

RESEARCH BASED ABSTRACT TEMPLATE

- Use Arial 12-point type only
- Use single spacing only
- Format - Microsoft Word (.doc) file only
- Leave one line between paragraphs
- Specify all abbreviations in full at the first mention, followed by the abbreviation in parentheses, thereafter abbreviation only should be used
- Be written in English
- Check abstract thoroughly for spelling and grammar
- Do not include references
- Not exceed 300 words (excluding title, authors, affiliations & disclosure of interest statement)
- The document **must not** be password protected or saved as read only as this may result in your abstract failing to upload successfully
- If the abstract does not fit the headings, please put full abstract beneath introduction and we will remove the headings once submitted

Urban clustering of hepatitis B but not hepatitis C: a spatial analysis of liver disease outcomes in Tasmania

Authors:

Ibegu MI¹, Nguyen AL^{1,3,4}, Stephens N², de Graaff B¹

¹Menzies Institute for Medical Research, University of Tasmania, ²Tasmanian School of Medicine, University of Tasmania, ³WHO Collaborating Centre for Viral Hepatitis,

⁴Hanoi Medical University, Vietnam

Background: As Australia enters the hepatitis elimination era, understanding the geographic distribution of viral hepatitis and its complications is essential for targeted public health interventions. Using linked administrative datasets, we examined spatial patterns and clustering of hepatitis B, hepatitis C, and related advanced liver disease across Tasmania, Australia.

Methods: Linked administrative notifiable disease, public hospitalisation, and cancer registry datasets were used to conduct a spatial analysis with data aggregated at the Statistical Area Level 2 (SA2) across three periods (2007–2011, 2012–2016, 2017–2022). Incidence rates per 100,000 population were calculated and stabilised using empirical Bayes smoothing. Global spatial autocorrelation was assessed using Moran's I, and local clustering identified using Local Indicators of Spatial Association (LISA).

Results: Hepatitis B notifications demonstrated strong and increasing spatial clustering across all periods (Moran's I: 0.61, 0.67, and 0.83; all $p < 0.001$), with persistent high–high clusters concentrated in urban areas, including Greater Hobart and Launceston. In contrast, hepatitis C notifications showed no evidence of global spatial autocorrelation in any period (all $p > 0.5$) with a largely diffuse spatial distribution.

Liver cancer and decompensated cirrhosis also demonstrated significant spatial clustering across all periods, although the strength of clustering declined over time (liver cancer Moran's I: 0.57 to 0.35; decompensated cirrhosis: 0.58 to 0.48; all $p < 0.001$). LISA analyses indicated that high–high clusters for these outcomes became fewer and less spatially concentrated over time.

Conclusion: Spatial heterogeneity in liver disease outcomes in Tasmania is outcome specific. Notifications of hepatitis B showed persistent and increasingly concentrated urban clustering, whereas liver cancer and decompensated cirrhosis exhibit weakening spatial structure over time, and hepatitis C notifications remain spatially diffuse. These findings highlight persistent geographic disparities for hepatitis B notifications and support targeted interventions in higher notification areas, alongside broader population-level strategies for other outcomes.

Disclosure of Interest Statement: The authors declare no conflicts of interest