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Time to broaden the screening strategy for chronic hepatitis B virus infection beyond the emergency department

To the Editor:

It is with a great interest that we read the article by Llaneras *et al.*,[1] highlighting the role of the emergency department as a main healthcare gateway for HBV screening. HBV infection remains a significant global health problem and an important cause of cirrhosis, liver failure, and especially hepatocellular carcinoma. The World Health Organization (WHO) estimated that 296 million people were living with chronic hepatitis B infection in 2019, of whom only 30 million had been diagnosed.[2] In Australia, an estimated 222,559 people were living with HBV at the end of 2020, equating to approximately 1 in 100 people.[3]

Despite increases in the proportions of people receiving clinical care for HBV from 8.5% in 2016 to 10.7% in 2020[4] and efforts to improve HBV screening, testing rates in Australia do not meet the WHO elimination targets for 2030. WHO targets include 90% diagnostic coverage and 80% treatment coverage among the eligible population with HBV infection.[5,6] Unfortunately, it is estimated that 37% of people living with chronic hepatitis B in Australia remain undiagnosed and therefore they do not seek treatment, posing a risk of further HBV transmission in the unvaccinated population.[7]

In Australia, the national hepatitis B testing policy is limited to target populations with evidence of liver disease or risk factors for HBV infection, pregnant women, newborn infants, blood and tissue donors, and people working in the healthcare sector. However, this symptom- or risk-based testing is inadequate in general practice and captures only a fraction of the HBV-infected population. Therefore, a cost-effective universal screening strategy would increase diagnosis rates and thereby decrease the disease burden especially when combined with appropriate clinical management.

In this study, we performed a real-world service evaluation of routine HBV testing, looking to develop and expand on existing practice, which was already in place. The aim was first to explore the prevalence of HBV infection within populations accessing outpatient services beyond the emergency departments at Blacktown-Mount Druitt Hospital, Western Sydney, Australia. For this, electronic medical records of patients that attended antenatal, oncology, dialysis, and metabolic outpatient clinics between 2019 and 2021 (N = 11,006) were retrospectively reviewed for point-of-care HBsAg testing. Data on blood born virus status, FIB-4 (fibrosis-4), APRI (AST-to-platelet ratio index), demographic characteristics and risk factors were also collected.

Results demonstrate that the prevalence of HBsAg-positive individuals per 100,000 patients was 664 in antenatal, 1,392 in oncology, 2,797 in dialysis and 2,548 in metabolic clinics, respectively. This was significantly higher than the general NSW HBV notification rate in 2019 of 23.2 per 100,000 people (p <0.001) (Table 1). Importantly, only 1.25% of the positive cases identified as Aboriginal and/or Torres Strait Islander. Among the four cohorts, 83.75% of HBV-positive patients had no known risk factors, whereas 3.75% had current or previous intravenous drug misuse. Approximately 12.5% were suspected to have had vertical transmission and 10% had a FIB-4 score of >1.75 and 8.75% had a APRI >0.5, suggesting higher risk of liver fibrosis. The low estimated fibrosis levels also mean that these patients would not have been identified through liver fibrosis screening alone. Amongst those who were identified with HBV infection, only 35% were either referred to or followed up by specialists for monitoring of disease activity or treatment initiation, and only 7.5% had HBV DNA levels measured.

Our data demonstrate that HBV prevalence was significantly higher in all four cohorts than the estimated NSW notification rate for 2019.[8] These figures may be even greater due to the impact of the COVID-19 pandemic (2019-2021) reducing HBV testing and diagnosis, as well as travel restrictions reducing migration between Australia and countries with higher hepatitis B prevalence.[7] Therefore, to achieve WHO hepatitis B elimination targets in Australia, current testing practices should be expanded to include opportunistic screening of non-targeted populations.[9,10] The WHO, state and national targets are unlikely to

Table 1. Prevalence of HBsAg-positive cases within populations accessing outpatient services (antenatal, oncology, dialysis and metabolic clinics) at Blacktown-Mount Druitt Hospital, Western Sydney, Australia.

	N = 11,006
HBV antigen positive	80 (0.73%)
Gender	
Female	71
Male	9
Age (mean)	36 [17,77]
Region of birth	
Australia/New Zealand	9
Oceania other	6
Asia	44
Europe	2
Africa	19
FIB-4	
Mild (<1.45)	72
Moderate (1.45-3.25)	4
Severe (>3.25)	4
Antenatal cohort (n = 9,789)	
HBsAg positive (per 100,000)	664
Oncology cohort (n = 287)	
HBsAg positive (per 100,000)	1,392
Dialysis cohort (n = 250)	
HBsAg positive (per 100,000)	2,797
Metabolic cohort (n = 156)	
HBsAg positive (per 100,000)	2,548

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be reached under current practice protocols and hence an intensified testing policy is needed.

Our study highlights the need to increase awareness and educate healthcare providers regarding appropriate HBV point-of-care testing and management, as 65% of patients had no post-test referral to appropriate care and approximately 92% did not have appropriate testing to assess the status of infection.

Finally, universal HBV screening represents a solution to reach the national and the WHO 2030 targets. There is a need to broaden the screening circuits for HBV infection to involve non-conventional gateways, beyond just emergency departments, although the feasibility and exact impact of such screening in relieving the health burden of HBV still needs to be evaluated.

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Conflict of interest
The authors of this study declare that they do not have any conflict of interest.

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Authors' contributions
Study concept and design—E.K., and G.A.; Writing: original draft preparation—E.K.; Acquisition of data—A.B., Analyses and interpretation of data—E.K., A.B. and G.A.; Writing: review and editing—E.K., S.R. and G.A..; Supervision— S.R. and G.A. All authors approved the final version of the article, including the authorship.

Data availability statement
The datasets used and/or analysed during the current study available from the corresponding author on reasonable request.

Ethics approval
Ethics approval was obtained from the Human Research Ethics Committee at Western Sydney Local Health District (Ethics Approval 2021/ETH00149). The study conforms to the ethical guidelines of the Declaration of Helsinki.

Supplementary data
Supplementary data to this article can be found online at https://doi.org/10.1016/j.jhepr.2024.101040.

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