One size does not fit all: healthcare worker perspectives on hepatitis B models of care in a low-prevalence region in Australia

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Abstract

Objective: Australia is not on track to achieve national hepatitis B elimination care targets. Many low hepatitis B prevalence Australian regions have disproportionately lower care uptake rates than higher-prevalence regions. This study aimed to determine enablers to providing care in a low hepatitis B prevalence region of Australia.

Methods: Semi-structured interviews were conducted with healthcare workers in the Barwon South West region of Victoria, Australia, to identify their perspectives on hepatitis B care and service delivery.

Results: Between August and November 2023, 20 participants were interviewed including nine general practitioners, four nurses, three specialists, three interpreters, and one refugee worker. Hepatitis B was understood as a rare, complex condition. The increasing pressure on general practitioners to manage specialist health conditions affected their willingness to manage hepatitis B. Enablers included specialist nurses providing case management and developing systematic links between specialist clinic staff and general practitioners. A localised community of practice would build general practitioner confidence.

Conclusions: Low-prevalence regions have unique hepatitis B care challenges. Disease prevalence needs to be considered when implementing decentralised models of care, with infrequent exposure challenging general practitioner confidence and skill maintenance.

Implications for Public Health: The model for community-based hepatitis B care should be guided by prevalence and regional population characteristics and supported by enabling infrastructure.

Key words: hepatitis B, patient care, primary health care, micro-elimination

Background

It is estimated that 205,549 (0.78%) Australians were living with chronic hepatitis B in 2021; 7070% were born overseas primarily in Northeast and Southeast Asia. Aboriginal and Torres Strait Islander people are disproportionately affected by hepatitis B. The regions of highest prevalence in Australia are the Northern Territory, central and western Sydney and eastern and north-western Melbourne.[1] Whilst exceptional progress has been made in the Northern Territory to implement a comprehensive hepatitis B elimination program,[2] Australia will not meet national hepatitis B elimination targets by 2030.[3,4] Hepatitis B diagnoses declined nationally between 2019 and 2022, and engagement in care and treatment uptake are both below the national target of 50% and 20%, respectively.[1,3]

Hepatitis B care delivery in Australia is predominantly the domain of specialist clinicians with tertiary hospitals offering liver clinics staffed by hepatologists, gastroenterologists and/or infectious disease physicians providing specialised care for people with hepatitis B, cirrhosis and hepatocellular carcinoma. However, there are multiple barriers to accessing tertiary liver clinics including long waiting lists,[5] inflexible appointment schedules and patient-related factors such as cultural beliefs, language difficulties, fear of stigma and misinformation.[6]

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Recognising hepatitis B as a chronic disease requiring lifelong clinical management has stimulated clinical service decentralisation and greater involvement of general practitioners (GPs) and specialist nurses in community-based care delivery.[3] Integrating hepatitis B care into primary care settings, specifically general practice,[7,8] enables screening, diagnosis and monitoring for patients with hepatitis B, along with treatment initiation and/or maintenance, and/or referral to liver clinics within a community setting. Specialist nurse-led models underpin decentralised hepatitis B care delivery in settings frequented by culturally and linguistically diverse communities and optimise engagement in the care cascade.[9,10] Multiple programs using information technology systems to create patient registries[11] and clinical guidance pathways[12] have been trialled to support GP-led care; however, none have received ongoing funding or government support to transition into practice.

In Australia, hepatitis B testing is mostly GP initiated with access to hepatitis B antiviral treatment funded through the Pharmaceutical Benefits Scheme and restricted to Section 100 (S100) Highly Specialised Drugs prescribing.[13] To prescribe antiviral treatment in the community, GPs and nurse practitioners must complete an S100 training program and participate in continuing medical engagement (CME).[14] Evidence provided in an email from the Victorian Integrated HIV and Hepatitis Teaching and Learning program (vhhital@nwmphn.org.au) in July 2024 indicates a median duration of S100 hepatitis B prescriber accreditation in Victoria (study setting) is 2.5 years, suggesting there are challenges preventing prescribers from maintaining their accreditation for the long term.

