Australian Indigenous
Health*InfoNet*

Summary of epidemiology, prevention and management of blood-borne viruses experienced by Aboriginal and Torres Strait Islander peoples

Core funding is provided by the Australian Government Department of Health and Aged Care

AUSTRALIA
ECU
EDITH COWAN
UNIVERSITY

Australian Indigenous Health*InfoNet*

The mandate of the Australian Indigenous Health*InfoNet* (Health*InfoNet*) is to contribute to improvements in Aboriginal and Torres Strait Islander health by making relevant, high quality knowledge and information easily accessible to policy makers, health service providers, program managers, clinicians and other health professionals (including Aboriginal and Torres Strait Islander Health Workers and Health Practitioners) and researchers. The Health*InfoNet* also provides easy-to-read and summarised material for students and the general community. The Health*InfoNet* achieves its commitment by undertaking research into various aspects of Aboriginal and Torres Strait Islander health and disseminating the results (and other relevant knowledge and information) mainly via Health*InfoNet* websites (https://healthinfonet.ecu.edu.au), the Alcohol and Other Drugs Knowledge Centre (https://aodknowledgecentre.ecu.edu.au), Tackling Indigenous Smoking (https://tacklingsmoking.org.au) and WellMob (https://wellmob.org.au). The research involves analysis and synthesis of data and other information obtained from academic, professional, government and other sources. The Health*InfoNet*'s work in knowledge exchange aims to facilitate the transfer of pure and applied research into policy and practice to address the needs of a wide range of users.

Recognition statement

The Health*InfoNet* recognises and acknowledges the sovereignty of Aboriginal and Torres Strait Islander people as the original custodians of the country. Aboriginal and Torres Strait Islander cultures are persistent and enduring, continuing unbroken from the past to the present, characterised by resilience and a strong sense of purpose and identity despite the undeniably negative impacts of colonisation and dispossession. Aboriginal and Torres Strait Islander people throughout the country represent a diverse range of people, communities and groups, each with unique identities, cultural practices and spiritualities. We recognise that the current health status of Aboriginal and Torres Strait Islander people has been significantly impacted by past and present practices and policies.

We acknowledge and pay our deepest respects to Elders past, present and emerging throughout the country. In particular, we pay our respects to the Whadjuk Noongar peoples of Western Australia on whose Country our offices are located (https://healthinfonet.ecu.edu.au/acknowledging-country).

Contact details

Bep Uink (Director)
Australian Indigenous Health*InfoNet*
Edith Cowan University
2 Bradford Street
Mount Lawley, Western Australia 6050
Phone: (08) 9370 6336
Email: healthinfonet@ecu.edu.au
Website: healthinfonet.ecu.edu.au

ISBN E-Book: 978-0-6457362-7-4
ISBN Paperback: 978-0-6457362-6-7

Summary of epidemiology, prevention and management of blood-borne viruses experienced by Aboriginal and Torres Strait Islander peoples

Publication team

Christine Potter
Courtney King

Production coordinator

Christine Potter

Publication layout

Michelle Pierre

Executive editor

Bep Uink

Suggested citation:

Australian Indigenous Health*InfoNet*. (2024) *Summary of epidemiology, prevention and management of blood-borne viruses experienced by Aboriginal and Torres Strait Islander peoples.* Perth, WA: Australian Indigenous Health*InfoNet*

Based on:

Australian Indigenous Health*InfoNet*. (2024) *Review of epidemiology, prevention and management of blood-borne viruses experienced by Aboriginal and Torres Strait Islander peoples.* Perth, WA: Australian Indigenous Health*InfoNet*

Further information

This *Summary* is part of a resource package including the full review, a fact sheet and a short video. These resources and more information about epidemiology, prevention and management of blood-borne viruses experienced Aboriginal and Torres Strait Islander peoples can be viewed at: https://healthinfonet.ecu.edu.au/learn/health-topics/infectious-conditions/

Acknowledgements

Special thanks are extended to staff at the Australian Indigenous Health*InfoNet* for their assistance and support, and to the Australian Government Department of Health and Aged Care and other funding partners for their ongoing support of the work of the Australian Indigenous Health*InfoNet.*

Tell us what you think

We value your feedback as part of our post-publication peer review process. Please let us know if you have any suggestions for improving this *Summary*: https://healthinfonet.ecu.edu.au/contact-us

Cover artwork

Bush potato dreaming
by Rene Dixon

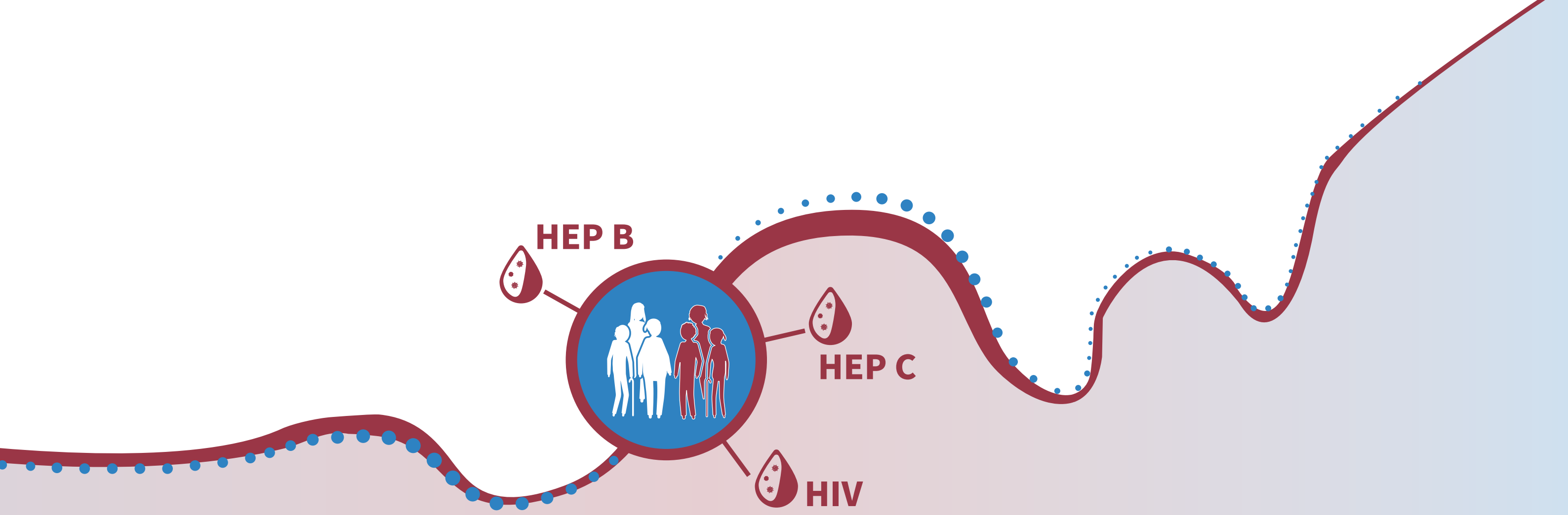
Featured icon artwork

by Frances Belle Parker

The Health*InfoNet* commissioned Frances Belle Parker, a proud Yaegl woman, mother and artist, to produce a suite of illustrated icons for use in our knowledge exchange products. Frances translates biomedical and statistically based information into culturally sensitive visual representations, to provide support to the Aboriginal and Torres Strait Islander workforce and those participating in research and working with Aboriginal and Torres Strait Islander people and their communities. Frances came to prominence winning the Blake Prize in 2000, making her the youngest winner and the first Indigenous recipient over the 65 year history of the prize.

"Biirrinba is the Yaygirr name for the mighty Clarence River (NSW). It is this river that is the life giving vein for the Yaegl people. And it is this river which inspires much of my artwork. I am deeply inspired by my Mother's land (Yaegl land) and the Island in the Clarence River that my Mother grew up on, Ulgundahi Island. The stories which are contained within this landscape have shaped me as a person as an artist and most recently as a Mother. This is my history, my story and it will always… be my responsibility to share this knowledge with my family and my children."

Contents



Introduction

Blood-borne viruses (BBVs) are viruses that can be passed on when infected blood enters the bloodstream of another person [1].

Types of BBVs include:

- human immunodeficiency virus (HIV)
- hepatitis B virus (HBV)
- hepatitis C virus (HCV) [1].

