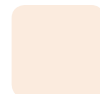




Investigating General Practice and Hepatitis B





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Executive Summary

There is an increasing burden on the community resulting from chronic hepatitis B infection. General Practitioners (GPs) are essential in reducing this burden given strong evidence showing that the early detection, follow-up and treatment of chronic hepatitis B can slow the progression to liver failure and reduce the chance of being diagnosed with liver cancer. The Australian *National Hepatitis B Strategy 2010-2013* describes 'general practice as part of a healthcare team... central to the healthcare experience of people living with chronic hepatitis B.' Given indications of a less than optimal response to chronic hepatitis B by GPs in Australia, this study conducted qualitative interviews with 26 GPs to identify their understanding of their role, and perspectives on the barriers and challenges to the effective diagnosis and management of chronic hepatitis B in general practice.

The GPs who participated in the study had been practicing for between three and 37 years with most working for ten years or more, and eight having practiced for over 30 years. About two-thirds of the participants communicated with their patients in at least one language other than English, with most speaking one or several Chinese languages, and Vietnamese. The number of patients with chronic hepatitis B cared for by the GPs was estimated to range from at least four patients, with 13 GPs caring for over 30 patients, including five GPs who cared for more than 100 patients.

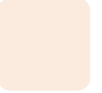
Participants recognised the fundamental role GPs have in managing chronic hepatitis B with several stating that as a primary provider of health care in the community, GPs are uniquely positioned to support the screening and life-long monitoring of the infection. The recurring interaction between GPs and patients can lead to the establishment of trusting therapeutic relationships that often continue after patients have been referred to a tertiary service.

GP knowledge about chronic hepatitis B was identified as a key challenge for providing an effective clinical response. Almost all GPs identified a need for further education. Knowledge deficits related to the changes in specialist practices over the past decade as a result of a better understanding of the natural history of hepatitis B and improved treatment modalities.

There were significant challenges identified by GPs in screening and diagnosing patients with hepatitis B. Most GPs reported not using screening protocols or official guidelines to direct screening decisions, with several expressing a need for an inclusive consensus based screening protocol. Only a minority of GPs conducted a comprehensive pre-test and post-test discussion as a part of the diagnosis process.

While there was a clear understanding from the GPs of a need for professional development, it was also acknowledged that the lack of patient education and community understanding about hepatitis B fundamentally affected their work. While few GPs provided information about the infection to patients that they had diagnosed, they identified that poor knowledge and a lack of understanding about the impact of infection affected adherence to clinical management such as regular monitoring and/or treatment.

GPs involvement in the regular monitoring of patients with chronic hepatitis B was affected by their capacity to have meaningful involvement in the clinical management of patients, the understanding of patients about chronic disease management, treatment expectations, and an effective recall system. Inconsistency in monitoring practices were reported with only a minority of GPs using hepatitis B virus DNA viral load testing, and only one participant reporting monitoring patients who were hepatitis B e antigen negative or positive. Three GPs indicated that they referred all their patients with chronic hepatitis B to a specialist given a lack of confidence in their knowledge and skills around hepatitis B.



There was diversity in the views of participants about the involvement of GPs in treating chronic hepatitis B. Most participants were willing to be involved in treatment with chronic hepatitis B, and several suggested that this model was inevitable given the limited resources and capacity of liver clinics. Some participants believed that while a specialist should initiate treatment, GPs could play a role in continuing treatment. There is a discrepancy in current prescribing rights where GPs who are permitted under the S100 Pharmaceutical Benefits Scheme to prescribe a drug used in both HIV and in hepatitis B treatment, are unable to prescribe this same drug for hepatitis B mono-infection.

Almost all participants regardless of their perspective about GP involvement in treatment emphasised a need for training and specialist support.

The context of the relationship between general practice and public hospital liver clinics is primarily informed by a lack of a consensus based referral pathway specifically providing advice to GPs. Several GPs expressed a need for expert advice when facing complicated cases within their practice, however most stated that there was no effective or accessible process for this to occur. The adequacy and timeliness of feedback from the public hospital system about patients who had been referred to these services concerned several participants. Providing specific and detailed information about the clinical management of patients who had been sent to specialist clinics was identified as important for the professional development of GPs.

The role of general practice was described as including more than diagnosing, monitoring and referral, and included mediating between patient, specialist and the hospital and health system. This broader role included preparing patients for procedures such as liver biopsy and providing information about treatment options, and ongoing support of the patients after the specialist appointment. This ongoing support included answering questions that patients were unable to ask specialists or that had been inadequately explained.

Systematic challenges to the role of GPs in chronic hepatitis B related primarily to the administration of Medicare. These challenges include:

- The financial benefit of conducting shorter rather than long consultations affected the willingness of GPs to spend the time to ensure that people with chronic hepatitis B understood the implications of the infection
- A fear of being audited by Medicare for over-servicing of patients, particularly for GPs caring for large numbers of patients born in high or intermediate prevalence countries
- The administrative requirements of the GP Management Plan (GPMP) for chronic diseases, and for some GPs, an ethical question that participation in this plan implies.

Few GPs described stigma as a significant issue in relation to their role in hepatitis B. This perspective resulted from the high prevalence of chronic hepatitis B within particular communities and the inter-generational and familial nature of hepatitis B for most people with chronic hepatitis B.

This qualitative study provides useful insights for policy development by describing how GPs see their role in relation to chronic hepatitis B and the challenges from their perspective to an effective public health response to chronic hepatitis B. There are limitations to this type of study with the number of individuals interviewed and the nature of their self selection. The qualitative data describes the context and subtleties affecting how general practice understands and responds to chronic hepatitis B, including barriers and challenges affecting this response.



The findings of this study support the development and implementation of a range of interventions including:

- Comprehensive and accessible education including screening, diagnosis and clinical management protocols particularly targeting GPs working with the communities most at risk of infection with chronic hepatitis B
- An evidenced based screening protocol, developed in partnership with GPs, specialists and representatives of communities most affected by chronic hepatitis B, with specific guidance addressing concerns of GPs about auditing by Medicare for the over-servicing of patients
- A nationally consistent chronic hepatitis B pre and post test protocol that provides guidance to GPs and other health care workers about patient education and support
- A model of care for general practice that increases access to clinical management for people with chronic hepatitis B
- Community development interventions and educational resources describing chronic hepatitis B and its impact, targeting the communities most affected by the virus
- A clearer articulation of the role of General Practitioners in future national strategic responses to chronic hepatitis B.



Introduction

General Practitioners (GPs) are often the first health professional consulted by people with chronic hepatitis B and they play a central role in the clinical management of the infection. GPs are essential in ensuring that people with hepatitis B understand and can respond effectively to their infection.

While the *National Hepatitis B Strategy 2010-2013*¹ identifies a central role for general practice in managing chronic hepatitis B, there has been little focus on the constituent elements of this role particularly when compared to the general practice role described for the management of hepatitis C or the human immunodeficiency virus (HIV). This study sought to provide evidence to help in implementing an effective public health response to chronic hepatitis B by exploring how GPs understand their role, and to identify the barriers to the effective clinical management of chronic hepatitis B in general practice. This included:

1. Identifying the barriers and challenges to the effective diagnosis, and clinical management of people with hepatitis B by GPs
2. Determining where the response to hepatitis B from the perspective of the GPs can be strengthened, and ascertain how this could occur
3. Developing insight in how GPs address and are challenged by cultural and linguistic diversity
4. Identifying where support is or could be provided to GPs to effectively respond to hepatitis B.

This study documented the perspectives and understandings of GPs about hepatitis B and people with chronic hepatitis B, rather than assessing the clinical practice of individual GPs.



Background – Hepatitis B in Australia

It is estimated that 170,000 people live with chronic hepatitis B in Australia,² with almost half of these people being born in highly endemic countries of the Asia-Pacific region (49%) with other high-risk groups including people born in other endemic regions (22%) and Indigenous Australians (16%).³ Other groups disproportionately affected by chronic hepatitis B are people who inject drugs and men who have sex with men who respectively account for 5% and 8% of chronic infections.³

The number of people dying as a result of chronic hepatitis B, and the number of cases of hepatitis B-related liver cancer in Australia are increasing despite improvements in antiviral therapy.⁴ The hepatitis B virus is difficult to eradicate and while only a small proportion (2%) of people with chronic hepatitis B receive treatment,² these treatments are increasingly able to control replication of the virus and reduce liver disease progression.

GPs are essential in the public health response to chronic hepatitis B given their established role within the community. There is strong evidence that the early detection, follow-up and monitoring of chronic hepatitis B can slow the progression to liver failure and reduce the development of hepatocellular carcinoma (liver cancer).^{5,6}

Epidemiology

Limited epidemiological data are available in Australia that describe the impact of hepatitis B. Serological surveys indicate a prevalence of chronic hepatitis B (surface antigen positive/HBsAg+) of between 0.5 and 2.1% in the general Australian population, with between 6.1 to 9.4% of the population having been exposed to the virus (hepatitis B core antibody positive/HBcAb+).^{3,7,8} It is estimated that the ongoing immigration of people from highly endemic countries will continue to increase the number of people with chronic hepatitis B in Australia.⁹

Two Australian hospital-based studies found that 70% and 82% of their patients with chronic hepatitis B were born overseas, and primarily from the Asia Pacific region.^{10,11} Another study using antenatal hepatitis B screening results in the Central Sydney Area Health Service from 1996 to 1999 reported a hepatitis B surface antigen prevalence of 4.9% and 5.4% among women born in North-East and South-East Asia respectively, compared to 2.3% prevalence among Indigenous Australians and 0.2% prevalence among non-Indigenous Australian born women.³ A hepatitis B surveillance report from Victoria highlights changes in hepatitis B notifications by country of birth in recent years, with African-born cases of chronic hepatitis B increasing from 1% in 1998 to 36% in 2008.¹² The relationship between chronic hepatitis B and ethnicity has a geographical impact with a Victorian serological survey conducted in 1995, 2000 and 2005 showing localities with a high proportion of residents born overseas also having high hepatitis B prevalence.⁷

Burden

Hepatitis B was the underlying cause of 46 deaths per 10,000 person-years from 1990 to 2000 in Australia with the mortality ratio among people with chronic hepatitis B being 1.4 times greater than in the age and sex adjusted general population.¹³ The number of people dying as a result of chronic hepatitis B in Australia is projected to increase from 450 per year in 2008 to 1,550 per year in 2017 with the total direct costs estimated to increase to \$2.4 billion by 2017.⁴

Chronic viral hepatitis is the leading cause of hepatocellular carcinoma in Australia with incidence reported as 6.5 per 1000 among people with chronic hepatitis B, a rate 30 times higher than that in the general Australian population.¹⁴ Incidence of hepatocellular carcinoma in New South Wales (NSW) increased in men (53%) and women (78%) between 1999 and 2008,¹⁵ with 67% of patients with hepatocellular carcinoma referred to a tertiary hospital between 1995 and 2002 born overseas, predominantly in Asian or Mediterranean countries.¹⁶ Another study reported an increase of hepatitis B-related hepatocellular carcinoma among people born in Asian-Pacific countries from one in 1960, to 140 in 2005 with a projected increase to 250 in 2025.¹⁷



Chronic hepatitis B prevalence in Aboriginal and Torres Strait Islander communities varies according to place of residence, with estimates ranging from 2% for urban populations to 8% for rural populations, with particular remote communities recording prevalence rates of up to 26%.¹⁸ The incidence of hepatocellular carcinoma has been reported to be five to ten times greater than that in the non-Indigenous population.¹⁹ A report from the Alice Springs Hospital identified that of all deaths of Aboriginal people in the hospital between 2000 and 2005, 2.9% were caused by end stage liver disease related to chronic hepatitis B, compared to none in non-Aboriginal patients.²⁰

A report of hepatitis B notification and hospitalisation rates between 1991 and 1995 indicates that Aboriginal and Torres Strait Islander people were four times more likely to die as a result of chronic liver disease and cirrhosis.²¹ Only two of 30 clinical specialists interviewed for the National Hepatitis B Needs Assessment (2007) reported ever providing clinical management for chronic hepatitis B to Aboriginal and Torres Strait Islander people, and when it was provided, it was late in the disease progression.²²

Natural History

Chronic hepatitis B natural history is characterised by four phases: immune tolerance, immune clearance, immune control and immune escape. These phases are the effect of interactions between the host and virus, and results in various presentations of hepatitis B virus DNA level, serological markers and liver enzymes.^{23, 24} The key characteristics of these four phases are illustrated in figure 1.

