSW

b. Treatment uptake among Aboriginal and Torres Strait Islander people who inject drugs

B.1 INDICATOR DEFINITION

Proportion of Aboriginal and Torres Strait Islander people who inject drugs who received hepatitis C treatment

NUMERATOR

ANSPS participants who self-reported receiving hepatitis C treatment

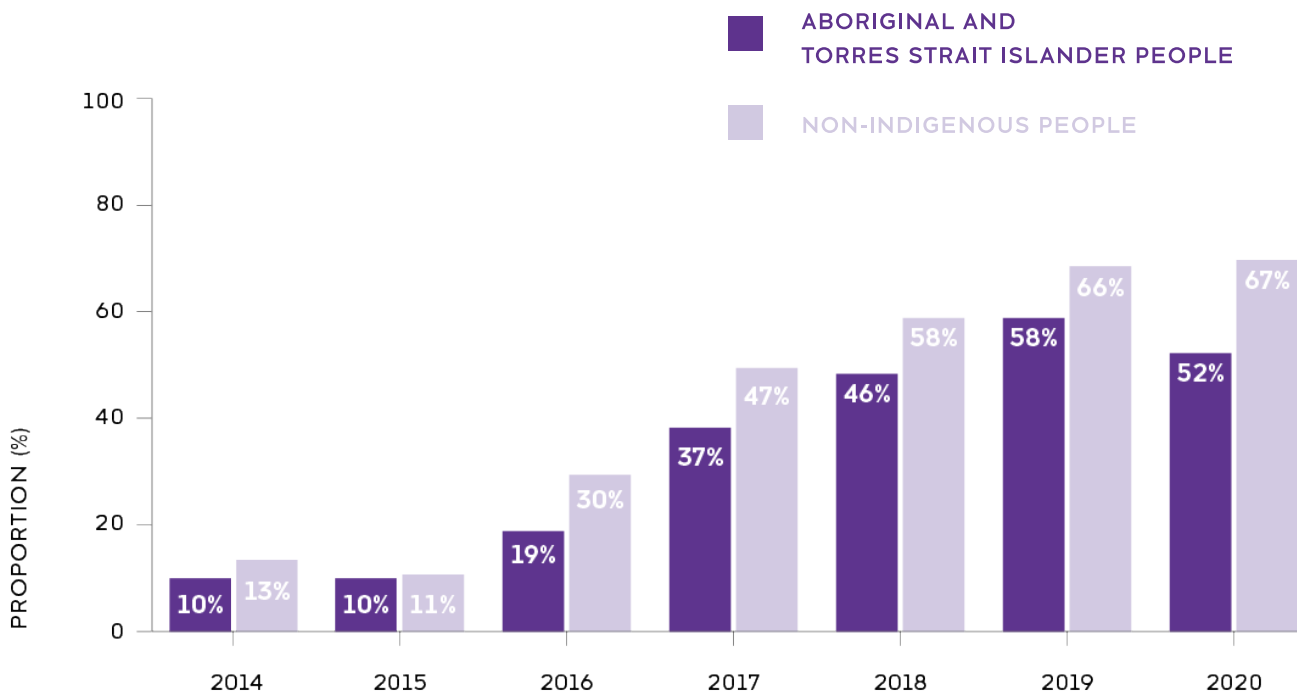
DENOMINATOR

ANSPS participants estimated to have chronic hepatitis C

RESULTS

In 2020, among Aboriginal and Torres Strait Islander participants estimated to have ever been living with current hepatitis C,* 52% self-reported a history of hepatitis C treatment, an increase from treatment uptake of 10% in 2015. Between 2016 and 2020, the proportion of eligible participants who self-reported a lifetime history of hepatitis C treatment was consistently lower (range 19% [19/100] to 52% [37/71]) among Aboriginal and Torres Strait Islander participants than among non-Indigenous participants (range 30% [160/530] to 67% [135/202]) (Figure 9).

FIGURE 9. LIFETIME HISTORY OF TREATMENT UPTAKE AMONG ABORIGINAL AND TORRES STRAIT ISLANDER AND NON-INDIGENOUS ANSPS PARTICIPANTS, 2014-2020



INDICATOR KEY

Study and design: ANSPS, cross-sectional annual survey

Sample size: Range 2014-2020: Overall 1 324 - 2 609 annually; Aboriginal and Torres Strait Islander 290 - 568 annually

Number of sites and locations: Range 38-54 sites across all states and territories (VIC sites did not participate in 2020 due to COVID-19 related impacts)

*Number of people with chronic hepatitis C was estimated by restricting to people with a positive hepatitis C antibody test and no self-reported history of spontaneous clearance

B.2 INDICATOR DEFINITION

Proportion of Aboriginal and Torres Strait Islander people who inject drugs who received hepatitis C treatment

NUMERATOR

ETHOS Engage participants who received hepatitis C treatment

DENOMINATOR

ETHOS Engage participants with current hepatitis C diagnosis

RESULTS

In 2018-2020, treatment uptake among Aboriginal and Torres Strait Islander participants with current hepatitis C was lower (38%; 30/78) than treatment uptake among non-Indigenous participants (50%; 122/245) (Figure 10).*

Among Aboriginal and Torres Strait Islander participants, hepatitis C treatment uptake was 35% (12/34) among females and 41% (18/44) among males, 20% (2/10) among homeless and 41% (28/68) among non-homeless, and 36% (23/64) among ever incarcerated and 50% (7/14) among never incarcerated people (Figure 11).

FIGURE 10. TREATMENT UPTAKE AMONG ABORIGINAL AND TORRES STRAIT ISLANDER AND NON-INDIGENOUS ETHOS ENGAGE PARTICIPANTS DIAGNOSED WITH CURRENT HEPATITIS C, 2018-2020

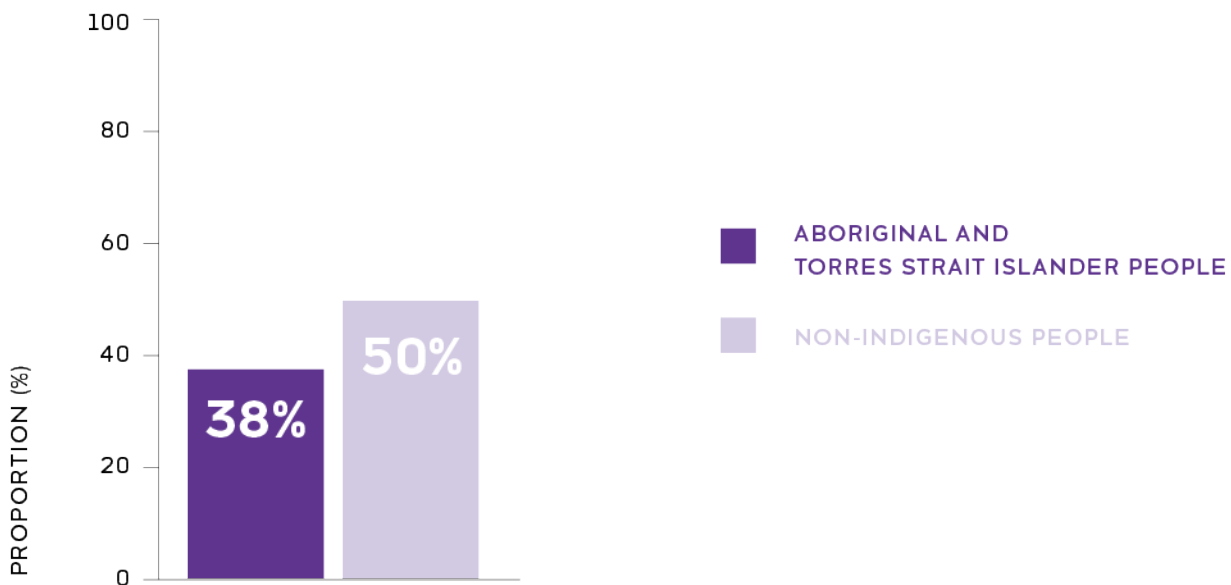
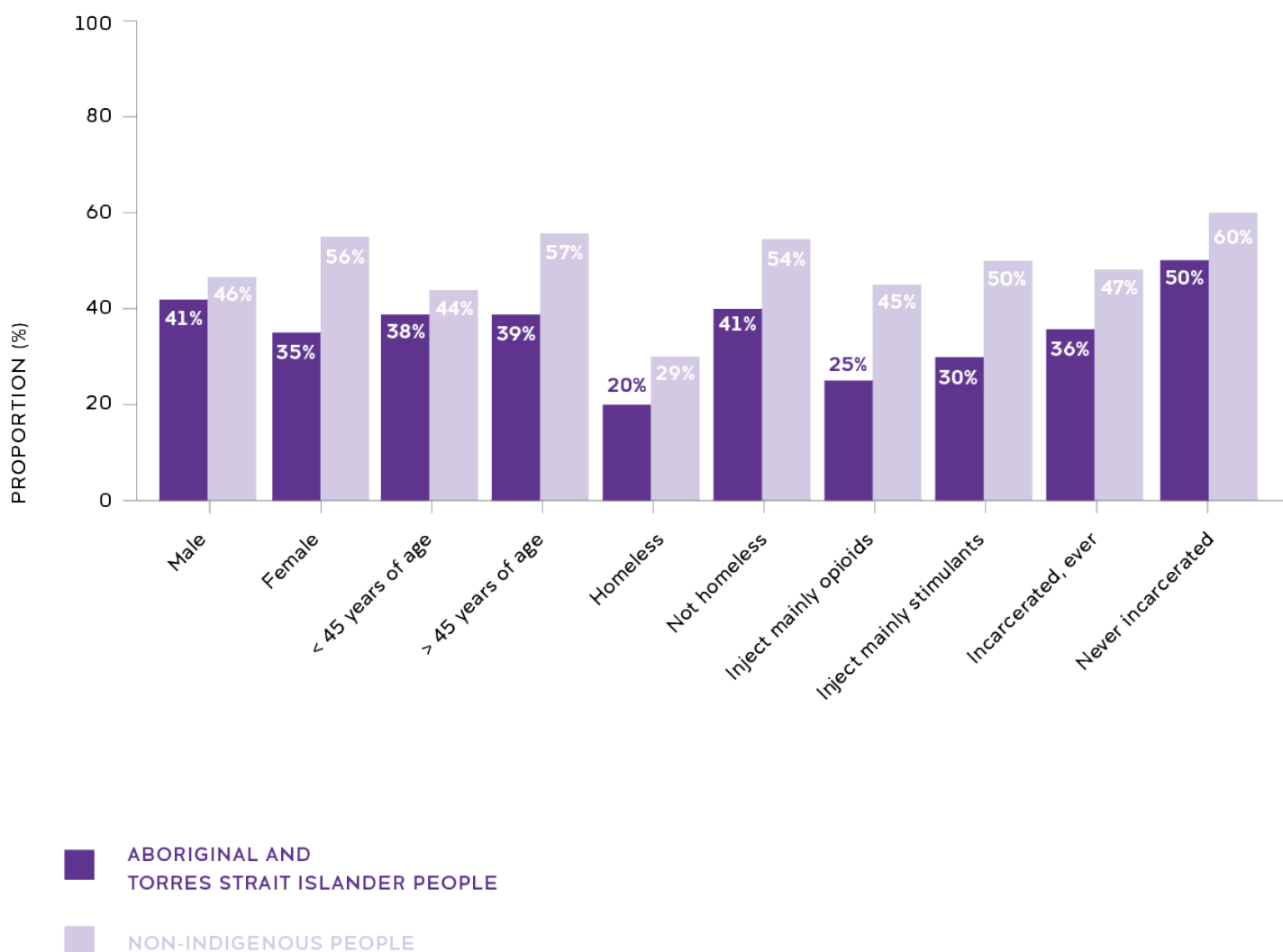


FIGURE 11. TREATMENT UPTAKE AMONG ABORIGINAL AND TORRES STRAIT ISLANDER AND NON-INDIGENOUS ETHOS PARTICIPANTS, 2018-2020, BY SEX, AGE-GROUP, HOMELESSNESS, MAIN DRUG INJECTED AND INCARCERATION HISTORY**



INDICATOR KEY

Study and design: ETHOS Engage; observational cohort

Sample size: Wave 1 (May 2018-Sept 2019): 1 443 participants, of whom 323 participants with current hepatitis C and treatment eligible. Of those 24% (n=78) identified as Aboriginal and Torres Strait Islander.

Number of sites and locations: 25 sites (21 OAT clinics; 4 NSP): 17 sites in NSW; 4 in QLD; 2 in SA, 2 in WA

*Among people with current hepatitis C and no evidence of current treatment; One year of follow-up period from enrollment to treatment

**Two transgender non-Indigenous participants excluded from the denominator; homelessness defined as having spent majority of nights in past 6 months in a hostel/ supported accommodation/shelter/refuge/no usual residence/squat

c. Treatment uptake among Aboriginal and Torres Strait Islander people attending ACCHS who received treatment

C.1 INDICATOR DEFINITION

Proportion of Aboriginal and Torres Strait Islander people attending ACCHS who received hepatitis C treatment

NUMERATOR

SCALE-C participants who received hepatitis C treatment

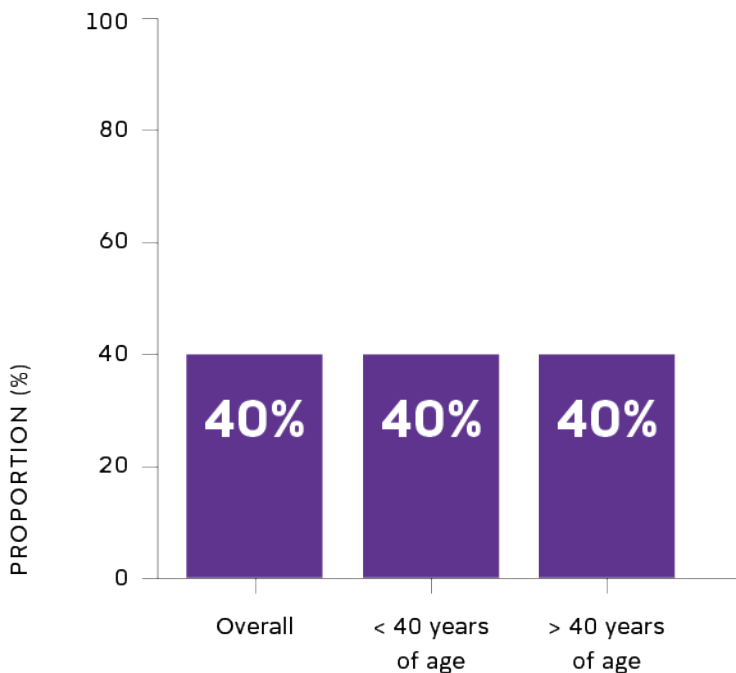
DENOMINATOR

SCALE-C participants with current hepatitis C diagnosis

RESULTS

In 2019-2021, treatment uptake among Aboriginal and Torres Strait Islander participants with current hepatitis C was 40% (12/30). Treatment uptake was the same among age groups less than 40 years and 40 years and above. (Figure 12)

FIGURE 12. TREATMENT UPTAKE AMONG ABORIGINAL AND TORRES STRAIT ISLANDER SCALE-C PARTICIPANTS WITH CURRENT HEPATITIS C, 2019-2020, BY AGE-GROUP



Study and design: SCALE-C; observational cohort

Sample size: 329 participants were enrolled and 165 were assessed as at-risk of hepatitis C infection. Participants were classified as at-risk if they self-reported history of hepatitis C, injection drug use, incarceration, or receipt of OAT. Among 165 participants, 154 had available hepatitis C RNA test results. Of those 30 had current hepatitis C.

Number of sites and locations: 4 Aboriginal Medical Services: 2 in NSW and 2 in SA

d. Hepatitis C treatment outcomes among Aboriginal and Strait Islander people

D.1 INDICATOR DEFINITION

Proportion of Aboriginal and Torres Strait Islander people who received hepatitis C treatment and were cured

NUMERATOR

REACH-C participants who received hepatitis C treatment and achieved cure

DENOMINATOR

REACH-C participants who received hepatitis C treatment

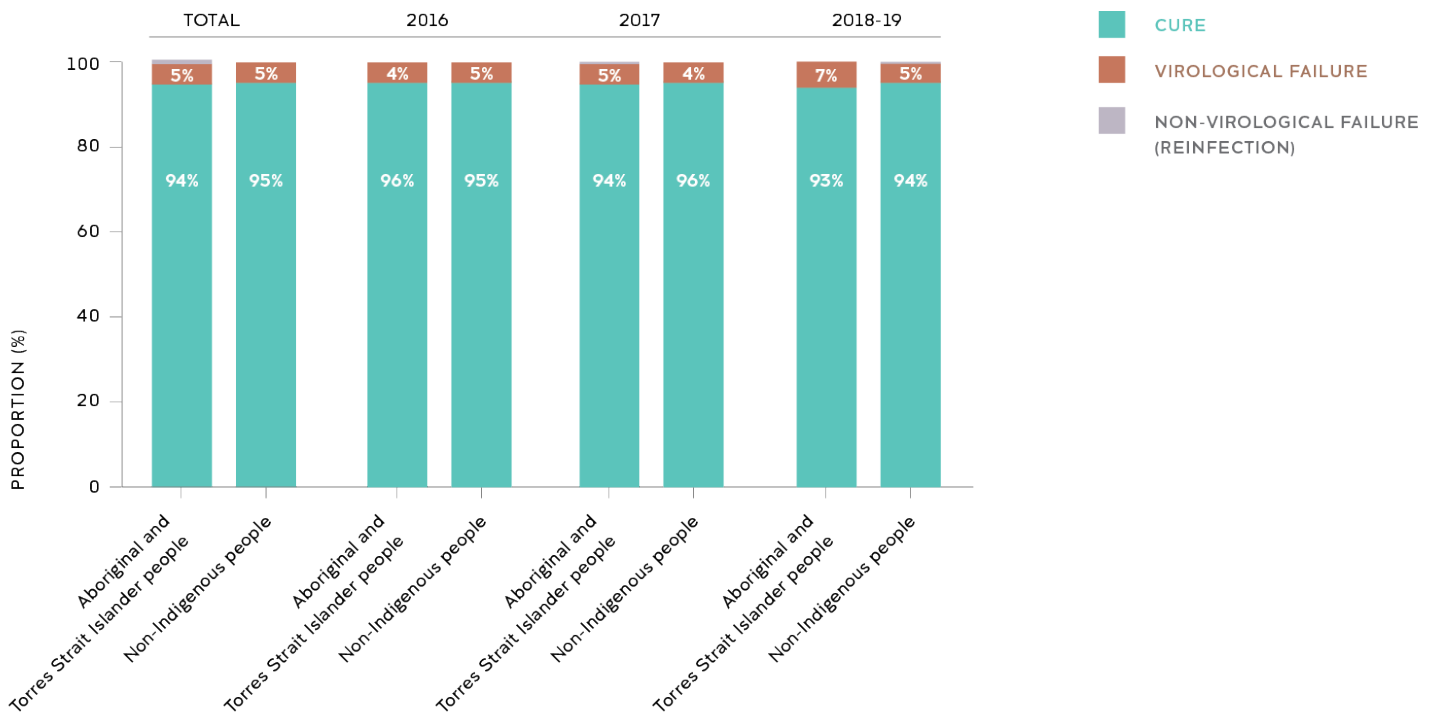
RESULTS

In 2016–2019, among 10 842 REACH-C participants who had received DAA treatment, 8% (n=915) identified as Aboriginal and Torres Strait Islander. Among Aboriginal and Torres Strait Islander participants and non-Indigenous participants who received treatment and had a post-treatment test available, 94% (673/714) and 95% (6 649/6 981) were cured, respectively (Figure 13 A). If no post-treatment test equals non-cure (a worst-case scenario) then cure rates are significantly lower: 74% (673/915) and 82% (6 649/8 095), respectively (Figure 13 B). Most common reason for non-cure among Aboriginal and Torres Strait Islander participants was to loss to follow-up/unknown (95%, 196/206), reinfection 2% (n=5), and death 2% (n=5). Similarly, most common reason for non-cure among non-Indigenous participants was loss to follow-up/unknown (93%, 1 048/1 126), death (6%, 66/1 126), and reinfection (1%, 12/1 126).

Among Aboriginal and Torres Strait Islander males and females, cure was 95% (477/504) and 93% (193/207), respectively. Among Aboriginal and Torres Strait Islander participants treated in tertiary care, primary care, and custodian settings cure was 95% (181/190), 94% (334/355) and 93% (141/152) respectively (Figure 14).