HIV is an infection which lowers the body's immune system, due to decreased white blood cells [2]. Therefore, if not treated, a person with HIV is more likely to develop other serious health conditions, such as cancer. However, antiretroviral treatment (ART) can be taken to treat HIV by increasing a person's white blood cells and immunity. When taken consistently ART can also prevent HIV from being passed on to another person. There is also a medication called pre-exposure prophylaxis (PrEP) that can be taken by people without HIV to reduce the chances of catching the virus [1].

HBV and HCV are both infections that affect the liver and can cause short-term and long-term illnesses, which may be life threatening [3, 4]. HBV can be prevented by a vaccine, which is usually given through childhood vaccination programs. Antiviral medication can be used to manage some cases of HBV but, unfortunately, it is not curable. Unlike HBV, HCV cannot be prevented by a vaccine, however, medication such as direct-acting antivirals (DAAs) can cure most people who have HCV. This treatment usually takes between 12 and 24 weeks to complete.

BBVs are a significant health issue in Australia with Aboriginal and Torres Strait Islander peoples facing a number of risk factors that contribute to the prevalence and transmission. Culturally safe and community-led approaches are important for effective BBV prevention, testing, and treatment initiatives within Aboriginal and Torres Strait Islander communities.

The context of Aboriginal and Torres Strait Islander health and BBVs

Historical, social and cultural factors

Aboriginal and Torres Strait Islander peoples are the oldest continuing culture in the world, having been the traditional custodians of Australia and the Torres Strait Islands for over 60,000 years [5].

In 1788, British colonisation had devastating impacts on Aboriginal and Torres Strait Islander peoples, their culture and communities [6], and is a major contributing factor to the health and wellbeing of Aboriginal and Torres Strait Islander peoples today [7, 8]. In contrast to Western views of health, Aboriginal and Torres Strait Islander culture focuses on not just the physical wellbeing of the individual, but also the social, emotional, and cultural wellbeing of the community [9].

The impact of colonisation is ongoing and compounded in communities through a number of social factors including:

intergenerational trauma

racism

oppression

poverty

discrimination

incarceration

loss of connection to family, culture, and community [5]

Cultural determinants also strongly influence the health and wellbeing of Aboriginal and Torres Strait Islander peoples [10], which involve:

- family and kinship
- culture
- Country
- language
- identity
- self-determination [11].

The significance of these social and cultural factors highlight the importance of culturally appropriate health care for Aboriginal and Torres Strait Islander peoples [5].

Factors contributing to BBV risk and transmission in Australia

Risk factors

Risk factors include anything that is known to increase the chances of a person developing a health condition [12]. Risk factors may be modifiable, meaning they can be changed, such as smoking, while others are non-modifiable (cannot be changed), such as a person's age or family history [12].

Risk factors that are linked to BBVs include:

Colonisation

Australia's colonial history has influenced substance use within Aboriginal and Torres Strait Islander communities [13], as well as sexual health and sexuality [14-16].

Systemic racism

Aboriginal and Torres Strait Islander peoples' experience of higher rates of unemployment, lower educational outcomes, poor experiences with health care and health outcomes, and over-representation in prison settings can be considered indicators of systemic racism [17].

Incarceration

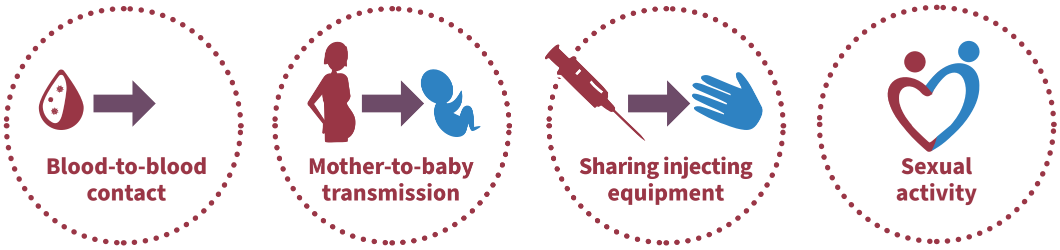
Aboriginal and Torres Strait Islander peoples are over-represented in Australia's prison system [18], which increases their chances of developing BBVs, due to the limited access to culturally appropriate care and harm reduction methods, high levels of recidivism, and being more likely to engage in risk-taking behaviours, such as sharing needles and injecting-drug use equipment [18, 19].

Shame and stigma

BBVs, such as HCV and HIV, that are linked with unprotected sex and injecting drug use (IDU) have a history of being stigmatised [20]. Aboriginal and Torres Strait Islander peoples living with a BBV are likely to experience further discrimination due to intersecting identities, which can likely result in distrust and hesitation to engage with health services [20, 21], and contributes to confidentiality concerns [22].

Lack of culturally appropriate health care

Implementing culturally appropriate health care helps to address health gaps and promotes equity through elimination of racism in the health system [23]. It is essential in reducing the burden of disease in Aboriginal and Torres Strait Islander communities [24], as without access to culturally appropriate care, Aboriginal and Torres Strait Islander peoples may be less likely to engage with services [25].



BBV transmission modes

There are also risks that increase the chances of BBV transmission, such as:

HBV:

- blood-to-blood contact
- sexual contact without a barrier contact
- mother to baby during birth or breastfeeding.

HCV:

- blood-to-blood contact, most commonly from sharing used drug-injecting equipment.

HIV:

- blood-to-blood contact
- sexual contact without a condom (anal and vaginal) [26]
- having a sexually transmissible infection (STI)
- needle stick injuries
- using unsterile body modification tools for things such as tattoos or piercings
- sharing used drug injecting equipment [27].

Protective factors

In the context of BBVs, protective factors involve any form of intervention that either reduces the chances of developing a BBV, or the burden of disease that can be linked to BBVs [28]. These include:

Aboriginal Community Controlled Health Services (ACCHS)

It is reported that Aboriginal and Torres Strait Islander peoples prefer to access ACCHS for BBV and STI testing and treatment, due to established relationships, trust, flexibility, cultural sensitivity, and empowerment of community [29, 30, 24, 31, 32].

Peer-education programs

Peer-based programs are proven to help reduce the risk of BBVs [33] and have been used in Aboriginal and Torres Strait Islander communities through BBV and sexual health education [34].

Community-led health initiatives

It is important that health promotion in Aboriginal and Torres Strait Islander communities takes a strengths based approach, that is community driven and owned to ensure sustainability [35], cultural sensitivity and community acceptance [36].

Harm reduction

Harm reduction methods, such as needle syringe programs (NSPs), are effective in preventing BBVs; however, a number of barriers have been identified in engaging Aboriginal and Torres Strait Islander peoples [37]. Research also highlights the important role of family in harm reduction of IDU in Aboriginal and Torres Strait Islander communities, although there is often a lack of professional support available for them [38].

Alcohol and other drug (AOD) treatment programs

In Australia, there is an inadequate amount of specialist AOD services designed and delivered by Aboriginal and Torres Strait Islander peoples [39]. It has been identified that AOD treatment programs must deliver culturally appropriate responses to work effectively with Aboriginal and Torres Strait Islander peoples [13]. Successful AOD treatment programs also require family involvement, outreach, group support, holistic psychosocial support, engagement of local community, consistent funding and partnerships.

Extent of BBVs experienced by Aboriginal and Torres Strait Islander peoples in Australia

The data below will show high rates of BBVs in remote Aboriginal and Torres Strait Islander communities, however in this context, it is important to note how increased healthcare accessibility issues, age structure of the Aboriginal and Torres Strait Islander population, and BBV risk factors are compounded [32] in remote areas. Additionally, the COVID-19 pandemic has influenced testing, diagnosis, and treatment of STIs and BBVs through the period of 2019-2022 [40].

Incidence and prevalence

HBV

In 2022:

- The prevalence of chronic HBV among Aboriginal and Torres Strait Islander peoples in Australia was reported to be 13,810 people living with the condition [41].
- There were 108 Aboriginal and Torres Strait Islander peoples newly diagnosed with HBV, 67 were male, 40 were females and 1 person did not report their sex.
- The majority of Aboriginal and Torres Strait Islander peoples diagnosed with HBV were aged 40 years and over, among both males and females.
- The age-standardised[1] notification rate for Aboriginal and Torres Strait Islander peoples decreased by 35%, since 2018 (29 per 100,000 people).
- HBV notifications were higher among Aboriginal and Torres Strait Islander peoples living in remote and regional areas compared to those living in major cities [40].