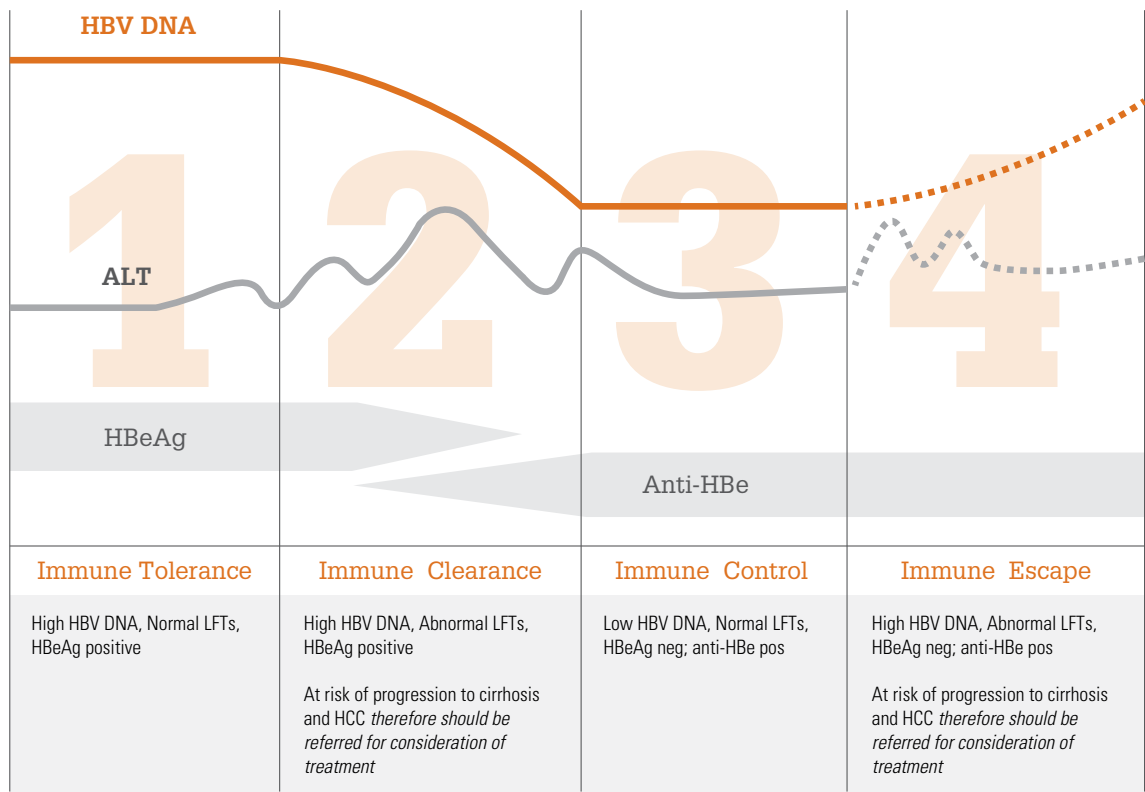


Figure 1: Description of four phases in chronic hepatitis B infection

* Source: Australasian Society for HIV Medicine, Decision Making in Hepatitis B



People in the immune tolerance phase (phase I) and immune control phase (phase III) are at a lower risk of developing advanced liver disease compared to people in the other two phases. People in the immune control phase – previously described as ‘inactive carriers’ – are usually characterised by low level hepatitis B virus DNA and normal liver enzymes. This group are at similar risk as uninfected controls for developing cirrhosis, hepatocellular carcinoma, and liver-related mortality over a 30-year follow-up,²⁵ although 10–20% may progress to the immune escape phase (phase IV) even after many years.²⁶ The risk of progression to immune escape highlights the need for the ongoing monitoring of people, who in this phase have an annual risk rate of 1% for developing cirrhosis and 0.5% for developing hepatocellular carcinoma.²⁷ People can progress to immune escape directly from immune clearance (10-30%) or from immune control (10-20%).²⁴

The goals of hepatitis B treatment are to eliminate or permanently suppress viral replication and to reduce the risk of complications such as progression to advanced liver disease, cirrhosis or hepatocellular carcinoma. Currently available treatments for chronic hepatitis B include pegylated interferon, nucleoside analogues (Lamivudine, Entecavir), and nucleotide analogues (Adefovir, Tenofovir).⁵ Anti-viral agents can reduce hepatitis B viraemia by inhibiting viral replication, or immunologically enhancing the host through the action of interferons. Although loss of HBsAg is uncommon, occurring in only 3-8% of patients receiving interferon therapy and in <5% of patients receiving nucleoside/nucleotide analogue therapy,⁵ there is growing evidence that these drugs can decrease the risk of developing cirrhosis and hepatocellular carcinoma, and thereby improve long-term patient outcomes.⁶ Pre-treatment liver biopsy has until recently (November 2011) been required to access government funded treatment for chronic hepatitis B through the Australian Government Highly Specialised Drug S100 Scheme, and treatment is only available through specialist centres.

General Practice and hepatitis B

The Royal Australian College of General Practitioners (RACGP) describes general practice as providing “*person centred, continuing, comprehensive and coordinated whole person health care to individuals and families in their communities*”.²⁸ While there is strong evidence showing that the early detection, follow-up and treatment of chronic hepatitis B can slow the progression to liver failure and reduce the chance of liver cancer,^{5,6} there are indications of a less than optimal response to hepatitis B by GPs in Australia.

Two Australian studies using self-administered questionnaires provide an insight into GP knowledge about chronic hepatitis B. A study of 123 GPs in Sydney reported in 2010 that 30% of the GPs responding to the survey had never screened patients from non-English speaking backgrounds with the authors reporting gaps in GP knowledge related to chronic hepatitis B, particularly in understandings of natural history, diagnosis, treatment availability and management of pregnant or lactating women with viral hepatitis. Language difficulties were reported by most GPs as the main barrier in managing the populations with chronic hepatitis B, with a lack of culturally and linguistically appropriate resources for patients, and stigma attached to the diagnosis of hepatitis B reported as the other main barriers.²⁹

In another study, 70% of 95 GPs from Melbourne recognised the need to strengthen their skills in managing patients with chronic hepatitis B, with GPs who had been involved in caring for people with chronic hepatitis B for more than 5 years being less likely to indicate a need to develop their professional skills.²² There was evidence of confusion in interpreting serology results in this study with 29.5% of the GPs indicating that they would refer a patient who had received an HBsAb+ (hepatitis B surface antibody) result to a specialist: this result being an indicator of successful vaccination or resolved infection. A study of chronic hepatitis B surveillance in Victoria reported that only 37% of notified cases of chronic hepatitis B included information being provided from the GP who requested the test.¹² The result of these studies reflect the findings of several US studies reporting gaps in physician knowledge about the natural history and management of chronic hepatitis B.³⁰⁻³²



GPs in North America have been described as 'essential' in providing reliable and accurate health information to patients. Insights into patient perspectives show doctors being the most trusted source of information about hepatitis, with 78% of patients reporting that their doctors were their main source of information about chronic hepatitis B compared with 33% who relied on media, 18% on family, and 5% on school.³³ Another study reported similar findings among an Asian-American population with more than 90% of participants completely trusting the health information they received from their doctors.³⁴

Guidelines detailing clinical management for chronic hepatitis B have been developed by the European Association for the Study of the Liver,³⁵ the American Association for the Study of Liver Diseases,⁶ the Asian-Pacific Association for the Study of the Liver,³⁶ and the Gastroenterological Society of Australia.⁵ None of these guidelines acknowledge that most chronic hepatitis B infections are identified through general practice. Specific efforts have been made in recent years by organisations including the Australasian Society for HIV Medicine,³⁷ St Vincent Hospital (Melbourne), General Practice Victoria (GPV), and the Cancer Council New South Wales³⁸ to develop guidelines for GPs, although there is little understanding of GP awareness about these guidelines, particularly on a national basis.

Public health challenges in chronic hepatitis B

The complexity of the natural history of chronic hepatitis B and its prevalence in specific populations challenges the capacity of the health system to effectively deliver health care to affected people in Australia.

It is estimated that less than 2% of Australians with chronic hepatitis B in the immune tolerant or immune control phase are being clinically managed,³⁹ with one study documenting the perspectives of health professionals and policy makers on responses to chronic hepatitis B reported sub-optimal diagnosis as one of the main challenges in reducing the burden of chronic hepatitis B.⁴⁰

Several studies from Australia⁴¹⁻⁴³ and the United States⁴⁴⁻⁴⁸ highlight inadequate awareness and knowledge of hepatitis B among South-East Asian communities, with poor public knowledge about hepatitis B being associated with inadequate screening.^{44, 49} A study from the United States investigating diagnosis and management practices among primary care physicians reported that despite awareness of the high prevalence of chronic hepatitis B among the Asian-American community, universal screening was not practiced by most physicians.³² An Australian study from Melbourne using blood samples tested for the presence of hepatitis B and hepatitis C reported that while 9.5% of a population from a Laotian background were HBsAg+, 78% of them were unaware of their hepatitis B status even though they had been living in Australia for between 12-14 years, and most had been in contact with a health care provider (most frequently a GP) in the previous 12 months.⁴²

An Australian study of people with chronic hepatitis B conducted in 2007 indicated a significant lack of understanding about their infection with several people reporting an association between hepatitis B and poor sanitation, that hepatitis B progressed to HIV, and identifying hepatitis A, B and C as sequential levels of hepatitis.⁵⁰ Another study, investigating knowledge of hepatitis B in Chinese and Vietnamese communities in Brisbane, found that only 23% of Chinese and 32% of Vietnamese respondents knew that sharing food and drink did not transmit hepatitis B.⁴¹

These findings are replicated in other countries with a Canadian study investigating Canadian-Chinese patients with chronic hepatitis B reported that just over half of the participants (52%) believed that hepatitis B was transmitted by sharing food; 63% believed there were effective treatments for hepatitis B; only 30% knew that people with severe hepatitis B could have no symptoms, and only 30% of patients believed there was adequate education about hepatitis B in the Chinese community.³³



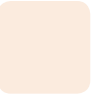
In the Australian context there is little systematic preparation for diagnosing people with chronic hepatitis B. One study, from the Australian Research Centre in Sex, Health and Society, found that most of the people with chronic hepatitis B interviewed did not recall providing consent to being tested for the infection, with several participants describing receiving a positive result as ‘shocking’, indicating a lack of preparation for receiving this result.⁵⁰ A study in Singapore using focus groups with GPs explored strategies for improving compliance among patients with chronic hepatitis B showed the importance of briefing patients to ensure the patients understood their condition and the purpose of regular disease monitoring. The participants in this study believed that the first consultation was critical in setting the right platform for patient education.⁵¹

There is evidence from North America that cultural and linguistic similarity between patient and health care provider is associated with greater patient participation in care by enhancing communication and adherence to instructions.⁵² An expert panel in the United States believed that limited proficiency in English was a large, if not the largest barrier to the effective management of chronic hepatitis B in the United States.⁵³ Failure to translate medical directives and jargon was identified as the main problem for non-Asian physicians in using interpreters with patients from the Asian American community.⁵⁴

Public education and awareness campaigns can play an important role in promoting hepatitis B screening and vaccination to high-risk communities with several culturally and linguistically appropriate programs reporting some success in improving hepatitis B related knowledge, as well as screening rates.⁵⁵⁻⁵⁷

There is limited and inconsistent evidence describing the existence and impact of stigma related to infection with hepatitis B. One study from the United States in 2008 reported 85% of Asian-American patients with chronic hepatitis B did not think that their condition differentiated them from other people; 90% felt no guilt about being infected with hepatitis B, and 80% indicated that their condition did not affect their ‘dating habits.’⁵⁸ On the other hand, one Canadian study reported in 2009 that around 70% of chronic hepatitis B patients felt ashamed about their illness with less than half (47%) were willing to discuss their illness with friends and family.³³ Another American study interviewing 59 patients in 2007 with chronic hepatitis B, during the content validation phase of a quality of life instrument, reported that chronic hepatitis B interfered with their social life with some people noting *“I am contagious and some people shy away from me”*; *“I cannot establish intimate relationships,”* or *“I feel that I’m less welcome to stay overnight or share the same bathroom at friends’ or relatives’ houses. Some people fear I might pass the disease to them.”*⁵⁹

Only one Australian study has noted stigma associated with chronic hepatitis B. This study, interviewing 20 people with chronic hepatitis B in 2007 found diverse experiences in participants disclosing their infection to their family and the broader community with one person stating *“I had nothing to hide because it was given to me from birth”* while another person reported *“I didn’t let my brother know because he’s only 10. I don’t want him to go to school and tell anyone because kids are kids. I don’t want to change his life”* as a result of people knowing his sister has hepatitis B.⁵⁰



Policy context

The *National Hepatitis B Strategy 2010-2013*¹ describes 'general practice as part of a healthcare team is central to the healthcare experience of people living with chronic hepatitis B,' and highlights the need for general practice to be involved in reducing the burden of chronic hepatitis B on the community. A series of Priority Action Areas are detailed in the strategy with GPs included in the 'building partnerships and strengthening community action' area; the 'optimising diagnosis and screening' area, and the 'clinical management of people with chronic hepatitis B' area. The strategy identifies the need to ensure that GPs are educated and able to understand issues related to chronic hepatitis B including pharmaceutical treatment and other aspects of its management. The strategy notes the need to improve the reporting of country of birth and Aboriginal and Torres Strait Islander status.

Specific activities described in the strategy affecting general practice include improving the awareness of GPs about hepatitis B; developing innovative models of care by increasing GP involvement; exploring options for GP prescribing of treatment; developing referral mechanisms to address patient clinical and psychosocial needs, and workforce and organisational development.