FIGURE 13. HEPATITIS C CURE AMONG ABORIGINAL AND TORRES STRAIT ISLANDER AND NON-INDIGENOUS REACH-C PARTICIPANTS, 2016-2019, BY AVAILABILITY OF POST-TREATMENT TEST RESULT

A CURE ACHIEVED IN PARTICIPANTS WITH AVAILABLE POST-TREATMENT DATA



B CURE ACHIEVED IN ALL PARTICIPANTS WHO RECEIVED TREATMENT

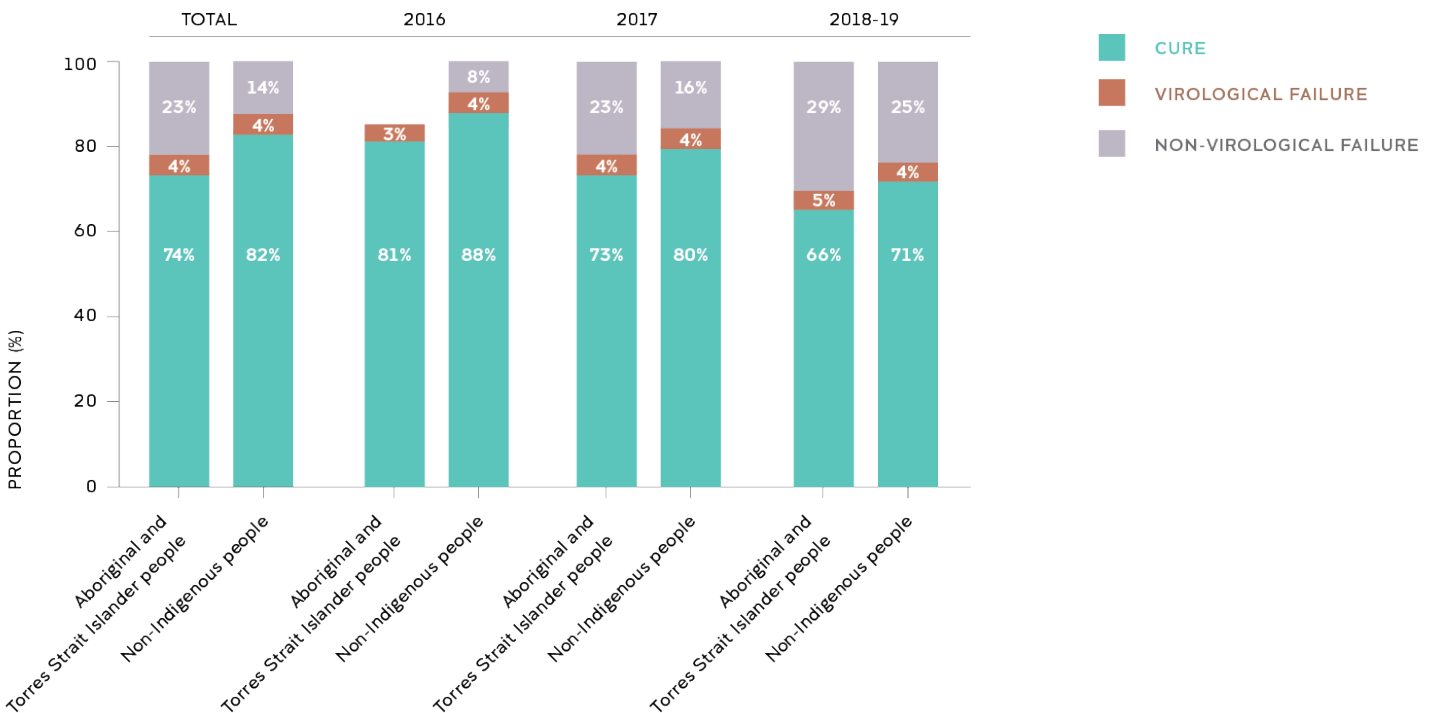
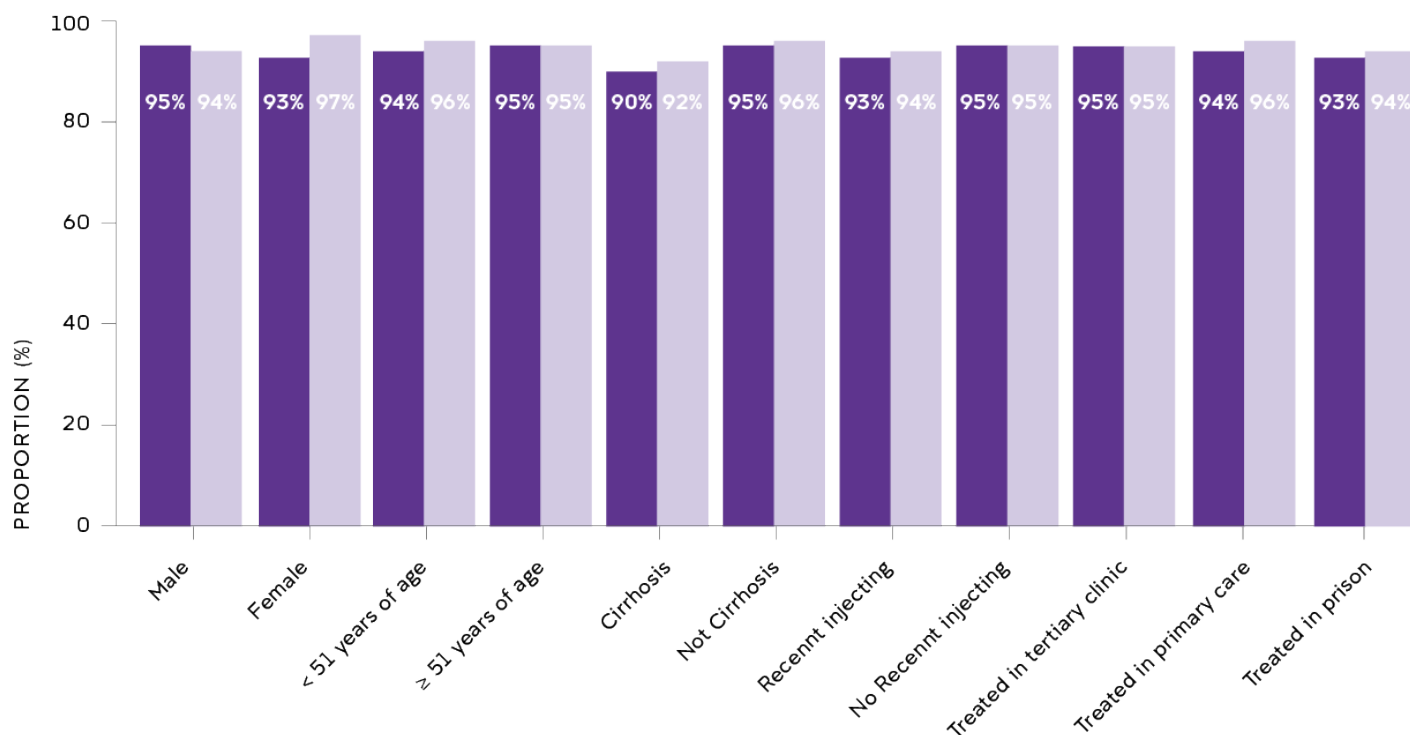


FIGURE 14. HEPATITIS C CURE AMONG ABORIGINAL AND TORRES STRAIT ISLANDER AND NON-INDIGENOUS REACH-C PARTICIPANTS, 2016-2019, BY SEX, AGE-GROUP, CIRRHOSIS STATUS, RECENT INJECTING, SETTING OF TREATMENT*



INDICATOR KEY

Study and design: REACH-C; observational cohort

Sample size: 10 843 participants who received treatment, of whom 8% (n=915) identified as Aboriginal and Torres Strait Islander

Sites and locations: Various tertiary, primary and prison clinics within 33 health services in all states and territories

*Denominator numbers vary due to missing data; recent injecting defined as injection drug use in the previous 6 months

3.1 MONITORING SERVICE COVERAGE

3.1.2 HEPATITIS C TREATMENT UPTAKE AND OUTCOMES

D.2 INDICATOR DEFINITION

Proportion of Aboriginal and Torres Strait Islander people who are incarcerated who were cured

NUMERATOR

SToP-C participants who received hepatitis C treatment and achieved cure

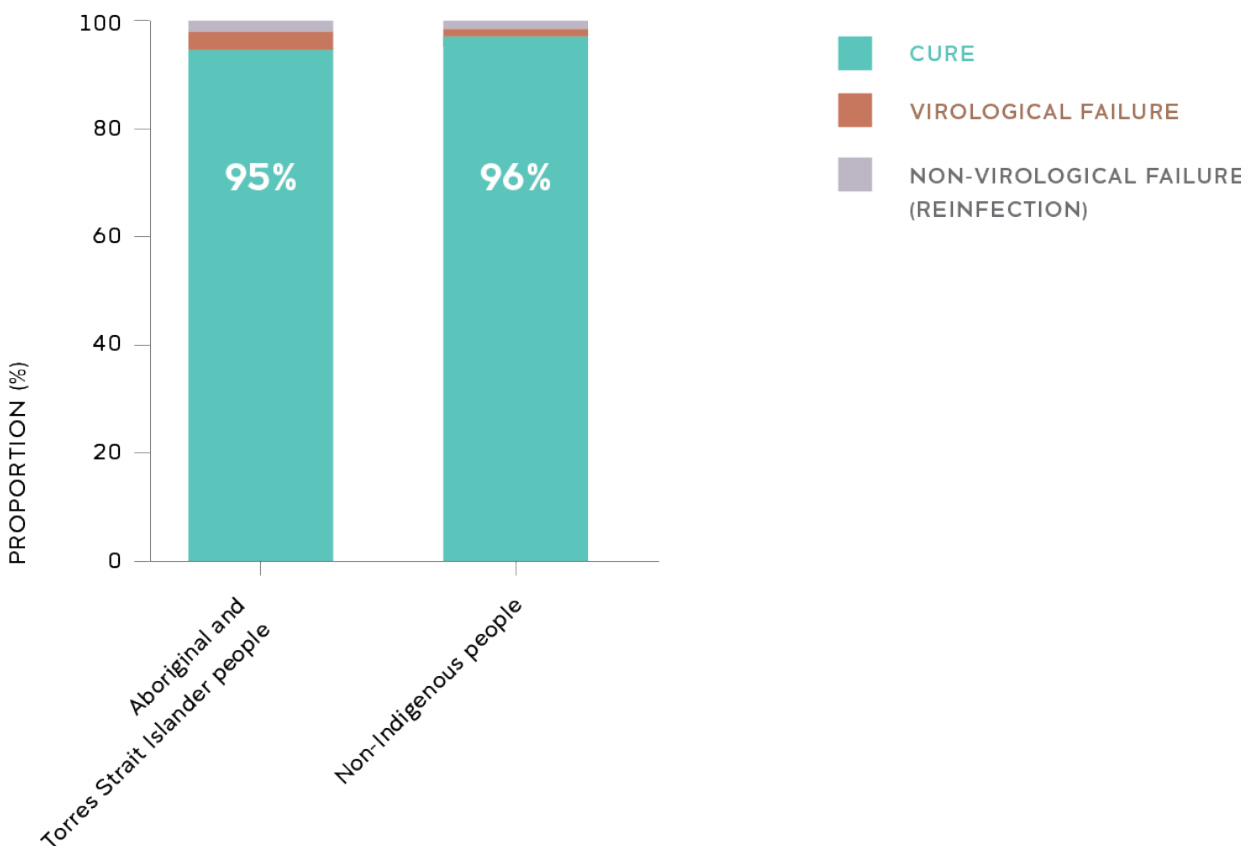
DENOMINATOR

SToP-C participants who received hepatitis C treatment

RESULTS

In 2017–2019, among 324 SToP-C participants who had received DAA treatment, 33% (n=108) identified as Aboriginal and Torres Strait Islander. Among Aboriginal and Torres Strait Islander participants and non-Indigenous participants who received treatment and had a post-treatment test available, 95% (41/43) and 96% (95/99) were cured, respectively (Figure 15).

FIGURE 15. HEPATITIS C CURE AMONG ABORIGINAL AND TORRES STRAIT ISLANDER AND NON-INDIGENOUS SToP-C PARTICIPANTS, 2017-2019, WITH AVAILABLE POST-TREATMENT TEST RESULT



INDICATOR KEY

Study and design: SToP-C; interventional trial

Sample size: 324 participants who received treatment, of whom 33% (n=108) identified as Aboriginal and Torres Strait Islander

Sites and locations: 2 maximum (male) and 2 medium-security prisons (1 male, 1 female) in NSW

e. Hepatitis C retreatment among Aboriginal and Torres Strait Islander people

E.1 INDICATOR DEFINITION

Proportion of Aboriginal and Torres Strait Islander people who were retreated

NUMERATOR

REACH-C participants who received hepatitis C treatment and were subsequently retreated

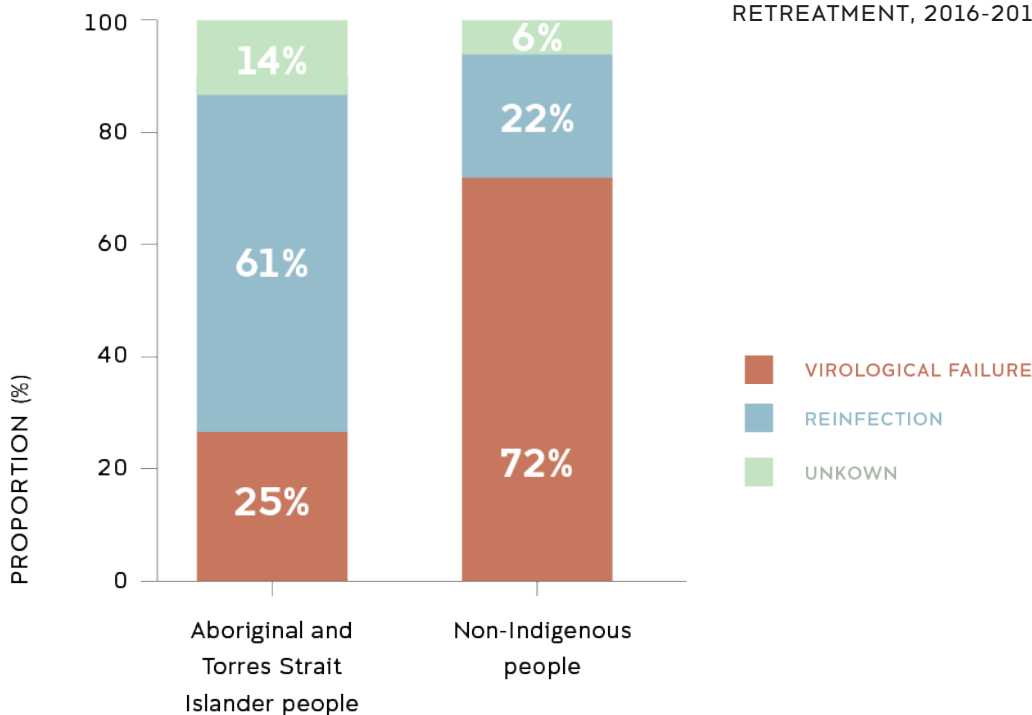
DENOMINATOR

REACH-C participants who received hepatitis C treatment

RESULTS

In 2016-2020, among Aboriginal and Torres Strait Islander and non-Indigenous participants who received DAA treatment in REACH-C, only 4% (36/915) and 3% (239/8 095) were retreated, respectively.* Among Aboriginal and Torres Strait Islander participants, the most common reason for retreatment was reinfection (61%, n=22), followed by non-cure (25%, n=9), and unknown (14%, n=5). In contrast, among non-Indigenous participants (n=8 095), the most common reason for retreatment was non-cure (72%, n=172), followed by reinfection (22%, n=53), and unknown (6%, n=14). A higher proportion of retreatment occurred in prison setting among Aboriginal and Torres Strait Islander participants (64%, 14/22) than among non-Indigenous participants (32%, 17/53) (Figure 16).

FIGURE 16. RETREATMENT AMONG ABORIGINAL AND TORRES STRAIT ISLANDER AND NON-INDIGENOUS REACH-C PARTICIPANTS WITH REASONS OF RETREATMENT, 2016-2019



INDICATOR KEY

Study and design: REACH-C; observational cohort

Sample size: 320 participants who were received treatment then retreated, of whom 11% (n=36) identified as Aboriginal and Torres Strait Islander

Sites and locations: Various tertiary, primary and prison clinics within 33 health services in all states and territories

*Hepatitis C retreatment was evaluated during the follow-up period 2016–2020.

3.1.3 Harm reduction

BACKGROUND

Injection drug use with unsterile injecting equipment is the major route of transmission of hepatitis C in Australia. Equitable access to harm reduction services, needle and syringe programs and opioid agonist therapy, is the cornerstone of prevention of drug-related harm, including hepatitis C acquisition. Frequency of needle and syringe sharing and opioid agonist therapy are key indicators to monitor progress in harm reduction coverage.

“And the fact that now we can promote that people can be still using their drug of choice and still be eligible to start hep C treatment”
- Aboriginal Sexual and Blood Borne Viruses Health Worker

a. Needle and syringe coverage

A.1 INDICATOR DEFINITION

Proportion of Aboriginal and Torres Strait Islander people who inject drugs who report receptive needle and syringe sharing in the past month

NUMERATOR

ANSPS participants who self-reported receptive syringe sharing in the month preceding the survey

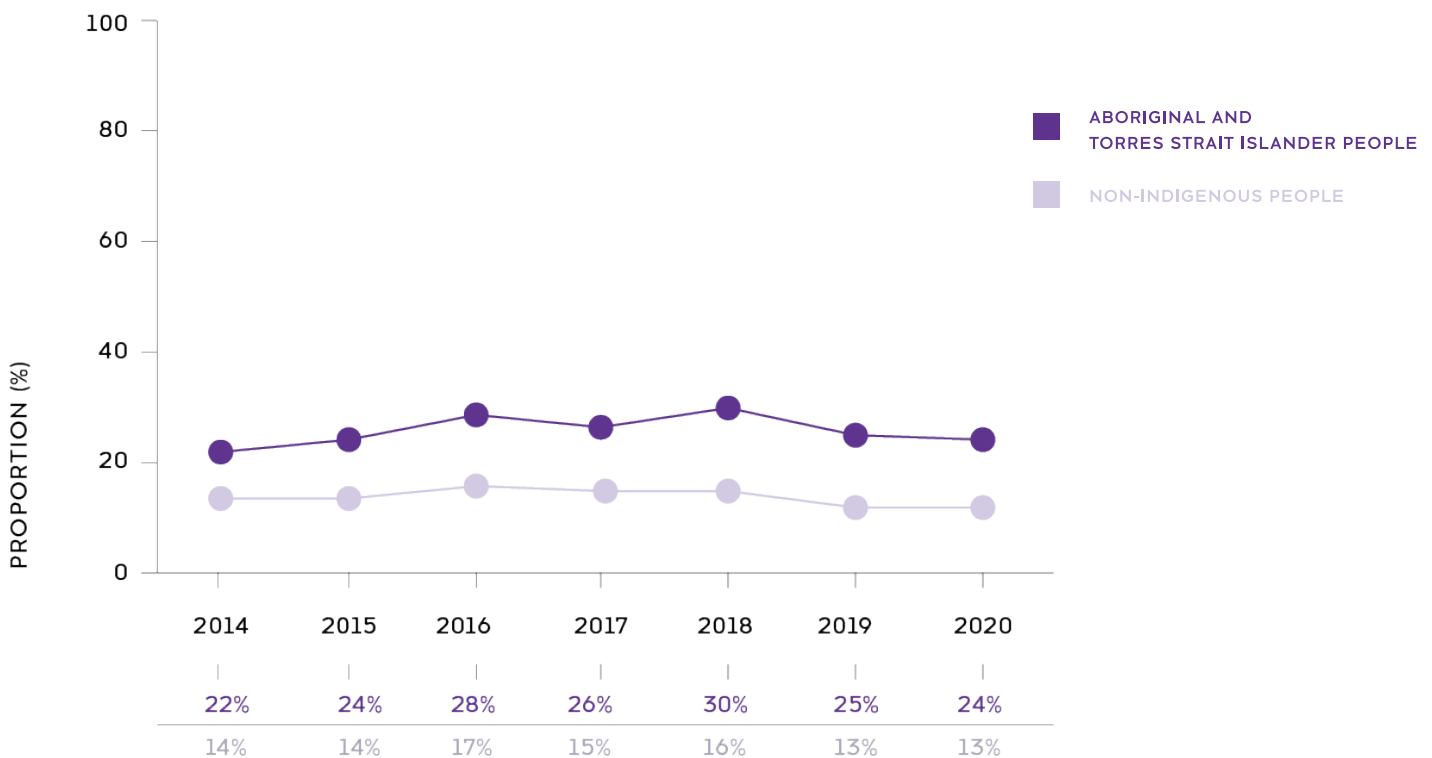
DENOMINATOR

ANSPS participants who reported injecting in the month preceding the survey

RESULTS

In 2020, among 1 324 ANSPS participants, 258 Aboriginal and Torres Strait Islander participants reported injecting in the month preceding the survey, of whom 24% (n=61) self-reported at least one occasion of receptive syringe sharing in the last month. In contrast, 869 non-Indigenous participants reported injecting in the month preceding the survey, of whom 13% (n=109) self-reported at least one occasion of receptive syringe sharing in the last month. Between 2014 and 2020, the proportion of participants who self-reported receptive syringe sharing was consistently higher among Aboriginal and Torres Strait Islander participants (range 22%; 64/287 to 30% 141/474) than among non-Indigenous participants (range 13%; 109/869 to 17%; 263/1 559) (Figure 17).

FIGURE 17. RECEPTIVE SYRINGE SHARING IN THE PAST MONTH AMONG ABORIGINAL AND TORRES STRAIT ISLANDER AND NON-INDIGENOUS ANSPS PARTICIPANTS, 2014-2020



INDICATOR KEY

Study and design: ANSPS, annual survey

Sample size: Range 2014-2020: Overall 1324 - 2609 annually; Aboriginal and Torres Strait Islander 290-568 annually

Number of sites and locations: Range 38-54 sites across all states and territories (VIC sites did not participate in 2020 due to COVID-19 related restrictions)

3.1 MONITORING SERVICE COVERAGE

3.1.3 HARM REDUCTION

A.2 INDICATOR DEFINITION

Proportion of Aboriginal and Torres Strait Islander people who inject drugs who report receptive needle and syringe sharing in the previous month

NUMERATOR

SCALE-C participants who self-reported receptive syringe sharing in the month preceding the survey

DENOMINATOR

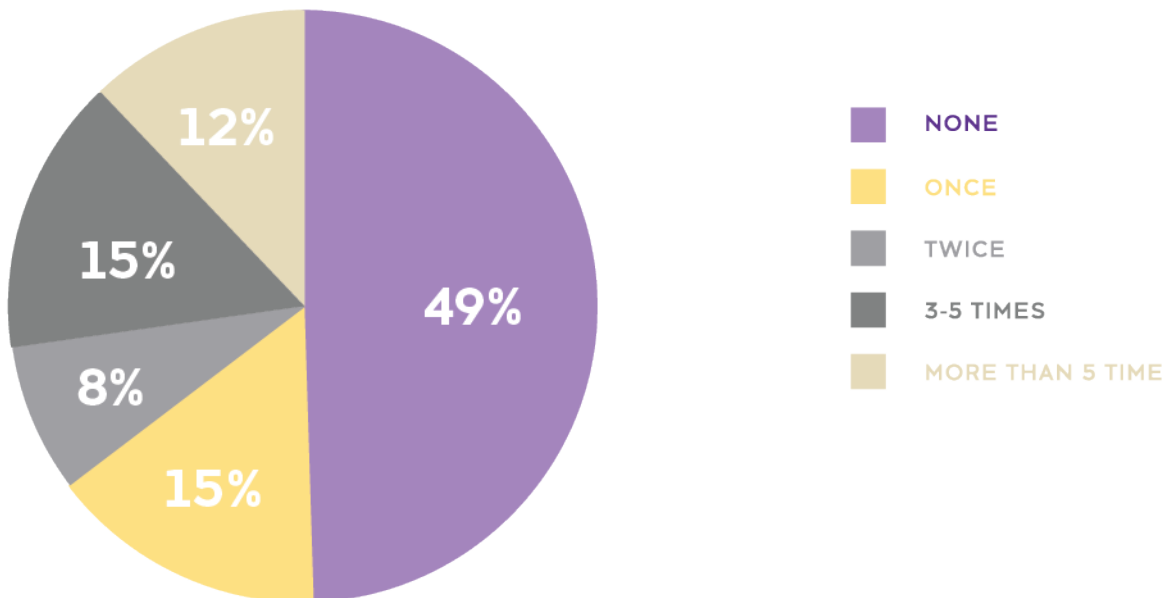
SCALE-C participants who reported injecting in the month preceding the survey

RESULTS

In 2019-2021, among 157 Aboriginal and Torres Strait Islander participants at-risk of hepatitis C (defined as self-reported history of hepatitis C, injection drug use, incarceration, or receipt of opioid agonist therapy) and completed questionnaire, 76% (n=119) self-reported history of injection drug use. Among 119 participants, 65 reported injecting in the month preceding the survey, of whom 51% (n=33) self-reported at least one occasion or more of using a needle or a syringe after someone else has already used it in the past month (Figure 18).