---

1. Age-standardised rates are incidence, or prevalence rates that enable comparisons to be made between populations that have different age structures.

HCV

In 2022:

- There were 1,088 Aboriginal and Torres Strait Islander peoples newly diagnosed with HCV, 768 were male, 320 were female.
- Almost half (46%) of Aboriginal and Torres Strait Islander peoples diagnosed with HCV were 25 to 39 years of age.
- HCV notifications were higher among Aboriginal and Torres Strait Islander peoples living in major cities, compared to those living in regional or remote areas.
- The age-standardised HCV notification rate for Aboriginal and Torres Strait Islander peoples decreased by 16%, since 2018 (186 per 100,000 people) [40].

HIV

In 2022:

- The prevalence of HIV among Aboriginal and Torres Strait Islander peoples in Australia was estimated to be 590 people living with the condition.
- There were 25 Aboriginal and Torres strait Islander peoples newly diagnosed with HIV, 22 males and 3 females.
- The median age of diagnosis among Aboriginal and Torres Strait Islander peoples was 34 years.
- The notification rate is nearly two times higher among Aboriginal and Torres Strait Islander peoples aged 35 years or older (4.0 per 100,00), compared to those under 35 years (2.2 per 100,00).
- 27% of the HIV notifications among Aboriginal and Torres Strait Islander peoples were classified as late diagnoses, meaning their HIV infections likely developed at least four years before being diagnosed [40].

Health service utilisation

There are a number of barriers which impact Aboriginal and Torres Strait Islander people's use of health services, including:

- social determinants of health
- cultural safety of health services
- stigma.

HBV

- By 2000 a universal HBV vaccination was introduced for all infants in Australia.
- Between 2018-2022, 90% of Aboriginal and Torres strait Islander children were vaccinated for HBV at 12 months of age, and 96% at 24 months of age [40].

HCV

- During 2013 to 2022, annual HCV antibody testing rates decreased among Aboriginal and Torres Strait Islander Australian Needle and Syringe Program (ANSPS) participants.
- Among Aboriginal and Torres Strait Islander peoples who were HCV antibody negative, testing declined from:
  - 57% to 46% among females
  - 55% to 47% among males [40].

HIV

- Annual HIV testing is recommended for priority populations, including Aboriginal and Torres Strait Islander peoples.
- In 2022, among ANSPS participants, 41% of Aboriginal and Torres Strait Islander females and 52% of Aboriginal and Torres Strait Islander males reported having had a HIV test in the past 12 months [40].

Hospitalisation rates related to BBV complications

- From 2010 to 2019, the average annual age-standardised acute HBV hospitalisation rate among Aboriginal and Torres Strait Islander peoples was 1.2 per 100,000 population per year, and 0.8 per 100,000 population for children aged 5-9 years.
- The median length of hospital stay was five days.
- The hospitalisation rate was highest for Aboriginal and Torres Strait Islander peoples aged 40-49 years, followed by 30-39 years and 20-29 years [42].

Potentially preventable hospitalisations (PPH)

PPH are an indicator of the performance of a health system, based on hospital admissions of patients with certain vaccine preventable conditions, such as HBV.

- For 2019-2021, chronic HBV was reported to account for 65% of all PPH, due to vaccine-preventable conditions among Aboriginal and Torres Strait Islander peoples, equivalent to 3.8 PPH per 1,000 population [43].

Burden of disease (non-fatal)

In 2018, for Aboriginal and Torres Strait Islander peoples, the non-fatal burden of disease (known as the number of years lived with disability or YLD) was:

- Acute HBV: 0.12 YLD
- Acute HCV: 0.64 YLD
- HIV/AIDS: 35 YLD [44].

Mortality

BBVs contribute to the mortality rates among Aboriginal and Torres Strait Islander peoples through increasing the chance of developing other infections, due to lowered immunity, impaired liver health and increased risk of cancer [45].

HBV:

- Between 2000 and 2019, 29 Aboriginal and Torres Strait Islander peoples died due to acute HBV. This equated to 3.6 deaths per 1,000,000 people per year.
- Between 2006 and 2019, the median age of Aboriginal and Torres Strait Islander peoples who died, due to acute HBV, was 51 years [42].

Burden of disease (fatal)

In 2018, for Aboriginal and Torres Strait Islander peoples, the number of years of life lost (YLL) was recorded as:

- Acute HBV: 49 YLL
- Acute HCV: 0.16 YLL
- HIV/AIDS: 87 YLL [44].

Disability-adjusted life years (DALYs) are the number of YLL combined with the number of YLD. In 2018, for Aboriginal and Torres Strait Islander people, this was recorded as:

- Acute HBV: 49 DALYs
- Acute HCV: 0.8 DALYs
- HIV/AIDS: 122 DALYs [44].

Priority setting: Prisons

In 2016, data on the status of BBVs among Aboriginal and Torres Strait Islander peoples in prison reported:

HBV:

- 98 antibody tests conducted
- 31 (32%) positive tests [46].

HCV:

- 99 antibody tests conducted
- 21 (21%) positive tests [46].

HIV:

- 102 antibody tests collected with no positive tests [46].

In 2016, 85 HBV immune status tests were conducted among Aboriginal and Torres Strait Islander peoples in prison, which showed:

- 28 (33%) had no HVB immunity
- 26 (31%) had immunity through past exposure

- 5 (6%) were HBV carriers
- 26 (31%) had vaccination immunity [46].

Limited data are available on BBV status within juvenile custodial settings, however, a survey of justice-involved adolescents, aged 14-17 years old from Qld and WA, showed that among Aboriginal participants (who had been sexually active) only 36% had had a STI/HIV test [47].

Prevention and management

Education and prevention

Health literacy of sexual health and BBVs is low among Aboriginal and Torres Strait Islander communities, which highlights the need for better education methods [48-53]. Culturally appropriate education is essential to increase awareness, knowledge and health literacy of BBVs among Aboriginal and Torres Strait Islander peoples and is found to be most effective when designed and delivered with local communities [53-55].

Community education on transmission and prevention

Community education in Aboriginal and Torres Strait Islander communities can involve an array of delivery methods, such as peer-education, yarning circles, men's and women's groups, clinical yarning, phone apps, social media and health promotion events [50, 56, 57].

Currently, despite a large number of sexual health education initiatives available for Aboriginal and Torres Strait Islander communities, there is a lack of BBV specific education and culturally appropriate health promotion resources [55, 58].

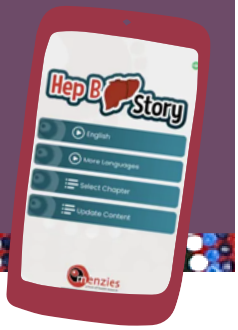
Previous initiatives offer valuable insight and learnings for the development of future BBV health promotion projects with Aboriginal and Torres Strait Islander communities, such as the Hep B Story resource.

Hep B Story

Menzies School of Health Research (Menzies) in the NT developed a comprehensive electronic app, Hep B Story, as a health education resource delivered in both Yolnu Matha and English [50, 59]. The app was tailored for Aboriginal peoples and serves as a training tool for healthcare workers. The project commenced in 2012 and the app was evaluated four times by the community prior [59] before it was launched in 2014.

Evaluation showed overwhelmingly positive qualitative feedback [59], and due to this initial success, 10 additional Aboriginal languages were selected for translation in 2018, as part of a wider project, Hep B PAST (A Partnership Approach to Sustainably eliminating Chronic Hepatitis) [50, 54].

The success of the app highlights the importance of the research team's engagement and consultation (via yarning) with culturally and linguistically diverse Aboriginal communities across the NT, healthcare workers and patients living with chronic hepatitis B, during both the development and evaluation stages.



Healthcare providers’ education

Many healthcare providers’ don’t have a strong understanding and awareness of BBVs in Aboriginal and Torres Strait Islander communities [49, 50, 53, 55, 60-65]. This is often due to high staff turnovers [49, 58, 65], which can result in stigma among health professionals [60, 61] and a lack of continuity of care for clients living with BBVs [53, 61, 63]. It is recommended that increased opportunities for education in Aboriginal and Torres Strait Islander health settings would prove beneficial in raising awareness and improve continuity of care [55, 63, 65, 66].