Micro-elimination has gained popularity in hepatitis C elimination.[15] These approaches use local data and gaps in the care cascade to guide activities targeting discrete populations through multi-stakeholder collaborations and bespoke interventions. Most hepatitis B model-of-care projects are conducted in higher-prevalence settings where community engagement and coordination, flexibility and adaptability of service delivery models, and data collection and analysis, are important considerations.[2,11,16] It can be difficult to provide similar localised and culturally appropriate hepatitis B care in low-prevalence regions. Adapting strategies and using local data to inform micro-elimination interventions should be the basis of service delivery systems in low-prevalence areas.

The diverse population affected by hepatitis B requires nuanced service delivery models that account for place-based needs, responding with tailored strategies. This is the first Australian study that aims to examine the needs of healthcare workers within a low-prevalence region and identify enabling strategies to improve equitable access to community-based hepatitis B care.

Methods

Study setting

The Barwon South West (BSW) region is a large geographic area in Victoria, Australia, extending from Geelong to the South Australian border. It has a population of 459,857, of which 8.6% were born in non-English-speaking countries, which is lower than the Victorian proportion of 24.1%.[17] The region is a low hepatitis B prevalence area with an estimated 1,609 people infected; 18.3% engaged in care, and 8.9% of people who need treatment accessing it[1] thereby providing an opportunity to investigate micro-elimination interventions within this environment.

Hepatitis B care in the region is delivered through a specialist-led, tertiary hospital outpatient clinic in Geelong, staffed by medical specialists including infectious disease physicians, gastroenterologists, and specialist hepatology nurses. Private specialist-led services provide hepatitis B care in Geelong and in a regional town approximately 200 kilometres from Geelong. In 2023, six GPs within the region were authorised to prescribe hepatitis B treatment (four GPs were newly authorised in 2022-23), and no nurse practitioners were providing hepatitis B care.

The BSW is serviced by a government-funded viral hepatitis outreach nurse. This outreach nurse, based at the tertiary hospital, travels throughout the region to provide testing and treatment services, clinical guidance for GPs and advocacy for local care delivery.

The research team consists of five professionals, four of whom have extensive expertise in viral hepatitis: Jacqueline A Richmond, a nursing expert and thought leader in viral hepatitis; Christine Roder, a researcher specialising in infectious diseases and public health; Chris Hair, a gastroenterologist; Amanda J Wade, an infectious disease physician and Jack Wallace, a social researcher and advocate. Analytic rigour was maintained through reflexivity, the use of multiple coders, subjectivity explicitly informing regular discussions of the cross-disciplinary investigator team and assigning interviews to researchers without prior relationships with participants.[18]

Recruitment

Potential participants working in the BSW region were identified by the investigators. They included S100 GPs, GPs referring to the liver clinic, gastroenterologists, infectious diseases physicians, hepatology and primary care nurses, and professionals working with communities at risk of hepatitis B including hospital-based interpreters and a refugee social worker. Snowball recruitment expanded the pool of potential participants. Recruitment was conducted between August and November 2023. An invitation was emailed to potential participants with a participation information sheet and consent form and was followed by a phone call with arrangements made for the interview.

A semi-structured interview schedule was developed by the investigators covering the following:

- The participants' role and involvement in hepatitis B care.
- Their support needs in caring for patients with hepatitis B.
- Identification of issues for future models of hepatitis B care in the BSW.

Interviews were conducted by three investigators (Jacqueline A Richmond, Christine Roder and Jack Wallace) in person, by phone or through a video conferencing platform. Participants were reimbursed for their time. The interviews were electronically recorded with written consent, transcribed and independently reviewed by the interviewers. Participants' de-identified quotes are used to illustrate perspectives.

Data analysis

Data analysis was guided by the thematic analysis framework outlined by Braun and Clarke,[19] with the first and last authors (Jacqueline A Richmond and Jack Wallace) independently immersing themselves in the data by reading and re-reading all transcripts, then systematically developing codes and grouping these codes into themes. Codes and

themes were further explored and refined through discussions with all investigators, achieving consensus to identify findings relevant to the research aims, which are presented in this manuscript. The coding structure was developed using NVivo 14 (QSR International Pty Ltd., Vic, Australia)[20] to support this thematic analysis.