FIGURE 18. RECEPTIVE NEEDLE AND SYRINGE USE IN THE PAST MONTH AMONG ABORIGINAL AND TORRES STRAIT ISLANDER SCALE-C PARTICIPANTS, 2019-2021

REUSED SOMEONE ELSE'S USED NEEDLE AND SYRINGE PAST MONTH



INDICATOR KEY

Study and design: SCALE-C; observational cohort

Sample size: 329 participants were enrolled and 165 were assessed as at-risk of hepatitis C infection. Participants were classified as at-risk if they self-reported history of hepatitis C, injection drug use, incarceration, or receipt of OAT. Among 165 participants, 157 completed questionnaire

Sites: 4 Aboriginal Medical Services: 2 in SA & 2 in NSW

b. Opioid agonist treatment coverage

B.1 INDICATOR DEFINITION

Proportion of Aboriginal and Torres Strait Islander people who have ever injected drugs and who are currently receiving opioid agonist therapy

NUMERATOR

ETHOS Engage participants who self-reported currently receiving opioid agonist therapy

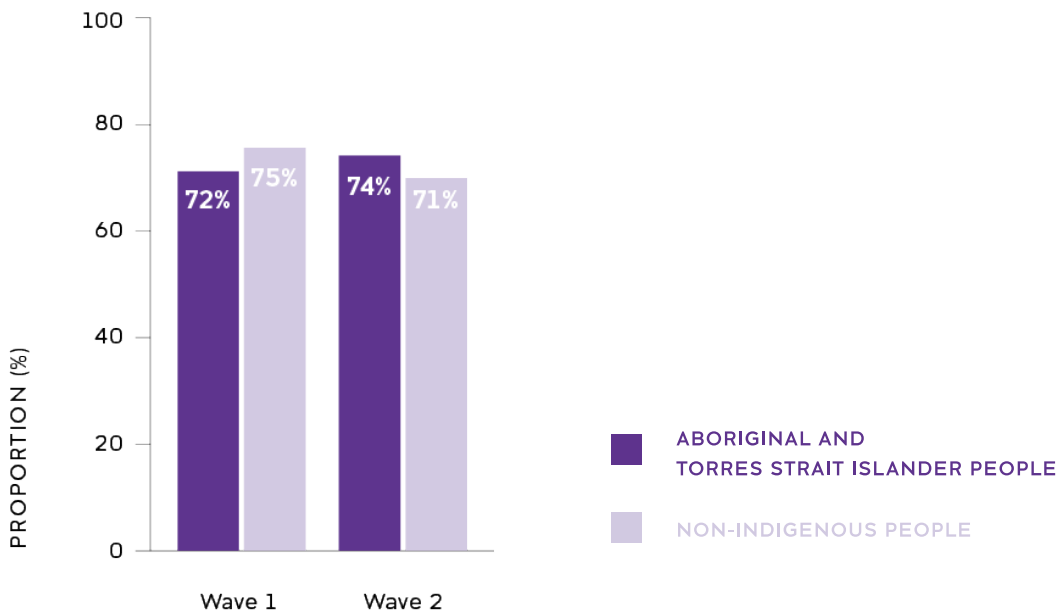
DENOMINATOR

ETHOS Engage participants who self-reported a history of injection drug use

RESULTS

In wave 1 (2018-2019), receipt of opioid agonist therapy among Aboriginal and Torres Strait Islander participants and non-Indigenous participants was 72% (241/337) and 75% (829/1106), respectively. Similarly, 74% (214/230) of Aboriginal and Torres Strait Islander participants and 71% (652/921) of non-Indigenous participants received opioid agonist therapy in wave 2 (2019-2021) (Figure 19).

FIGURE 19. CURRENT OPIOID AGONIST THERAPY AMONG ABORIGINAL AND TORRES STRAIT ISLANDER AND NON-INDIGENOUS ETHOS ENGAGE PARTICIPANTS WHO INJECT DRUGS, 2018-2021



Study and design: ETHOS Engage; observational cohort

Sample size: Wave 1 (May 2018-Sept 2019): 1 443 participants ever injected drugs, of whom 23% (n=337) identified as Aboriginal and Torre Strait Islander; Wave 2 (Nov 2019-Jun 2021): 1 151 participants ever injected drugs, of whom 20% (n=230) identified as Aboriginal and Torres Strait Islander

Sites and locations: Wave 1: 25 sites (21 OAT clinics; 4 NSP); Wave 2: 21 sites (19 OAT clinics, 2 NSP); Wave 1: 17 sites in NSW, 4 in QLD, 2 in SA, 2 in WA; Wave 2: 15 sites in NSW, 2 in QLD, 2 in SA, 2 in WA

3.1 MONITORING SERVICE COVERAGE

3.1.3 HARM REDUCTION

B.2 INDICATOR DEFINITION

Proportion of people who are incarcerated and have ever injected drugs and currently receiving opioid agonist therapy

NUMERATOR

SToP-C participants who self-reported currently receiving opioid agonist therapy

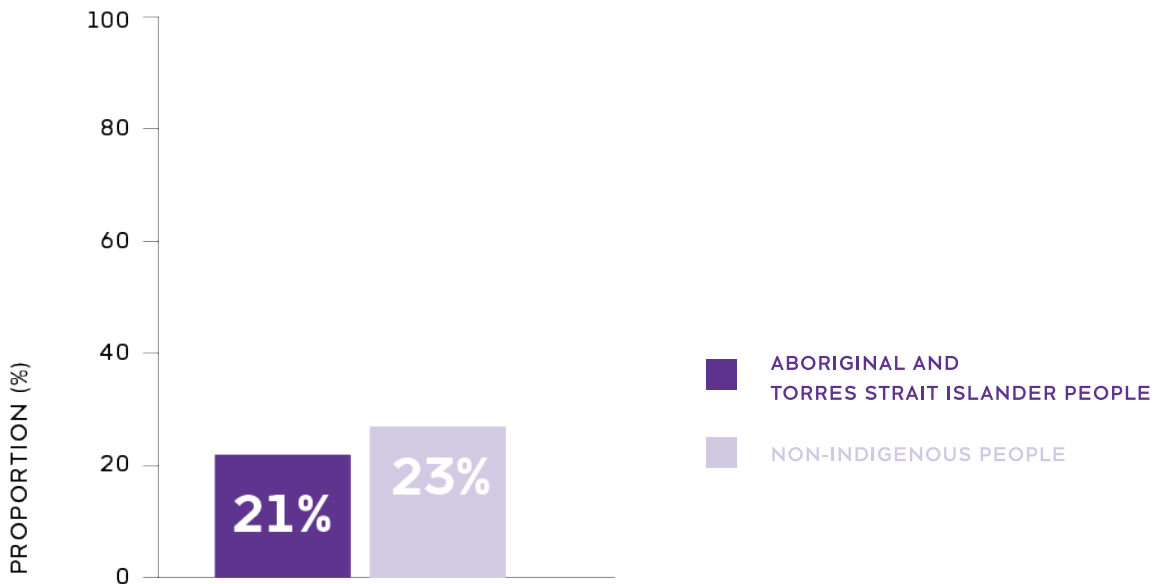
DENOMINATOR

SToP-C participants who self-reported a history of injection drug use

RESULTS

In 2017-2019, among Aboriginal and Torres Strait Islander participants and non-Indigenous participants who self-reported ever injecting drugs, 21% (41/200) and 23% (75/324) self-reported currently receiving opioid agonist therapy, respectively (Figure 20).

FIGURE 20. CURRENT OPIOID AGONIST THERAPY AMONG ABORIGINAL AND TORRES STRAIT ISLANDER AND NON-INDIGENOUS SToP-C PARTICIPANTS WITH A HISTORY OF INJECTION DRUG USE, 2017-2019



INDICATOR KEY

Study and design: SToP-C; interventional trial

Sample size: 1 186 participants with data available in 2017

Sites and locations: 2 maximum (male) and 2 medium-security prisons (1 male, 1 female) in NSW

3.1.4 Stigma and discrimination

BACKGROUND

Experiences of stigma and discrimination due to injection drug use and hepatitis C infection can impact an individual's willingness to engage with prevention and treatment services. These experiences are compounded by the racism and discrimination that Aboriginal and Torres Strait Islander people experience in their daily lives. Monitoring stigma and discrimination indicators is important in identifying barriers to equitable access to hepatitis C testing and treatment services.

a. Stigma and discrimination due to injection drug use or hepatitis C infection

A.1 INDICATOR DEFINITION

Proportion of people who inject drugs who report experiencing stigma or discrimination in relation to their injection drug use or hepatitis C infection in the last 12 months

NUMERATOR

ETHOS Engage participants who inject drugs who self-reported experiencing stigma and discrimination

DENOMINATOR

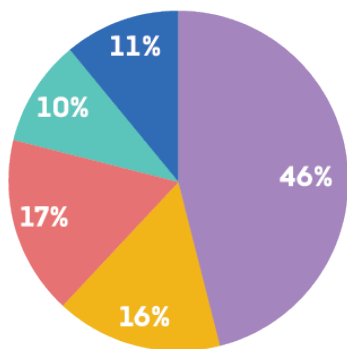
ETHOS Engage participants who inject drugs

RESULTS

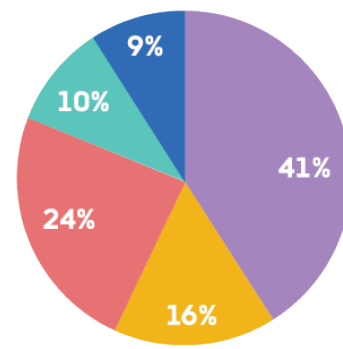
In 2019-2021, among Aboriginal and Torres Strait Islander and non-Indigenous participants who had a history of injection drug use, 54% (157/290) and 59% (539/921) self-reported experiencing stigma or discrimination in relation to their injection drug use in the 12 months preceding the survey, respectively. Among Aboriginal and Torres Strait Islander and non-Indigenous participants who self-reported a history of hepatitis C infection, 37% (72/193) and 33% (199/598) self-reported experiencing stigma or discrimination in relation to their hepatitis C status in the 12 months preceding the survey, respectively (Figure 21).

FIGURE 21. EXPERIENCE OF STIGMA AND DISCRIMINATION AMONG ABORIGINAL AND TORRES STRAIT ISLANDER AND NON-INDIGENOUS ETHOS PARTICIPANTS, 2019-2021*

EXPERIENCED STIGMA AND DISCRIMINATION IN RELATION TO INJECTION DRUG USE

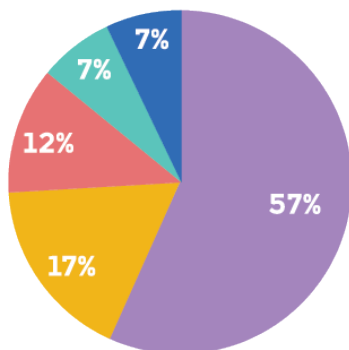


ABORIGINAL AND TORRES STRAIT ISLANDER PEOPLE

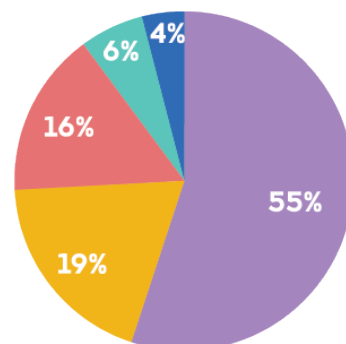


NON-INDIGENOUS PEOPLE

HEALTH WORKERS TREATED ME NEGATIVELY OR DIFFERENT TO OTHERS

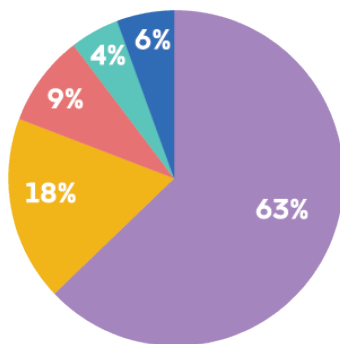


ABORIGINAL AND TORRES STRAIT ISLANDER PEOPLE

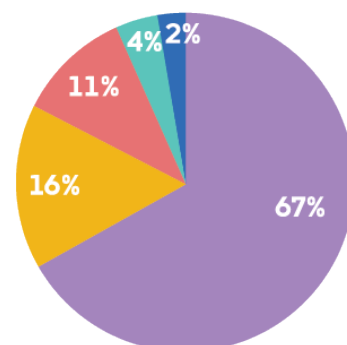


NON-INDIGENOUS PEOPLE

EXPERIENCED STIGMA AND DISCRIMINATION IN RELATION TO HEPATITIS C



ABORIGINAL AND TORRES STRAIT ISLANDER PEOPLE



NON-INDIGENOUS PEOPLE

INDICATOR KEY

Study and design: ETHOS Engage; observational cohort

Sample size: Wave 2 (Nov 2019-Jun 2021): 1 211 participants, of whom 24% (n=290) identified as Aboriginal and Torres Strait Islander

Sites and locations: Wave 2: 21 sites (19 OAT clinics, 2 NSP); 15 sites in NSW, 2 in QLD, 2 in SA, 2 in WA

*Experiences of stigma and discrimination in relation to hepatitis C are among participants who self-reported ever having hepatitis C infection (Aboriginal and Torres Strait Islander=193; non-Indigenous=598)



3.2 Monitoring impact

3.2.1 Prevalence of hepatitis C

BACKGROUND

Population-level DAA treatment scale-up is expected to reduce current hepatitis C (hepatitis C RNA). Numbers and proportions of Aboriginal and Torres Strait Islander people who are living with hepatitis C are used to monitor the impact of treatment scale-up on overall hepatitis C infections.

“I would like to mention that point of care testing has changed a lot the way people have seen hepatitis C testing. It has streamlined a lot of things and people now come and knock on our door, saying, “hey, can I have that test?” It’s made things so much easier.”

– General Practitioner

a. Prevalence of hepatitis C antibody among Aboriginal and Torres Strait Islander people who inject drugs

A.1 INDICATOR DEFINITION

Prevalence of hepatitis C antibody among Aboriginal and Torres Strait Islander people who inject drugs

NUMERATOR

ANSPS participants who test hepatitis C antibody positive

DENOMINATOR

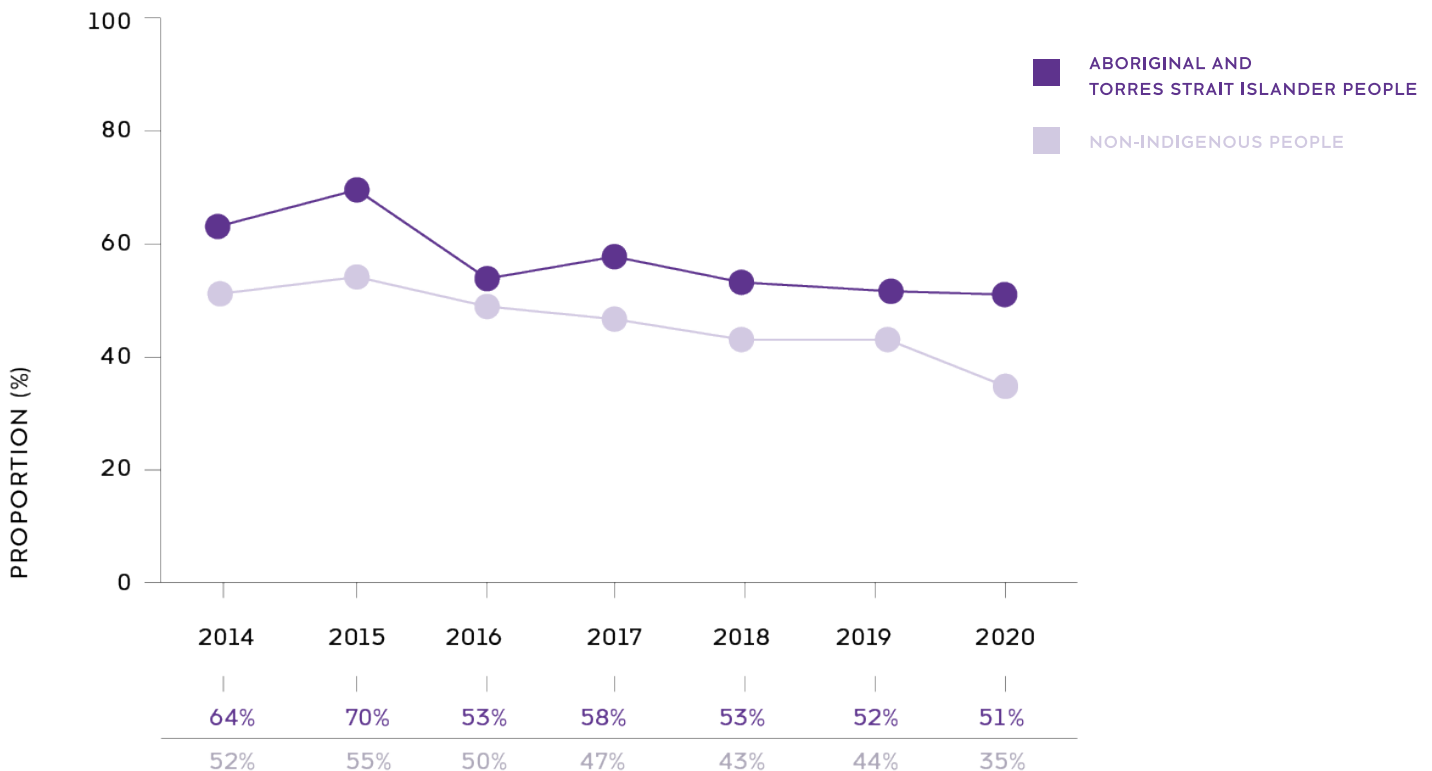
ANSPS participants with hepatitis C antibody test results

RESULTS

In 2020, among 284 Aboriginal and Torres Strait Islander participants, 51% (n=145) tested hepatitis C antibody positive, a decrease from hepatitis C antibody prevalence in 2014 (64%; 191/297). Among 958 non-Indigenous participants, 35% (n=337) tested hepatitis C antibody positive, also a decrease from hepatitis C antibody prevalence in 2014 (52%, n=974).

Between 2014 and 2020, hepatitis C antibody prevalence was consistently higher (range 51% to 70%) among Aboriginal and Torres Strait Islander participants than among non-Aboriginal participants (range 35% to 55%) (Figure 22).

FIGURE 22. HEPATITIS C ANTIBODY PREVALENCE AMONG ABORIGINAL AND TORRES STRAIT ISLANDER AND NON-INDIGENOUS ANSPS PARTICIPANTS, 2014-2020



INDICATOR KEY

Study and design: ANSPS, cross-sectional annual survey

Sample size: Range 2014-2020: Overall 1 324 - 2 609 annually; Aboriginal and Torres Strait Islander 290-568 annually

Number of sites and locations: Range 38-54 sites across all states and territories (VIC sites did not participate in 2020 due to COVID-19 related impacts)

b. Prevalence of Hepatitis C RNA (current hepatitis C) among Aboriginal and Torres Strait Islander people who inject drugs

B.1 INDICATOR DEFINITION

Prevalence of current hepatitis C among Aboriginal and Torres Strait Islander people who inject drugs

NUMERATOR

ANSPS participants who had current hepatitis C

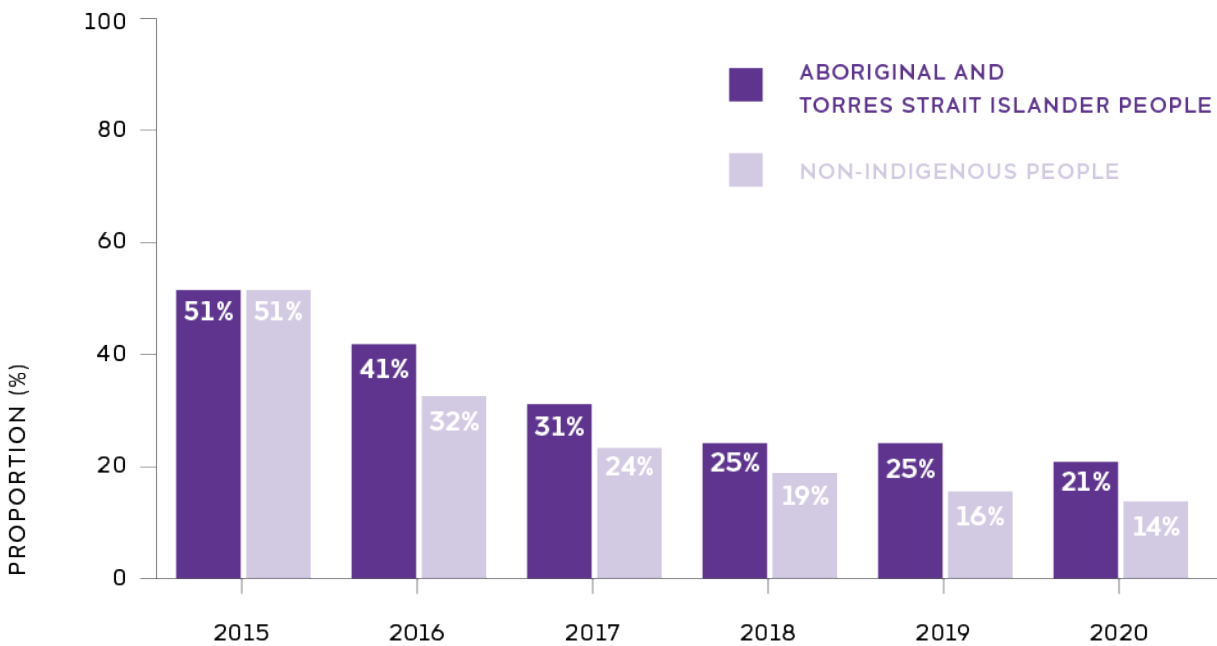
DENOMINATOR

ANSPS participants with hepatitis C RNA test results

RESULTS

Overall, between 2015 and 2020, prevalence of current hepatitis C* decreased in Aboriginal and Torres Strait Islander (51%; 72/142 to 21%; 56/265) and non-Indigenous participants (51%; 419/823 to 14%; 121/857), however, the gap in the prevalence between the two populations is widening (Figure 23).

FIGURE 23. PREVALENCE OF CURRENT HEPATITIS C AMONG ABORIGINAL AND TORRES STRAIT ISLANDER AND NON-INDIGENOUS ANSPS PARTICIPANTS, 2015-2020



INDICATOR KEY

Study and design: ANSPS, cross-sectional annual survey

Sample size: Range 2014-2020: Overall 1 324 - 2 609 annually; Aboriginal and Torres Strait Islander 290-568 annually

Number of sites and locations: Range 38-54 sites across all states and territories (VIC sites did not participate in 2020 due to COVID-19 related impacts)

*Data is weighted for hepatitis C antibody prevalence and gender

3.2 MONITORING IMPACT

3.2.1 PREVALENCE OF HEPATITIS C

B.2 INDICATOR DEFINITION

Prevalence of current hepatitis C among Aboriginal and Torres Strait Islander people who inject drugs

NUMERATOR

ETHOS Engage participants who had current hepatitis C

DENOMINATOR

ETHOS Engage participants with hepatitis C RNA test results

RESULTS

Between 2018 and 2019, prevalence of current hepatitis C among Aboriginal and Torres Strait Islander and non-Indigenous participants was 24% (78/324) and 24% (253/1 064), respectively. Prevalence of current hepatitis C infection declined in wave 2 (2019-2021), however it is slightly higher among Aboriginal and Torres Strait Islander (19%; 53/281) compared with non-Indigenous participants (14%; 125/885) (Figure 24).