Methodology

Recruitment

A purposive recruitment strategy was designed to recruit GPs who self-identified as having a 'high caseload' of patients with chronic hepatitis B and/or reported having a particular interest in hepatitis B.

Organisations active in providing hepatitis B and/or GP related research, training or service delivery programs were approached to assist with recruitment by distributing invitations to prospective participants. Organisations and programs that assisted with recruitment included:

- Australian Chinese Medical Association (Victoria) Inc
- Australian Chinese Medical Association, South Australia
- Australasian Society for HIV Medicine
- Australian Vietnamese Health Professional Association of Victoria Inc
- B Positive project, Cancer Council New South Wales
- HIV and HCV Education Projects, School of Medicine, The University of Queensland
- Sexual Health, HIV, Hepatitis Education program, General Practice Victoria
- Sexual Health Society of Victoria
- Victorian Aboriginal Health Service.

In addition, five gastroenterologists and two infectious disease physicians who manage public hospital hepatitis or liver clinics in Victoria and NSW agreed to promote the study by distributing recruitment information to GPs who referred chronic hepatitis B patients to their clinics.

A publicly available database operated by the Australian Medical Association (Victoria) website, provides information on their members who speak languages other than English. GPs listed on the database as speaking the following languages were sent an invitation to participate in the study: Cantonese, Mandarin, Chinese, Foochow, Hakka, Hokkien (China, Taiwan), Shanghainese, Vietnamese, Bahasa Indonesia, Indonesian, Bahasa Malaysia, Malaysian, Malay (Malaysia, Indonesia, Thailand), Sindhi (Pakistan), Urdu (Pakistan, Afghanistan), Tagalog (Philippine), Yoruba (Nigeria, Benin, Togo), Swahili (East Africa, Somalia, Sudan), Arabic or Egyptian.

Potential participants were provided with an invitation to participate in the study, and an information sheet describing the rationale, objectives and methods of the study. The invitation contained a request for interested GPs to contact the project officer if they had questions or needed additional information about the project. GPs expressing an interest in participating in the study were followed-up by email, facsimile or phone. Further information was provided during the interview or upon request.



Interview process

Two of the researchers (JW and BH) conducted all interviews. The interviewers followed a semi-structured interview schedule with follow-up questioning to clarify responses or seek additional information when needed (Table 1). The schedule was revised as interviews progressed to enable researchers to investigate emerging themes and issues that could be explored in following interviews. Twenty-one interviews were conducted face-to-face with five interviews held by telephone. All interviews were conducted in English. The location of the interviews was determined by the participant and primarily occurred in the participants’ workplace and took between 30 and 50 mins. Participants were offered \$150 reimbursement for their time. Participants signed a consent form prior to the interview and were offered the opportunity to withdraw from the study.

The research protocol received formal approval from the La Trobe University Human Research and Ethics Committee.

Table 1: Semi-structured interview schedule

What prompts you to test a patient for hepatitis B?
Do you actively monitor patients with chronic hepatitis B? How?
What are your indicators for referring a patient with chronic hepatitis B to a specialist?
When do you think of referring a patient to a specialist?
Do you follow any particular guideline or protocol in testing patients for hepatitis B or referring patients with chronic hepatitis B to a specialist?
What should be the role of GP in the clinical management of patients with chronic hepatitis B?
What limits your role as a GP in the clinical management of patients with chronic hepatitis B?
From your perspective as a GP, what are the main challenges (barriers) to the effective involvement of GPs in the diagnosis and management of people with chronic hepatitis B?
Do you think the response to hepatitis B from the perspective of general practice needs to be strengthened?
What supports are or could be provided to GPs to strengthen their response to hepatitis B?
What would help GPs respond to people with hepatitis B more effectively?
Is there anything that could make you feel more confident about responding to chronic hepatitis B?

Data analysis

All interviews were electronically recorded and transcribed verbatim, with the transcripts read and broad themes identified as interviews progressed. This process allowed emerging concepts to be explored in subsequent interviews. No new themes arose by the end of the last two interviews, implying that saturation had been reached. Transcripts were read several times and data organised into codes from which concepts were identified and categories constructed. Each stage of transcribing and analysis was done by two researchers independently, and any discrepancies discussed by the team to reach consensus. Analysis was enhanced by constant comparison with the transcripts and available research in this field from the initial literature review.



Limitations

While insights can be achieved by using qualitative methodology including exploring the context and subtleties of the work of general practice in relation to chronic hepatitis B there are significant limitations in the data collected. In relation to the methodology, conducting qualitative interviews provides the opportunity to examine issues at depth, with the capacity to investigate nuances and complexities provided in interviews that are often missed by using quantitative methods such as questionnaires. The data collected however is limited to the people who have been interviewed and it is difficult to generalise the findings to a larger population.

In terms of the sampling, only four participants in our study worked with Aboriginal or Torres Strait Islanders, and while these GPs provided useful information, more studies need to be done to explore managing chronic hepatitis B in general practices mainly working with Aboriginal and Torres Strait Islander peoples. The vast majority of GPs who spoke with us worked in urban settings, with most working in Victoria and with only a small number of participants working in rural or remote areas.



Participant Characteristics

A total of 26 GPs from five Australian jurisdictions participated in the study. The background characteristics of participants and their practice profile are summarised in Table 2. Participants had worked in general practice for between three and 37 years with the majority working for ten years or more and eight having worked for over 30 years in Australia as a GP. About two-thirds of participants communicated with their patients in at least one language other than English, with the two major languages being one or several Chinese languages and Vietnamese. Participants were asked to estimate how many patients with chronic hepatitis B they cared for with responses ranging from at least four patients and five reporting more than 100 patients with chronic hepatitis B in their practice.

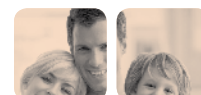


Table 2: Background and practice profile of participants (n=26)

Characteristics	Number
Gender	
Male	18
Female	8
Years working as a GP in Australia *	
Less than 5 years	2
5 to 15 years	9
16 to 29 years	7
30 years or more	8
Language spoken other than English	
Yes **	16
No	10
Australian jurisdiction	
Victoria	16
NSW	4
ACT	2
South Australia	2
Queensland	2
Practice location ***	
Metropolitan area	25
Regional or rural area	3
Practice type ***	
Private - solo	4
Private - group	14
Public	5
Community Health Centre	7
Major population cared for ***	
Culturally and Linguistically Diverse (CALD) communities	11
Refugees	6
People who inject drugs	6
Indigenous people	4
Men who have sex with men	3
University students	2
No specific group	3
Approximate number of patients with chronic hepatitis B in their practice	
Less than 10	5
10 to 30	8
31 to 99	8
100 and more	5

* Median: 18 years; Range: 3 to 37 years

** The following languages were spoken: Chinese dialects and/or Vietnamese (n=12); Pakistani (Urdu and Sindhi) (n=1), Tamil (n=1), Indonesian (n=1), Malaysian (n=1), Arabic (n=1), Persian (n=1), Pitjantjara (n=1). Several participants spoke more than one non-English language.

*** Some GPs work in more than one practice and were counted in more than one category.



Findings – Clinical Management

One GP was direct in describing the current role of general practice in chronic hepatitis B.

Diagnosis, monitoring and education probably are the main things at this point in time.^{GP15}

Knowledge

While this study was not intended nor designed to assess knowledge or clinical practice in relation to chronic hepatitis B, a key theme from the interviewed GPs was that the lack of knowledge about chronic hepatitis B was a key challenge in providing an effective clinical response. As one GP described, this lack of knowledge was *one of the biggest barriers*.^{GP2} It was noted during interviews that GPs with a high caseload of patients with chronic hepatitis B, for example over 50 patients, had a more accurate and confident understanding of hepatitis B compared to participants with lower caseloads.

Hepatitis B clinical practice has changed significantly in the past decade. A better understanding of the natural history of hepatitis B; the role of hepatitis B genotypes on disease progression and treatment response, and improved treatment modalities reflects the significant expansion in knowledge about chronic hepatitis B. The challenge of this evolution was recognised by several GPs.

What you learnt in medical school, whenever you went to medical school, is completely useless. Unless you've done some up-skilling on hepatitis B, you've got no idea about the virus, and about the current treatment options and the monitoring protocols.^{GP22}

One GP described the implications of the increasing knowledge about chronic hepatitis B on their practice and the impact this had on their clinical management of patients.

Because of ignorance I was not interested in following-up until once my eyes open and I realised that... you can prevent liver damage.

We keep on coming across patients we haven't seen for a while. And we flip through and find that in 1992... they had a serology and had hepatitis B e-antigen positive. We've just called them 'carriers' and we're not been actively managing them until the last couple of years, (after) realizing the changes in hepatitis B management.^{GP9}

In discussing the changing impact of chronic hepatitis B, one GP noted a continual underlying pressure on their work with an expectation from the health sector and the broader community generally that general practice is *the solution to just about any chronic disease ever*.^{GP9}

While hepatitis B was described by several participants as a complex disease, others challenged this perspective. In particular, several GPs identified that understanding natural history of hepatitis B was challenging, specifically in interpreting serology, and responding to the different phases of chronic hepatitis B. One GP caring for less than 10 people with chronic hepatitis B described their relationship in interpreting hepatitis B serology.

My own personal difficulty with interpreting hep B serology (is) over the years every now and then I will force myself to sit down and learn it. Then it is in one ear and out the other because I'm not putting it into practice.^{GP16}

One participant, with an interest in infectious diseases and who provided care for patients with hepatitis C and hepatitis B, made this comparison.

The way [hepatitis B] behaves seems to be more complex [than hepatitis C]... It's sort of some kind of process allows it to suddenly change from having normal LFT to something where they become abnormal and that's the time you have to treat them, I think but I am not completely sure.^{GP14}



Five GPs were clear that in the context of their clinical work, hepatitis B was not complex.

It is not complex at all. It's a very simple disease.^{GP3}

I manage mental health; I manage Methadone patients; I do diabetes. Compared to other chronic illnesses, it's not really that complex.^{GP20}

There was a perspective that while hepatitis B is challenging, it was described by one GP as *intellectually interesting actually. It could be actually framed as complex or engaging.*^{GP23}

A GP noted one resource that had been developed to assist general practice respond to patients with chronic hepatitis B.

There are very good resources now which actually basically step by step guide through... You can almost match the patient into a flowchart of where they are in the scheme of things and what you need to do. The one I use is the new hep B website which is really good... It's 'HepB Help' website (<http://www.hepbhelp.org.au>).^{GP7}

Eight participants used the terms 'hepatitis B carrier' or 'healthy carrier' to describe people in the immune control or immune tolerant phase of chronic hepatitis B. Terms such as these have been superseded given better understandings of serology and natural history. There were instances when the use of this term was associated with a poor understanding of current knowledge about chronic hepatitis B. One participant with 20 to 30 patients with chronic hepatitis B in their practice demonstrated a poor understanding of chronic hepatitis B natural history.

When he (patient) comes back you can tell him... "You are positive but not infectious," or "You are positive but you are not high risk, you are a 'carrier'."^{GP13}

On the other hand, the use of these terms did not necessarily signify ignorance or poor practice.

When they are carriers, of course I counsel them and I tell them that they need regular blood tests and also ultrasound.^{GP4}

There were other clear statements of confusion or inconsistency in the understanding of GPs about chronic hepatitis B. One participant with more than 20 years experience of caring for patients with chronic hepatitis B both in Australia and China attributed its transmission to cultural dietary practices and poor hygiene.

I sometime educate them (patients with chronic hepatitis B) not to use the spoon to drink, to scoop up things from the same plate, or to use serving spoons or forks.^{GP4}

The rationale for this advice was that *we're not sure whether it is transmitted because of the Chinese way of eating, I think that is one reason why [hepatitis B] is so common among Chinese.*

Several GPs reported that the evolving nature of knowledge about chronic hepatitis B increased the numbers of patients they referred to specialist services, particularly for general practices who only see small numbers of people with chronic hepatitis B.

It can be intimidating the amount of knowledge we have to keep up to date with. If you've got one or two hep B positive people, sometimes it's easier to refer them to specialist and master the skills of the people you predominately [see].^{GP7}

Several GPs acknowledged the diversity of health topics competing for their time affected their need to prioritise attendance at educational sessions which would be based on their interest or the prevalence of cases in their practice.

If you've got a practice with 2000 patients and you've got 20 with hep B and all the others have smoking disease or heart disease or diabetes, it's far more time efficient to maintain skills in dermatology and other areas rather than focusing on small niche group because the time investment is huge.^{GP7}



Many participants acknowledged that the demographic characteristics of the patient population and the number of patients within the practice living with a particular disease were the primary factors affecting how aware and knowledgeable a GP was of a specific health condition.

Diabetes, everyday you see many people... Hep B you are not seeing everyday.^{GP8}

I can imagine if I am a Caucasian, if most of my patients are Caucasians... I might not be thinking of the hepatitis B issue. But because my patients are mostly Vietnamese and Chinese who are in a high risk group, therefore I should be aware of that.^{GP18}

Another GP noted their lack of awareness about hepatitis B before commencing work with Indigenous communities in central Australia.