Findings

Forty-eight healthcare workers were invited to participate. Twenty participants consented to be interviewed; their characteristics are outlined in Table 1. An additional three healthcare workers indicated interest, but an agreed interview time could not be identified.

The three overarching themes from the data included perspectives on the community context of hepatitis B in the BSW region, hepatitis B service delivery challenges and potential enablers to providing hepatitis B care in a low-prevalence setting.

Cultural context of hepatitis B in the BSW region

Chronic hepatitis B is an asymptomatic infection primarily affecting people in Australia who are born overseas. Migration and settlement issues alongside cultural and linguistic diversity affect health beliefs and people's understanding of western biomedical descriptions of health. Whilst the BSW has a significantly lower proportion of people born overseas than the rest of the country, participants recognised the breadth of health access issues affecting the communities to be mostly affected by hepatitis B.

> *[In the specialty clinic] we … had a lot of Myanmar refugees … people from African nations, obviously a lot of South East Asians … and [the occasional] Pacific Islander and …First Nations people (Participant 19).*

Differences in cultural background, health literacy and experiences of stigma and racism shape access to the Australian healthcare system,[21] and newly arrived people often lack understanding of how the health system operates.

> *Some people who have hepatitis B are not familiar with the healthcare system in Australia … In China, we don't have referral system, so if they get sick, they go to hospital directly [to] see the specialist; we don't have a GP (Participant 8).*

These cultural differences can be magnified in regional areas where a lack of cultural diversity within the broader population is evident. One participant noted that for many migrants, there is social pressure to conform.

Table 1: Participant characteristics (n=20)

	Number (%)
Profession	
General practitioner (GP)	3 (15%)
GP—an authorised hepatitis B S100 prescriber	6 (30%)
Nurse	4 (20%)
Medical specialist	3 (15%)
Hospital-based interpreter	3 (15%)
Social worker	1 (5%)
Demographics	
Female	11 (55%)
Works in Greater Geelong	15 (75%)
Works in the BSW outside Greater Geelong	5 (25%)

BSW = Barwon South West.

> *If you're looking at somebody with hepatitis B, they are often from a non-English-speaking background, born abroad, health literacy is different; health values are different. They are a little bit on the back foot in regional Victoria, where you're just … keeping your head down and working hard (Participant 12).*

In the BSW, reduced resources for settlement services and support for migrants and refugees over the past few years have directly affected healthcare provision. As one GP stated,

> *There is not as much support in the community for refugees as there used to be … I've only got a couple of [refugee patients] … I'm their social worker … it's just too much work (Participant 4).*

In Australia, Medicare is the publicly funded healthcare system providing residents with access to a wide range of health services at little to no cost. Limited access to Medicare due to immigration status is a significant barrier to healthcare for many migrants.

> *There's a significant number of people that come to work in certain industries for finite periods of time in regional Australia that do not have Medicare cards, and they definitely come from areas in which there's significant hepatitis B endemicity (Participant 3).*

One participant noted that within specific cultural groups, support to access health care is often provided within community.

> *They ask each other for help … if one person's already been [to the liver clinic], then they will take the new patients … even though they don't speak the language [English], they go together (Participant 11).*

General practice-related challenges impacting the delivery of hepatitis B clinical management

People with hepatitis B require regular, ongoing clinical monitoring, with GPs recognised as pivotal to increasing access to community-based care. Limited healthcare alternatives in rural communities require GPs to provide a broad range of complex services affecting the priority and willingness to be upskilled in issues such as hepatitis B.

> *All these other things that GPs don't usually need to do in [the city] I have to do here [regional area], like, voluntary assisted dying, medical termination, all this extra stuff that we always had other people to help us (Participant 9).*

Participants agreed that expectations on GPs to deliver a broad range of specialised health care were seen as overwhelming. Hepatitis B is one of many health conditions, perceived to be in the specialist medical domain.

> *A lot of stuff is getting pushed to GPs, like ADHD [attention deficit hyperactivity disorder] … we're being asked … to carry a lot of these specialised areas which just feels overwhelming (Participant 4).*

There was strong consensus among GPs that hepatitis B is uncommon, which affected their confidence, and opportunity to regularly utilise their hepatitis B knowledge.