FIGURE 24. PREVALENCE OF CURRENT HEPATITIS C AMONG ABORIGINAL AND TORRES STRAIT ISLANDER AND NON-INDIGENOUS ETHOS ENGAGE PARTICIPANTS, 2018-2021

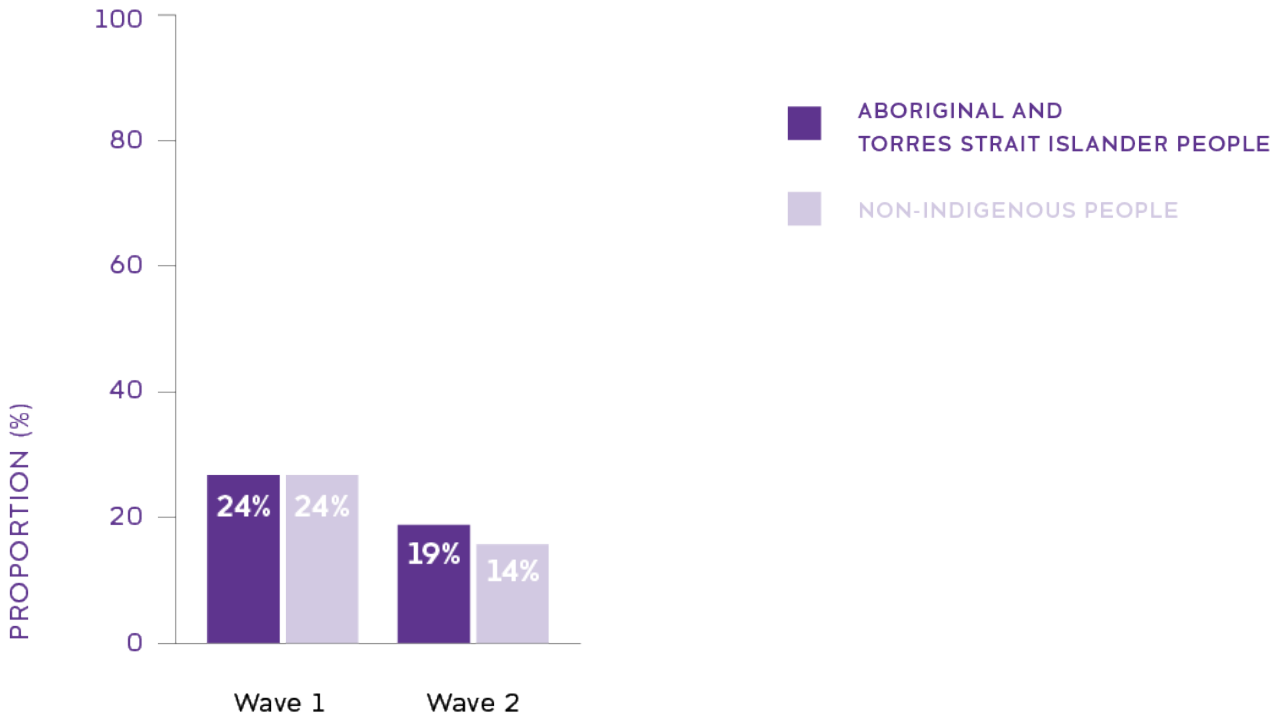
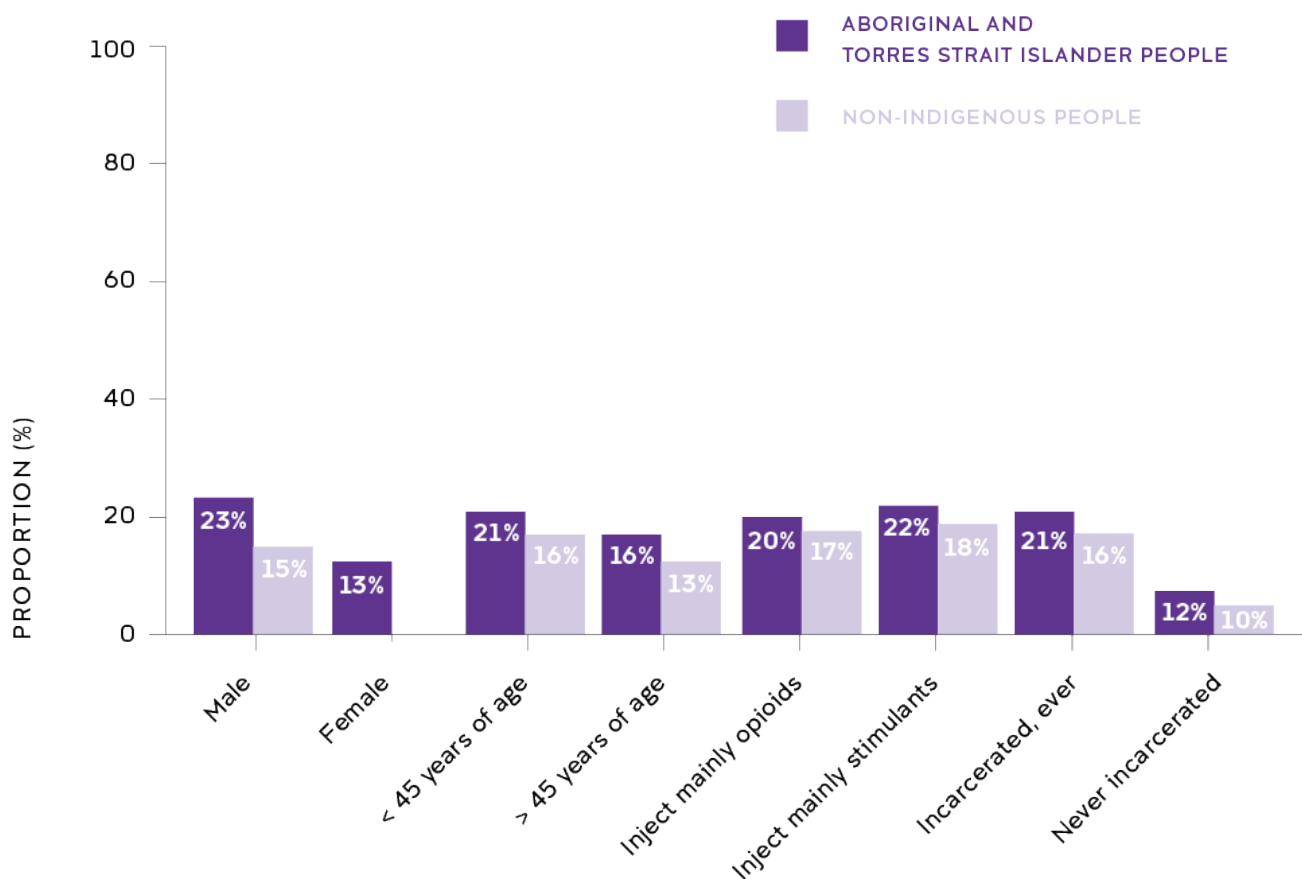


FIGURE 25. PREVALENCE OF CURRENT HEPATITIS C AMONG ABORIGINAL AND TORRES STRAIT ISLANDER AND NON-INDIGENOUS ETHOS ENGAGE PARTICIPANTS, 2019-2021 (WAVE 2), BY SEX, AGE-GROUP, MAIN DRUG INJECTED IN PAST MONTH, AND INCARCERATION HISTORY*



INDICATOR KEY

Study and design: ETHOS Engage; observational cohort

Sample size: Wave 1 (May 2018-Sept 2019): 1 388 participants, of whom 23% (n=324) identified as Aboriginal and Torres Strait Islander; Wave 2 (Nov 2019-Jun 2021): 1 166 participants, of whom 24% (n=281) identified as Aboriginal and Torres Strait Islander. Denominators included participants with valid Xpert® VL test results

Number of sites and locations: Wave 1: 25 sites (21 OAT clinics; 4 NSP); Wave 2: 21 sites (19 OAT clinics, 2 NSP). Wave 1: 17 sites in NSW, 4 in QLD, 2 in SA, 2 in WA; Wave 2: 15 sites in NSW, 2 in QLD, 2 in SA, 2 in WA

*2 transgender Aboriginal and Torres Strait Islander and 16 transgender non-Indigenous participants were excluded from sex stratification; Main drug injected in last month

c. Prevalence of Hepatitis C RNA (current hepatitis C) among Aboriginal and Torres Strait Islander people attending ACCHS

C.1 INDICATOR DEFINITION

Prevalence of current hepatitis C among Aboriginal and Torres Strait Islander people attending ACCHS

NUMERATOR

SCALE-C participants who had current hepatitis C

DENOMINATOR

SCALE-C participants with hepatitis C RNA test results

RESULTS

In 2019-2021, 50% (165/329) of Aboriginal and Torres Islander participants reported a risk factor for hepatitis C infection (including history of injection drug use, incarceration, or receipt of opioid agonist therapy). Among 154 at-risk Aboriginal and Torres Strait Islander participants with available hepatitis C RNA testing, 19% (n=30) had current hepatitis C (Figure 26). Notably, 93% (n=28) of current infections were among participants with a history of injection drug use and 77% (n=23) among those with a history of incarceration (Figure 27). Among participants who did not have a history of or risk factor for hepatitis C infection (n=164), there was no evidence of previous or current hepatitis C infection (hepatitis C antibody prevalence, 0%).

FIGURE 26. PREVALENCE OF CURRENT HEPATITIS C AMONG ABORIGINAL AND TORRES STRAIT ISLANDER SCALE-C PARTICIPANTS, 2019-2021, BY SEX, AGE-GROUP, INJECTION DRUG USE HISTORY, INCARCERATION HISTORY, AND OPIOID AGONIST THERAPY HISTORY*

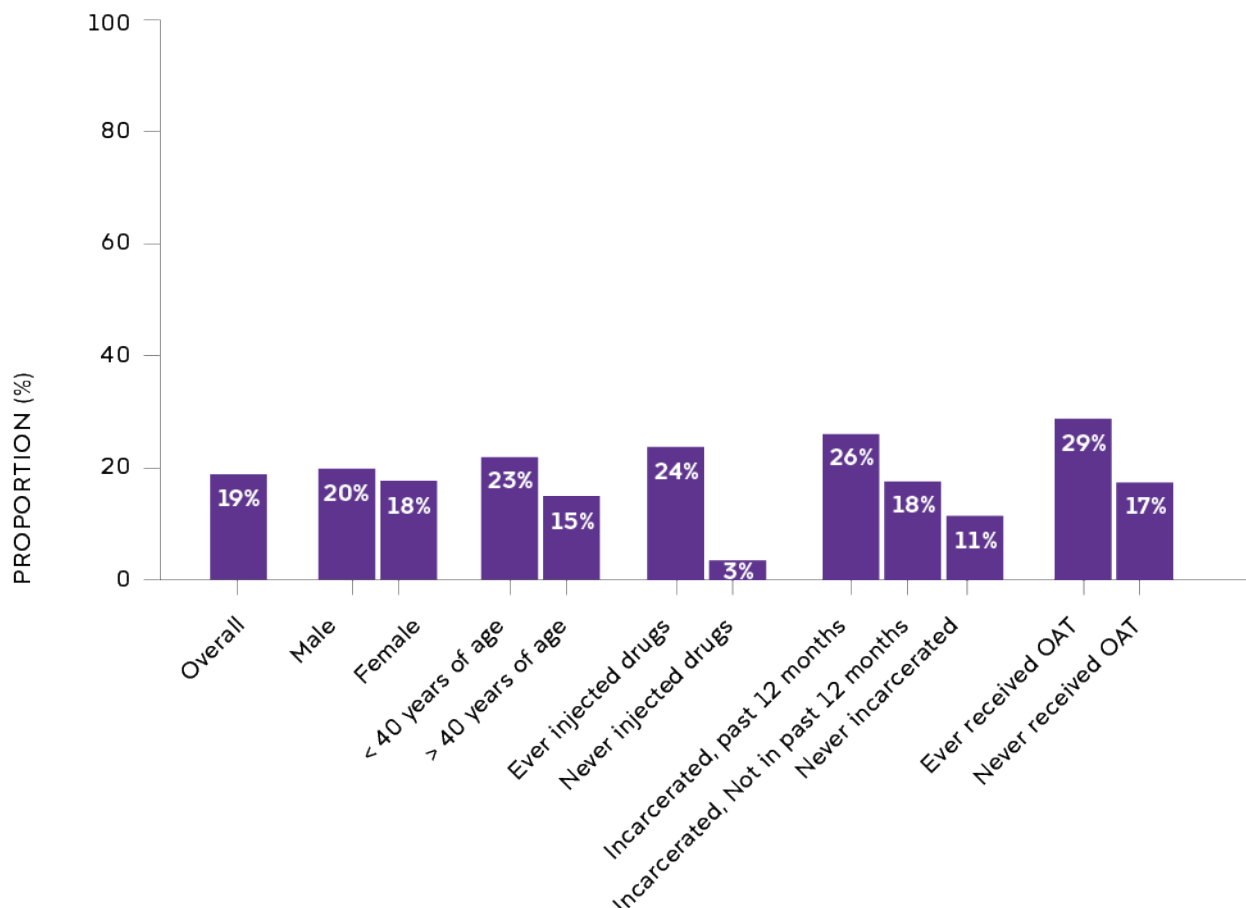
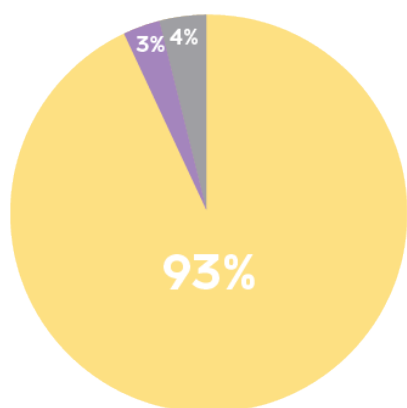
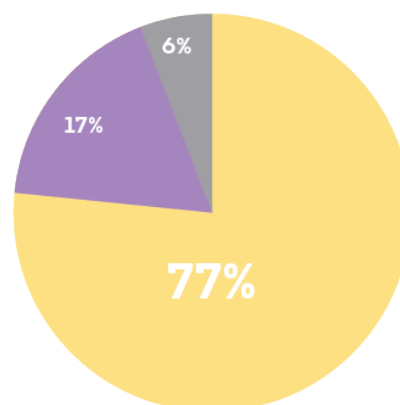


FIGURE 27. HEPATITIS C RISK FACTORS AMONG ABORIGINAL AND TORRES STRAIT ISLANDER SCALE-C PARTICIPANTS WITH CURRENT HEPATITIS C, 2019-2021

HISTORY OF INJECTION DRUG USE IN PARTICIPANTS WITH CURRENT HEPATITIS C INFECTION



HISTORY OF INCARCERATION IN PARTICIPANTS WITH CURRENT HEPATITIS C INFECTION



INDICATOR KEY

Study and design: SCALE-C; observational cohort

Sample size: 329 participants were enrolled and 165 were assessed as at-risk of hepatitis C infection. Among 165 participants, 154 had available hepatitis C RNA test results. Participant were classified as at-risk if they self-reported history of hepatitis C, injection drug use, incarceration, or receipt of OAT.

Sites and locations: 9 Aboriginal Medical Services: 2 in SA & 2 in NSW

*Nine participants were missing questionnaire (denominator =145)

3.2 MONITORING IMPACT

3.2.1 PREVALENCE OF HEPATITIS C

C.2 INDICATOR DEFINITION

Prevalence of current hepatitis C among Aboriginal and Torres Strait Islander people attending ACCHS and testing hepatitis C antibody positive

NUMERATOR

People with a documented hepatitis C RNA positive test

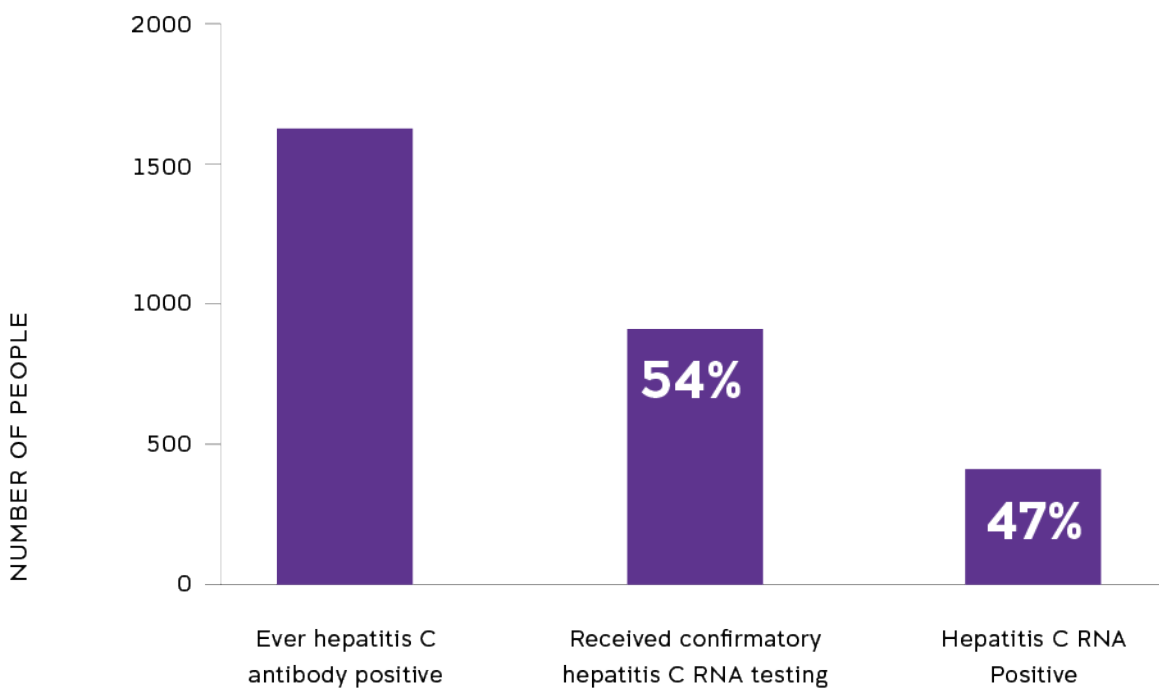
DENOMINATOR

All people attending a medical consultation and receiving confirmatory hepatitis C RNA test

RESULTS

Among a total of 107 234 individuals aged 15 years and older attending a medical consultation in 2016–2020,* 22 745 were tested for hepatitis C antibody, of whom 7% (1 545) were positive. Of those testing hepatitis C antibody positive, 54% (842) received a confirmatory hepatitis C RNA test, of whom 47% (399) had current hepatitis C (Figure 28).

FIGURE 28. PREVALENCE OF CURRENT HEPATITIS C AMONG ABORIGINAL AND TORRES STRAIT ISLANDER PEOPLE ATTENDING ATLAS NETWORK ACCHS, 2016-2020



INDICATOR KEY

Study and design: ATLAS sexual health surveillance network, blood-borne viruses and sexually transmissible infections sentinel surveillance

Sample size: Range 49 088 to 58 895 individuals aged 15 years and older attending participating ACCHS

Sites and locations: 34 ACCHS focused in five 'clinical hubs' across QLD (two hubs), NSW, SA, and the Kimberley, WA

*Individuals defined as people aged 15 years and older, who visited a doctor, nurse, or Aboriginal health practitioner ('medical consultations') between 2016 and 2020. 'Ever hepatitis C antibody positive' is defined as having had a positive test result at any time since data collection began (January 2016) until end of the sample period (December 2020).

d. Prevalence of Hepatitis C antibody among Aboriginal and Torres Strait Islander people attending sexual health clinics

D.1 INDICATOR DEFINITION

Prevalence of hepatitis C antibody among Aboriginal and Torres Strait Islander people attending sexual health clinics

NUMERATOR

People with a documented positive hepatitis C antibody test

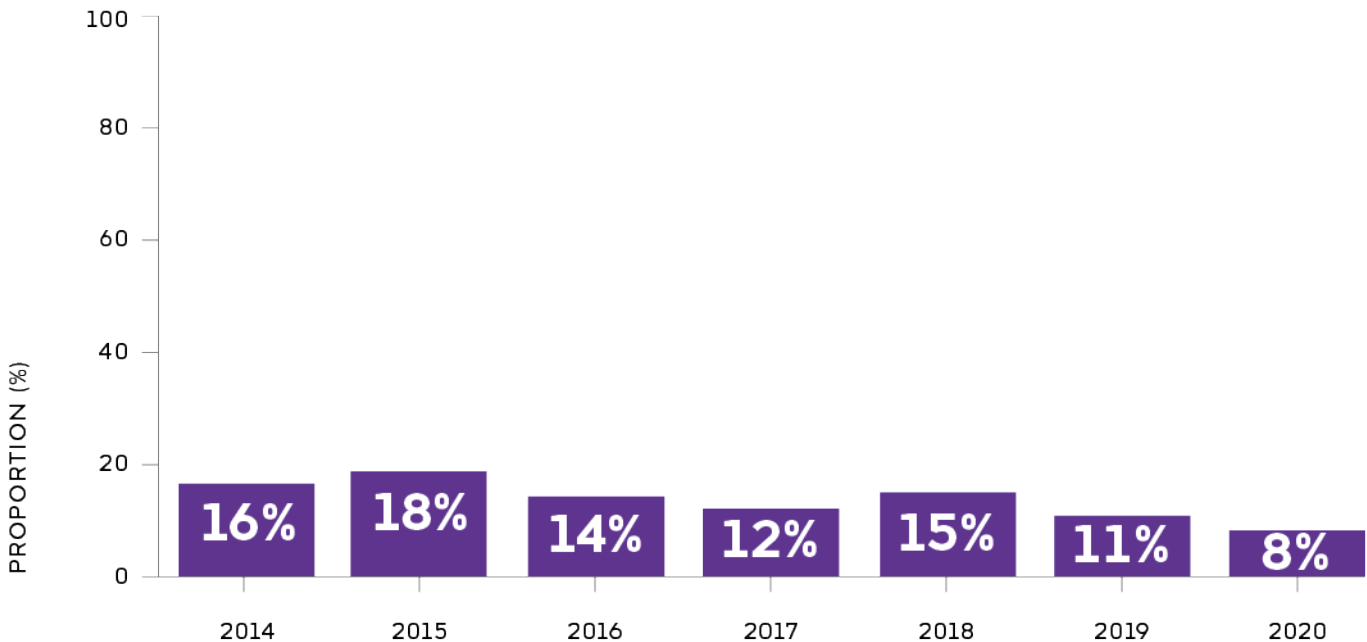
DENOMINATOR

All people attending medical consultation at ACCESS sexual health clinics

RESULTS

Between 2016 and 2020, prevalence of hepatitis C antibody among Aboriginal and Torres Strait Islander people attending sexual health clinics, declined from 14% (57/418) in 2016 to 8% (32/394) in 2020 (Figure 29).*

FIGURE 29. PREVALENCE OF HEPATITIS C ANTIBODY AMONG ABORIGINAL AND TORRES STRAIT ISLANDER PEOPLE ATTENDING ACCESS NETWORK SEXUAL HEALTH CLINICS, 2016-2020



INDICATOR KEY

Study and design: ACCESS network, blood borne viruses and sexually transmissible infections sentinel surveillance

Sample size: Range 1 833 to 2 333 individuals aged 15 years and older attending sexual health clinics in-person or via telehealth

States and territories: 10 sexual health clinics: s6 in NSW, 1 in VIC, 1 in ACT, 1 in SA, and 1 in TAS.