It was only when I got to central Australia that I became aware of [hepatitis B]... because I was working in Aboriginal health... When you were opening anybody's notes and you looked through their results and there would be hep B positive antigens.^{GP26}

Several participants linked the lack of hepatitis B awareness within the broader community public to the lack of GP knowledge and awareness.

[We should] not underestimate the importance of the public education campaigns to those communities. So that... it will get on the GP's radar because the patients will be coming and saying "I went to this thing," or "I read about this thing about hepatitis B."^{GP9}

Most GPs highlighted the need to increase the skills, awareness and capacity of general practice to manage patients with chronic hepatitis B given the lack of knowledge about chronic hepatitis B. It was noted by two GPs that hepatitis B had been neglected by various educational programs.

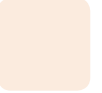
The number one thing is education of GPs. It's not happening and nothing is going to happen in hep B unless GPs get educated.^{GP22}

If you're not updated, you have gaps in your knowledge... As a result of these gaps GPs lose their confidence in dealing with hep B. It's a real effort for a GP like myself to try to get that knowledge and that experience... [hepatitis B is] unlike mental health, unlike other areas where GPs are fed information on a daily basis... Where do I source that information from?^{GP20}

Given the complexity of hepatitis B natural history and the variation in disease progression, several participants indicated their need to obtain expert advice about managing chronic hepatitis B when facing challenging cases.

GPs are often stuck for advice. The picture is often not classical. So you think to yourself then "Is it ok to keep doing what I am doing?" or "Is it really time for me to tell them to get back to the tertiary hospital clinic?" A lot of these questions could be resolved if you had somebody you could actually ring... Otherwise you feel a bit too isolated.^{GP1}

I have the interest [in hepatitis B] but your interest is not enough if you don't get the support and if you don't get the back up and if you don't get the people who you can liaise with.^{GP13}



Screening and Diagnosis

The successful identification and diagnosing of people with chronic hepatitis B is essential for reducing the personal and community impact of chronic hepatitis B. One GP noted that this was their most important role, *first and foremost is diagnosing hep B*.^{GP10}

For many of the GPs, testing for chronic hepatitis B occurred opportunistically. This was in comparison to the provision of clinical interventions that primarily occur in response to a request from a patient or in reaction to immediate needs.

Very rarely you get a patient who comes in for a hep B consultation. They usually come in for other things. If I do a serology, a base line screen, [and I say] "Do you realise you have hepatitis B?" Often it is secondary to... other things.^{GP12}

Except for three GPs working specifically in refugee health services, none of the participants used screening protocols or guidelines to identify the people or communities at risk of chronic hepatitis B who should be screened for hepatitis B. Instead, people were selected for screening based on the personal experience of the GP; the cultural breakdown of their practice, and individual knowledge of hepatitis B transmission. Several interviewed GPs were clear of what individuals and groups should be tested, *ethnic background basically, country of origin*.^{GP9}

Usually for Asian, I normally screen them as a part of routine test, especially new arrival migrants.^{GP10}

One GP working primarily with newly arrived refugees from Burma described their current screening processes and the rationale behind these processes.

I know that the prevalence in the Karen is very high... so as soon as a refugee comes to the door they get tested.^{GP1}

Other GPs did not seem aware of the epidemiology of chronic hepatitis B with one GP who had 15 patients with chronic hepatitis B reported they only tested people who planned to travel overseas. At the same time they recognised the familial nature of hepatitis B infection.

It is just a routine test when they want to travel overseas. We test for [hepatitis] A, B and C, so some of them we pick up that way. Sometime they learn about it and want to know it and then we just test it. When we test it, they will bring along the rest of the family because if it is positive we have to test the rest.^{GP3}

Participants who worked in drug and alcohol settings focused their screening activities on people who engaged in high risk behaviours. Several participants demonstrated low knowledge about screening with three indicating they usually only tested people with a history of liver disease and those with an abnormal liver functions tests (LFT). One GP was clear in that they *don't do hepatitis B [test] for the Australian people*.^{GP4}

The development of a relationship with a specific patient was described by one GP as important before screening for hepatitis B.

I wouldn't generally ask to test them at the first time unless there's time... It may take a second or subsequent visit for me to have time or feel comfortable to do it.^{GP2}

One participant who worked in both a community-based HIV clinic and a Community Health Centre located in an area with a large number of overseas-born migrants reflected on the diversity between the two general practices in awareness of hepatitis B screening patterns.

[There's a] considerably big difference in the mind set of the doctors... If I were to open a patient file at the [HIV clinic], I can find the hepatitis serology almost definitely. If I open up patient file in [...] Community Health Services, often when I go to the investigation section of the folder, it would be empty.^{GP12}



Several participants supported developing a hepatitis B testing policy to streamline screening practices and strengthen the response of general practice to hepatitis B.

There is need for some guideline for testing people explaining who is the target population and who need to be screened... There is no screening protocol for hepatitis B.^{GP26}

In a reflection of the impact of public awareness about chronic hepatitis B, one GP described how a prostate cancer screening awareness campaign increased the number of patients presenting to their GP requesting to be screened. Another participant discussed the widespread impact of the QUIT campaign and lung cancer prevention.

Everyone is aware of their prostate test. The men here [come and say] "I want to do PSA" ... But who comes and say "Look, I heard of hep B and I want to check it up"? ^{GP13}

In terms of lung cancer, it is actually everywhere. You just walk around and you see advertising on the bus and in tram stop and everywhere. So, naturally even if you don't read anything about it, you see it and you become exposed to it.^{GP10}

While GPs identified that public awareness was important in terms of supporting the screening of at risk populations, one GP noted the effectiveness of a technological intervention to increase Chlamydia testing that could be used for screening communities most at risk of chronic hepatitis B infection.

It brings to mind a program... about a pop-up every time we saw someone under 25 to think about doing Chlamydia test... You enrolled in the scheme and something was done on our computers to pop-up something saying do, or consider, a Chlamydia test for anyone under 25 no matter what reason they came in.^{GP14}

Monitoring

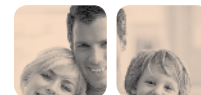
The effective clinical management of chronic hepatitis B includes assessment of investigations such as liver function tests, hepatitis B serology, HBV DNA viral load, ultrasound, and liver biopsy to confirm the stage of the disease. The findings of these assessments provide the information needed to decide whether the patient requires antiviral therapy or regular monitoring.

While there was support for general practice in monitoring patients with chronic hepatitis B, there were a variety of approaches to undertaking this monitoring. All GPs reported their monitoring of chronic hepatitis B included reviewing LFTs, however there was variation in the use of the liver ultrasound, serology, and viral testing. Eleven participants, nine of whom had a caseload of over 50 patients used HBV DNA viral load in routine monitoring. Only one GP distinguished differences in the monitoring protocol between patients who are HBeAg (hepatitis B e antigen) positive or negative.

Monitoring was identified by most participants as an essential role for general practice in managing chronic hepatitis B. There was a wide variety of how this monitoring occurred, ranging from comprehensive to basic.

I look at their surface antigen, e antibody and e antigen status, the liver function test, ultrasounds and gastroscopy depending on what the liver function would be and what the platelet count might be.^{GP15}

I tend to go with just the transaminases more because I don't know how to interpret the viral load.^{GP19}



While most GPs reported monitoring patients, three GPs, each of whom had approximately ten patients, said they referred all of their patients with chronic hepatitis B to a specialist after diagnosis given their lack of confidence in managing the infection. Two of these participants, after seeking specialist advice on management options, were prepared to undertake disease monitoring if requested by the specialist service.

I will refer them to specialist at least, and then get specialist advice whether they need to be monitored by the specialist or sent back here.^{GP14}

One GP noted that the limited role available to them in relation to responding more comprehensively to chronic hepatitis B affected their attitude to being involved in the monitoring of patients with chronic hepatitis B.

The other thing is because we can't prescribe anything anyway so why [we] get involved? We just pass them on to the specialist. [It is] easier that way.^{GP19}

The disease management model for chronic hepatitis B where regular monitoring occurs over the long term, rather than the immediate provision of pharmaceutical treatment, was noted by GPs as being challenging to patients. Several participants, including both GPs working with refugees and with South-East Asian communities described this lack of understanding of chronic disease management as an obstacle to ensuring that patients adhere to monitoring.

In the Asian mindset we always expect the doctor to give you some kind of treatment. So, if it's going to be just monitoring, it's a concept (that) I think we have to explain from the outset when we've got someone with chronic hep B.^{GP2}

A lot of the patient population that we look after here [refugee health care services] have come from health services that are based on acute settings that are reactionary and that are based on infections that are treated with antibiotics. It's a new paradigm for them to understand chronic disease, and that it requires regular review over years, rather than a treatment course that is limited.^{GP23}

One of the difficulties of hep B is... when you... feedback to somebody who has no active disease that we can pick up on either test. You know they've got a very low viral load and nothing else and [they say] "Why on earth will you not give me the medicine to get rid of the disease."^{GP24}

One GP noted the complexity of the virus; language barriers; the expectations of people with the infection about the western medical model, and the lack of knowledge about clinical responses to hepatitis B was challenging for some patients.

We've had people with hep B for years and years with positive surface antigen and normal LFT... that's a bit hard to explain to people... Even more so if you're using an interpreter and you're not completely sure exactly how to explain it yourself. [We have to say to the patient] "We're sending you off for treatment but they mightn't actually treat you."^{GP14}

In supporting their monitoring role, two GPs suggested developing a hepatitis B specific software package that could be integrated into existing general practice software to assist in decision making. An example was given of software used for diabetes that provided GPs with a 'Diabetic Record' that provided reminders to order specific tests and to monitor patient compliance including eye and foot checks, and consulting a dietician and diabetes educator.

An effective recall system is essential for a condition which is primarily asymptomatic. Several participants acknowledged the importance of the operation of an effective recall system to identify patients needing to return to the practice for follow up, ongoing monitoring or further assessment.

If you don't put a reminder then you just sort of hope that patients come back. That's why a lot of them don't come back until a year or two years... because they think they feel well, no medication.^{GP19}



Differences were noted between patients with different blood borne viruses and their willingness to participate in monitoring.

I have a list of people [with chronic hepatitis B] who I have to call up to get them to come back for a test but I never call my HIV positive patients. Ever. They always turn up.^{GP7}

One GP noted a process they undertook for the opportunistic monitoring of people with hepatitis B, which was supported by families attending the surgery at the one time.

There is a lot of opportunistic catching people when they turn up as well because refugees tend to come in as a huge family. They might turn up when their child turning up for immunisation, because their wife is pregnant and at that point, you go "You're just on my list. I'll just check how that is going."^{GP24}

Referral to Specialist Services

The prescribing of government funded pharmaceutical treatment for chronic hepatitis B is the sole purview of specialist services.

All GPs had referred patients with chronic hepatitis B to a specialist service, although there was inconsistency as to when this referral took place. Three of the interviewed GPs referred all of their patients to a specialist after diagnosis, with two undertaking an extensive clinical workup prior to this referral that included liver function tests, serology, HBV DNA viral load, and ultrasound. The remaining GPs monitored their patients and referred if they considered treatment was needed, or when the GP felt they needed specialist advice. Once again there was variation in the clinical indications for referral including a combination of elevated liver enzymes, HBeAg positivity, high viral load, any ultrasound abnormality, and/or at the patient's request.

Patient knowledge of clinical management options for chronic hepatitis B, and requests for referral as a result of this knowledge was recognised as being important for two GPs.

In general practice a lot of referrals are patient initiated. The patient would ask for referral and I would say that happens probably more than half the time. So, if the patient is not aware that it's (referral) important, that could be a big barrier to referring anyone.^{GP2}

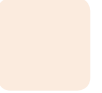
Effective communication and feedback from specialists about patients were perceived as a useful professional development tool with several GPs describing how valuable they found this feedback and that it was an important component of their continuing education.

The letters that they write back to us, it's a very important part of our learning... [It is] reinforcing the sort of flimsy level of understanding we have of hepatitis B, and becomes a bit more solid afterward and with experience.^{GP9}

Almost all GPs who referred their patients to private specialists were satisfied at the level of communication from the specialist after the consultation while GPs who referred patients to public hospital clinics were mostly dissatisfied at the level of communication. One participant described specialists as *not the best communicators*.^{GP23}

Four GPs specifically complained of the long delay between the time of the patients' appointment in the public hospital clinic and the receipt of correspondence described the findings of this consultation. The time lapse affected the care they provided for the patient and this issue was rarely reported in interactions with private specialists.

In general, hospital out-patients we get feedback, but it could be months and months and months after they've seen because they have a really big backlog on the typing... Private specialists [are] excellent. We get letters within days or weeks of the consult [and] that makes a big difference in encouraging us to refer.^{GP2}



That's a systemic problem with some hospitals. Some hospitals have put more resources and more effort into writing letters back to GPs... In some hospitals, it's six weeks and that's bloody useless because you need to review the patient within maybe four weeks or less.^{GP9}

Three participants were dissatisfied with the quality of the information provided by public hospital specialists and expressed their need for more detailed feedback that explained the patient's condition and management plan.