> *[Hepatitis B is] not something you do on a regular basis like hypertension or diabetes or chlamydia … that you know things inside out … if someone present[s] [with hepatitis B] today … I probably have to look up the guideline on what protocol I need to follow (Participant 2).*

Even for S100 prescribers, with their evident commitment to providing decentralised hepatitis B care, the low hepatitis B prevalence and uncommon nature of the infection meant they had limited prescribing experience.

I am a prescriber, but because of that low prevalence, I haven't initiated [anyone on hepatitis B] treatment (Participant 20).

Ensuring that resources such as Health Pathways (a platform that contains locally agreed information to support patient care and referral),[22] are maintained and contain relevant information to support GPs to manage hepatitis B is critical when contact with hepatitis B is uncommon.

I look at HealthPathways because I have a memory like a sieve … it's the localized recommendation for what to do (Participant 4).

Potential enablers to providing hepatitis B services within low-prevalence settings

One study objective was to identify interventions supporting the delivery of decentralised, community-based hepatitis B care in the BSW region. GPs were asked about their experiences in managing patients with other chronic diseases to identify activities that support primary care management.[23] One participant highlighted learnings from hepatitis C.

There was a form that we sent [to the liver clinic] … and we could tick a box—do you feel confident to do this [write a hepatitis C script], or do you need them to be seen in liver clinic? … that would be really useful in hepatitis B (Participant 5).

The following enabling interventions were identified by participants:

- Access to a specialist nurse to support GP management of hepatitis B.
- Shared care and/or telehealth arrangements between a medical or nursing specialist and the GP.
- Community of practice led by the specialist service.
- Auditing the patient management software to identify people at risk.
- Placement in the liver clinic to build relationships and prescriber confidence.
- Incentives to engage practitioners in hepatitis B care.

Access to specialist nursing support

Three hepatology nurses were interviewed for this study: two were liver clinic–based and the other had an outreach focus. The outreach nurse described the unique elements of a nurse-led model of care:

My job is to value add to their initial consultation … provide additional education … remind them to do their blood tests, talk about [hepatitis B and] their families, their sexual partners, partner vaccinations, children being born. I fill in all that stuff that the physician doesn't have time to do in their 15-minute consult (Participant 12).

The outreach nurse was viewed positively by other participants as they had the skills and time to develop relationships with patients, which supported life-long chronic disease management.

Nurse-led clinics … they're brilliant … their knowledge of the patients, their social story, their background ... I would go to [nurse name] and say, "Hey, I'm about to see [patient name], can you tell me a little bit about what I can expect?" (Participant 20).

Similarly, the liver clinic nurses provided hepatitis B case management. In the BSW, all new hepatitis B patient referrals attend a nurse-led education session prior to their liver clinic appointment to equip patients with an understanding of hepatitis B and enable them to better engage in clinical management.

We take a case management role where we keep the patients engaged in their health and … hepatitis B surveillance; so whether it's 6 monthly or 12 monthly … they have a lot of input from the nursing staff within the clinic to get to those appointments (Participant 6).

Telehealth

Effective interpersonal relationships between clinicians in regional areas supports the delivery of decentralised care. Building relationships between medical specialists and nurses at the liver clinic, and the S100 GPs and other interested practitioners benefits patient care. One way to build sustainable relationships, and improve knowledge, was for GPs to be resourced to spend a session in the liver clinic.

Last year, I spent 3 days in the intensive care unit in Geelong … to pick up those skills that we can bring back here [to general practice]. [I'd really like to spend time] in the liver clinic ... I would apply for medical [CME] funding for rural doctors (Participant 9).

Once effective relationships have been developed with the liver clinic, two participants noted that it would become easier to facilitate ongoing interactions to support patient management.

I know I can always call the [liver clinic] … if there's ever any questions or concerns; I can talk to them, and they will give me very good guidance very quickly (Participant 20).

I've got a handful of GPs that will just pick up the phone … "I've got the patient in front of me, what do I need to write on that form again?" (Participant 12).

Seeking specialist advice via telehealth has been encouraged after the pandemic, with Medicare item numbers supporting this activity,[24] and was regularly used by participants.

It depends on how one structures it [telehealth] and who's at the other end of the telehealth arrangement. Whether it's telehealth to an individual [patient] or an individual and a healthcare practitioner … I've had a range of experiences (Participant 3).