*Clinic attendances included in-person and telehealth consultations. Individuals were 15 years or older and contributed one consultation and one test per year

e. Prevalence of hepatitis C RNA (current hepatitis C) among Aboriginal and Torres Strait Islander people who are incarcerated

E.1 INDICATOR DEFINITION

Prevalence of current hepatitis C among Aboriginal and Torres Strait Islander people who are incarcerated

NUMERATOR

SToP-C participants who had current hepatitis C infection diagnosis

DENOMINATOR

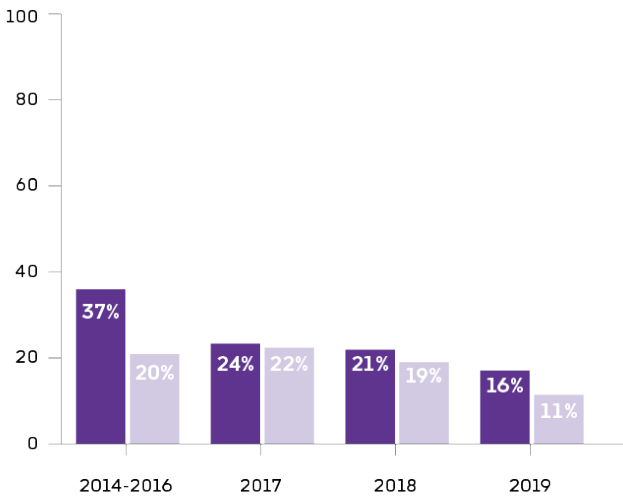
SToP-C participants with hepatitis C RNA test results

RESULTS

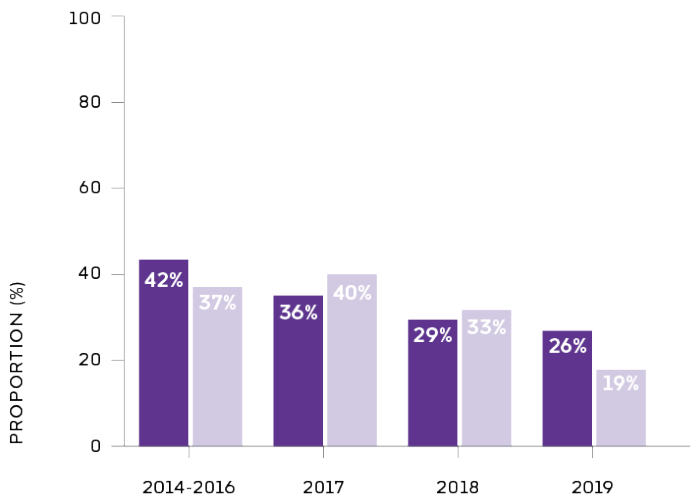
In 2014-2019, among 1 463 new prison entrants participating in SToP-C study, 32% (n=467) identified as Aboriginal and Torres Strait Islander. Among Aboriginal and Torres Strait Islander participants, prevalence of current hepatitis C (hepatitis C RNA) decreased from 37% (26/71) in 2014-2016 to 16% (21/131) in 2019 (Figure 30 A). Similarly, among Aboriginal and Torres Strait Islander SToP-C participants with history of injection drug use at enrolment, current hepatitis C prevalence decreased from 42% (24/57) in 2014-2016 period to 26% (21/82) in 2019 (Figure 30 B).

FIGURE 30. PREVALENCE OF CURRENT HEPATITIS C AMONG ALL NEW ABORIGINAL AND TORRES STRAIT ISLANDER AND NON-INDIGENOUS PRISON ENTRANTS ENROLLED IN STOP-C STUDY, 2014-2019

CURRENT HEPATITIS C PREVALENCE AMONG PRISON ENTRANTS WITHIN 6 MONTHS OF ENTERING PRISON



CURRENT HEPATITIS C PREVALENCE AMONG PRISON ENTRANTS WITHIN 6 MONTHS OF ENTERING PRISON AND HISTORY OF INJECTION DRUG USE



■ HCV RNA POSITIVE ABORIGINAL AND TORRES STRAIT ISLANDER PEOPLE

■ HCV RNA POSITIVE NON-INDIGENOUS PEOPLE

INDICATOR KEY

Study and design: SToP-C; interventional trial

Sample size: 1 463 participants screened for hepatitis C on entry

Sites and locations: 2 maximum (male) and 2 medium-security prisons (1 male, 1 female) in NSW

3.2.2 New hepatitis C infections

BACKGROUND

Measuring the rate of new hepatitis C infections is used as an indicator to monitor the impact of DAA scale-up and implementation of preventative interventions on hepatitis C transmission. Injection drug use with unsterile injecting equipment is the primary route of transmission of hepatitis C and injecting drug use typically starts in late adolescence or early adulthood. Trends in the rate of notifications in those under 25 years can be a surrogate for the incidence of hepatitis C infection in recent years. Rates of newly notified and acquired hepatitis C infections among individuals aged between 15 and 24 years is an important indicator in measuring progress of hepatitis C elimination.

“Even in past times when we’ve done training with doctors and nurses in Aboriginal Medical Services, we’ve always mentioned that. The opportunity lies in if someone comes in for a broken leg or injury from football on the weekend, and you see that they’re a young man or young woman, you know that you hardly ever see that patient in clinic. So once again, be opportunistic and offer a hep C test.”
- Aboriginal Sexual and Blood Borne Viruses Health Worker

a. Newly notified (diagnosed) hepatitis C infection

A.1 INDICATOR DEFINITION

New hepatitis C notification rates among Aboriginal and Torres Strait Islander people per 100 000 population

NUMERATOR

Number of new notifications (diagnoses)

DENOMINATOR

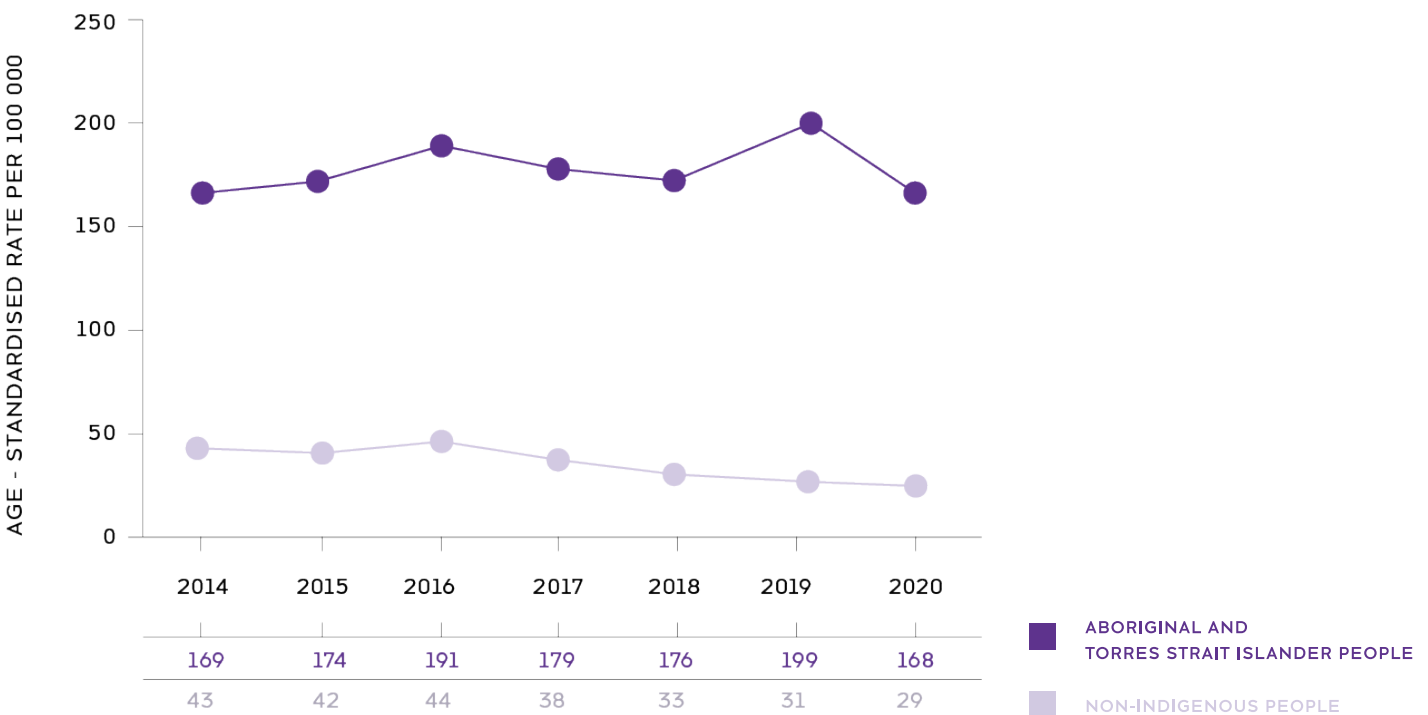
Yearly estimated number of people, provided by the Australian Bureau of Statistics

RESULTS

Newly notified (diagnosed) hepatitis C infection means that a person previously not known to have the infection has been tested and now found to have antibodies to the infection (consistent with previous or current infection).

In 2020, there were 8 049 new hepatitis C notifications in Australia, of which 13% (n=1 084) were among Aboriginal and Torres Strait Islander people, 42% (n=3 395) among non-Indigenous people, and 44% (n=3 570) among people with unknown Indigenous identity. The age-standardised hepatitis C notification rate among Aboriginal and Torres Strait Islander people remained relatively stable between 2015 (174 per 100 000) and 2020 (168 per 100 000). In contrast, the hepatitis C notification rate among the non-Indigenous population decreased by 31% from 42 per 100 000 in 2015 to 29 per 100 000 in 2020 (Figure 31). In 2020, the hepatitis C notification rate in Aboriginal and Torres Strait Islander population was around six times that of the non-indigenous population (168 and 29 per 100 000, respectively).

FIGURE 31. NEW HEPATITIS C NOTIFICATION RATES AMONG ABORIGINAL AND TORRES STRAIT ISLANDER AND NON-INDIGENOUS PEOPLE, 2014-2020



INDICATOR KEY

Study and design: Australian National Notifiable Disease Surveillance System (NNDSS)

Jurisdictions: ACT, NT, QLD, SA, TAS, and WA

3.2 MONITORING IMPACT

3.2.2 NEW HEPATITIS C INFECTIONS

A.2 INDICATOR DEFINITION

New hepatitis C notification rates among Aboriginal and Torres Strait Islander people aged 15-24 and 25-39 years per 100 000

NUMERATOR

Number of new notifications (diagnoses) among each age-group

DENOMINATOR

Yearly estimated number of people in each age-group, provided by the Australian Bureau of Statistics

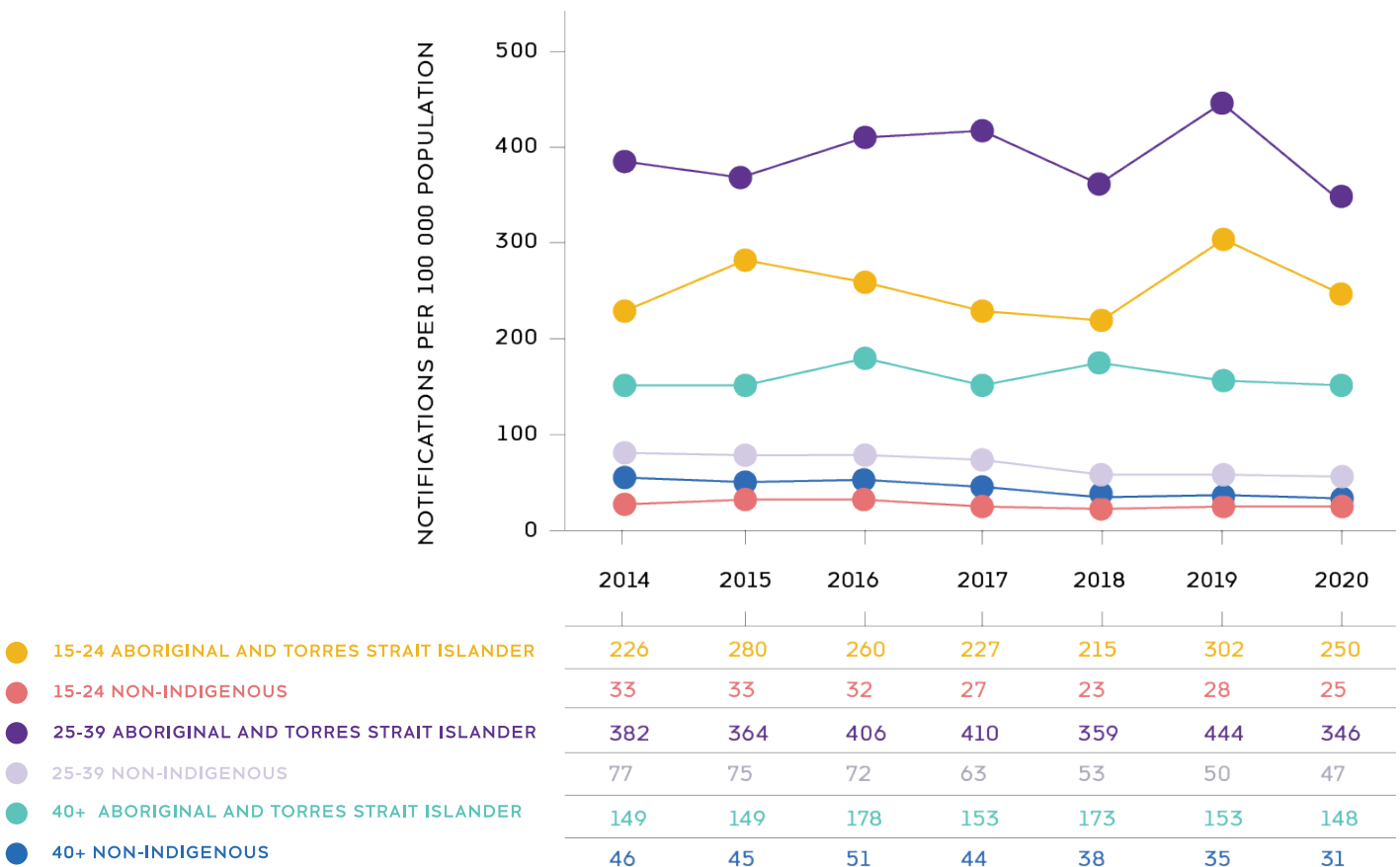
RESULTS

Among Aboriginal and Torres Strait Islander people aged 15-24 years, the hepatitis C notification rate decreased by 10% from 280 per 100 000 in 2015 to 250 per 100 000 in 2020. Among the 25-39 age-group, the hepatitis C notification rates remained relatively stable between 2015 (364 per 100 000) and 2020 (346 per 100 000).

In contrast, between 2015 and 2020, the hepatitis C notification rate among the non-Indigenous population in the 15-24 and 25-39 age-groups decreased by 25% (33 to 25 per 100 000) and 37% (75 to 47 per 100 000), respectively (Figure 32).

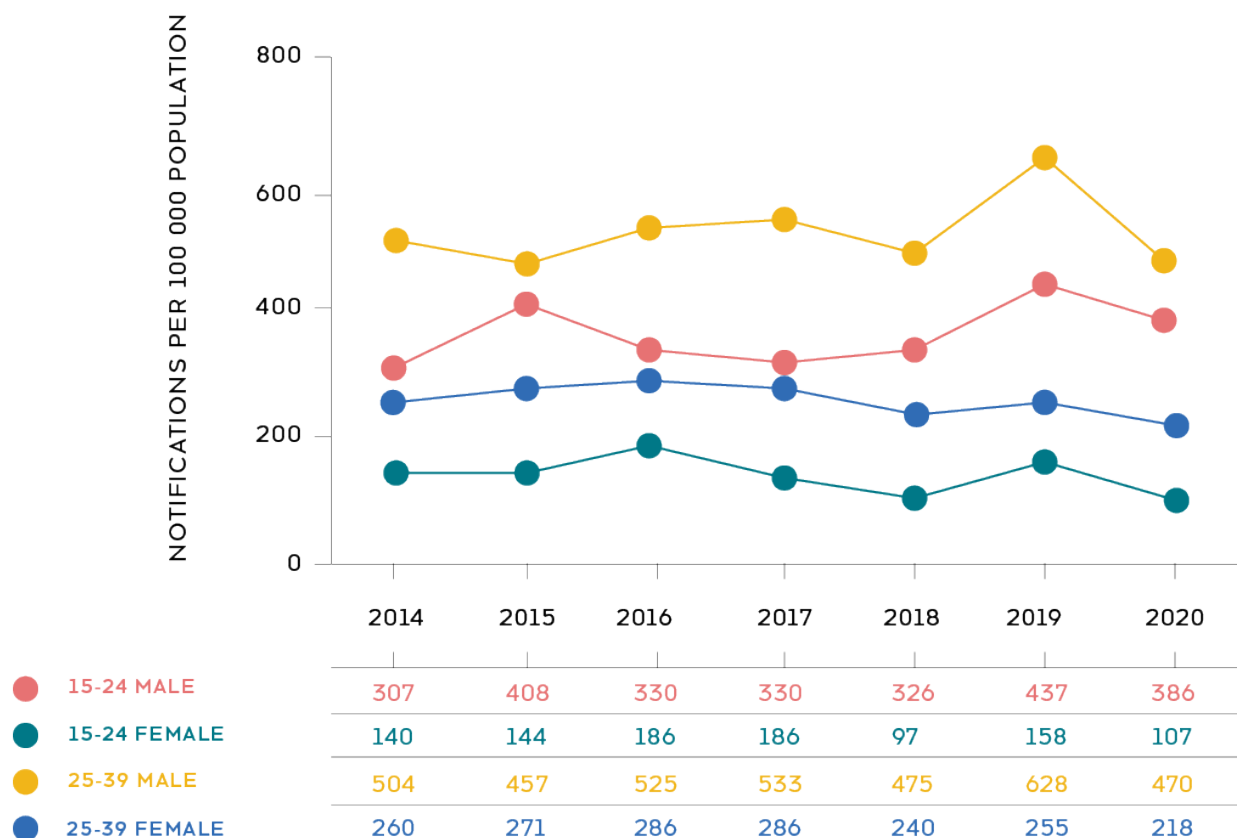
Between 2015-2020, hepatitis C notification rates in all age-groups were consistently higher among Aboriginal and Torres Strait Islander people than among non-indigenous people.

FIGURE 32. NEW HEPATITIS C NOTIFICATION RATES AMONG ABORIGINAL AND TORRES STRAIT ISLANDER AND NON-INDIGENOUS PEOPLE, 2014-2020, BY AGE-GROUP



Between 2015 and 2020, the hepatitis C notification rates in the 15-24 and 25-39 age-groups were consistently higher among Aboriginal and Torres Strait Islander males than among Aboriginal Torres Strait Islander females. In 2020, in the 15-24 age-group, the hepatitis C notification rate among males was over 3.5 times that of females (386 vs 107 per 100 000, respectively) (Figure 33).