Peer-led education and support groups

Peer-education is often a useful method for health promotion within Aboriginal and Torres Strait Islander communities [53, 67, 68], particularly among young people [53, 60, 67].

While long-term evaluations have often faced limitations to gauge influence on behaviour change, short-term evaluations have found peer-education programs to have increased knowledge of STIs and BBVs, as well as the likelihood of getting tested [68].

Deadly Liver Mob

The Deadly Liver Mob (DLM) program was developed to address low attendance rates at NSPs in NSW, Australia, in an area with higher levels of injecting drug use and low engagement with sexual health screening and health services [52, 69]. DLM is an incentive based, peer-driven health promotion program, which seeks to educate Aboriginal and Torres Strait Islander peoples, through yarning and visual aids, on HCV and refers clients to BBV/STI screening and treatment if required [52, 67, 70].

Following the success of two DLM pilot sites in Mount Druitt, NSW in 2013, an additional seven sites were established across metropolitan, rural and remote NSW [52].

Evaluation of the project saw positive results in the HCV screening and treatment behaviours, as DLM delivered HCV education sessions to 1,787 clients from 2013 to 2020, with 74% of those receiving BBV/STI screening and 57% returning to receive results [52].

The key to DLM’s success was the employment of Aboriginal or Torres Strait Islander staff [67, 69, 70] and adopting a strengths-based approach, as opposed to a deficit approach [70].

Vaccination programs

Since 2000, the infant HBV vaccination program has been successful in providing vaccinations to 97% of Aboriginal and Torres Strait Islander children aged 24 months [71].

Hepatitis B vaccination campaigns, including catch-up programs

A large number of Aboriginal and Torres Strait Islander infants have been vaccinated for HBV however, vaccine programs have not always adequately reached Aboriginal and Torres Strait Islander communities [61]. To improve this vaccine delivery needs to be:

- culturally appropriate
- focused on vaccination and education with Aboriginal and Torres Strait Islander peoples in custodial settings [61, 72]
- consistent on a national level to provide best coverage for Aboriginal and Torres Strait Islander peoples [73, 74].

Harm reduction programs

Needle and Syringe Programs (NSPs)

NSPs have proven to be a successful way of reducing the transmission of HCV and HIV in Australia [37], however, access to NSPs can be an issue for Aboriginal and Torres Strait Islander peoples, due to:

- a lack of services in regional, remote or very remote settings
- lack of resourcing to ACCHS
- stigma, shame and discrimination
- culturally insensitive services
- associated costs
- health literacy [37, 75].
- a lack of NSPs in custodial settings [64, 76].

Education in safe injection practices

- There is low evidence for safe injecting practices in Aboriginal and Torres Strait Islander communities, however, learnings can be taken from other countries, such as Canada, where First Nations peoples have higher rates of HIV [75, 77, 78] to support this harm reduction method [77-79].
- Aboriginal and Torres Strait Islander females and young people were identified as a key target audience for safe injecting education due to increased likelihood of having a partner who injects drugs, and younger age of commencing IDU [75, 77-79].

Availability and uptake of PrEP and PEP in high-risk populations

- Data on the availability and uptake of PrEP and Post-Exposure Prophylaxis (PEP), specifically among Aboriginal and Torres Strait Islander peoples is limited. This is suggested to be due to:
  - low education and promotion of PrEP and PEP (especially for men who have sex with men) [78, 80]
  - lack of government funding for HIV and sexual health promotion [80]
  - a need for stronger collaboration between AIDS Councils and ACCHSs [80].

Condom distribution and safe sex education

Condom distribution and safe sex education is a high priority in Aboriginal and Torres Strait Islander communities and many initiatives have been successfully implemented with local communities and Aboriginal and Torres Strait Islander health workers educators [53, 80]. Some barriers to providing access to condoms and safe sex education include a lack of resourcing and training for healthcare providers and educators.

Screening programs

Routine screening for high-risk groups

Studies highlight an insufficiency in routine screening for BBVs [22] and clients who had a history of IDU or recent incarceration were more likely to be asked to participate in BBV screening [22]. Successful HBV screening initiatives have also been introduced among high-risk groups in prison settings and throughout antenatal (the period from conception to birth) care [74], however, more research is required to learn of screening barriers among high-risk groups [81].

Screening in Aboriginal Community Controlled Health Services (ACCHS)

Screening tools ACCHS generally use for BBVs are the HCV point-of-care testing (PoCT) [82, 83] and the Medicare Benefits Scheme (MBS) item number 715 Aboriginal and Torres Strait Islander health check [84]. The MBS 715 health check is an annual preventive assessment to examine risks for illness or chronic disease, which decreases stigma around STIs and BBVs and normalises testing [84].

Antenatal care

BBV screening during antenatal care is effective in most settings, however HBV prevalence remains higher in Aboriginal and Torres Strait Islander communities [85]. Australia's National Hepatitis B Strategy highlights the need for prevention and intervention methods that are specifically designed for Aboriginal and Torres Strait Islander peoples and people who are pregnant [74, 86].

Testing, treatment and management

Early detection and diagnosis

Mobile Clinics and outreach testing options

There is limited research around the use of mobile clinics and outreach testing options for BBVs in Aboriginal and Torres Strait Islander communities [75]. However, they have been found to successfully engage people who would usually not use traditional health services, due to their flexibility and innovative methods of delivery.

Point-of-care testing, self-testing options and community-based testing initiatives

Research suggests that PoCT can be beneficial when delivered in culturally safe settings, especially in ACCHS settings [57, 63, 83], as well as the importance of clinic staff training and incorporating BBV education [83].

Regular screening and follow-up for hepatitis B

Studies highlight differing experiences of HBV care across Aboriginal and Torres Strait Islander communities [49, 55, 65], however, to strengthen the continuity of care for clients with chronic hepatitis B, it is recommended that:

- additional HBV training be provided and dedicated HBV healthcare workers are employed
- HBV treatment and vaccinations are offered in custodial settings
- health systems review and enhance post-diagnosis follow-up, monitoring and treatment
- reimbursements for HBV treatment are made available in Primary Health Care settings
- a jurisdiction-based HBV register is established
- HBV care is integrated into chronic disease self-management
- further research is conducted with healthcare workers and people living with chronic hepatitis B to guide new practice and policy [49, 61, 65, 74, 87].

Access to direct-acting antivirals (DAA) for hepatitis C treatment

Increased access to DAA treatment for HCV is essential as Australia moves towards elimination targets of HCV by 2030. However, there are several barriers preventing Aboriginal and Torres Strait Islander peoples from accessing treatment, including:

- racism and culturally insensitive healthcare
- socioeconomic status
- lack of transport and living regionally/remotely
- being unhoused [63, 88-90]
- lack of knowledge of DAA treatment [22, 63, 89]
- eligibility [22, 63].

Enablers in increasing access and uptake of DAA treatment in Aboriginal and Torres Strait Islander communities include:

- peer referral
- culturally safe care
- flexible service delivery
- increased promotion
- dispensing of DAAs in webster packs
- strong community networks
- child-friendly waiting areas [22, 63, 69, 89, 91].

Treatment and care

Access to antiretroviral therapy (ART)

- There is limited information on ART among Aboriginal and Torres Strait Islander communities, however, research does highlight the impact barriers to sexual health and BBV care have regarding HIV.
- Once engaged in care, Aboriginal and Torres Strait Islander peoples living with HIV are likely to manage treatment uptake and sustain viral suppression [92].
- Initiatives involving visiting multidisciplinary teams are often successful in maintaining the retention of Aboriginal and Torres Strait Islander peoples living with HIV [92].

Support for treatment adherence

- Aboriginal and Torres Strait Islander peoples often experience comorbidities (having more than one illness at the same time) and therefore these competing priorities can be a barrier to the uptake and adherence of treatment measures [63, 74, 88].
- Uptake and adherence are more likely sustained when:
  - healthcare is holistic
  - care is delivered in primary health settings
  - family are involved
  - cultural practices are respected [63, 74].

Culturally safe healthcare delivery

- Culturally safe healthcare delivery is crucial for Aboriginal and Torres Strait Islander peoples to attain good health [5]. This also includes:
  - knowing the diversity of Aboriginal and Torres Strait Islander communities and their local cultures
  - the significance of gender, as it may be uncomfortable for some patients to yarn about health with the opposite gender [63].