Their letter is not in details. It's just generally [says] "Patient attended. We're going to follow this up in such and such time", this sort of thing. It's very formulised like a few-line letter.^{GP6}

A further five GPs reported often losing contact with patients after referral to a specialist service with two describing patients as being 'absorbed'^{GP13} or 'vacuumed' by the hospital system. In particular, this situation was reported to occur when patients underwent pharmaceutical treatment.

If you refer the patient to the hospital, they go into a vacuum and you don't see them again, you get very little communication, and three years later they come back to see you... and they say "Yes, I've been treated for my hep B and I'm on this and this and this" and you go 'fantastic.'^{GP7}

GPs described their experience in seeking expert advice and revealed that with the exception of a few public hospitals, personal relationships with specialists played a pivotal role.

I have good relationships with the guys that I refer to. When it goes beyond my normal small network of people that I prefer, then it's harder.^{GP11}

I've got mobile phone numbers of hepatologist, because I've been doing the hep C for so long... That's come from being involved for a while that you start developing networks... Those personal linkages and a personal network actually have a huge effect.^{GP15}

GPs who were reliant on the systemic processes that have been established to provide them with expert advice were generally unsatisfied, although this varied given the specific hospital they were liaising with.

The generic number was the GP liaison line for the hospital. I gave up because every time I ring the GP liaison line... it goes to message bank and no one ever replies to the message.^{GP2}

I just ring the liver clinic and say that I want to speak to whoever is available. They most likely put me through to one of the registrars... How good is the registrar's feeding back? I think mixed. Some of the registrars are quite helpful and some of them are a little bit offhand.^{GP17}

While there were criticisms from several GPs about the relationships with specialists and the public hospital system, several were clear that these processes worked for them.

The clinic is very approachable and I can call them up... They're very very helpful and very approachable.^{GP7}
Yes, they always write back us. We got a feedback.^{GP8}

An alternative suggestion raised by one GP was seeking advice from Nurse Practitioners within the public hospital system.

One thing I have finally worked out is using people like experienced nurse practitioners... (they) are well informed and have lots of information, and they are also hooked into the specialist if more advice is needed. That is probably not a bad model for hepatitis B.^{GP25}

Several GPs described the role they played in mediating between patient and specialist. Some of this mediation occurred given the established relationships between GP and patient.

The patients come back [after referral, and]... ask any question that they feel embarrassed to ask the specialist.^{GP16}



I always make an appointment to see the patient after they've had their hospital appointment. I encourage them to bring relatives with them, so that they can ask me all the questions they were too scared to ask at the hospital.^{GP22}

Some GPs described a process of thoroughly preparing patients before referral to specialist services including for procedures such as liver biopsy and providing an overview of pharmaceutical treatment options. This preparation included providing information in accessible language about the risks and benefits associated with the procedure and/or treatment option.

Ideally I would explain the bulk of the bread and butter part of hepatitis before the patient goes and sees the specialist... You don't want to send the patient completely naïve.^{GP21}

I tell them beforehand what the specialist will do... I don't want to see the patient sent to the specialist... and then you [read] in report "Your patient was reluctant to have something done."... I normally give them a counselling, and say "I send you to specialist, you may or may not get treatment but very likely the first thing the doctor will do is to recommend liver biopsy."^{GP18}

One GP, working with newly arrived refugees noted that patient education also included providing information about the Australian health care system and the western medical model to help patients negotiate through the clinic and health service system.

They lack our medical model... We say to them "We're going to send you off to the specialist to get further assessed. If the specialist states that you don't need treatment, we're still going to do ultrasounds and blood tests every six or twelve months" and that's all they know of it. It doesn't fit into any preconceived category for them.^{GP1}

This information, at times, and for some patients who were newly arrived in Australia, needed to be extremely practical in negotiating the hospital environment.

We had an experience one day where one of the refugees went up to the [hospital name]. He got as far as one of the doors. Then he rang us and said "I don't know how to find this clinic you sent me to." We kept him on the phone... navigated him all through the buildings... otherwise they just go home and say "I couldn't find it."^{GP1}



Clinical Management Limits – Treatment

While there was clear agreement about the role for general practice in diagnosing and monitoring patients with chronic hepatitis B, there was diversity in opinions about treating people with chronic hepatitis B. Most GPs were interested and willing to be involved in treating chronic hepatitis B to varying degrees. Several stated it was inevitable that general practice would be involved in either initiating or continuing treatment particularly given the limited resources and capacity of public hospital liver clinics, and the challenges for the populations most affected by chronic hepatitis B in physically accessing public hospitals.

Five GPs, all experienced and active in caring for people with hepatitis C and/or HIV, as well as chronic hepatitis B believed most specialists were resistant to GPs playing an active role in the clinical management of chronic hepatitis B.

I get impression of some of the virology conferences that I've been to that gastroenterologists are actually very resistant to having the [shared care] program rolled out into general practice.^{GP17}

There is fear of territory encroachment by a very powerful lobby of gastroenterologists. They would lose their territory, their importance.^{GP20}

Two participants believed that the role of general practice in managing chronic hepatitis B should be limited to referral of patients to the specialists, with one participant described chronic hepatitis B treatment as being in the *specialist arena*.^{GP21} One GP noted a continuing focus on developing public hospital responses to chronic hepatitis B, rather than seeking to increase the role of general practice.

Everything is being channelled toward specialist care, particularly if you are living in a city. I mean the way the specialists have managed to channel care of [patients with] certain diseases and certain drugs and excluded the GPs from managing these patients. Now what the specialist want to do is working with the nurse practitioners because they still want to exclude the GPs from the care.^{GP11}

Prescribing treatment through general practice, rather than the current referral role, described by one GP as being *limited*,^{GP17} was suggested as a useful process of engaging GPs with chronic hepatitis B.

It makes it more attractive for GPs. You have more control over your patients and have more control over management plan. It will probably make us more interested in treating chronic hep B, rather than "Well you are just going to the specialist anyway, why do I need to know about this?"^{GP19}

Several participants believed that GPs being prevented from prescribing chronic hepatitis B medications was one of the main barriers stopping them from more effectively providing clinical management to patients and reducing the burden of chronic hepatitis B.

Most of the time... the GP does nothing. Still the key is specialist. He is the one who is prescriber and GP is just "How are you today? Are you fine today? Thank you very much. See you tomorrow" ... The patients are smart; they say "I'm seeing the doctor, he does nothing." [They] might as well stick to the hospital... We have to make the GP be valuable by prescribing power.^{GP13}

Another perspective promoted the expertise of the specialist by ensuring that only the more challenging hepatitis B cases were seen by specialist services.

We need them (specialists) as a part of the team to continue the care when cirrhosis or de-compensation happens, when hepatoma is developed, when patient develop multi-drug resistance. The role of specialist would be as a specialist. That would be a much more honoured referral and would be more interesting for them. The bread and butter everyday hep B management is very simple. [It] does not need a specialist.^{GP20}



The restrictions for prescribing hepatitis B medication highlighted a contradiction in government policy for two participants who had Pharmaceutical Benefits Scheme Section 100 prescribing rights for HIV. Under these regulations, highly skilled GPs who have undergone training and accreditation are able to prescribe pharmaceutical treatment to people with HIV who are co-infected with hepatitis B, but under current prescribing rights, they are not able to treat people who are mono-infected with chronic hepatitis B.

If I've got a patient who's HIV and hep B co-infected, I can actually start them on the Truvada (a combination of Tenofovir and Emtricitabine) to control the hepatitis B, but if I've got a hep B mono-infected patient, I can't actually prescribe Tenofovir. It just doesn't make any sense.^{GP17}

I use much higher doses of Lamivudine in HIV patients that you would use in chronic hep B and I can't prescribe it. It's a paradox. ... This (hepatitis B drug prescription) is very simple prescription compared to Insulin for diabetics. I prescribe Methadone for drug dependent patients. I prescribe palliative care high dose Morphine. What is the fuss of anti-hep B medications?^{GP20}

Some GPs, particularly those who were HIV or hepatitis C Section 100 prescribers believed they had the skills and capacity to initiate chronic hepatitis B pharmaceutical treatment. One described their use of specialist services in relation to managing people with HIV.

With HIV, I can actually initiate and manage my patient myself. I tend to only use a specialist when somebody has needed to be admitted to the hospital or we've got a very unusual complication of HIV medication and I need to get some advice.^{GP17}

Another GP, experienced in treating patients with chronic hepatitis C, believed that GPs should be permitted to initiate chronic hepatitis B treatment after a transitional phase of monitoring patients on treatment.

The aim has got to be GP initiation once they've been trained, probably initially with the close support of the specialist, and then as they get more experience and understanding, they become a primary prescriber for the whole thing from initiation.^{GP11}

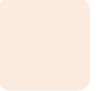
While several GPs supported the capacity to prescribe, one participant with a caseload of more than 50 patients with chronic hepatitis B, and practicing in an area with a high density of people from CALD backgrounds, had reservations given their commitment to their general practice role and contrasted this with the role of the specialist.

The reason I chose to be a GP is because I want to stay general... If I've had a passion for just treating ankle, I may as well go and do orthopaedics... If I... get lost in one sub-specialty, then you become too tunnel vision.^{GP21}

Several GPs described the current model of specialist care as neither practical, nor sustainable, primarily given the lengthy waiting times within the public hospital system.

I don't think hepatitis B is going to be best managed in specialist centres because of the waiting list... Hep B cases are rising. Specialist clinics are going to be swamped.^{GP7}

The waiting time for most liver clinics is six to twelve months and [in] most liver clinics the patients often get lost to follow-up.^{GP20}



Several GPs supported a role in treatment given that their practices were more accessible than specialist services with their flexible business hours, easier geographical access, and greater familiarity with community languages and cultural norms.

A lot of patients feel... more comfortable with a GP who they've been seeing for a long, long time. A lot of times my patients speak their language or their dialects... We can be much more flexible timewise and convenient wise. A lot of them (patients) just live locally [then] they don't catch public transport travel far away.^{GP10}

Not everyone wants to wait in the hospital system with the stigma [that] this is a hep B clinic. But they can go to general practice and go and sit outside, and you're not different with anyone.^{GP13}

One GP, working with refugees highlighted the need for community based treatment given the challenges of public hospital settings provided to their patients, who had previously little exposure to the western medical system.

The logistics virtually demand it. Refugees don't have any money. They get lost. They can't speak the language. Asking them to keep going to the city [to a public hospital] is often asking for non-compliance even with (a) basically compliant group.^{GP1}

A different model for general practice to increase access to pharmaceutical treatment of chronic hepatitis B was supported by some participants who believed that while specialist initiation of treatment should remain, GPs could continue treatment.

A shared care model would be for us to have the right to prescribe the treatment, an ongoing treatment, not necessarily to initiate but we should be able to provide ongoing treatment and prescriptions.^{GP5}

Several GPs described other shared care models that they were engaged with including HIV, hepatitis C, diabetes, and antenatal care. Given their perception of the success of these models in improving access to clinical management, participants believed the models could be customized for chronic hepatitis B, *I don't see why if the model works for HIV and hep C, it can't work for hep B as well.*^{GP7}

I guess the model for that is diabetes... It makes me happier when using that model, when an Endocrinologist says [to the patient] "We've done as much as we need to do for you. Here is a letter for GP. They can see you for the next six months." I'm happy to take that on.^{GP16}

Almost all participants, regardless of their belief about the extent of general practice involvement in treatment emphasised the need for additional training and specialist support.

GPs with a high case load should be able to do S100 prescribing but we need supervision of a specialist... I think as a generalist, we need to do it in a relationship with a blood borne virus clinic.^{GP22}

There can be a simple set-up where you have a hep B nurse whose job is to answer calls from trained GPs who are managing hep B cases. So, you can phone up and say "Look. I've got these weird results" or... "The patient is vomiting on the Lamivudine" or something like that.^{GP7}

Another participant who worked with refugees described that families had a role in the treatment of an individual.

When people start treatment that requires a fair amount of support and discussion of what those medications are doing and that's difficult for people... [The] whole family needs to actually understand it.^{GP24}



Findings - Patient Management

The chronic mostly asymptomatic nature of chronic hepatitis B; its prevalence within specific cultural groups in Australia; the familial pattern of chronic infection, and the need for life-long clinical management all form the context in which general practice is fundamental in reducing the impact of the infection.

One participant, with 30 years experience of working as a GP and ten years of caring for patients with chronic hepatitis B, described general practice as the lynchpin of hepatitis B with the role of general practice in hepatitis B described as being

Health promotion, discussion, contact tracing, immunisation ... making sure the patients understand the infectious nature of hepatitis B.^{GP22}

Pre-test information

HIV and hepatitis C testing policies describe pre- and post-test discussion as best practice in diagnosing people with the virus by providing people with chronic hepatitis B with relevant and accurate information about their infection. While nationally agreed testing policies exist and have been implemented in response to HIV and hepatitis C, at the time of writing this report, no such policy existed for hepatitis B. How a pre-test and post-test discussion is provided and framed is influenced by the cultural beliefs and the pre-existing understanding of the role and responsibilities of the GP and the patient.