FIGURE 33. NEW HEPATITIS C NOTIFICATION RATES AMONG ABORIGINAL AND TORRES STRAIT ISLANDER PEOPLE, 2014-2020, BY AGE-GROUP AND SEX

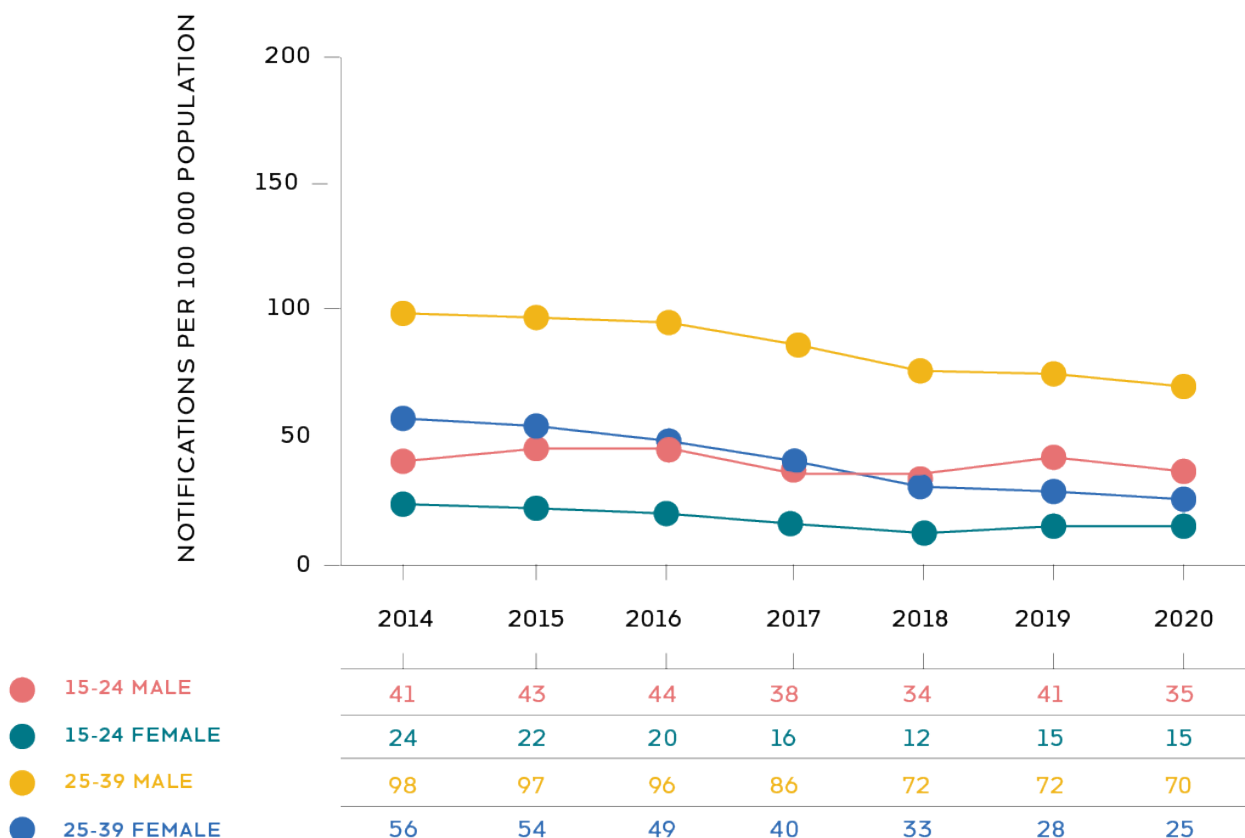


INDICATOR KEY

Study and design: Australian National Notifiable Disease Surveillance System (NNDSS)

Jurisdictions: ACT, NT, QLD, SA, TAS, and WA

FIGURE 34. NEW HEPATITIS C NOTIFICATION RATES AMONG NON-INDIGENOUS PEOPLE, 2014-2020, BY AGE-GROUP AND SEX



INDICATOR KEY

Study and design: Australian National Notifiable Disease Surveillance System (NNDSS)

Jurisdictions: ACT, NT, QLD, SA, TAS, and WA

b. Newly acquired hepatitis C infection notifications

B.1 INDICATOR DEFINITION

Newly acquired hepatitis C notification rates among Aboriginal and Torres Strait Islander people per 100 000

NUMERATOR

Number of newly acquired infection notifications (diagnoses)

DENOMINATOR

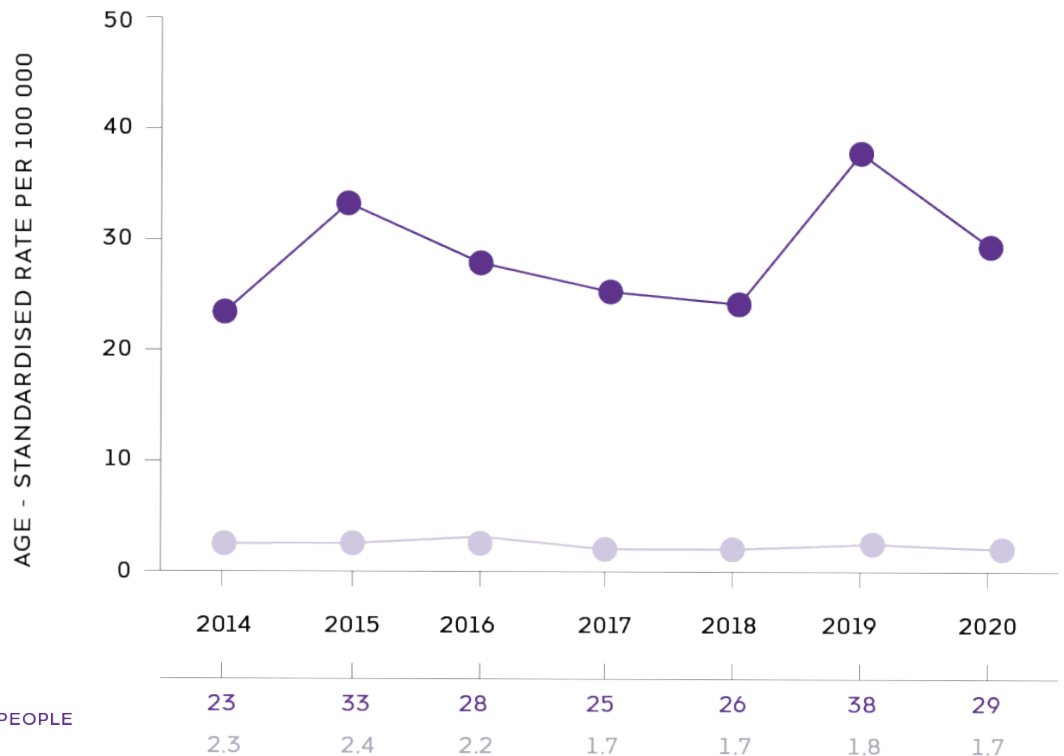
Yearly estimated number of people, provided by the Australian Bureau of Statistics

RESULTS

Infection is recorded as newly acquired if a person previously known not to have hepatitis C within the last two years has been tested and now found to have it. In 2020, there were 675 notifications of newly acquired hepatitis C infections in Australia, of which 41% (n=274) were among Aboriginal and Torres Strait Islander people, 57% (n=388) among non-Indigenous people, and 2% (n=13) among people with unknown Indigenous identity.

Between 2015 and 2020, the age-standardised hepatitis C notification rate among Aboriginal and Torres Strait Islander people decreased by 12% from 33 to 29 per 100 000. In contrast, the hepatitis C notification rate among the non-Indigenous population decreased by 30% from 2.4 to 1.7 per 100 000 (Figure 35). In 2020, the newly acquired hepatitis C notification rate among Aboriginal and Torres Strait Islander people was 17 times that of the non-indigenous population (29 vs 1.7 per 100 000, respectively).

FIGURE 35. NEWLY ACQUIRED HEPATITIS C NOTIFICATION RATES AMONG ABORIGINAL AND TORRES STRAIT ISLANDER AND NON-INDIGENOUS PEOPLE, 2014-2020



INDICATOR KEY

Study and design: Australian National Notifiable Disease Surveillance System (NNDSS)

Jurisdictions: ACT, NSW, NT, QLD, SA, TAS, VIC and WA

B.2 INDICATOR DEFINITION

Newly acquired hepatitis C notification rates among Aboriginal and Torres Strait Islander people aged 15-24 and 25-39 years per 100 000

NUMERATOR

Number of newly acquired notifications (diagnoses) among each age-groups

DENOMINATOR

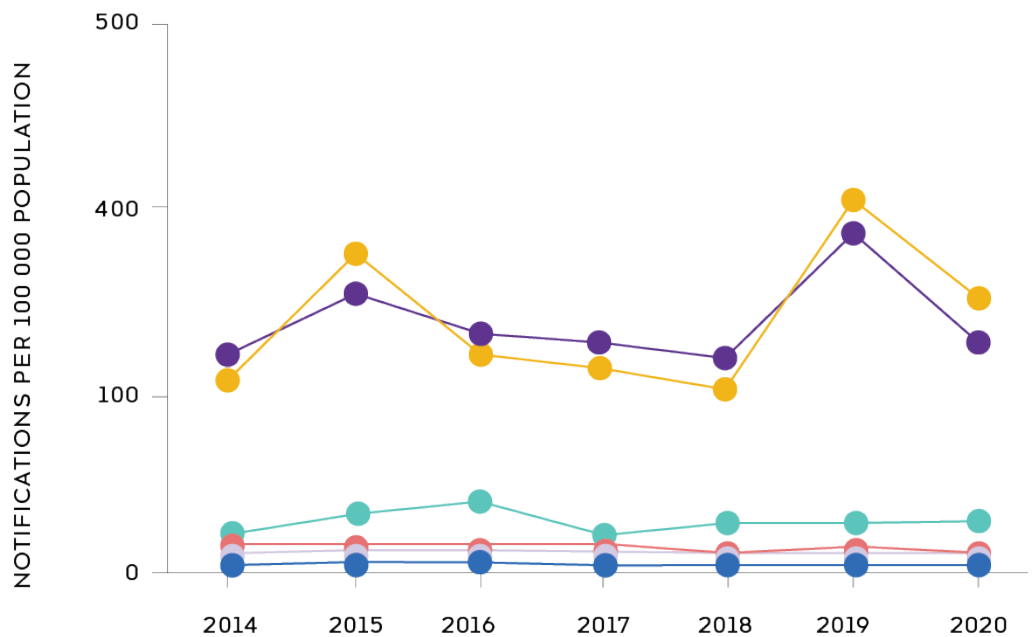
Yearly estimated number of people in each age-group, provided by the Australian Bureau of Statistics

RESULTS

Among Aboriginal and Torres Strait Islander people aged 15-24 years, newly acquired hepatitis C notification rate decreased by 12% from 76 per 100 000 in 2015 to 76 per 100 000 in 2020. Among the 25-39 age-group, the newly acquired hepatitis C notification rate decreased by 13% from 78 per 100 000 in 2015 to 68 per 100 000 in 2020. In contrast, during 2015-2020 newly acquired hepatitis C notification rate among non-Indigenous population in both 15-24 and 25-39 age-groups decreased by 27% (5.2 to 3.8 per 100 000) and 28% (5.7 to 4.1 per 100 000), respectively (Figure 36).

Between 2015 and 2020, hepatitis C notification rates in all age-groups were consistently higher among Aboriginal and Torres Strait Islander people than among non-indigenous people.

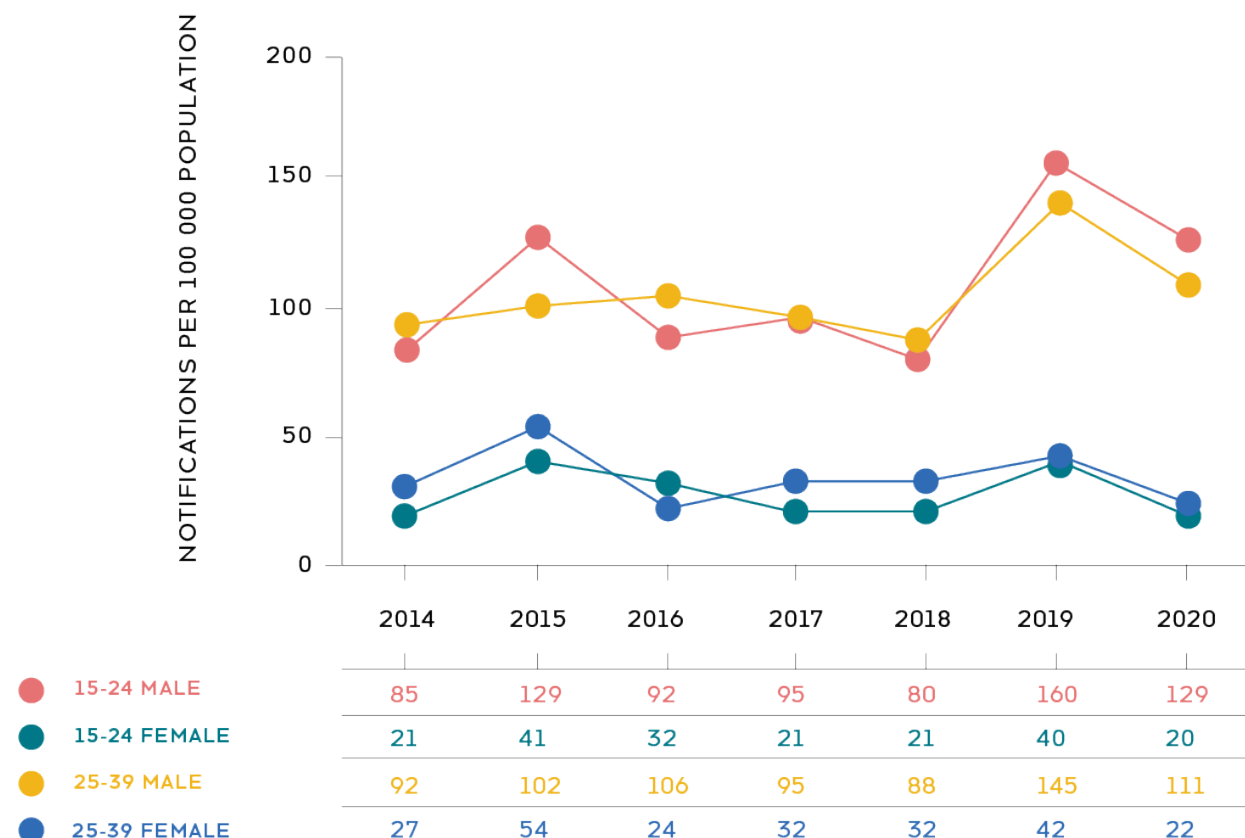
FIGURE 36. NEWLY ACQUIRED HEPATITIS C NOTIFICATION RATES AMONG ABORIGINAL AND TORRES STRAIT ISLANDER AND NON-INDIGENOUS PEOPLE, 2014-2020, BY AGE-GROUP



● 15-24 ABORIGINAL AND TORRES STRAIT ISLANDER	54	86	63	59	51	102	76
● 15-24 NON-INDIGENOUS	5.4	5.2	4.7	3.3	3.3	4.2	3.8
● 25-39 ABORIGINAL AND TORRES STRAIT ISLANDER	59	78	65	64	60	94	68
● 25-39 NON-INDIGENOUS	5.5	5.7	5.0	4.1	4.4	4.4	4.1
● 40+ ABORIGINAL AND TORRES STRAIT ISLANDER	7.5	12	15	7.8	10	10	11
● 40+ NON-INDIGENOUS	0.8	0.9	1.0	0.8	0.6	0.6	0.6

Between 2015 and 2019, newly acquired hepatitis C notification rates in the 15-24 and 25-39 age-groups were consistently higher among Aboriginal and Torres Strait Islander males than among Aboriginal Torres Strait Islander females. In 2020, the newly acquired hepatitis C notification rate in the 15-24 age-group among males was 6.5 times that of females (129 vs 20 per 100 000, respectively) (Figure 37).

FIGURE 37. NEWLY ACQUIRED HEPATITIS C NOTIFICATION RATES AMONG ABORIGINAL AND TORRES STRAIT ISLANDER PEOPLE, 2014-2020, BY AGE-GROUP AND SEX

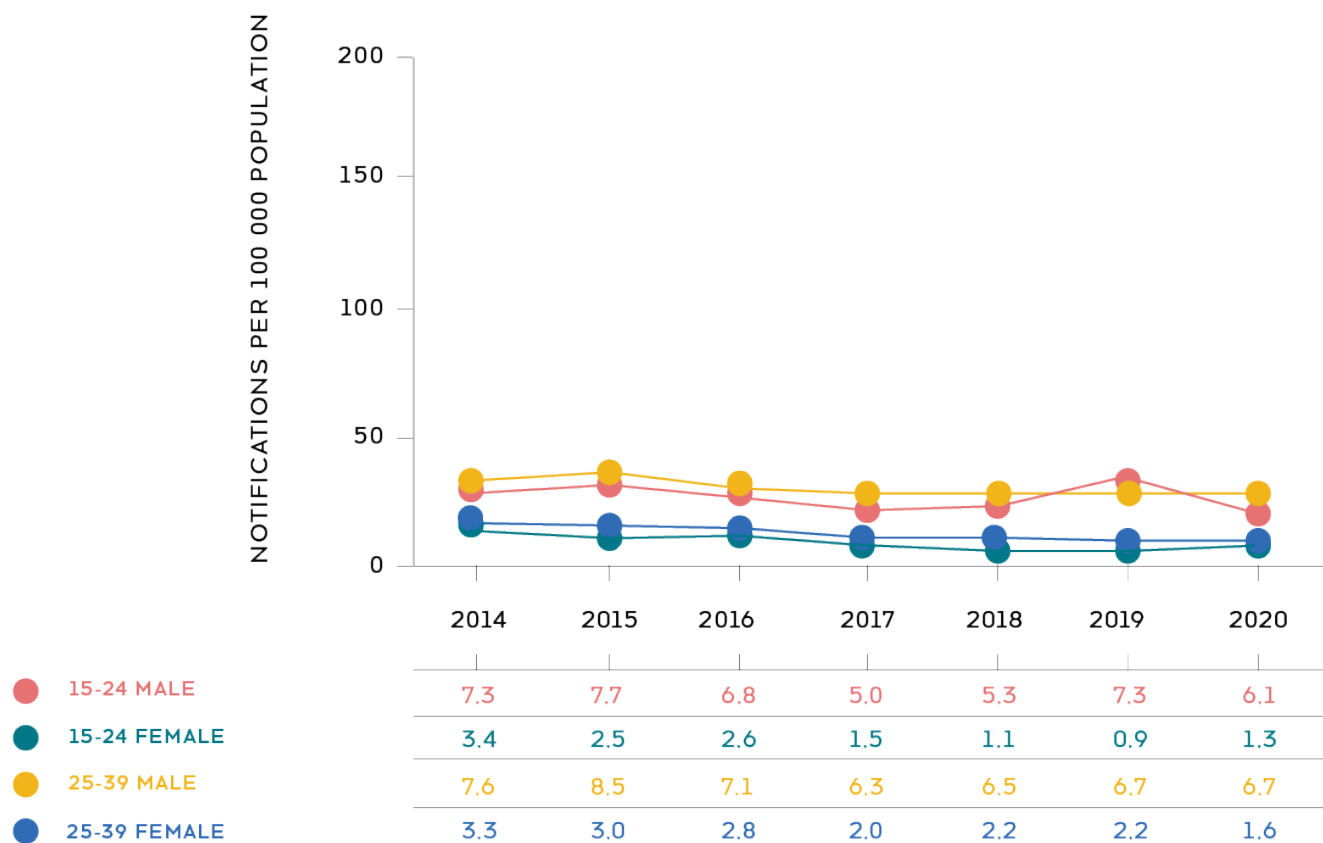


INDICATOR KEY

Study and design: Australian National Notifiable Disease Surveillance System (NNDSS)

Jurisdictions: ACT, NSW, NT, QLD, SA, TAS, VIC and WA

FIGURE 38. NEWLY ACQUIRED HEPATITIS C NOTIFICATION RATES AMONG NON-INDIGENOUS PEOPLE, 2014-2020, BY AGE-GROUP AND SEX



INDICATOR KEY

Study and design: Australian National Notifiable Disease Surveillance System (NNDSS)

Jurisdictions: ACT, NSW, NT, QLD, SA, TAS, VIC and WA

c. Incidence of hepatitis C infection among people who are incarcerated

C.1 INDICATOR DEFINITION

Incidence of hepatitis C infection among Aboriginal and Torres Strait Islander people who are incarcerated

NUMERATOR

SToP-C participants who had newly acquired hepatitis C infection

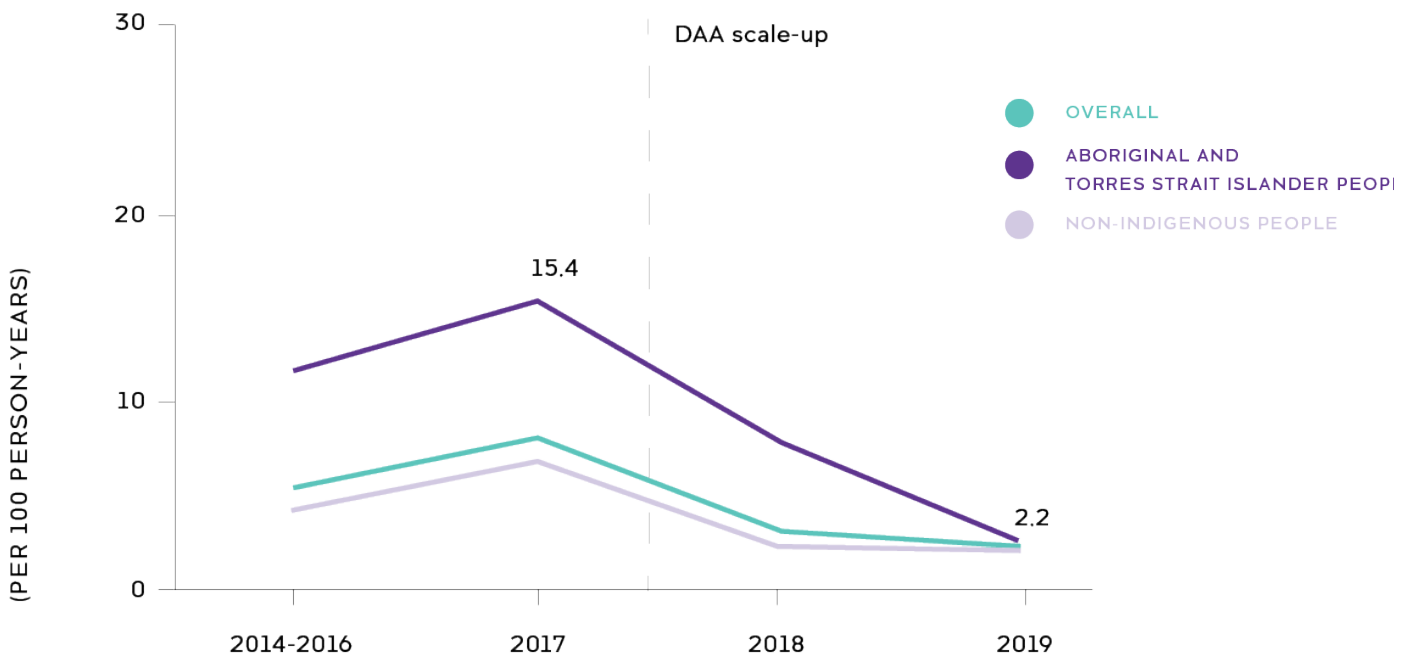
DENOMINATOR

SToP-C participants who were hepatitis C antibody negative and retested

RESULTS

Among 185 Aboriginal and Torres Strait Islander participants who were hepatitis C antibody negative and retested, incidence of new hepatitis C infection decreased from 13.8 per 100 person-years in the pre-treatment scale-up period (2014-2017) to 5.5 per 100 person-years in the post-treatment scale-up period (2018-2019). Among 845 non-Indigenous participants, the incidence of new hepatitis C infection decreased from 5.7 per 100 person-years in the pre-treatment scale-up period to 2.3 per 100 person-years in the post-treatment scale-up period (Figure 39).