Integration of BBV care with other health services

- Studies that have implemented BBV care within primary health care services [93-96] aimed to address barriers of access, specifically travel [94, 95], and stigma and discrimination [96].
- ACCHS are highlighted as suitable services to implement targeted BBV care with Aboriginal and Torres Strait Islander peoples [51, 96], as well as localised approaches, based on the models previously implemented, as best practice [95].

Aboriginal and Torres Strait Islander health workforce

- The Aboriginal and Torres Strait Islander health workforce are known to play a significant role in:
  - establishing connections
  - providing cultural insight
  - interpreting and translating medical jargon [58, 60, 63, 67, 95].

  This is despite being under resourced [52, 95, 97], which can likely lead to staff burnout [52, 95, 97].
- This highlights the importance of strengthening the recruitment and retention of Aboriginal and Torres Strait Islander health workers and addressing barriers impacting this workforce [60, 95].

Programs and services

National initiatives

These national initiatives support the prevention, diagnosis, and management of BBVs within Aboriginal and Torres Strait Islander communities and are funded by the Australian Government Department of Health and Aged Care. They include:

Australian Needle and Syringe Program Survey (ANSPS)

- Conducted by Kirby Institute, University of New South Wales, ANSPS provides serial point prevalence[1] estimates of HIV and HCV antibody prevalence, HCV ribonucleic acid (RNA) prevalence and monitors sexual and injecting behaviour among people who inject drugs in Australia.

The Pharmaceutical Benefits Scheme (PBS)

- DAA therapies for treatment of chronic HCV infection are subsidised through the PBS since 2016.
- A range of antiretroviral therapies are subsidised through the PBS for the management of HIV, as well as PrEP for HIV-negative individuals, who may be at high risk of exposure.

The Medicare Benefits Schedule (MBS)

- Consultations where patients are assessed for BBVs, receive counselling or discuss treatment options, as well as specialist consultations, are covered by the MBS.
- MBS rebates also cover blood tests to screen for and confirm the presence of BBVs, monitor viral load, and assess liver function in the case of hepatitis.

The National Immunisation Program (NIP)

- HBV vaccination is provided free of charge to all infants as part of the routine childhood immunisation schedule.
- Children who missed their vaccinations, adolescents and adults in high-risk exposure groups can receive catch-up doses of the HBV vaccine.

---

[1] Serial point prevalence means repeatedly measuring how many people have a condition at a specific point in time, to track changes.

Role of primary health care services

Primary health care plays an important role in the early identification and prevention of BBVs in Aboriginal and Torres Strait Islander communities through incorporating risk assessment, screening and follow-up care. They include:

Aboriginal Community Controlled Health Services (ACCHSs)

- ACCHSs are owned and operated by Aboriginal communities, ensuring culturally appropriate and accessible care.
- They provide:
    - culturally appropriate services, health promotion and education programs about BBVs
    - free and confidential BBV screening and testing
    - treatment and management of BBVs
    - advocacy for BBV prevention strategies and policies.

715 Health Check

- Aboriginal and Torres Strait Islander peoples of all ages can access a free annual 715 health check, which aims to identify and manage health issues early and improve overall health outcomes.
- While the 715 Health Check is not specifically focused on BBVs, it can include elements related to the prevention, diagnosis, and management of BBVs, depending on the individual's risk factors and health needs.

Antenatal Screening for BBVs

- Universal screening for HBV and HIV is offered as part of routine antenatal care in Australia. HCV screening is typically offered based on assessed risk of infection.

Policies and strategies

Australia's comprehensive strategies and plans provide a framework and direction for all partners involved in responding to BBVs within Aboriginal and Torres Strait Islander populations. These strategies guide decision-making, monitor progress by evaluating previous results and the effectiveness of responses, consult with stakeholders, and identify any existing gaps.

Relevant national policies include:

- Fifth National Aboriginal and Torres Strait Islander Blood Borne Viruses and Sexually Transmissible Infections Strategy 2018-2022
- Ninth National HIV Strategy 2024-2030
- Draft Fourth National Hepatitis B Strategy 2023–2030
- Draft Sixth National Hepatitis C Strategy 2023–2030
- National Bloodborne Viruses and Sexually Transmissible Infections Surveillance and Monitoring Plan 2018–2022
- The First National Bloodborne Viruses and Sexually Transmissible Infections Research Strategy 2021–2025.

Future directions

Future efforts to prevent and manage BBVs among Aboriginal and Torres Strait Islander peoples requires:

- **culturally responsive and safe healthcare**
    - training healthcare workers in cultural sensitivity is essential to increase engagement and improve health outcomes
- **community-driven approaches**
    - the effectiveness of community-led initiatives should be recognised for future efforts, to ensure they are tailored to the needs and context of individual communities
- **improvement of BBV screening and treatment programs**
    - reaching remote and high-risk populations is vital, along with making sure the services are culturally sensitive, innovative, and adaptable
- **policy and system-level reforms**
    - addressing gaps in the current public health sector, particularly in custodial settings, is needed, along with deeper integration of BBV care into primary health services
- **ongoing research and data collection**
    - data gaps need to be addressed and further research to better understand BBV barriers and enablers will help develop evidence-informed interventions.

Conclusion

Addressing the ongoing challenges of BBVs among Aboriginal and Torres Strait Islander peoples requires a multifaceted (having many aspects) approach that prioritises cultural safety, community empowerment, and health system reforms.

While significant progress has been made, particularly through Aboriginal and Torres Strait Islander-led health services and peer-based initiatives, there remain critical gaps in service delivery, screening, and treatment accessibility, particularly for remote and high-risk populations.

Ongoing research and targeted interventions are essential to inform culturally appropriate and effective public health strategies. By continuing to invest in these areas, future efforts can significantly reduce the burden of BBVs in Aboriginal and Torres Strait Islander communities and promote better health outcomes.