One participant working in a remote location in the BSW region used telehealth as standard practice to access specialist advice.

We use telehealth for various reasons. Mostly with medical specialists … if we have someone that needs follow-up, we will use telehealth (Participant 13).

There are opportunities to use telehealth to build the capacity of regionally based healthcare workers, with the view to delivering hepatitis B care closer to home.

Maybe there are opportunities with … telehealth. At one end, the practical team like me [GP prescriber] and the patient who is elsewhere … including the outreach nurse and supporting our [practice] nurses to get involved (Participant 20).

Shared care

Shared care is a formal arrangement between a specialist and another practitioner, in this case between the liver clinic doctors and nurses, and a GP who may or may not be an S100 prescriber. Hepatitis B care could be delivered through a shared care arrangement, as one GP noted.

One lady who I referred to the [metropolitan liver clinic] with hep B … she just required monitoring, so the physician discharged the

patient to me for … monitoring because she didn't need to see them, so I was co-managing her (Participant 2).

There are obvious benefits of shared care arrangements for patients, specialist services and practitioners.

We support the liver clinic, the patient would need fewer appointments with the liver clinic if we managed the monitoring of their disease (Participant 7).

Developing a hepatitis B community of practice

Several participants identified a hepatitis B community of practice as way to engage new prescribers and support existing prescribers and interested practitioners to retain skills and develop confidence. Several formats for how a community of practice could be delivered were described.

Creating small networks on WhatsApp is really … good for deidentified case sharing. Asking the group "What would you do with this case?" or "how would you manage this patient?" (Participant 19).

Participants described their vision for a hepatitis B community of practice to maintain currency with the latest evidence for patient management.

Meet once a quarter or something and talk about the challenges of hepatitis B management (Participant 4).

Patient identification strategies

One practical strategy to inform the priority attached to hepatitis B in a low-prevalence setting was to identify patients with/at risk of hepatitis B through patient management software auditing. Leveraging general practice CME cycles could help define the burden of hepatitis B in BSW clinics.

There's more interest in [auditing] because of the new CME requirements that require GPs to do more auditing as part of their annual cycle (Participant 7).

Indeed, the outreach nurse believed that supporting general practice staff members, including GPs and nurses to conduct patient audits, were a part of their role.

I would love to do a software audit in all practices … generate a list of patients—people born overseas, people with abnormal liver function, people with family history of liver cancer … check that they have all been screened for hep B (Participant 12).

Discussion

Hepatitis B is a clinically complex and dynamic infection that is the source of significant liver disease and related morbidity and mortality. It could be argued that most of Australia has a low hepatitis B prevalence with pockets of higher prevalence in metropolitan areas.[1] According to the Viral Hepatitis Mapping report (2024), all regional and rural areas defined by primary health network have a treatment uptake below the national average of 12.9%.[1] Delivering hepatitis B care through decentralised, community-based models in low-prevalence settings must consider the needs of patients and the healthcare workers delivering the care, given the rarity of the condition within these contexts.

It is not appropriate for low-prevalence areas like the BSW to implement clinical service models used in areas of higher prevalence where there is significant cultural diversity in the affected population. Adoption of a micro-elimination response that accounts for the nuance of the region and creating a supportive and enabling environment to raise hepatitis B awareness, increase screening of people at risk and link people to monitoring and treatment is required.[25] Decentralised care is critical to ensuring broad access and delivery of culturally appropriate services in settings close to where people with hepatitis B live.[2,3,26]

The GPs involved in this study, both prescribers and non-prescribers, were enthusiastic about delivering hepatitis B care but lacked confidence due to a low patient caseload. The rarity of hepatitis B in this region led participants to identify strategies to sustainably build their knowledge and confidence. Access to specialist nurses to provide guidance for clinicians, and supporting patients to adhere to monitoring and surveillance, will enable the transition of hepatitis B care from tertiary to primary care settings.[10] Without dedicated resources and systematic investment particularly in nursing outreach models, the transition from tertiary to primary care will be difficult to achieve.