FIGURE 39. INCIDENCE OF PRIMARY HEPATITIS C INFECTION AMONG ABORIGINAL AND TORRES STRAIT ISLANDER AND NON-INDIGENOUS STOP-C PARTICIPANTS, 2014-2019



INDICATOR KEY

Study and design: SToP-C; interventional trial

Sample size: 1 463 participants screened for hepatitis C on entry

Sites: 2 maximum (male) and 2 medium-security prisons (1 male, 1 female)

States and Territories: NSW

d. Incidence of hepatitis C reinfection among people who are incarcerated

D.1 INDICATOR DEFINITION

Incidence of reinfection among Aboriginal and Torres Strait Islander people who are incarcerated

NUMERATOR

SToP-C participants who had newly acquired hepatitis C infection after treatment-induced cure

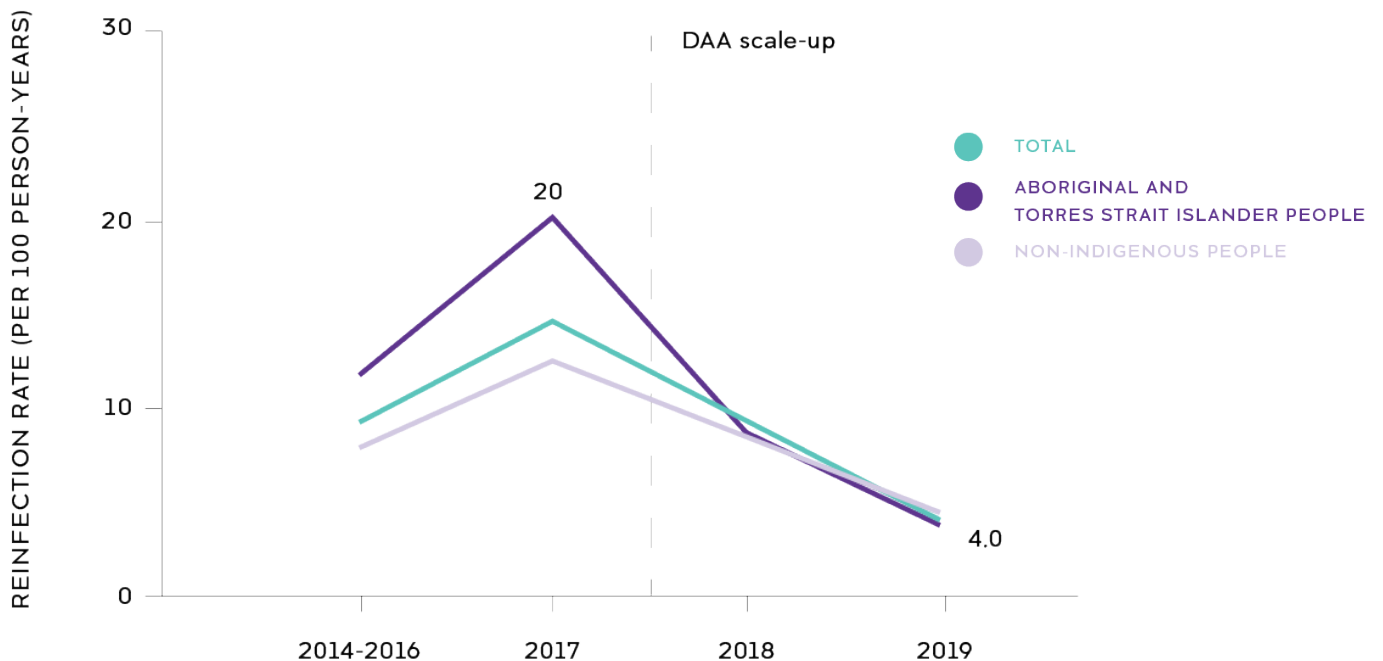
DENOMINATOR

SToP-C participants who were retested for hepatitis C after treatment-induced cure

RESULTS

Among 233 Aboriginal and Torres Strait Islander participants who received DAA treatment and were retested after treatment-induced cure, incidence of hepatitis C reinfection decreased from 16.6 per 100 person-years in the pre-treatment scale-up period (2014-2017) to 7.0 per 100 person-years in the post-treatment scale-up period (2018-2019). Among 343 non-Indigenous participants, the incidence of hepatitis C reinfection decreased from 10.5 per 100 person-years in the pre-treatment scale-up period to 7.2 per 100 person-years in the post-treatment scale-up period (Figure 40).

FIGURE 40. INCIDENCE OF HEPATITIS C REINFECTION AMONG ABORIGINAL AND TORRES STRAIT ISLANDER AND NON-INDIGENOUS STOP-C PARTICIPANTS, 2014-2019



INDICATOR KEY

Study and design: SToP-C; interventional trial

Sample size: 1 463 participants screened for hepatitis C on entry

Sites: 2 maximum (male) and 2 medium-security prisons (1 male, 1 female)

States and Territories: NSW

3.2.3 Hepatitis C related morbidity and mortality

BACKGROUND

DAA treatment scale-up is expected to reduce population-level hepatitis C related liver disease and mortality. Hepatitis C related liver morbidity and mortality are used to monitor the impact of DAA treatment scale-up.

“Look at extras other than the core business. Mental health might be the core business for that particular client, but also consider more holistically what their lifestyle might encompass. For example, is it around drug use and the risk associated with blood borne viruses acquisition.”

- Aboriginal Sexual and Blood Borne Viruses Health Worker

3.2 MONITORING IMPACT

3.2.3 HEPATITIS C MORBIDITY AND MORTALITY

a. Hepatitis C related end-stage liver disease and mortality

During 1993-2020, there were 117 580 people with a hepatitis C notification in NSW, of whom 11% (13 463) were Aboriginal and Torres Strait Islander people. Aboriginal and Torres Strait Islander people with a hepatitis C notification were younger than non-Indigenous people with hepatitis C notification, 83% and 54% were born on or after 1965, respectively. Among Aboriginal and Torres Strait Islander and non-Indigenous people, 56% and 34% resided in rural areas, and 41% and 17% had a history of alcohol use disorder, respectively (Table 1).

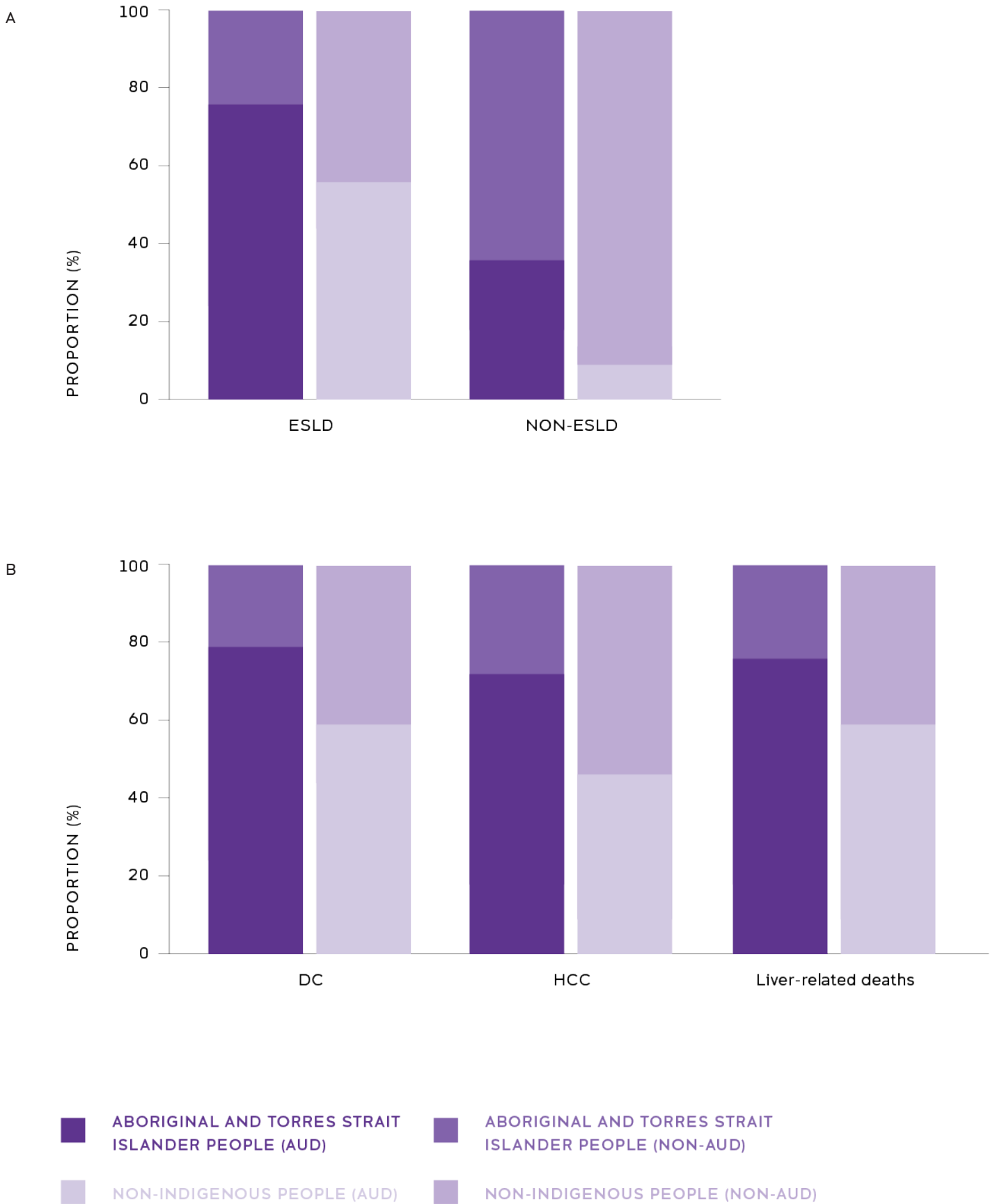
In 2010-2020, 4 782 people with a hepatitis C notification (1993-2020) were diagnosed with end-stage liver disease (decompensated cirrhosis or/and hepatocellular carcinoma), of whom 12% (n=573) were Aboriginal and Torres Strait Islander people. Among people with a hepatitis C notification, a higher proportion of Aboriginal and Torres Strait Islander people with an end-stage liver disease diagnosis also had a history of alcohol use disorder (77%; 439/573) compared with the proportion of non-Indigenous people with end-stage liver disease diagnosis who had a history of alcohol use disorder (55%; 2 315/4 209) (Figure 41 A).

TABLE 3. CHARACTERISTICS OF ABORIGINAL AND TORRES STRAIT ISLANDER AND NON-INDIGENOUS PEOPLE WITH A HEPATITIS C NOTIFICATION IN NSW, 1993-2020

CHARACTERISTICS, N (%)	TOTAL, N*	ABORIGINAL & TORRES STRAIT ISLANDER, N		NON-INDIGENOUS (INCLUDING UNKNOWN INDIGENOUS IDENTITY)		
		%	%	%	%	
Hepatitis C notification	117 580		13 463		104 116	
Year of birth, median (interquartile range)	1 967 (59, 76)		1 977 (68, 86)		1 966 (58, 75)	
Year of birth**						
≤1944	5 986	5	58	<1	5 928	6
1945-1964	44 591	38	2 238	17	42 353	41
≥1965	66 922	57	11 167	83	55 755	54
Male sex**	74 524	64	8 456	63	66 068	64
Local health district of residence at the time of hepatitis C notification*						
Rural	40 357	36	6 165	56	34 192	34
Outer metro	36 351	33	3 192	29	33 159	33
Metro	34 382	31	1 726	16	32 656	33
History of alcohol use disorder	23 504	20	5 518	41	17 986	17

*Excluding people with hepatitis B and C coinfection; ** among people with available information

FIGURE 41. END-STAGE LIVER DISEASE DIAGNOSIS 2010-2020 AMONG ABORIGINAL AND TORRES STRAIT ISLANDER AND NON-INDIGENOUS PEOPLE WITH HEPATITIS C NOTIFICATION, 1993-2020, IN NSW, BY HISTORY OF ALCOHOL USE DISORDER



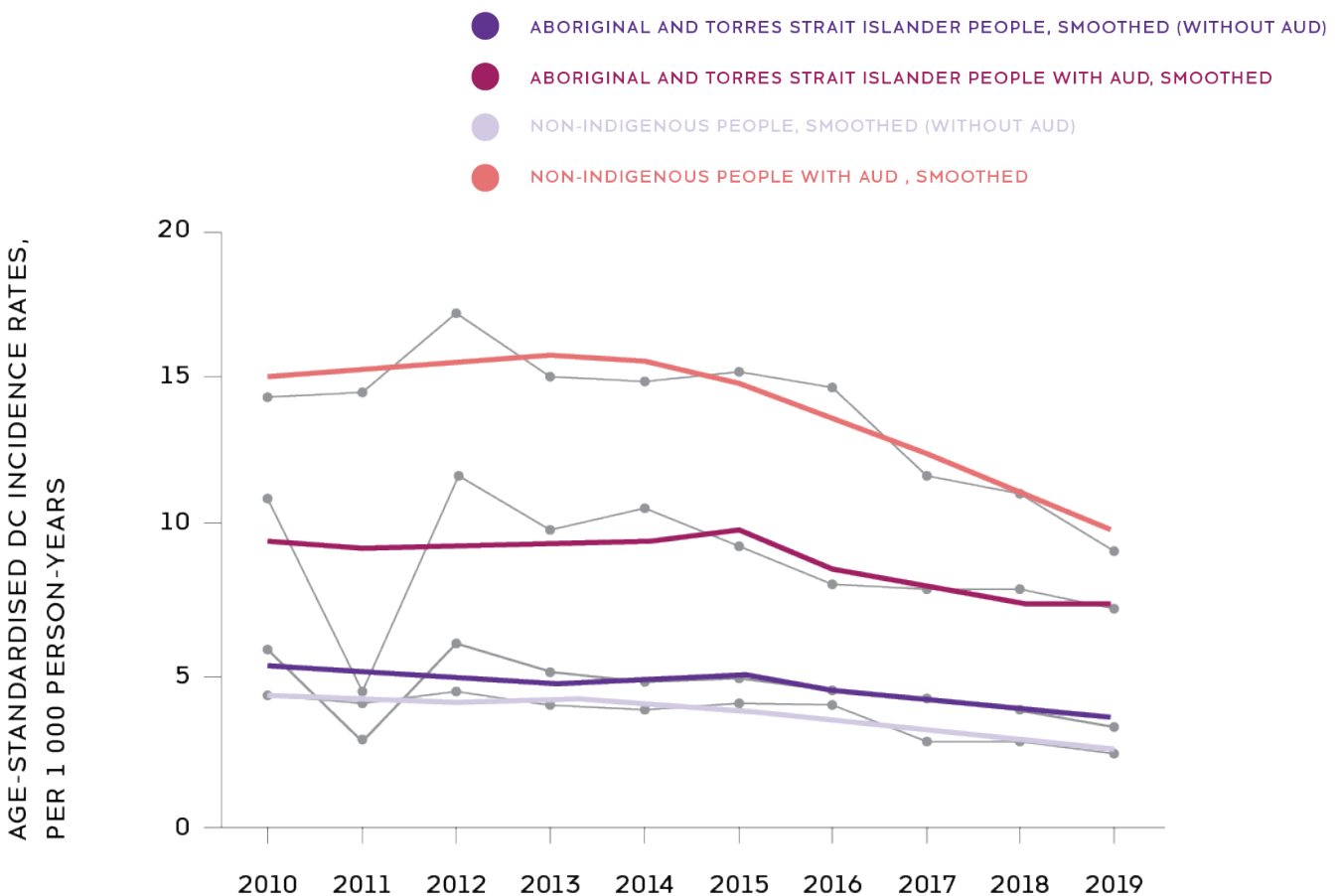
AUD: alcohol use disorder; DC: decompensated cirrhosis; ESLD: end-stage liver disease; HCC: hepatocellular carcinoma

i. Hepatitis C related decompensated cirrhosis diagnosis

During 2010–2020, 512 Aboriginal and Torres Strait Islander people with a hepatitis C notification (1993-2020) had a decompensated cirrhosis diagnosis, of whom 80% (n=408) had a history of alcohol use disorder. In contrast, 3 432 non-Indigenous people during the same period had a decompensated cirrhosis diagnosis, of whom 61% (n=2 087) had a history of alcohol use disorder 2010-2020 (Figure 41 B).

Overall, between 2010 and 2019, age-standardised incidence rates of decompensated cirrhosis diagnosis have declined among Aboriginal and Torres Strait Islander people (5.8 to 3.3 per 1 000 person-years, respectively) and non-Indigenous people (4.4 to 2.3 per 1 000 person-years, respectively). Age-standardised incidence rates of decompensated cirrhosis diagnosis were consistently higher among those with a history of alcohol use disorder compared to those without a history of alcohol use disorder. In 2019, the age-standardised incidence rate of decompensated cirrhosis diagnosis in Aboriginal and Torres Strait Islander people with alcohol use disorder was 21% lower than that in non-Indigenous people (7.3 vs 9.2 per 1 000 person-years) (Figure 42).

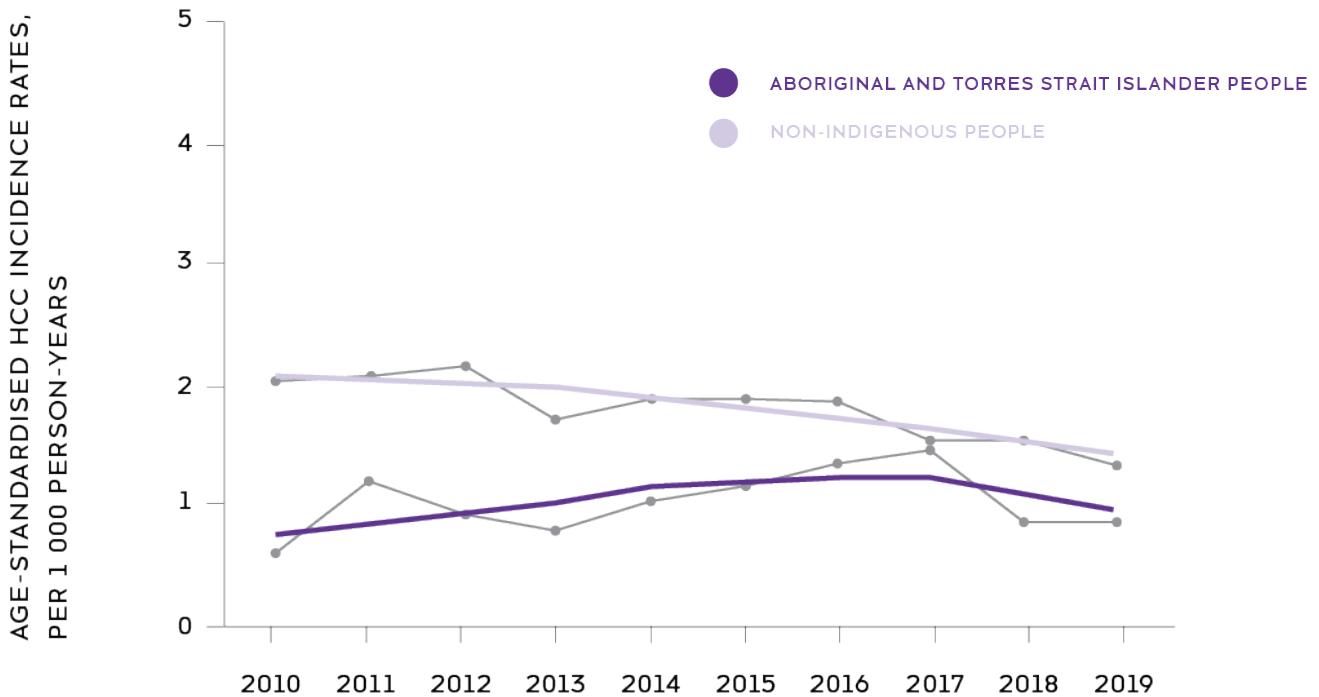
FIGURE 42. AGE-STANDARDISED INCIDENCE RATES OF DECOMPENSATED CIRRHOSIS AMONG ABORIGINAL AND TORRES STRAIT ISLANDER AND NON-INDIGENOUS PEOPLE WITH HEPATITIS C NOTIFICATION IN NSW, 2010-2019



ii. Hepatitis C related hepatocellular carcinoma diagnosis

In 2010-2020, 151 Aboriginal and Torres Strait Islander people with a hepatitis C notification (1993-2020) had a hepatocellular carcinoma diagnosis. Among people with a hepatocellular carcinoma diagnosis, 68% (n=102) had a history of alcohol use disorder. In contrast, among 1 886 non-Indigenous people with a hepatocellular carcinoma diagnosis, 45% (n=844) had a history of alcohol use disorder (Figure 41 B). Between 2010 and 2019, age-standardised incidence rates of hepatocellular carcinoma diagnosis among aboriginal and Torres Strait Islander people remained relatively stable (0.6 and 0.9 per 1 000 person-years, respectively), whereas incidence rate among non-Indigenous people has slightly declined in the same period (2.0 to 1.3 per 1 000 person-years) (Figure 43).

FIGURE 43. AGE-STANDARDISED INCIDENCE RATES OF HEPATOCELLULAR CARCINOMA AMONG ABORIGINAL AND TORRES STRAIT ISLANDER AND NON-INDIGENOUS PEOPLE WITH HEPATITIS C NOTIFICATION IN NSW, 2010-2019

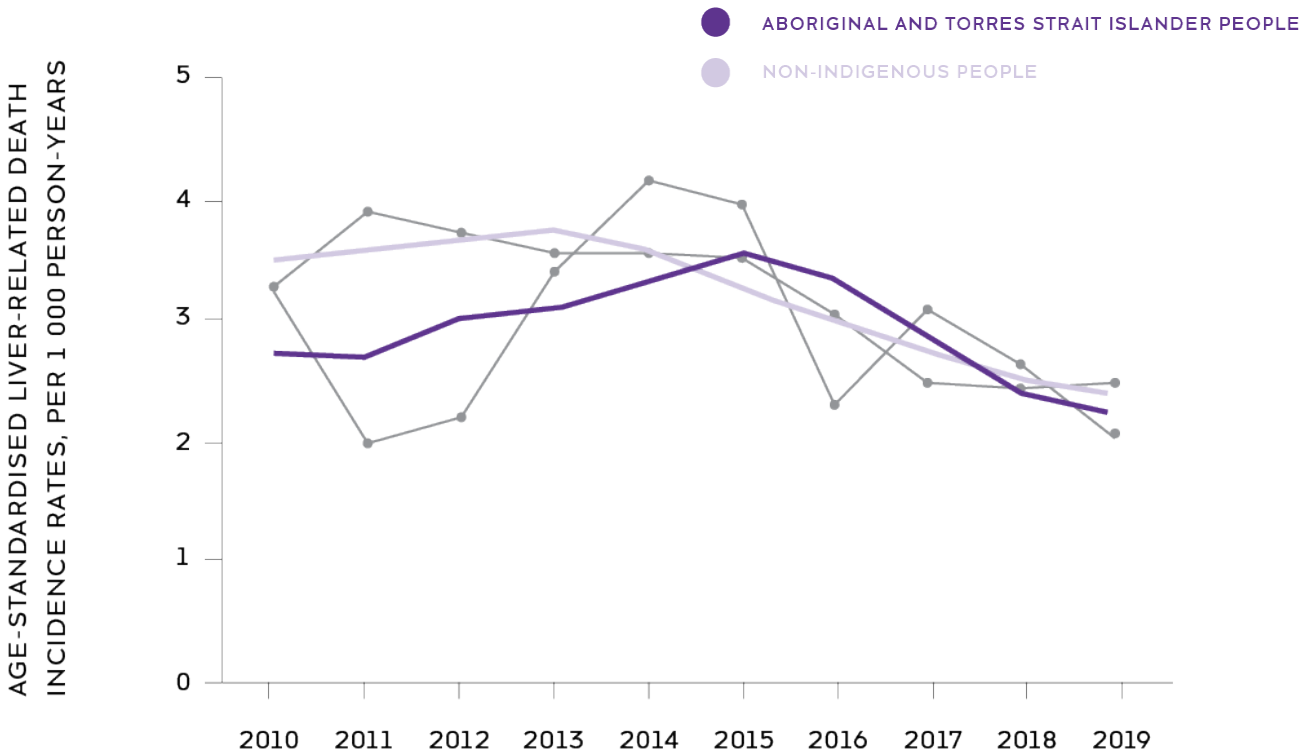


iii. Hepatitis C related mortality

In 2010–2020, 363 Aboriginal and Torres Strait Islander people with a hepatitis C notification (1993–2020) had died due to liver-related causes, characterised by deaths following a decompensated cirrhosis and/or hepatocellular carcinoma diagnosis, of whom 73% (n=266) had a history of alcohol use disorder. In the same period, 3 288 non-Indigenous people had died due to liver-related causes, of whom 57% (n=1 865) had a history of alcohol use disorder (Figure 41 B).