References

1. Australian Government Department of Health and Aged Care (2018) *National Aboriginal and Torres Strait Islander Blood Borne Viruses and Sexually Transmissible Infections Strategy 2018–2022*. Australian Government Department of Health and Aged Care
2. World Health Organization (2024) *Health topics: HIV*. Retrieved from https://www.who.int/health-topics/hiv-aids#tab=tab_1
3. World Health Organization (2024) *Hepatitis B*. Retrieved from https://www.who.int/news-room/fact-sheets/detail/hepatitis-b
4. World Health Organization (2024) *Hepatitis C*. Retrieved from https://www.who.int/news-room/fact-sheets/detail/hepatitis-c
5. Dudgeon P, Wright M, Paradies Y, Garvey D, Walker R (2014) Aboriginal social, cultural and historical contexts. In: P.Dudgeon HMRW, ed. *Working together: Aboriginal and Torres Strait Islander mental health and wellbeing principles and practice* 2nd ed: Telethon Institute for Child Health Research:3-24
6. Elias A, Mansouri F., Paradies Y (2021) *Racism in Australia today*. Palgrave Macmillan Singapore.
7. Paradies Y (2016) Colonisation, racism and Indigenous Health*. Journal of Population Research*;33(1):83-96
8. Sherwood J (2013) Colonisation – It's bad for your health: The context of Aboriginal Health. *Contemporary Nurse*;46(1):28-40
9. National Aboriginal Health Strategy Working Party (1989) *A national Aboriginal health strategy.* Canberra: Australian Government Department of Aboriginal Affairs.
10. Dudgeon P, Derry L K., Mascall C, Ryder A (2022) Understanding Aboriginal Models of Selfhood: The National Empowerment Project's Cultural, Social, and Emotional Wellbeing Program in Western Australia*. International Journal of Environmental Research and Public Health*;19(7):4078-4095
11. Verbunt E, Luke J, Paradies Y, Bamblett M, Salamone C, Jones A, Kelaher M (2021) Cultural determinants of health for Aboriginal and Torres Strait Islander people – a narrative overview of reviews*. International Journal for Equity in Health*;
12. Powell A, Morseu-Diop A, Ninomiya M, Yadav U, Phillips E, Singh D, Butler T, Allanson E, Whop L (2023) Review of gynaecological cancer among Aboriginal and/or Torres Strait Islander people in Australia*. Journal of the Australian Indigenous HealthInfoNet*;4(3)
13. Krakouer J, Savaglio M, Taylor K, Skouteris H (2022) Community-based models of alcohol and other drug support for First Nations peoples in Australia: A systematic review*. Drug and Alcohol Review*;41(6):1418-1427
14. Evans S, G., , McCurdya S, Schultz K, Peskin F, M., , Tingey L, Markham C (2024) 'Trauma sits in your body and makes you shut down:'sexual and reproductive health professionals' view of the impact of trauma on the sexual health of Native American older adolescent and young adult women*. Culture, Health & Sexuality. Advanced online publication.*;
15. Le Grice J, Braun V (2017) Indigenous (Māori) sexual health psychologies in New Zealand: Delivering culturally congruent sexuality education*. Journal of Health Psychology*;23(2):175-187
16. Sullivan C (2017) Indigenous Australian women's colonial sexual intimacies: positioning indigenous women's agency*. . Culture, Health & Sexuality*;20(4):397-410
17. Dudgeon P, Garvey D, Pickett H (2000) Violence turned inwards. In: Dudgeon PG, D. Pickett, H, ed. *Working with Indigenous Australians: A handbook for psychologists* Gunada Press
18. Australian Institute of Health and Welfare (2024) *The health and wellbeing of First Nations people in Australia's prisons 2022*.
19. Australian Bureau of Statistics (2023) *Prisoners in Australia*. Retrieved from https://www.abs.gov.au/statistics/people/crime-and-justice/prisoners-australia/2023
20. Treloar C, Jackson LC, Gray R, Newland J, Wilson H, Saunders V, Johnson P, Brener L (2016) Multiple stigmas, shame and historical trauma compound the experience of Aboriginal Australians living with hepatitis C*. Health Sociology Review*;25(1):18-32
21. Treloar C, Cao W (2005) Barriers to use of Needle and Syringe Programmes in a high drug use area of Sydney, New South Wales*. International Journal of Drug Policy*;16(5):308-315
22. Puljević C, Massi L, Brown R, Mills R, Turner L, Smirnov A, Selvey LA (2022) Barriers and enablers to hepatitis C treatment among clients of Aboriginal Community Controlled Health Services in South East Queensland, Australia: A qualitative enquiry*. Australian Journal of Primary Health*;28(3):239-246
23. Australian Health Practitioners Regulation Agency (2020) *Aboriginal and Torres Strait Islander Health Strategy.* Retrieved from https://www.ahpra.gov.au/About-Ahpra/Aboriginal-and-Torres-Strait-Islander-Health-Strategy.aspx

24. Mooney-Somers J, Erick W, Scott R, Akee A, Kaldor J, Maher L (2009) Enhancing Aboriginal and Torres Strait Islander young people's resilience to blood-borne and sexually transmitted infections: Findings from a community-based participatory research project. *Health Promotion Journal of Australia*;20(3):195-201

25. Durey A (2010) Reducing racism in Aboriginal health care in Australia: where does cultural education fit? *Australian and New Zealand Journal of Public Health*;34(1): 87-92

26. ASHM (2023) *Post-Exposure Prophylaxis after non-occupational exposure to HIV, Australian National Guidelines (3rd ed.) 2023.* Retrieved from https://pep.guidelines.org.au/wp-content/uploads/2023/07/ASHM-PEP-Guidelines_2023_3rd-edition.pdf

27. Australian Indigenous Health*Info*Net (2024) *Overview of Aboriginal and Torres Strait Islander health status 2023*.

28. Vickery J, Faulkhead S, Adams K, Clarke A (2007) Indigenous insights into oral history, social determinants and decolonisation. In: I.Anderson FBMB, ed. *Beyond Bandaids: Exploring the Underlying Social Determinants of Aboriginal Health.*: Cooperative Research Centre for Aboriginal Health:19-36

29. Dimer L, Dowling T, Jones J, Cheetham C, Thomas T, Smith J, McManus A, Maiorana AJ (2013) Build it and they will come: outcomes from a successful cardiac rehabilitation program at an Aboriginal Medical Service. *Australian Health Review*;37(1):79-82

30. Jan S, Conaty S, Hecker R, Bartlett M, Delaney S, Capon T (2004) An holistic economic evaluation of an Aboriginal community-controlled midwifery programme in Western Sydney. *Journal of Health Services Research & Policy*;9(1)

31. Graham S, Martin K, Gardner K, Beadman M, Doyle MF, Bolt R, Murphy D, Newman CE, Bell S, Treloar C (2023) Aboriginal young people's perspectives and experiences of accessing sexual health services and sex education in Australia: A qualitative study. *Global Public Health*;18(1):2196561

32. Ward J, Elliott S, Bryant J, Donovan B, Pitts M, Wand H, Kaldor J (2020) *THE GOANNA SURVEY 2. Results of the second Australian survey of knowledge, relationships, behaviour and health service access relating to sexually transmissible infections (STIs) and blood borne viruses (BBVs) among Aboriginal and Torres Strait Islander young people*. Adelaide: South Australian Health and Medical Research Institute (SAHMRI)

33. Australian Injecting & Illicit Drug Users League (2006) *A framework for peer education by drug-user organisations*.

34. Sexual Health and Blood-Borne Virus Applied Research & Evaluation Network (2020) *Evaluation report: Young, Deadly, Free Project Evaluation – Phase 2*. Perth, Western Australia: Curtin University

35. McRae T, Walker R, Enkel S, Thomas MMH, Jacky K, Sibosado S, Mullane M, Maginnis N, Coffin J, Carapetis RJ, Bowen CA (2023) HipHop2SToP a community-led health promotion initiative empowering Aboriginal youth in the Kimberley region of Western Australia: a process evalutation. *Frontiers in Public Health*;11

36. Hulme Chambers A, Tomnay EJ, Stephens K, Crouch A, Whiteside M, Love P, McIntosh K, Waples Crowe P (2018) Facilitators of community participation in an Aboriginal sexual health promotion initiative. *Rural and Remote Health*;18(2)

37. Lobo R, Coci M (2021) *Increasing Aboriginal Peoples' Use of Services that Reduce Harms from Illicit Drugs*. Curtin University

38. Gendera S, Treloar C, Reilly R, Conigrave K, Butt J, Roe Y, Ward J (2022) 'Even though you hate everything that's going on, you know they are safer at home': The role of Aboriginal and Torres Strait Islander families in methamphetamine use harm reduction and their own support needs. *Drug and Alcohol Review*;41(6):1428–1439

39. Toombs E, Marshall N, Musquash J (2021) Residential and nonresidential substance use treatment within Indigenous populations: A systematic review. *Journal of Ethnicity in Substance Abuse*;20(2): 316-341

40. Naruka E, Miller A, Thomas JR, Monaghan R, King J, McManus H, McGregor S (2023) *Bloodborne viral and sexually transmissible infections in Aboriginal and Torres Strait Islander peoples: Annual surveillance report 2023.* Sydney, Australia: Kirby Institute, UNSW Sydney

41. MacLachlan JH, Romero N, Purcell I, Cowie BC (2024) *Viral Hepatitis Mapping Project: Hepatitis B National Report 2022*. Darlinghurst NSW Australia: ASHM

42. Sonneveld N, Jackson J, Dey A, Lambert S, Clark K, Cowie B, Macartney K, Beard F. (2024) Australian vaccine preventable disease epidemiological review series: Hepatitis B, 2000–2019. *Communicable Disease Intelligence*;48:1-43

43. Australian Institute of Health and Welfare National Indigenous Australians Agency (2024) *Tier 3 - Health system performance: 3.07 Selected potentially preventable hospital admissions*. Retrieved from https://www.indigenoushpf.gov.au/measures/3-07-selected-potentially-preventable-hospital-adm

44. Australian Institute of Health and Welfare (2022) *Australian Burden of Disease Study 2018: Interactive data on disease burden among Aboriginal and Torres Strait Islander people*. Retrieved from https://www.aihw.gov.au/reports/burden-of-disease/abds-2018-interactive-disease-indigenous/contents/summary

45. Australian Institute of Health and Welfare National Indigenous Australians Agency (2024) *Tier 1 - Health status and outcomes: 1.24 Avoidable and preventable deaths*. Retrieved from https://www.indigenoushpf.gov.au/measures/1-24-avoidable-and-preventable-deaths#:~:text=Potentially%20avoidable%20deaths%20are%20classified,hospital%20care%20.