Facilitating access to a range of information resources is a useful approach in low-prevalence settings; these resources are easily accessible and available in real time, with one participant noting the importance of being able to "phone a friend" for advice. Several participants discussed a mobile phone–based messaging group to enable communication about clinical scenarios could be formally supported by virtual meetings involving case presentations to elucidate discussion. Management of both these services would be in the specialist nursing domain, allowing for the provision of protocol-driven advice and escalation to a medical specialist as needed. Developing relationships between GPs, medical specialists and nurses underpin all these activities. Interestingly, several GPs expressed interest in spending time in the liver clinic to build their hepatitis B knowledge and familiarity with the staff. This approach has been previously used to facilitate the integration of hepatitis C, HIV and sexually transmissible infections' clinical management in primary care in the BSW.

There are opportunities to expand the scope of hospital-based nurses to provide community outreach clinics to alleviate pressure on the tertiary system and reduce the fail to attend rate, which is reported at between 20% and 30% in Geelong and other Victorian liver clinics. Li et al. (2024) described nurses' contribution to hepatitis B elimination covering patient education, case management, and formulating and implementing evidence-based care plans and care coordination.[9] Working at an advanced scope of practice and using protocol driven care, nurse-led clinics can enable multiple service delivery options to engage people with hepatitis B in chronic disease management.

The BSW region has made significant progress towards eliminating hepatitis C, which was achieved by strategically and systematically engaging GPs and other community-based health services in elimination interventions.[27,28] There are significant differences between hepatitis B and hepatitis C relevant to the elimination discussion. Hepatitis C is curable,[29] whereas hepatitis B is a chronic condition that requires life-long engagement in clinical surveillance, with or without treatment.[30] People with hepatitis C can often be found attending alcohol and other drug services related to their experience of injecting drug use; people with hepatitis B can be harder to engage, given the asymptomatic nature of the infection and its intersection with culturally and linguistically diverse communities, particularly where regions experience low cultural diversity, these factors can affect and often reduce healthcare access.[31]

Achieving health equity for people with hepatitis B in the BSW region is hindered by several factors, including cultural diversity, reduced funding for settlement support services, affecting health system

navigation support, lack of access to Medicare services due to visa restrictions, limited interpreter services and other intersectional challenges.[31] To address these issues, it is essential to monitor cultural diversity and settlement patterns whilst strengthening workforce capacity and health infrastructure to ensure services remain responsive to the evolving needs of the community.

This study has limitations related to participant recruitment and interview methods. There is an inherent potential for bias when participants volunteer to participate in a study such as this; people choosing to be involved may be more motivated to share their thoughts and/or potentially hold different views compared to those who do not participate. To counteract this, the team attempted to recruit participants from various roles across the BSW region. To mitigate the limitations of interviews, we used multiple interviewers and a standardised interview guide. Whilst some findings of this study could be applicable to other low-prevalence settings in Australia, other aspects are specific to the BSW region.

This project sought to explore enablers of a decentralised hepatitis B community-based model of care in a low-prevalence setting informed by the perspectives of local healthcare workers. In doing so, we propose that low-prevalence regions in Australia have unique challenges regarding workforce development, capacity building and delivery of clinical services, compared to higher-prevalence settings. In higher-prevalence settings, there's typically a demand for healthcare workers with expertise in hepatitis B management, which extends to nurses and allied health workers such as refugee and migrant services. In contrast, in low hepatitis B prevalence settings, healthcare workers need to be knowledgeable about hepatitis B, but the demand is likely to be comparatively lower. The findings and implications of this study demonstrate that GPs are keen to provide hepatitis B care in low-prevalence primary care settings but acknowledge the need for support, which may be useful to guide other low-prevalence regions in their efforts to eliminate hepatitis B.

Conflicts of interest

The authors declare the following financial interests/personal relationships which may be considered as potential competing interests: Dr Christine Roder reports financial support was provided by Gilead Sciences Inc. This study received ethics approval from the Barwon Health Research Ethics Committee (HREC/98114). Dr Christine Roder was awarded a Gilead Fellowship Grant in 2023, Deakin University, Institute for Mental and Physical Health and Clinical Transformation (IMPACT) Seed Grant and Centre for Innovation of Infectious Disease and Immunology research (CIIDIR) Seed Grant, which supported this project. The authors acknowledge the contribution to this work of the Victorian Operational Infrastructure Support Program received by the Burnet Institute. If there are other authors, they declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Ethics

This study received ethics approval from the Barwon Health Research Ethics Committee (HREC/98114).