There was diversity in the attitudes of GPs towards testing processes, particularly in relation to pre-test discussion. Two participants, both working in different refugee health services had contradictory attitudes toward providing pre-test discussion in their practice. One GP described providing a pre-test discussion as impossible given language, cultural barriers and patients' poor health literacy.

It might seem very autocratic but it would be basically impossible to get informed consent from them about this at the beginning. So they are just told "As part of your settlement you got to get medical screening and you just going to go and have some blood tests" and that's it. So we don't really ask permission about that.^{GP1}

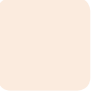
The rationale for the lack of 'permission' being sought was reported by the GP *as they don't have the language, they don't have an understanding of the way our society works or even our medical models.*

Another GP providing care to people from several communities at greater risk of chronic hepatitis B including refugees and Indigenous people revealed customising the pre-test discussion based on the individual motivations, skills, culture and circumstances of their patients. When working with refugees, the GP acknowledged how the refugees may have experienced hepatitis B in their countries of origin, the options available for treatment in Australia and their possible concerns of being deported should they be found to have chronic hepatitis B.

For refugees, it is a generic discussion where we say "We are going to test you for a heap of stuff and these are the stuff that you've probably never even thought of before and would be probably really scary in your country because it would mean a death sentence... If we find it, we treat you. We don't send you back, we don't do anything terrible to you: we make sure you stay healthy."^{GP22}

This GP also provided services to Aboriginal communities and for people from this background, a different style and message was provided.

For Aboriginal people I say "hepatitis B is really important because it's one of those things that kills people. We want to know if you've got hepatitis B because we've got to follow you and make sure you stay healthy and this virus isn't killing you... We can treat you."



GPs with a high case load of Asian patients were less likely to report providing a detailed pre- and post-test discussion compared to GPs caring for people from other cultural backgrounds. One participant with 10-15 years experience of caring for people with chronic hepatitis B and who had a substantial proportion of patients from South-East Asia explained.

They're happy if you screen for all those things. I just tell them that I screen them... Probably they come and say "I want test for kidney, liver, cholesterol, sugar"... and then I just add in this or that [hepatitis B test]... [For] patients by and large, I guess spending too much in details probably will not matter much to them, because they don't know much about hep B.^{GP10}

Another GP working primarily with people from Asian communities stated that they provided pre-test information to patients, and that this consisted of *I tell them that I test you for hepatitis B antigen and antibodies.*^{GP4}

For most people with hepatitis B, the lived experience of infection with chronic hepatitis B relates to attending the GP clinic on an annual or bi-annual basis for regular monitoring. Describing hepatitis B as a lifelong or chronic infection requiring regular monitoring rather than an infection requiring pharmaceutical treatment recognises the lived reality of the infection for most people with chronic hepatitis B, and was described by one GP.

I don't approach it from a treatment stance... I approach it from a recall stance, and I talk about them being healthy to help their body fight the virus... because monitoring is the thing that's in their face.^{GP22}

Another technique used by one participant was to frame chronic hepatitis B as a chronic liver disease rather than a blood borne or sexually transmitted infection.

All you could do is trying to tag it onto viewing it as chronic illness rather than a new infection. I think you almost have to take the label BBV and STI out of it [and call it] just 'liver health' and just stop it at that.^{GP2}

Post-test information

There were a range of experiences described by GPs in response to providing a positive diagnosis to a person with chronic hepatitis B. Several described their patients as being scared or depressed after being notified of a positive diagnosis particularly as testing for hepatitis B often occurred when people felt healthy.

They feel OK and everything is OK and here am I suddenly telling them now that I've discovered [chronic hepatitis B]... That's a bit of shock to them and they can't quite understand how come everything was OK before and now they're getting all these tests.^{GP9}

Another GP, caring primarily for international students, many of whom are medical students described problems associated with people already knowing that they were infected but that a positive diagnosis had greater than expected implications for their future.

It's like "sorry sweetie, your whole medical career is about to change." ... The students are shit-scared... because they've got to change their whole career.^{GP22}

Given the complexity of the virus, patients' cultural attitudes, and their health literacy, GPs described various methods, strategies and emphases in their post-test discussions that were based on their patients' characteristics. Several office visits were suggested as necessary to confirm that a patient was receptive to and could respond effectively to the health care provider's advice.

Often the initial consult is very short because you don't know the person is [a] carrier or has active hep B... What I quite often do [is] put the person back in a long consultation another day... I ask the patient to write down what they want to know, and I prepare (for the consultation) with a check list of the things we have to do otherwise I forget.^{GP7}



The people I diagnose have some experience of liver cancer or hepatitis because... it might be in their family already or they know someone. It's trying to let them understand there's a link to that consequence on liver... and trying to say "Hold on. If we actually get you into treatment or referral, it potentially would stop that from happening."^{GP2}

The different strategies used by GPs in the post-test discussions reflected the diversity of the patients with chronic hepatitis B and the sensitivity and difficulty in encouraging patients to effectively engage with clinical management processes.

You have to find that balance between talking about it (hepatitis B) being serious and really scaring people... If you scare them too much they want to go to the hospital. If you don't scare them enough, they don't come back at all. It's a very difficult balance in hepatitis B to find that balance.^{GP22}

Two GPs noted the importance of time as an important factor in providing information and ensuring that their patients were effectively educated about chronic hepatitis B and its impact.

If they turned out to be hepatitis B positive then we're going to gradually try to educate them about what this is. It's a very slow process because... they don't even understand our disease model and they don't even know what a virus is.^{GP1}

It's a process. You can't just tell someone about hepatitis B in one go. You tell them and give them some information and they come back and ask you some more questions... It is a process, a conversation you continue to have with the patients.^{GP24}

One GP, whose practice included international students noted differences in how people from diverse cultural backgrounds accessed information about being infected with chronic hepatitis B.

I find a lot of my students from China ask a lot of questions and often come back and ask a lot of questions... Particularly a lot of Vietnamese students actually know a bit about it already. A lot of the students from Indonesia, unless I push them, don't come back for follow-up. [They] don't seem particularly interested.^{GP7}

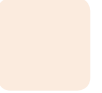
Prioritising Hepatitis B

Several GPs with a moderate or high case load of patients with chronic hepatitis B noted that the poor knowledge about hepatitis B among their patients challenged the provision of clinical management. A lack of accurate understanding of hepatitis B natural history and complications affected adherence to monitoring and treatment among these patients, particularly given the often silent nature of the infection.

[For] people who have it, it's a silent thing that they don't really know because they haven't been told that they need any specific treatment or anything... So, they don't think that they got any life issues associated with it, [or any] health issues for the rest of their life.^{GP9}

One GP working with Aboriginal communities described a cultural framework in which individual health issues were superseded by family or community responsibilities.

Their priorities are totally different to Western priorities. We might think that having a blood test to check something is a priority but... if their brother or cousin or uncle says "I need a hand. Can you come and help me," they'll go. That's the priority number one... things like blood tests, and getting your medication and going and keeping your appointments are down on their list.^{GP15}



The lack of symptoms and a poor understanding by patients of chronic hepatitis B natural history was reported as the major contributory factor to the low priority many of their patients gave to chronic hepatitis B.

The hardest part is making people realise that they need to come back and to keep doing their reviews... They say "No, I'm fine. There's nothing wrong with me. Why should I do this unnecessary intervention and tests"?... It's a constant reminding, coaching, coaxing...^{GP23}

Other reasons expressed by the GPs for the low priority attached to chronic hepatitis B by patients were not necessarily directly associated with patient knowledge. The inter-generational nature of the infection in most patients in Australia was noted with the infection being perceived as benign. One GP described their experience in this regard.

Often there is a perception that it (hepatitis B) is not a big deal because the other family members have it... A few people said to me "Look, my mother is well. She doesn't do anything. Why do I need to do something?"^{GP7}

One GP caring for people who inject drugs reported that for some of their patients, the low priority of chronic hepatitis B occurred given more immediate issues related to drug use.

If you are also an intravenous drug user, you don't give a stuff about your hep B. You are more interested to get your next fix.^{GP15}

There were financial barriers for other patients such as international students who do not have access to publicly funded health care, and where their health insurance did not cover clinical management expenses.

For most students, we see them for three to five years. Money is tight for most of them. If they physically feel well, it's very hard to convince them to get regular testing if they have other immediate priorities like rent, text books, food.^{GP7}

Some GPs noted the dearth of printed and audio-visual educational or informational material that supported effective clinical management in languages other than English. One participant noted that this gap was not apparent for other health conditions.

What we lack is big kits of translated material to give them which is what would be the most effective. But I just don't have the time to prepare those things.^{GP1}

I don't have anything [for hepatitis B]. (For) smoking there are a lot of resources... things about depression, anxiety we have a lot of pamphlets, like healthy eating, like for obesity we have pamphlets. Not for hep B.^{GP8}

Several GPs, working with a broad cross section of patients with chronic hepatitis B, including refugees coming from war affected countries, reported that the lack of knowledge and/or low priority of the infection among their patients affected adherence to monitoring or treatment.

Often the patients are so blasé and so apathetic anyway about hep B.^{GP12}

[Patient's compliance] varies in terms of... their priorities... If you've got PTSD (post traumatic stress disorder) and live in the high-rise then what's happening with hepatitis B is somewhere down the track. It's not high level of priority.^{GP14}

There are a couple of patients on the list with chronic hep B who refused any follow-up... They're probably about 70s or late 60s... and they just said "What will be, will be. We're old enough. We don't want to handle the hassles or worry about all of these."^{GP9}



Communicating with patients

Sixteen of the 26 GPs spoke at least one language other than English, with most speaking either one or more Chinese languages and/or Vietnamese, and with a substantial proportion of their patients coming from the same cultural and/or linguistic background. None of these participants identified language as a barrier to communicating with people with chronic hepatitis B. Of the ten GPs who spoke only English, two identified language as a barrier in managing patients. The six participants working with refugees used in-house interpreting services while two other participants rarely saw patients with chronic hepatitis B from a non-English speaking background.

All six GPs working with refugees, and three others used on-site and/or telephone interpreters in consultation sessions with patients with chronic hepatitis B. Participants using on-site interpreters reported being more satisfied with these services compared to the participants using telephone interpreting services.

We are lucky in a sense because... of sessional interpreter. I'm in a very privileged position because the tertiary hospitals and the private GPs don't have that luxury.^{GP1}

Two participants described using the Telephone Interpreting Service for less common or newly emerging languages in Australia such as Dinka, Somali, Karen or Tamil. The main problem described by GPs about the less common or newly emerged languages – regardless of the use of on-site or telephone interpreters – was accessing qualified interpreters, with one participant describing newly trained interpreters as para-professionals.

Whenever the immigration program changes, there is always a bit of delay, while they build up capacity in that language... It means that in early days those interpreters are accredited at a much lower rate. They are para-professionals; they are not actually professional interpreters.^{GP24}

We had a Swahili interpreter. I noticed every time we got to the word 'liver'... the Swahili interpreter just said 'liver.' So finally I said to the interpreter "Isn't there a word for liver in Swahili" and she said "I'm really sorry doctor. I don't know what the liver is." So I then had to do an explanation of what a liver was.^{GP22}

While several GPs had reservations about the Telephone Interpreting Service, one described patients preferring to use the Telephone Interpreting Service rather than on-site interpreters.

Our patients will actually tell you that they'd rather have a good phone interpreter than a person on-site who they would know. They'd rather have the person they didn't know... providing that person was a competent interpreter.^{GP24}

Two GPs described needing to develop specific communication skills for working with interpreters.

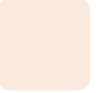
When you start using interpreters... you need to reset how you communicate... You can't achieve five different things in a consultation. You've got to be a bit more simplistic in what you want to achieve and do it over multiple times, re-enforcing because lots of stuff gets lost in communication.^{GP23}

While recognising that there were problems, family members or friends of patients were sometimes asked by GPs to interpret.

I encourage them to come in with a relative who has a better command of their language if possible. I know that that is not the best, but sometimes that's what we have to do.^{GP11}

One participant described cultural understandings as well as language being important in communication.

I speak Vietnamese, Chinese and all different dialects. My strength is communication so I communicate any patient directly in their language... You have to understand their fear, their cultural fear.^{GP18}



A GP who worked primarily with international students described particular beliefs about pathogenesis of diseases in some ethnic communities.

Obviously, there are a lot of clashes with different health beliefs and things like that and that can cause problems for simple things. For some of Asian cultures... you can't talk about depression or loneliness or isolation. There is always a physical explanation for not getting out of bed in the morning.^{GP7}

Another GP working with Aboriginal communities described cultural beliefs that focussed on a non-physical or supernatural aetiology of the illness.

Their view of health is different... They don't necessarily see everything in terms of Western medicine... They don't view it the same way. [They believe that] there's all that spiritual stuff.^{GP15}

Another aspect of communicating with patients related to GPs working with people from cultures in which family and familial relationships are more important than the individual. One GP working with refugees reported conducting group consultations which included the patient and their family and described their experience of involving family in education through group consultation.