46. Butler T, Simpson M (2017) *National Prison Entrants' Blood-borne Virus Survey Report 2004, 2007, 2010, 2013, and 2016.* . UNSW, Sydney: Kirby Institute

47. Taflan P, Simpson PL, Wilson M, Jones J, Donovan B, Amin J, Nathan S, Butler T (2023) Sexually transmissible infections (STI) and HIV testing and diagnosis among Aboriginal and non-Aboriginal adolescents in contact with the Australian justice system: A cross-sectional study. *Sexual Health*;20(4):303-314

48. Alavi M, Micallef M, Fortier E, Dunlop AJ, Balcomb AC, Day CA, Treloar C, Bath N, Haber PS, Dore GJ, Grebely J (2015) Effect of treatment willingness on specialist assessment and treatment uptake for hepatitis C virus infection among people who use drugs: The ETHOS study. *Journal of Viral Hepatitis*;22(11):914-925

49. Anderson E, Ellard J, Wallace J (2016) Torres Strait Islanders' understandings of chronic hepatitis B and attitudes to treatment. *Australian Journal of Primary Health*;22(4):316-319

50. Binks P, Ross C, Gurruwiwi GG, Wurrawilya S, Alley T, Bukulatjpi SM, Vintour-Cesar E, Hosking K, Davis JS, Hefler M, Davies J (2024) Adapting and translating the 'Hep B Story' App the right way: A transferable toolkit to develop health resources with, and for, Aboriginal people. *Health Promotion Journal of Australia*:11

51. Brener L, Wilson H, Jackson LC, Johnson P, Saunders V, Treloar C (2015) The role of Aboriginal community attachment in promoting lifestyle changes after hepatitis C diagnosis. *Health Psychology Open*;2(2)

52. Cama E, Beadman K, Beadman M, Walker M, Treloar C (2023) Insights from the scale-up and implementation of the Deadly Liver Mob program across nine sites in New South Wales, Australia, according to the RE-AIM framework. *Harm Reduction Journal*;20(1)

53. Rosenberg S, Lobo R, Hallett J (2019) *An evidence review from Australia, Aotearoa/New Zealand and Canada for the WA Aboriginal Sexual Health and Blood-borne Viruses Strategy.* .

54. Binks P, Venkatesan S, Everitt A, Gurruwiwi GG, Dhurrkay RG, Bukulatjpi SM, Ross C, Alley T, Hosking K, Vintour-Cesar E, McKinnon M, Sullivan RP, Davis JS, Hefler M, Davies J (2024) An evaluation and refinement of the "Hep B Story" app, tailored to meet the community's cultural needs. *Bmc Health Services Research*;24(1):15

55. Davies J, Bukulatjpi S, Sharma S, Davis J, Johnston V (2014) "Only your blood can tell the story" - A qualitative research study using semi-structured interviews to explore the hepatitis B related knowledge, perceptions and experiences of remote dwelling Indigenous Australians and their health care providers in northern Australia. *BMC Public Health*;14(1)

56. Fagan PS, Robertson HK, Pedrana AE, Raulli A, Crouch AA (2015) Successes in sexual health communications development, programmatic implementation and evaluation in the Torres Strait region 2006 to 2012. *Australian and New Zealand Journal of Public Health*;39(3):270-276

57. Rosenberg S, Lobo R, Hallett J (2019) *An evidence review from Australia, Aotearoa/New Zealand and Canada for the WA Aboriginal Sexual Health and Blood-borne Viruses Strategy*.

58. Hosking K, De Santis T, Vintour-Cesar E, Wilson PM, Bunn L, Garambaka Gurruwiwi G, Wurrawilya S, Bukulatjpi SM, Nelson S, Ross C, Stuart-Carter KA, Ngurruwuthun T, Dhagapan A, Binks P, Sullivan R, Ward L, Schroder P, Tate-Baker J, Davis JS, Connors C, Davies J (2024) "Putting the power back into community": A mixed methods evaluation of a chronic hepatitis B training course for the Aboriginal health workforce of Australia's Northern Territory. *PLoS One*;19(1):e0288577

59. Davies J, Bukulatjpi S, Sharma S, Caldwell L, Johnston V, Davis JS (2015) Development of a Culturally Appropriate Bilingual Electronic App About Hepatitis B for Indigenous Australians: Towards Shared Understandings. *Jmir Research Protocols*;4(2):13

60. Cama E, Beadman M, Beadman K, Hopwood M, Treloar C (2023) Health workers' perspectives of hepatitis B-related stigma among Aboriginal and Torres Strait Islander people in New South Wales, Australia. *Harm Reduction Journal*;20(1)

61. Coles T, Simpson P, Saulo D, Kaldor J, Richards A, Levy M, Wake C, Siddall DA, Harrod ME, Kariminia A, Butler T (2019) Trends in hepatitis B prevalence and associated risk factors among Indigenous and non-Indigenous prison entrants in Australia, 2004 to 2013. *Australian and New Zealand Journal of Public Health*;43(3):236-240

62. Hosking K, Binks P, De Santis T, Wilson PM, Gurruwiwi GG, Bukulatjpi SM, Vintour-Cesar E, McKinnon M, Nihill P, Fernandes T-A (2024) Evaluating a novel model of hepatitis B care, Hep B PAST, in the Northern Territory of Australia: results from a prospective, population-based study. *The Lancet Regional Health–Western Pacific*;48

63. Lim D, Phillips E, Bradley C, Ward J (2023) Barriers and Facilitators to Hepatitis C Virus (HCV) Treatment for Aboriginal and Torres Strait Islander Peoples in Rural South Australia: A Service Providers' Perspective. *International Journal of Environmental Research and Public Health*;20(5)

64. Merone L, Ashton S, Harris A, Edwards WS, Preston-Thomas A, Gair R, Russell DB (2022) A complex increase in hepatitis C virus in a correctional facility: bumps in the road. *Australian and New Zealand Journal of Public Health*;46(3):377-381

65. Wallace J, Pitts M, Ward J, McNally S (2014) Management of chronic hepatitis B in the Torres Strait Islands: An identified need for a comprehensive public health approach to chronic hepatitis B in remote Australian Indigenous communities. *Australian Journal of Primary Health*;20(3):273-277

66. Clark PJ, Valery PC, Strasser SI, Weltman M, Thompson A, Levy MT, Leggett B, Zekry A, Rong J, Sinclair M, George J, Bollipo S, McGarity B, Sievert W, MacQuillan G, Tse E, Nicoll A, Wade A, Cheng W, Roberts SK (2024) Broadening and strengthening the health providers caring for patients with chronic hepatitis C may improve continuity of care. *Journal of Gastroenterology and Hepatology (Australia)*;39(3):568-575

67. Biggs K, Walsh J, Ooi C (2016) Deadly Liver Mob: Opening the door-improving sexual health pathways for Aboriginal people in Western Sydney. *Sexual Health*;13(5):457-464

68. D'Costa B, Lobo R, Thomas J, Ward JS (2019) Evaluation of the young deadly free peer education training program: Early results, methodological challenges, and learnings for future evaluations. *Frontiers in Public Health*;7(APR)

69. Treloar C, Hopwood M, Cama E, Saunders V, Jackson LC, Walker M, Ooi C, Ubrihien A, Ward J (2018) Evaluation of the Deadly Liver Mob program: Insights for roll-out and scale-up of a pilot program to engage Aboriginal Australians in hepatitis C and sexual health education, screening, and care. *Harm Reduction Journal*;15(1)

70. Treloar C, Beadman K, Beadman M, Smith K, Christian J, Jackson C, Tyson B, Anderson C, Smyth L, Walker M, Heslop J, Gahan G, Tawil V, Sheaves F, Maher L, Page J, Tilley D, Ryan A, Grant K, Cama E (2023) Evaluating a complex health promotion program to reduce hepatitis C among Aboriginal and Torres Strait Islander peoples in New South Wales, Australia: the Deadly Liver Mob. *Harm Reduction Journal*;20(1):153

71. Narayana S, Nugent M, Woodman R, Larkin M, Ramachandran J, Muller K, Wigg A (2022) Measuring quality of hepatitis B care in a remote Australian Aboriginal community: opportunities for improvement. *Internal Medicine Journal*;52(8):1347-1353