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References

1. MacLachlan JH, Romero N, Purcell I, Cowie BC. *Viral hepatitis mapping project: hepatitis B national report 2022*. Darlinghurst, NSW, Australia: ASHM; 2024. https://ashm.org.au/vh-mapping-project/. [Accessed 16 August 2024].
2. Hosking K, Binks P, De Santis T, Merrdi Wilson P, Garambaka Gurruwiwi G, Mariyalawuy Bukulatjpi S, et al. Hep B PAST partnership. Evaluating a novel model of hepatitis B care, Hep B PAST, in the Northern Territory of Australia: results from a prospective, population-based study. *Lancet Reg Health West Pac* 2024;**48**:101116. https://doi.org/10.1016/j.lanwpc.2024.101116.
3. Australian Government Department of Health. *Third national hepatitis B strategy 2018–2022*. Australian Government Department of Health; 2018. p. 15–6. https://www.health.gov.au/resources/publications/third-national-hepatitis-b-strategy-2018-2022?language=en. [Accessed 16 August 2024].
4. MacLachlan JH, Cowie BC, Romero N. Australia falling behind on hepatitis B elimination targets. *Insight* 2024; Issue 7/26 February.
5. Sievert K, Liddle R, Tan A, Arachchi N, Valaydon Z, Allard N. Promoting hospital and primary care collaboration for timely and effective care for chronic hepatitis B in western Melbourne. *Aust Health Rev* 2020;**44**:521–6. https://doi.org/10.1071/AH19135.
6. Guirgis M, Nusair F, Bu YM, Yan K, Zekry AT. Barriers faced by migrants in accessing healthcare for viral hepatitis infection. *Intern Med J* 2012 May;**42**(5):491–6. https://doi.org/10.1111/j.1445-5994.2011.02647.x.
7. Wallace J, Richmond J, Allard N, Howell J, Adamson E, Xiao Y, et al. Facilitating hepatitis B clinical management in general practice: a qualitative investigation. *Aust J Gen Pract* 2020 Sep;**49**(9):599–604.
8. Richmond JA, Sasadeusz J, Temple-Smith M. The role of primary health care in hepatitis B testing and management: a case study. *J Community Health* 2018 Feb;**43**(1):38–47. https://doi.org/10.31128/AJGP-02-20-5225.
9. Li C, Zhang M, Karthijekan K, Fu X. How nurses contribute to the elimination of hepatitis B? A systematic review and meta-analysis. *Int J Nurs Stud* 2024;**149**. https://doi.org/10.1016/j.ijnurstu.2023.104622.
10. Pritchard-Jones J, Stevens C, McCaughan G, Strasser S. Feasibility, acceptability and safety of a nurse led hepatitis B clinic based in the community. *Collegian* 2015;**22**(2):233–40. https://doi.org/10.1016/j.colegn.2015.03.002.
11. Robotin MC, Masgoret X, Porwal M, Goldsbury D, Khoo C, George J. Using a chronic hepatitis B Registry to support population-level liver cancer prevention in Sydney, Australia. *Clin Epidemiol* 2017 Dec 21;**10**:41–9. https://doi.org/10.2147/CLEP.S146275.
12. O'Leary DA, Cropp E, Isaac D, Desmond PV, Bell S, Nguyen T, et al. 'B in IT': a community-based model for the management of hepatitis B patients in primary care clinics using a novel web-based clinical tool. *Hepatol Med Policy* 2018;**3**(1):1. https://doi.org/10.1186/s41124-017-0031-2.
13. Hepatitis B Consensus Statement Working Group. *Australian consensus recommendations for the management of hepatitis B infection*. Gastroenterological Society of Australia; 2022. https://www.gesa.org.au/resources/clinical-practice-resources/. [Accessed 16 August 2024].
14. ASHM Health. Prescriber program. Accessed August 16,2024. https://ashm.org.au/prescriber-programs/.