We've got a huge consulting room with eight seats in it. They sit around a central table with a telephone on it for the interpreter... The entire family are sitting in the consultation.^{GP24}

Two GPs reported their patients with chronic hepatitis B using traditional medicines. One, working mainly with international students, reported their patients using both western and traditional medicines at the same time.

A lot of students will do both. They see no contradiction to [using] traditional medicine and Western medicine at the same time. Some will try traditional medicine first, and then Western medicine if it doesn't work and some vice versa.^{GP7}

This GP described how maintaining a positive attitude in communicating with these patients was important in terms of keeping them engaged with the western medical model.

It's definitely a barrier but I think it's also important to keep the door open and maintain contacts... Occasionally, someone will try something else if the traditional pathways aren't working... We don't want to give them the impression if they choose to do something else we're closed.

Effective communication played a role in the choice of specialist in whom the patients were referred to. Four of the GPs reported that their patients preferred to be referred to specialists who spoke their language.

The patients benefit most if they can see the specialist who can speak their own language.^{GP5}

If someone who can only speak Vietnamese, then I speak to him in Vietnamese in the consultation and usually refer them to a Vietnamese speaking [specialist].^{GP21}



Stigma and Social Context

GPs reported a diverse range of views around hepatitis B-related stigma as a barrier to patients seeking care. Several believed that the inter-generational nature of hepatitis B transmission and the high prevalence of chronic hepatitis B within particular communities reduced any stigma related to being infected with chronic hepatitis B.

With hepatitis B, your parents might have it, your sister could have it, the neighbour could have it, the doctors could have it. I think with this population hepatitis B doesn't carry a lot of stigma.^{GP5}

A lot of Chinese students have so many friends with hep B. What is the statistic? One in nine people on mainland China has had or has hep B and a lot of Chinese students they go 'oh well.'... It (stigma) just doesn't seem to rate highly on people's radar... If a lot of people have it in your community, I guess there's not much stigma.^{GP7}

Five practitioners who also cared for people infected with hepatitis C and/or HIV compared the stigma surrounding these infections with hepatitis B, and understood that hepatitis B was perceived differently and was much less stigmatised.

With HIV and hep C, a lot of the stigma is really related to the modes of transmission of HIV and hepatitis C. HIV has the association of male to male sex and hepatitis C with intravenous drug use... I don't think hepatitis B... carries the same stigma.^{GP17}

GPs provided other perspectives with one believing that an underlying stigma relating to hepatitis B meant that patients were reluctant to disclose their status.

There probably still is [stigma]. I guess it's not something that patients really tell you but I think there is, especially for the South-East Asian [population]... I think hep B, hep C or anything that almost has a bit of sexual connotation even though a lot of them are just vertical transmission, do carry a bit of stigma... It is not something that they bring up usually.^{GP19}

Several GPs believed that any stigma associated with hepatitis B was mostly related to concepts of cleanliness and a lack of understanding of people, particularly people from South-East Asia, of the natural history of hepatitis B and transmission routes. One GP working mainly with people from Asian communities described the impact in the lack of knowledge about transmission routes, while another participant described their experience of growing up with a father who had chronic hepatitis B.

Hep B being sexually transmitted is probably not quite a big thing among Asians... In their understanding of hep B, they do not associate it with sexual transmitted diseases. They think it comes from poor hygiene, poor food.^{GP10}

They think "I am chronically sick. People might think that I am a bit dirty."... A lot of people still have that misconception that if we share cups you are going to get hep B. I remember when I was kid he (my father) used to have a separate bowl and we used to be very conscious about not sharing the same utensils.^{GP19}

Two other GPs, one working in a metropolitan area with a high density of people from a South-East Asian background and the other one working in a rural area commented on the social context of many of their patients, and the impact that this has on the willingness of other GPs to provide care for them.

Hep B patients are not sexy... It's not an attractive patient who's got hep B. It's not a young, not a movie star. They're simple people.^{GP20}

We are looking at Aboriginals, drug addicts, refugees... A lot of GPs don't want to see those people... They much prefer to have a nice clean clinic for the little old lady patients to sit in.^{GP15}



Four participants noted the reluctance of some GPs to care for patients with chronic hepatitis B was related to concerns that their practice could be labelled as a 'hepatitis clinic' or 'STD clinic.'

I've heard doctors say that "We don't want to be seen as the 'hepatitis clinic' or 'drug clinic'." ... We have patients who've said they won't come back here because of the people sitting in the waiting room.^{GP15}

I think that a lot of those people would think that this is a sexual health clinic and they probably feel that "If I go in there, I've got some venereal disease."^{GP19}

Two participants described where hospital based clinics relabelled themselves as a 'Liver Clinic' rather than 'Hepatitis Clinic', and 'Immigrant Health Clinic' rather than 'Infectious Disease Clinic' with the rationale being to increase access to the clinics by reducing any potential stigma associated with viral hepatitis or infectious disease.

Several GPs noted that raising public awareness and knowledge about chronic hepatitis B would reduce any stigma associated with hepatitis B and increase the numbers of people being tested for the virus.

I know that there're programs underway to try and feed that from a consumer or community point of view through newspaper articles in the ethnic press and ethnic radio, and through community groups [to] get people to go along to the GP and say "... I should have a test for hepatitis B." That's very valuable thing because it de-stigmatises it to some extent anyway.^{GP9}

Two participants highlighted the need to ensure that raising awareness about hepatitis B was done effectively and without scaring or stigmatising specific communities.

Educating community is important without scaring the hell out of them.^{GP21}

At least in the beginning [public promotion should be done] just through ethnic papers and ethnic public media and through the GPs in the areas where there is a high prevalence (density) of migrants... You probably get more value for money in that sense.^{GP10}

One participant working with Aboriginal communities emphasised that the design of any public educational program needed to be culturally competent and that respecting cultural and social values and sensitivities were important in the success of any program targeting Aboriginal communities.

If Aboriginals don't respect you, they won't listen to you... You've just got to get people who have actually spent the time to get some respect to go in and talk to them about what they want and how you want to do it, and then make suggestions and then get them to take some ownership. Unless they take ownership, that's a real big problem.^{GP15}



Findings – Practice Management

A range of practice-related issues were identified by GPs that affected their capacity to respond to people with chronic hepatitis B.

Medicare Funding

Several GPs reported that consultations for patients with chronic hepatitis B were often time consuming given the complexity in the natural history of the virus, patients cultural and linguistic background, and ensuring that people affected by the virus understood the implications of the infection, including their role in adhering to clinical management processes. Participants highlighted that the Medicare rebate schedule did not adequately support the provision of the long consultations required to effectively address the needs of people with chronic hepatitis B.

The rebate is just not really attractive enough to reward people who spend the time. These [diseases like chronic hepatitis B] can be quite scary for the patients. Often they have a lot of questions (such as) "Can I still kiss my partner? Can I pass this on?" ... it's not something you can really do in five or ten minutes. What the government can do is really reward the people who spend the time in explaining to patients and... managing the chronic condition.^{GP19}

Several GPs stated that current Medicare incentives failed to support an active role for general practice in managing people with chronic hepatitis B. They believed that if general practice was to be more involved in chronic hepatitis B management, additional financial incentives would be required, particularly given that chronic hepatitis B is competing with other more straightforward health conditions.

If you treat asthma, they give you an incentive bonus. If you treat diabetes, they give you an incentive bonus. For god sakes if you're treating hepatitis B or C, you should also get a major incentive for doing that sort of work. It's hard. From the point of your time-wise, there is a lot more involved than a general patient.^{GP11}

One participant used the term semi-specialised clinics to describe general practices that cared for patients with complex health conditions and highlighted that these clinics should be funded differently from other forms of general practice. Providing financial incentives to encourage GPs to care for patients with chronic hepatitis B was described as cost-effective given its impact on decreasing the incidence of cirrhosis and/or end-stage liver disease.

If you come for sore throat or you come for blood pressure check up, the government would pay the same money for managing [complex diseases]... It doesn't make sense... You are saving cancer; you are saving cirrhotic liver; you are saving liver transplant, and you are saving public system a long way.^{GP13}

Item number 721 of the Medicare Benefits Schedule (MBS) provides a rebate for the management of a chronic or terminal medical condition by preparing, coordinating, reviewing or contributing to a chronic disease management plan. This item number covers all medical conditions that have been present (or are likely to be present) for at least six months or is terminal.⁶⁰ Although this item number is appropriate for the care of patients with chronic hepatitis B, several participants indicated that they did not use it. One GP found the offer of an incentive for providing best practice, insulting.

I don't know if the incentive for [chronic diseases like] diabetes makes much difference. I mean some of these things I find insulting. I mean if you've got diabetes you should be treated properly anyway.^{GP15}

There were problems in terms of the administration of these plans.

Care plan is a pain in the butt. It all sounds good but if you read the MBS... you need to know what colour underpants the patient is wearing at that point of time to really satisfy all the criteria... When I started three years ago it (MBS criteria) was easy and recently it's just gone really hard.^{GP21}



The additional workload created by correctly completing the GP Management Plan meant that in practice the task of developing the care plan is often allocated to the practice nurse or a predesigned template is used.

A lot of practices who do a lot of care plans actually have got very sophisticated software programs that have care plan templates. When they do a care plan... They just satisfy the government's requirements.^{GP17}

Three GPs suggested that a specific MBS item number should be created for diseases like chronic hepatitis B that allow for GPs to be paid more for an ordinary consultation. This would compensate the GPs for the actual time spent with each patient and encourage them to invest the time required to enhance their knowledge of hepatitis B.

It would be nice if there was an item number that you could do, and the government can give you an incentive.^{GP21}

If... there is some sort of incentive for normal GPs to be involved but... their knowledge would have to be up there. Otherwise if they don't know much about hep B, they won't build or draft up hep B care plan.^{GP12}

Threat of audit

International and Australian clinical practice guidelines and the *National Hepatitis B Strategy 2010-2013* recommend hepatitis B screening for people born in highly endemic countries.^{5,6,61} Three GPs, each of whom had a high proportion of Asian born patients described their concern of being audited by Medicare for the 'over-servicing' of patients, particularly when they followed screening guidelines for chronic hepatitis B. This fear reduced their willingness to comprehensively screen and monitor their patients at risk of, or with chronic hepatitis B.

We don't want to do too much test [because] you end up with trouble with Medicare. Medicare always compares you with your peers... If we do every test routinely or in high risk groups... we end up... too many tests. Medicare asks "Why other GPs don't do it."... If you do the test, and... if other doctors don't do it, we get asked... "You are over-servicing."^{GP18}

If I do that (screening), I would be doing that to 95% of my patients and that may not be acceptable to Medicare. My name would be high up on the list of doctors who overuse [laboratory tests] and over-service patients.^{GP20}

Similar uncertainty surrounded the General Practice Management Plans and Medicare consultation fees. Two GPs reported they did not apply for the General Practice Management Plan rebate because they were concerned they would be audited for over-servicing given their high chronic hepatitis B caseloads compared to other practices in their local area.

We are advised that you follow a patient with hepatitis B, and you can do a care plan [but] I personally don't do it. I don't want to claim the money because... they (Medicare) will look at my profile and then they will check everything... I don't do the care plan. I do all the work but I don't claim for that.^{GP18}

One GP reported not claiming for longer consultations (level C and D consultation fee rebates) given concerns of Medicare audits and that their patients were only examined and treated for the health condition that they presented with, rather than the practitioner undertaking proactive screening or patient education. This approach significantly limits the opportunistic identification of patients with chronic hepatitis B.

The other difficulty [is that] they (Medicare) check for consultation [fee] level C... They check and do the audit and they say "No this one should be [level] B. Why do you claim level C?" You see a patient with hepatitis B or C, you have to explain to them... and they will [return] with a lot of question... If I spend a lot of time to tell you about hep B, do the test or something like that then I may have trouble [because] I have too many level C [consultations]... You come in with a cold, I [manage] your cold... I don't want to bring more issues.^{GP19}



Staffing

Considering the heavy clinical and administrative workload and the subsequent time constraints confronting the GPs that spoke to us, several expressed a need for the support of specialist nurses and/or paramedical staff.

Three GPs highlighted the opportunity to share the care of patients with chronic hepatitis B with a trained practice nurse within the general practice setting with the provision of information and education of the patient and family members as the main responsibility of a hepatitis B general practice nurse. Two participants described a broader role for practice nurses with one of them describing the practice nurses as the connector between the hospital and the specialist and the general practice.

[Their role would be]... educating the patient, follow up of the management, find out what the adverse effect is, and counselling... [They] knows better about [patient's] life style, alcohol intake, sexuality, activities, barriers in the family... The nurse is the link... a connector between the hospital and the specialist and the general practice.^{GP13}

One GP, working in a refugee health service, was accustomed to practice nurses playing a major role in managing patients and described the close relationship between the nurses and patients provided a valuable opportunity for patient education and measuring adherence to monitoring.