72. Gidding HF, Mahajan D, Reekie J, Lloyd AR, Dwyer DE, Butler T (2015) Hepatitis B immunity in Australia: A comparison of national and prisoner population serosurveys. *Epidemiology and Infection*;143(13):2813-2821

73. Harrod ME, Couzos S, Delaney-Thiele D, Dore GJ, Hammond B, Saunders M, Belfrage M, Williams S, Kaldor JM, Ward J (2014) Markers of hepatitis B infection and immunity in patients attending Aboriginal community controlled health services. *Medical Journal of Australia*;201(6):339-342

74. Olsen A, Wallace J, Maher L (2014) Responding to Australia's National Hepatitis B Strategy 2010-13: Gaps in knowledge and practice in relation to Indigenous Australians. *Australian Journal of Primary Health*;20(2):134-142

75. Peach E, Cogger S, Byron K, Francis P, O'Keefe D, Higgs P, Stoove M, Elmore K, Dietze P, Hellard M (2018) Blood-borne virus transmission in an urban, culturally diverse neighbourhood: Results from a cross-sectional bio-behavioural survey using innovative outreach methods in a hard-to-reach population. *Sexual Health*;15(1):54-60

76. Smirnov A, Kemp R, Ward J, Henderson S, Williams S, Dev A, Najman JM (2018) Hepatitis C viral infection and imprisonment among Aboriginal and Torres Strait Islander and non-Indigenous people who inject drugs. *Drug and Alcohol Review*;37(7):831-836

77. Graham S, Maher L, Wand H, Doyle M, Iversen J (2017) Trends in hepatitis C antibody prevalence among Aboriginal and Torres Strait Islander people attending Australian Needle and Syringe Programs, 1996-2015. *International Journal of Drug Policy*;47:69-76

78. Graham S, O'Connor CC, Morgan S, Chamberlain C, Hocking J (2017) Prevalence of HIV among Aboriginal and Torres Strait Islander Australians: A systematic review and meta-analysis. *Sexual Health*;14(3):201-207

79. Doyle M, Maher L, Graham S, Wand H, Iversen J (2018) Hepatitis C virus prevalence and associated risk factors among Indigenous Australians who inject drugs. *Australian and New Zealand Journal of Public Health*;42(1):52-56

80. Hope A, Haire B (2019) "No-one's driving this bus" - qualitative analysis of PrEP health promotion for Aboriginal and Torres Strait Islander gay and bisexual men. *Australian and New Zealand Journal of Public Health*;43(1):18-23

81. Ward JS, Dyda A, McGregor S, Rumbold A, Garton L, Donovan B, Kaldor JM, Guy RJ (2016) Low HIV testing rates among people with a sexually transmissible infection diagnosis in remote aboriginal communities. *Medical Journal of Australia*;205(4):168-171

82. Bajis S, Maher L, Treloar C, Hajarizadeh B, Lamoury FMJ, Mowat Y, Schulz M, Marshall AD, Cunningham EB, Cock V, Ezard N, Gorton C, Hayllar J, Smith J, Whelan M, Martinello M, Applegate TL, Dore GJ, Grebely J (2018) Acceptability and preferences of point-of-care finger-stick whole-blood and venepuncture hepatitis C virus testing among people who inject drugs in Australia. *International Journal of Drug Policy*;61:23-30

83. Lafferty L, Beadman M, Ward J, Flynn E, Hosseini-Hooshyar S, Martinello M, Treloar C (2024) Patient and healthcare provider perceptions of acceptability of fingerstick point-of-care hepatitis C testing at Aboriginal Community Controlled Health Services in Australia. *International Journal of Drug Policy*;125

84. Australian Government Department of Health and Aged Care (2022) *Annual health checks for Aboriginal and Torres Strait Islander people*. Retrieved 3 June 2022 from https://www.health.gov.au/topics/aboriginal-and-torres-strait-islander-health/primary-care/annual-health-checks

85. Reekie J, Kaldor JM, Mak DB, Ward J, Donovan B, Hocking JS, Preen D, Liu B (2018) Long-term impact of childhood hepatitis B vaccination programs on prevalence among Aboriginal and non-Aboriginal women giving birth in Western Australia. *Vaccine*;36(23):3296-3300

86. Sullivan RP, Davies J, Binks P, McKinnon M, Dhurrkay RG, Hosking K, Bukulatjpi SM, Locarnini S, Littlejohn M, Jackson K, Tong SYC, Davis JS (2022) Preventing early childhood transmission of hepatitis B in remote aboriginal communities in Northern Australia. *International Journal for Equity in Health*;21(1)

87. Larkin M, Mahmood M, Ward J, Hummerston B, Johnson D, Laurence C (2022) Chronic hepatitis B management in six South Australian Aboriginal community controlled health services. *Australian Journal of Primary Health*;

88. Clark PJ, Valery PC, Ward J, Strasser SI, Weltman M, Thompson A, Levy MT, Leggett B, Zekry A, Rong J (2022) Hepatitis C treatment outcomes for Australian First Nations Peoples: equivalent SVR rate but higher rates of loss to follow-up. *BMC gastroenterology*;22(1):339

89. Treloar C, Story L, Edwards B, Murray C, Bourne C, Brener L, Wilson H, Jackson LC, Saunders V (2014) Evaluation of NSW Health Aboriginal Hepatitis C Program.

90. Treloar C, Jackson C, Gray R, Newland J, Wilson H, Saunders V, Johnson P, Brener L (2016) Care and treatment of hepatitis C among Aboriginal people in New South Wales, Australia: Implications for the implementation of new treatments. *Ethnicity and Health*;21(1):39-57

91. Read P, Tang BZH, Silins E, Doab A, Cornelisse VJ, Gilliver R (2024) Hepatitis C (HCV) Reinfection and Risk Factors among Clients of a Low-Threshold Primary Healthcare Service for People Who Inject Drugs in Sydney, Australia. *Viruses*;16(6)

92. Stephens JH, Gray RT, Guy R, Vickers T, Ward J (2023) A HIV diagnosis and treatment cascade for Aboriginal and Torres Strait Islander peoples of Australia. *AIDS Care - Psychological and Socio-Medical Aspects of AIDS/HIV*;35(1):83-90

93. Cama E, Beadman K, Beadman M, Smith KA, Christian J, Jackson AC, Tyson B, Anderson C, Smyth L, Heslop J, Gahan G, Tawil V, Sheaves F, Maher L, Page J, Tilley D, Ryan A, Grant K, Donovan B, Stevens A, Slattery T, Pearce K, John-Leader F, Walden A, Lenton J, Crowley M, Treloar C (2023) Increasing access to screening for blood-borne viruses and sexually transmissible infections for Aboriginal and Torres Strait Islander Australians: Evaluation of the Deadly Liver Mob program's 'cascade of care' across nine sites in New South Wales, Australia. *Harm Reduction Journal*;20(1)

94. Foy A, Tierney A (2014) Internal medicine in the bush: A clinical audit of a rural and remote outreach programme. *Internal Medicine Journal*;44(4):369-374

95. Hla TK, Bukulatjpi SM, Binks P, Gurruwiwi GG, Dhurrkay RG, Davies J (2020) A "one stop liver shop" approach improves the cascade-of-care for Aboriginal and Torres Strait Islander Australians living with chronic hepatitis B in the Northern Territory of Australia: Results of a novel care delivery model. *International Journal for Equity in Health*;19(1)

96. Wallace J, Hanley B, Belfrage M, Gregson S, Quiery N, Lucke J (2018) Delivering the hepatitis C cure to Aboriginal people: Documenting the perspectives of one Aboriginal Health Service. *Australian Journal of Primary Health*;24(6):491-495

97. Hosking K, De Santis T, Vintour-Cesar E, Wilson PM, Bunn L, Gurruwiwi GG, Wurrawilya S, Bukulatjpi SM, Nelson S, Ross C, Binks P, Schroder P, Davis JS, Taylor S, Connors C, Davies J, Hep BPP (2023) "The most culturally safe training I've ever had": The co-design of a culturally safe Managing hepatitis B training course with and for the Aboriginal health workforce of the Northern Territory of Australia. *Bmc Health Services Research*;23(1):18

Core funding is
provided by the
Australian Government
Department of Health
and Aged Care