15. Cooke GS, Andrieux-Meyer I, Applegate TL, Atun R, Burry JR, Cheinquer H, et al. Accelerating the elimination of viral hepatitis: a lancet gastroenterology & hepatology commission. *Lancet Gastroenterol Hepatol* 2019 Feb;**4**(2):135–84. https://doi.org/10.1016/S2468-1253(18)30270-X.
16. Allard N, Cabrie T, Wheeler E, Richmond J, MacLachlan J, Emery J, et al. The challenge of liver cancer surveillance in General practice: do recall and reminder systems hold the answer? *Aust Fam Physician* 2017; Nov;**46**(11):859–64.
17. Australian Bureau of Statistics (ABS). *The 2021 census. Canberra, ACT*. 2021. https://abs.gov.au/census/find-census-data/quickstats/2021/CED802. [Accessed 16 August 2024].
18. Braun V, Clarke V. Toward good practice in thematic analysis: avoiding common problems and be(com)ing a knowing researcher. *Int J Transgend Health* 2022; **24**(1):1–6. https://doi.org/10.1080/26895269.2022.2129597.
19. Braun V, Clarke V. Using thematic analysis in psychology. *Qual Res Psychol* 2006; **3**(2):77–101. https://doi.org/10.1191/1478088706qp063oa.
20. *Lumivero. NVivo (version 14)*. 2023. www.lumivero.com. [Accessed 17 May 2024].
21. Khatri RB, Assefa Y. Access to health services among culturally and linguistically diverse populations in the Australian universal health care system: issues and challenges. *BMC Public Health* 2022;**22**:880. https://doi.org/10.1186/s12889-022-13256-z.
22. Health Pathways. *What is health pathways?*. http://www.healthpathways community.org/About, 2024. [Accessed 26 April 2024].
23. Wade AJ, McCormack A, Roder C, McDonald K, Davies M, Scott N, et al. Aiming for elimination: outcomes of a consultation pathway supporting regional general practitioners to prescribe direct-acting antiviral therapy for hepatitis C. *J Viral Hepat* 2018;**25**. https://doi.org/10.1111/jvh.12910.
24. Medicare Benefits Schedule (MBS) Online. MBS Telehealth Services - from 1 January 2024. Accessed May 6, 2024. https://www.mbsonline.gov.au/internet/mbsonline/publishing.nsf/Content/Factsheet-Telehealth-Updates-April202023.
25. Abbas Z, Abbas M. Challenges in formulation and implementation of hepatitis B elimination programs. *Cureus* 2021;**13**(4):e14657. https://doi.org/10.7759/cureus.14657.
26. Wade A, Inthavong P, Beavon E, Bohora S, Pe T, Clarke N, et al. Viral hepatitis notifications: an assessment of place-based management in Victoria. In: *Abstract book for the communicable diseases and immunisation conference*; 2024. p. 226. 11-13 June; Brisbane, Australia.
27. Roder C, Nguyen P, Harvey C, Wardrop M, Finlay J, Ogunleye L, et al. Psychiatrists can treat hepatitis C. *J Viral Hepat* 2021 Dec;**28**(12):1763–4. https://doi.org/10.1111/jvh.13622.
28. Wade AJ, Doyle JS, Draper B, Howell J, Iser D, Roberts SK, et al. In support of community-based hepatitis C treatment with triage of people at risk of cirrhosis to specialist care. *J Viral Hepat* 2021 Jan;**28**(1):217–8. https://doi.org/10.1111/jvh.13391.
29. Hepatitis C Virus Infection Consensus Statement Working Group. *Australian recommendations for the management of hepatitis C virus infection: a consensus statement*. Melbourne: Gastroenterological Society of Australia, 2022; 2022. https://www.gesa.org.au/resources/clinical-practice-resources/. [Accessed 16 August 2024].
30. Jeng W-J, Papatheodoridis GV, Lok ASF, Hepatitis B. *Lancet* 2023;**401**(10381): 1039–52. https://doi.org/10.1016/S0140-6736 (22);1468-4.
31. Lemoh C, Xiao Y, Tran L, Yussf N, Moro P, Dutertre S, et al. An intersectional approach to hepatitis B. *Int J Environ Res Publ Health* 2023;**20**(6):4879. https://doi.org/10.3390/ijerph20064879.