Between 2015 and 2019, age-standardised incidence rates of liver-related mortality decreased among Aboriginal and Torres Strait Islander people (4.0 and 2.1 per 1 000 person-years) and non-Indigenous people (3.6 and 2.5 per 1 000 person-years) (Figure 44).

FIGURE 44. AGE-STANDARDISED INCIDENCE RATES OF LIVER-RELATED MORTALITY AMONG ABORIGINAL AND TORRES STRAIT ISLANDER AND NON-INDIGENOUS PEOPLE WITH HEPATITIS C NOTIFICATION IN NSW, 2010-2019



INDICATOR KEY

Study and design: NSW Data Linkage, Population-level data linkage

Sample size: 117 580 people with a hepatitis C mono-infection notification 1993-2020

Sites and location: NSW



3.3 Hepatitis C cascade of care

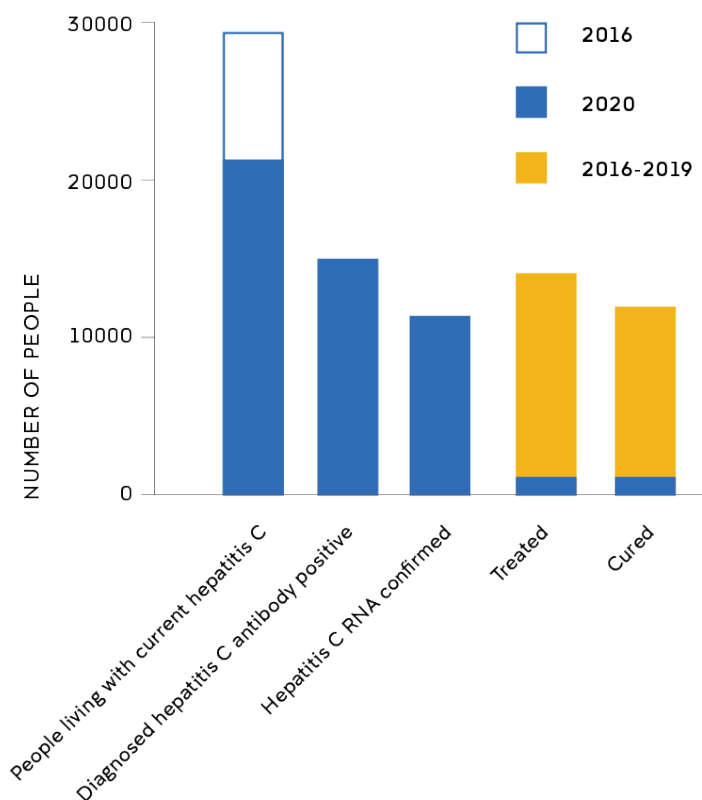
3.3.1 Estimated hepatitis C cascade of care among Aboriginal and Torres Strait Islander people

At end of 2015, an estimated 29 682 Aboriginal and Torres Strait Islander people were living with current hepatitis C. During 2016-2020 an estimated 12 875 people were treated with DAA therapy. At end of 2020, 21 548 Aboriginal and Torres Strait Islander people were estimated to be living with current hepatitis C in Australia, a 17% decrease from 29 682 at the end of 2015 (Figure 45).

An estimated 81% (29 014/35 762) of Aboriginal and Torres Strait Islander people with current hepatitis C have been diagnosed since 2015.

By end of 2020, of an estimated 117 810 Australians living with current hepatitis C 18% (21 548) were Aboriginal and Torres Strait Islander people (compared to the 3.3% of the Australian population who are Aboriginal and Torres Strait Islander people).

FIGURE 45. ESTIMATED HEPATITIS C CASCADE OF CARE AMONG ABORIGINAL AND TORRES STRAIT ISLANDER PEOPLE LIVING WITH CURRENT HEPATITIS C, IN AUSTRALIA, 2016-2020



	ESTIMATED NUMBER OF ABORIGINAL AND TORRES STRAIT ISLANDER PEOPLE LIVING WITH CURRENT HEPATITIS C*	DIAGNOSED HEPATITIS C ANTIBODY POSITIVE*	HEPATITIS C RNA CONFIRMED*	TREATED**	CURED**
2016	26 032	18 457	13 843	4 814	4 501
2017	23 900	16 658	12 494	3 041	2 855
2018	22 435	15 009	11 257	2 205	2 070
2019	21 778	15 462	11 597	1 641	1 543
2020	21 548	15 040	11 280	1 174	1 104

INDICATOR KEY

Study and design: Mathematical modelling

*Estimates at end of year; **estimates during year

Conclusions and recommendations

This is the first report to provide a measure of progress of hepatitis C elimination among Aboriginal and Torres Strait Islander people in Australia. Unrestricted access to government subsidised DAA therapy for hepatitis C has seen some encouraging impacts, including large numbers of people being treated and some declines in hepatitis C related liver failure and mortality.

However, findings highlight gaps in service coverage indicators, particularly overall treatment uptake and harm reduction coverage, and in impact indicators, including new hepatitis C infections, of particular concern among young Aboriginal and Torres Strait Islander men.

Lifetime history for hepatitis C testing is relatively high among Aboriginal and Torres Strait Islander people and comparable to that among non-Indigenous people. But, findings from ANSPS and ETHOS Engage demonstrate that recent (in the previous 12 months) hepatitis C RNA testing among Aboriginal and Torres Strait Islander people who inject drugs remains suboptimal. Also, confirmatory RNA testing among Aboriginal and Torres Strait Islander people with hepatitis C notifications in NSW (NSW Data Linkage) was lower than that among non-Indigenous people. Regular hepatitis C testing is pivotal to ensure timely diagnosis and linkage to treatment. Although treatment uptake among Aboriginal and Torres Strait people has improved considerably since the availability of DAA therapy, it remains suboptimal and consistently lower than among non-Indigenous people. This has been corroborated by findings from NSW Data Linkage, ANSPS, ETHOS Engage, and SCALE-C studies where treatment uptake has ranged between 30% to 52% between 2016 and 2020. Encouragingly, cure rates were high (94-95%) among Aboriginal and Torres Strait Islander people who received treatment and had a post-treatment test available, and comparable to those among non-Indigenous people. In addition, reinfection rates remained low (1-2%).

Our findings also indicate that among Aboriginal and Torres Strait Islander people who inject drugs high-risk injecting behaviour is consistently higher than among non-Indigenous population. Between 2015 and 2020, receptive needle and syringe sharing in the past month was consistently higher (range between 22% and 30%;

ANSPS) than among non-Indigenous people. Aboriginal and Torres Strait Islander people account for 27% of the Australian incarcerated population, of whom 76% having experienced repeated episodes of incarceration.¹⁵ Culturally, age and gender appropriate harm reduction and treatment services in community and custodial settings are lacking. Although current opioid agonist therapy among Aboriginal and Torres Strait Islander people in ETHOS Engage is encouraging, opioid agonist therapy among people in prison is low as indicated by findings in the SToP-C study (21%) indicating poorer access in custodial settings.

A major finding and of significant concern are trends in new hepatitis C infections among younger (15-39 year age-group) Aboriginal and Torres Strait Islander people. New hepatitis C notification rates among younger (15-24 and 25-39 age-groups) Aboriginal and Torres Strait Islander people have increased 2010 to 2019, while rates among non-Indigenous people in the same age groups are decreasing. New hepatitis C notification rates have been consistently higher than those among non-Indigenous population since 2010. In 2020, the new hepatitis C notification rate among Aboriginal and Torres Strait Islander people in the 15-24 age-group was almost ten times the same age group among non-Indigenous people. Similarly, the new hepatitis C notification rate among Aboriginal and Torres Strait Islander people in the 25-39 age-group was seven times that in the same age group among non-Indigenous people. Further, findings demonstrate that new hepatitis C infection rates are consistently higher among Aboriginal and Torres Strait Islander men than Aboriginal and Torres Strait Islander women with rates 3.6 times as high among 15-24 men than women (386 vs 107 per 100 000 population) and twice as high among 25-39 men than women (470 vs 218 per 100 000 population).

Barriers experienced by young Aboriginal and Torres Strait Islander people in accessing health services include stigma, shame, confidentiality concerns, lack of culturally- age- and gender-appropriate prevention, testing and treatment services.^{4, 5} These barriers are overlaid and compounded by the racism and discrimination that Aboriginal and Torres Strait Islander people experience in all aspects of life. Young Aboriginal and Torres Strait Islander people face barriers to accessing age appropriate and same sex health professionals and peer workers across the healthcare workforce which may impede level of engagement with health services.⁴ Also, services in rural and remote communities are infrequent or inadequate.¹⁶

Notably, findings from SCALE-C study demonstrate that almost all current hepatitis C diagnoses are among people with a history of injection drug use, and over three-quarters are among people with a history of incarceration. While it is reassuring to see hepatitis C is not prevalent in the broader Aboriginal and Torres Strait Islander community, urgent strategies are needed to significantly improve harm reduction and treatment access among Aboriginal and Torres Strait Islander people who inject drugs and who have been incarcerated. The Treatment-as-prevention strategy employed in the SToP-C interventional trial demonstrates that rapid scale-up in incarcerated populations is effective in reducing new hepatitis C infections in a defined setting.

Finally, evidence from the NSW Data Linkage study demonstrates that the increase in hepatitis C treatment uptake has led to reductions in incidence of hepatitis C related liver failure (decompensated cirrhosis) and mortality. Between 2015 and 2017, age-standardised incidence rates of liver-related mortality decreased among Aboriginal and Torres Strait Islander people. However, a higher proportion of Aboriginal and Torres Strait Islander people with an end-stage liver disease diagnosis and who have died had a history of alcohol use disorder compared with the proportion of non-Indigenous people with end-stage liver disease diagnosis who had a history of alcohol use disorder suggesting that alcohol use disorder is a key risk factor for progressive liver disease in the setting of highly curative hepatitis C treatment.

RECOMMENDATIONS

The following recommendations are not designed to be all encompassing, but rather are being proposed as a subset of a broader suite of recommendations that would be required to enhance hepatitis C elimination among Aboriginal and Torres Strait Islander people at various levels, including legal, regulatory, policy, prevention, and treatment services.

Recommendation 1: ACCHS should be supported to expand harm reduction services, including needle and syringe programs, where appropriate. Well-planned approaches and ACCHS workforce education should be developed to facilitate successful implementation.

Recommendation 2: Access to harm reduction, including needle and syringe programs, should be expanded in prison settings. This requires political will and support and justice system workforce education.

Recommendation 3: Targeted cultural education of needle and syringe program workforce should be developed and implemented to address high occurrence of needle and syringe sharing among Aboriginal and Torres Strait Islander clients.

Recommendation 4: Targeted healthcare provider education to address the daily experiences of Aboriginal and Torres Strait Islander people with racism, stigma and discrimination, and feelings of shame, particularly around injection drug use and hepatitis C.

Recommendation 5: Opportunistic hepatitis C testing and treatment should be offered to clients attending opioid agonist therapy clinics or attending general practitioner clinics and ACCHS for other reasons.

Recommendation 6: Education of general practitioners regarding hepatitis C testing which is currently included as part of the regular health checks as outlined in the Medicare Benefits Schedule 715 health check templates for age groups: 12-24; 25-49; 50+ years should be implemented.

Recommendation 7: Electronic medical record reminders should be implemented to prompt hepatitis C testing in clients with elevated liver enzymes, other indicators of chronic liver disease (APRI score >1.0), or risk factors for hepatitis C acquisition (history of injection drug use and incarceration)

Recommendation 8: Point-of-care hepatitis C antibody and RNA testing for people at risk of hepatitis C (history of injection drug use or incarceration) should be implemented in a variety of settings, including ACCHS, needle and syringe programs, drug treatment clinics, prisons, mental health services, homelessness services, and mobile clinics.

Recommendation 9: Directly observed hepatitis C treatment should be offered with daily opioid agonist therapy to clients attending a variety of settings, including opioid agonist therapy clinics, pharmacies, and general practitioner clinics. A “one-stop shop” approach incorporating point of care hepatitis C testing and same day treatment initiation should be implemented for high-risk clients.

Recommendation 10: A best practice approach, holistic healthcare addressing other comorbidities, social and cultural determinants of health should be provided by a multidisciplinary team. Diverse, flexible culturally, gender and age appropriate models of care should be implemented including mobile (outreach) services.

Recommendation 11: Expand peer worker workforce into ACCHS sector and other general practitioner services to support clients with testing and treatment as well as education, where appropriate.

Recommendation 12: Further analyses should be conducted to determine the occurrence of testing and treatment by jurisdiction, and service type.

Recommendation 13: Further analyses of data gaps should be undertaken, including enhancing data collection of Aboriginal and Torres Strait Islander identity in surveillance projects.

Recommendation 14: Facilitate involvement of Aboriginal and Torres Strait Islander leadership in all aspects of the hepatitis C response, including policy, research, clinical care, and prevention service areas.

Methodological notes

ACCESS

Individuals' electronic medical records were linked between sites using a linkage code and probabilistic matching so that consultation, testing and test outcome data account for individuals attending more than one ACCESS site. Therefore, the data included in this report may differ to those presented in previous or subsequent reports due to the availability of expanded data and associated enhancement of analytical, linkage, and processing methods. Individuals attending ACCESS sexual health clinics are not representative of the broader population of Aboriginal and Torres Strait Islander communities, including those who are less engaged in healthcare.

ANSPS

ANSPS participants included people attending needle and syringe programs, who may not represent the broader population of people who inject drugs in Australia, including those who are less engaged with healthcare, particularly among Aboriginal and Torres Strait Islander people in urban and regional and remote settings. The proportion of participants reporting Aboriginal and Torres Strait Islander identity has increased between 2015 and 2020. In 2015, the ANSPS commenced hepatitis C RNA testing, in addition to antibody testing. Methods for detection of hepatitis C antibody and RNA have been described in detail elsewhere.¹⁷ Since 2015, only a sub-sample of participants have had enough dried blood spot samples for RNA testing. Weightings were applied to account for potential sample bias among participants eligible for RNA testing with respect to sex (given higher rates of spontaneous clearance among women) and hepatitis C antibody status. The number of participants who self-reported hepatitis C testing and hepatitis C treatment uptake in the past 12 months may be overestimated, due to recall bias.

ATLAS NETWORK

ATLAS is a robust data infrastructure that collects and synthesises data sourced from a large number of electronic medical record systems. However, the diversity in the sector makes it a challenge to develop standard data collection and management protocols. The ATLAS network also recognises that its current surveillance approach is limited by an inability to capture data on chronic/historical hepatitis C infection diagnosed prior to 2016 and not being actively managed by the ACCHS. Participating ACCHS were not randomly selected and are currently not representative of all ACCHS, although participating ACCHS represent a wide geographical spread, including metropolitan, regional, remote and very remote communities.

ETHOS ENGAGE

The ETHOS Engage cohort may not represent the broader population of people who inject drugs in Australia, including those who are less engaged with healthcare. The number of participants who self-reported hepatitis C testing in the past 12 months may be overestimated, due to recall bias.

MATHEMATICAL MODELLING

The Bright model developed by the Center for Disease Analysis (CDA), and adapted to the Australian setting, was used.² The model tracked the acute stage of hepatitis C, with spontaneous clearance or progression to chronic hepatitis C, each fibrosis stage (F0, F1, F2, F3 and F4), hepatitis C-related decompensated cirrhosis (DC) and hepatocellular carcinoma (HCC), and the number of people who received a liver transplant due to chronic hepatitis C. Individuals who achieved cure were assumed susceptible to reinfection and could progress to DC (from F4) and HCC (from F3 and F4), albeit at reduced risk compared to those with viraemia. The effect of excessive alcohol consumption in the development of cirrhosis, DC, HCC, and liver-related mortality was incorporated into the model.

The model assumed a 95% cure rate for DAA therapy in F0-F3 stages and a 90% cure rate in the advanced hepatitis C stages. The population with advanced hepatitis C were assumed to have a higher treatment rate given clinical care prioritisation. Liver-related mortality included the effects of alcohol use disorder with the proportion of Aboriginal and Torres Strait Islander people with this disorder over time derived from the NSW Linkage study.² The model assumed the population who were cured have reduced progression rates from F3 to HCC (77% reduction) and F4 to DC (76% reduction) and HCC (77% reduction). It was also assumed the population who cleared hepatitis C virus did not regress to earlier stages of hepatitis C and people cured of hepatitis C but living with DC and HCC have a 50% lower liver-related death rate. The model assumed hepatitis C testing rates and current harm reduction programs remained in place from 2016.

The model used the estimated hepatitis C prevalence at the end of 2015 as a calibration target and as a starting point for estimating the number living with hepatitis C to the end of 2020. To estimate the number of Aboriginal and Torres Strait Islander people living with chronic hepatitis C in 2015, the prevalence was estimated relative to non-Indigenous people using annual hepatitis C notifications data from the NNDSS. In 2015, an estimated 188,688 people in Australia were living with chronic hepatitis C corresponding to a hepatitis C prevalence in the general population of 0.79%.

MODEL INPUTS:

To estimate the proportion of hepatitis C notifications among Aboriginal and Torres Strait Islander people, the following data sources and assumptions were used:

The NSW Data Linkage study estimated 101 861 hepatitis C notifications during 1993-2017 period (including coinfections but excluding those with no access to Medicare), of which approximately 12% were among Aboriginal and Torres Strait Islander people. As 3.2% of the NSW population were Aboriginal and Torres Strait Islander people during 2001-2016, the hepatitis C prevalence in Aboriginal and Torres Strait Islander people was approximately 3.5 times the prevalence in the overall NSW population.

During 2014-2018, 17% of the hepatitis C positive ANSPS participants identified as Aboriginal and Torres Strait Islander. As 2.3% of the NSW population were Aboriginal during 2001-2016, the hepatitis C prevalence in Aboriginal and Torres Strait Islander people was approximately 7.4 times that the prevalence in the overall population.

In 2018, 8.1% of all hepatitis C notifications derived from the NNDSS were in Aboriginal and Torres Strait Islander people, which included six states and territories (ACT, NT, QLD, SA, TAS, WA) with an Indigenous status completion greater than 50% (meaning this is likely to be a lower limit). This percentage was weighted according to population size and completeness of Indigenous status. As 2.3% of the NSW population were Aboriginal and Torres Strait Islander during 2001-2016, the hepatitis C prevalence in Aboriginal and Torres Strait Islander people was approximately 7.4 times that the prevalence in the overall population.

To calibrate to the base number of people living with hepatitis C in 2015 the model was adjusted for the annual hepatitis C incidence rate without DAA treatment to match the increase in notifications among the 15–24 year age-group since 2010. To run the model, the number of people living with hepatitis C who have been diagnosed was estimated at the end of each year over 2015-2020. The model also included an estimate of the number of new diagnoses each year since 2015. The final key input into the model was the number of Aboriginal and Torres Strait Islander people who were living with hepatitis C treated each year. The model estimated the proportion of all people treated with DAA therapy who were Aboriginal and Torres Strait Islander during 2016-2020 using available data and then it was adjusted to match available treatment coverage data. REACH-C and NSW Linkage data were used to estimate proportion of all people receiving DAA therapy who were Aboriginal and Torres Strait Islander during 2016-2020 then the model was adjusted to match available treatment coverage data.

NSW DATA LINKAGE PROJECT

Hepatitis C notifications in NSW are largely laboratory-based following anti-hepatitis C antibody diagnosis. To estimate the number of people with chronic hepatitis C, weightings were applied to account for sex-specific spontaneous clearance (higher rates among women). International Classification of Diseases, 10th revision was used for characterisation of key populations, including people with evidence of recent drug dependence, history of alcohol use disorder, and those with an advanced liver disease diagnosis, predisposing these definitions to misclassification bias. From late 2014 (prior to the Australian Government-funded DAA program launch in March 2016), access to DAAs was provided through pharmaceutical company compassionate access programs, clinical trials, and generic importation (ref). Data on treatment uptake through compassionate access is not collected by the Pharmaceutical Benefits Scheme; therefore, DAA uptake among people with advanced liver disease is underestimated in this report. Data on decompensated cirrhosis and hepatocellular carcinoma diagnosis and liver-related mortality were available until mid-2018; event numbers in 2018 were doubled for inclusion in liver-related mortality indicators. In the 2019 data linkage round, Aboriginal and Torres Strait Islander identity was ascertained by a method developed by NSW Health.¹⁸

NNDSS

Population rates of notification of hepatitis C were calculated for each State/Territory using yearly population estimates, provided by the Australian Bureau of Statistics (ABS). Hepatitis C infection were classified as newly acquired if evidence was available of acquisition in the 24 months prior to diagnosis (Communicable Diseases Network Australia 2004). Rates of notification for newly acquired hepatitis C and all new hepatitis C notifications were calculated using population denominators obtained from the Australian Bureau of Statistics by state, year, sex, and age and were standardised using ABS Standard Population Catalogue. Incomplete reporting of Aboriginal and Torres Strait Islander status can result in a misrepresentation of the true extent of the notifications in the Aboriginal and Torres Strait Islander population and may not reflect national trends. Data on newly acquired infections should be interpreted with caution, as they are likely to misrepresent the true number of newly acquired infections in the community for several reasons. Infections are rarely symptomatic in the early stages and most cases therefore remain undetected. Also, even if testing is conducted, it may be difficult to be sure that an infection was newly acquired unless the person has had a recent negative test before the positive diagnosis or clinical evidence of newly acquired hepatitis C.

REACH-C

The REACH-C cohort is generally representative of the overall Australian population treated with DAAs through the Pharmaceutical Benefits scheme, however it is likely less representative of the Aboriginal and Torres Strait Islander people where Indigenous identity may be underreported.

SCALE-C

SCALE-C participants were recruited from four regional centres in SA and NSW and may not represent the broader Aboriginal and Torres Strait Islander population in Australia, including those who are less engaged with healthcare and those living in remote areas. Number of participants who self-reported hepatitis C testing in the past 12 months may be overestimated, due to recall bias. Samples size was small and as such findings need to be interpreted with caution.

STOP-C

Although the proportion of all individuals incarcerated in the four prisons who were enrolled in the STOP-C study was higher than 80%, assessment of hepatitis C risk status and transmission among people not enrolled in the study was not possible. The rate of transitioning of enrolled individuals between prisons, and the rate of release from prison meant that almost half of participants were lost to follow-up had follow-up and limited proportion had follow-up extending beyond 12 months. Aboriginal and Torres Strait Islander people are overrepresented in custodial settings, and as such hepatitis C prevalence should be interpreted with caution.

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Appendix 1