It's quite a significant role... a doctor has only got a very limited perspective on that patient in terms of their whole lives. Nurses provide for a lot of those extra bits and pieces and can do a lot of follow-up stuff and re-enforcement of messages.^{GP23}

Participants working in refugee health services outlined a series of additional non-clinical needs of their patients that needed to be addressed by GP. One example of this, previously noted in this report, was given in terms of physically negotiating the public hospital system.

In a community health centre or a refugee health service, particularly working with new arrivals to Australia, it is often the nursing and/or administrative staff that provide practical support addressing clients non-medical health needs. One GP working with newly arrived refugees and who had between 80 and 100 patients with chronic hepatitis B, described the experience of their service in creating an enhanced administrative position called a 'logistician' in their clinical setting.

A logistician whose sole role is critical, I think for hep B... is actually making sure people turn up at appointments and know how to get there, and [know] that the place they are going to know how to use an interpreter... She spends the entire day either communicating with people in person or over the phone about how they are to get to and from appointments.^{GP24}



Conclusions

General practice plays a vital role in reducing the burden of hepatitis B infection. The Australian Government *National Hepatitis B Strategy 2010-2013* recognises the need to reduce the morbidity and mortality caused by, hepatitis B and to minimise the personal and social impact of hepatitis B. Chronic hepatitis B is causing an increasing burden on the community and the health system. The strategy notes several barriers to minimising the impact of chronic hepatitis B include that only about one-third of people infected with hepatitis B have been diagnosed, and that only a small percentage of people access specialist clinical services to manage their infection.

Interviews with GPs highlighted challenges that need to be acknowledged and addressed to effectively respond to chronic hepatitis B. These challenges fall into the following themes:

- Knowledge
- Health system barriers
- Relationships with specialists
- Communication

Knowledge

Fundamental in any discussion of the barriers and challenges to an effective response to chronic hepatitis B by general practice is that GPs are aware that they have a role in responding to chronic hepatitis B, and that they have the skills and capacity to effectively fulfil this role. All of the interviewed GPs recognised significant knowledge gaps in either themselves, their patients or in at risk communities, and that these gaps were a primary factor affecting their capacity to clinically manage patients with chronic hepatitis B.

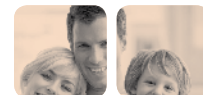
These knowledge gaps have occurred within a context of a significantly changing evidence base about chronic hepatitis B in recent years; the fundamental complexity of the virus; ongoing migration of people from countries with a high prevalence of chronic hepatitis B, and the increasing variety of competing health issues confronting general practice. The lack of knowledge within general practice about chronic hepatitis B was reflected in the lack of knowledge within the general community, and particularly within the communities most at risk of chronic viral hepatitis, including hepatitis B.

The breadth of experience with chronic hepatitis B of the GPs interviewed for this project was substantial with 13 GPs seeing over 50 patients including five caring for over 100 or more patients with chronic hepatitis B, and practising in Australia for a median of 18 years (ranging from 3 to 37 years).

The majority of GPs interviewed for this study spoke one or more Chinese languages and/or Vietnamese, cared for patients from similar Asian backgrounds where hepatitis B transmission occurred at birth or in early childhood, and where the chronic infection occurs within families.

Six of the interviewed GPs worked within practices where a significant proportion of their patients either injected drugs or who were men who have sex with men. These GPs, who also cared for patients with HIV or hepatitis C, framed their discussion about chronic hepatitis B in a context of the adult transmission of hepatitis B; where most of their patients were from an Anglo-Saxon background, and where understandings of hepatitis B were informed by their experience with HIV or hepatitis C.

Several GPs used their experience with other viruses to explain chronic hepatitis B and this, on occasion, reflected incorrect understandings of the populations most affected by the infection and of the current knowledge and clinical response to chronic hepatitis B.



The poor awareness and understanding of viral hepatitis within the community was described by GPs as affecting the successful management of the infection in general practice, particularly in diagnosing and monitoring of chronic hepatitis B. This meant that patients were reliant on their GP for information about the infection, and how to respond. At the same time, GPs did not have the responsibility, skills or time and were not recompensed for providing basic information about chronic hepatitis B. GPs compared the profile and understanding of health conditions that have received significant levels of community attention such as diabetes, mental health, smoking, prostate cancer and HIV with hepatitis B.

While pre and post test protocols have been developed for the testing and diagnosing of HIV and hepatitis C, at the time of writing this report no agreed protocols have been developed in response to chronic hepatitis B. Few GPs noted providing any information to people being tested or diagnosed with hepatitis B. Where patients were provided with information, there were clear differences in how the information was provided to people from the different risk groups, and how this information was framed.

Most GPs reported that their patients with chronic hepatitis B had a poor understanding of hepatitis B natural history and treatment expectations which were reported as affecting adherence to clinical management. While an understanding of hepatitis B related clinical issues were seen as affecting adherence, other social issues also had an impact including understandings of the western medical model, priority of hepatitis B individually and also within the family or community, and stigma.

Most people with chronic hepatitis B in Australia were born in countries where vaccination programs have not been adequately implemented. Most GPs described that their patients had a limited understanding of concepts used in the western medical model including what constitutes health, the body, liver and viruses. This perspective was particularly strong from GPs working with newly arrived refugees. This lack of knowledge had a significant impact on patients being able to engage in a range of clinical management activities, including providing informed consent to being tested for hepatitis B.

Several participants reported that chronic hepatitis B was a low priority for many of their patients given the lack of symptoms for many people with hepatitis B, a lack of understanding of the natural history, the inter-familial nature of chronic hepatitis B, and financial barriers. This low priority was seen to result in poor adherence to clinical management including monitoring or treatment.

There was little cohesive description of stigma acting as a barrier to the effective response of general practice to chronic hepatitis B. Several participants believed there was no stigma related to the infection, primarily as a result of its high prevalence in specific communities and with the inter-generational nature of hepatitis B transmission for the majority of people with chronic hepatitis B. There were alternative views with some participants considering that there was an underlying stigma which was related to cleanliness, and that a lack of knowledge about natural history and transmission routes meant that people with chronic hepatitis B were reluctant to disclose their status. At a practice level, some GPs noted an impact of stigma on the willingness of GPs to provide services to and clinically manage people with chronic hepatitis B.



Health system challenges

Three main barriers reported by GPs challenging their capacity to provide health services for people with chronic hepatitis B included health system support of GPs; regulations restricting the provision of best care by GPs, and financial resources.

There is a recognised shortage of GPs in Australia, and participants reported working in extremely busy practices in which time was at a premium. Several GPs expressed a need additional staff to enhance their work, particularly nurses trained in hepatitis B who could support the care of patients with chronic hepatitis B, and their families.

International guidelines and the Australian *National Hepatitis B Strategy 2010-2013* recommend hepatitis B screening for people born in highly endemic countries. There was no clear consistency between the interviewed GPs of the populations who should be screened for chronic hepatitis B. Several GPs supported the development of an evidence and consensus based screening protocol as a means for strengthening the response of general practice to chronic hepatitis B. Several GPs reported not conducting routine hepatitis B screening for their patients based on their ethnicity given concerns of being audited by Medicare for 'over-servicing' patients.

Almost all of the GPs working with refugees acknowledged and described the complex social and clinical needs of their patients. The implications of these needs included providing the resources to ensure these patients and their families have the knowledge and skills to negotiate the Australian health, and sometimes the welfare system. At a fundamental level, this meant that practices needed the resources to guide people through the sometimes labyrinthine public hospital system, both at a physical and systems level.

Several GPs stated that current financial incentives provided through Medicare rebates did not support the active involvement of general practice in managing people with chronic hepatitis B. Participants noted that long consultation sessions for patients with chronic hepatitis B were often required given the needs of the patients and of the complex natural history of chronic hepatitis B, and that current Medicare rebates provide a higher financial return for shorter consultations. For a small business owner with a busy practice, this meant that it was not economically viable to provide the extensive level of engagement of patients that was often required.

The GP Management Plan (GPMP) for chronic diseases was another financial incentive provided to general practice through Medicare. Participants challenged the practicality and effectiveness of this plan with questions relating to their ethical and professional commitments of providing the best care for their patients; the level of paperwork involved with receiving a rebate, and low Medicare rebate. Several GPs who thought they had a higher caseload of patients with chronic hepatitis B compared to other practices in their local area reported not claiming level C and D consultation fee or GPMP rebate given fears of being audited for 'over-servicing' by Medicare. The fear of their practice being audited by Medicare resulted in less people at risk of infection being screened and in patients not receiving the breadth of services available to them.

A fundamental barrier limiting the response of GPs to chronic hepatitis B relates to the current Australian Government policy limiting the subsidising of treatment for chronic hepatitis B to prescriptions from specialists. There was a range of perspectives from the GPs about this issue. Several GPs who spoke with us had received approval to prescribe Section 100 drugs for HIV. The restrictions in relation to the prescribing of hepatitis B related drugs were nonsensical considering these GPs had the capacity to treat HIV/hepatitis B co-infection but not hepatitis B mono-infection. A small number of GPs were not interested in prescribing pharmaceutical treatment for chronic hepatitis B.

Limits on the ability of GPs and specialists to order hepatitis B DNA viral load test was another challenge identified by participants. General Practitioners and clinical specialist are permitted to order one hepatitis B viral load per year for a patient. This limits their role in monitoring people with chronic hepatitis B, particularly vulnerable patients who are moving from one stage of the disease to another and require closer follow-up.



Effective clinical management of chronic hepatitis B requires effective patient recall systems and regular monitoring. Several of the GPs supported the development of software that would provide reminders to assist in this monitoring.

At the time of the interviews, liver biopsy was a mandatory pre-treatment assessment procedure for access to government subsidised treatment, and was described by several GPs as a barrier to accessing pharmaceutical treatment. It was noted by GPs that the requirement for this procedure had stopped patients from accessing treatment.

Relationships with Specialists

Three main themes related to specialist associated challenges were identified including the 'capturing' of chronic hepatitis B by specialists, communication between specialist services and general practice, and public hospital waiting lists.

Several GPs perceived a systemic resistance from specialists toward the active clinical management of chronic hepatitis B by general practice. It was evident to the GPs that government and pharmaceutical companies supported ensuring that the clinical management of chronic hepatitis B remained within the purview of specialists.

While several models of care exist that describe when a patient should be referred, none of currently established hepatitis B guidelines detail a specific referral pathway to be used by general practice. There were marked differences and little consistency in the indications used by GPs to refer a patient to a specialist service with several GPs referring all their patients who had been diagnosed with chronic hepatitis B, through to some who selectively referred based on the understanding and expertise of the GP.

Effective communication between GPs and primarily public hospital based specialists was described by many GPs as challenging. The type and quality of information provided from the specialist service to the GP through referral letters providing details of the patients clinical experience often lacked specific explanation, and there were frequently significant delays in receiving the information by GPs. Several GPs noted the importance of specialist referral letters, particularly for their professional development, and in improving their understanding of and response to chronic hepatitis B.

The delays in the public hospital system was one of the main challenges referred to when our participants expressed their belief on developing a shared care model to engage general practice in managing patients with chronic hepatitis B. Several participants indicated the long waiting list in public specialist centres as a challenge when they referred their patients, and these delays meant that several of the GP preferred to send patients to private specialists.

Given their acknowledged deficiencies in knowledge about chronic hepatitis B most GPs reported a need to access expert advice in managing patients with chronic hepatitis B, particularly with complex cases. Several reported significant deficiencies in this process with ineffective or no support being provided by public hospital clinics.

Communication

The majority of GPs interviewed spoke more than one language with 16 GPs speaking two or more languages, and with none of these GPs identifying language as a barrier affecting their practice. Several reported their patients preferring to be referred to specialists who spoke their language.

All of the GPs working with refugees and some other participants used interpreters with patients when needed. GPs with the resources of on-site interpreters, primarily those GPs working with refugees were satisfied with these services compared to the GPs who used telephone interpreting services. The perceived deficits of telephone interpreting services meant that several GPs reported using patient family members or friends to provide interpreting services.



The provision of on-site interpreters was not uncomplicated, particularly with many newly arrived communities where there were not people with the required language skills. This required the training of interpreters in the basics and terminology of hepatitis.

There are methodological limits to this type of study with the limited number of individuals and their self selection in participating in the research. This qualitative study provides useful insights for policy developers and other key stakeholders by describing how GPs see their role in relation to chronic hepatitis B and the challenges from their perspective to an effective response to chronic hepatitis B.

The findings of this study support the development and implementation of a range of interventions including:

- Comprehensive and accessible education including screening, diagnosis and clinical management protocols particularly targeting GPs working with the communities most at risk of infection with chronic hepatitis B
- An evidenced based screening protocol, developed in partnership with GPs, specialists and representatives of communities most affected by chronic hepatitis B, with specific guidance addressing concerns of GPs about auditing by Medicare for the over-servicing of patients
- A nationally consistent chronic hepatitis B pre and post test protocol that provides guidance to GPs and other health care workers about patient education and support
- A model of care for general practice that increases access to clinical management for people with chronic hepatitis B
- Community development interventions and educational resources describing chronic hepatitis B and its impact targeting the communities most affected by the virus
- A clearer articulation of the role of General Practitioners in future national strategic responses to chronic hepatitis B.



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