

Systematic review of methods for the surveillance of hepatitis B virus in low prevalence countries, 2017

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Background

- Robust and comprehensive hepatitis B surveillance systems are needed to monitor implementation of the Global Health Sector Strategy on Viral Hepatitis 2016–2021, which set the goal to eliminate hepatitis B as a public health threat by 2030;
- The Strategy included several targets, including to reduce incidence by 90%, reduce mortality by 65%, achieve 90% hepatitis B coverage of childhood vaccination, prevent 90% of cases of mother-to-child transmission of hepatitis B, achieve 90% diagnosis and treat 80% of eligible people living with chronic hepatitis B;
- The World Health Organization also released its first surveillance guide for viral hepatitis in 2016 to accompany the Global Viral Hepatitis Strategy
- We aimed to synthesise the methods hepatitis B surveillance systems in low prevalence countries and determine their alignment with the Viral Hepatitis Surveillance Guide.

Methods

- A systematic review was conducted of the published literature to identify reports that described hepatitis B surveillance systems in low prevalence settings;
- The search was conducted in July 2017 with eligibility of reports from January 2000 to 30 June 2017
- Additional peer reviewed and non-peer reviewed literature were identified by searching the bibliographies of articles identified in these initial searches, government surveillance reports and broad internet searches;
- The purpose of surveillance systems were classified as either:
 - i. to detect outbreaks, monitor trends in incidence and identify risk factors for new infections;
 - ii. to estimate the prevalence of chronic infections and monitor trends in the general population and in sentinel groups; and/or
 - iii. to estimate the burden of sequelae of chronic hepatitis.

Results

- 41 reports are included in the review (Figure 1) describing a total of 52 surveillance systems;
- Over half of surveillance systems included were from Europe (n=29) and the remaining were from the United States (n=14), Australia (n=7) and Canada (n=2).
- The majority (n=20) of systems monitored newly-acquired infections only, 14 systems monitored chronic or unspecified cases only and an additional 11 monitored both acute and chronic or unspecified cases;
- Most systems (n=49) identified were continuous systems and three systems comprised of repeated cross-sectional surveys;
- Forty-five of the surveillance systems identified recorded some measure of ethnicity;
- Seven systems collected denominator testing data (that is, both positive and negative diagnostic hepatitis B test results),
- Most systems addressed either/or the first two objectives of the Viral Hepatitis Surveillance Guide (Figure 2). Only ten systems met the third objective, which is to estimate the burden of sequelae of chronic hepatitis, including cirrhosis and HCC

Figure 1. Study inclusion flow diagram

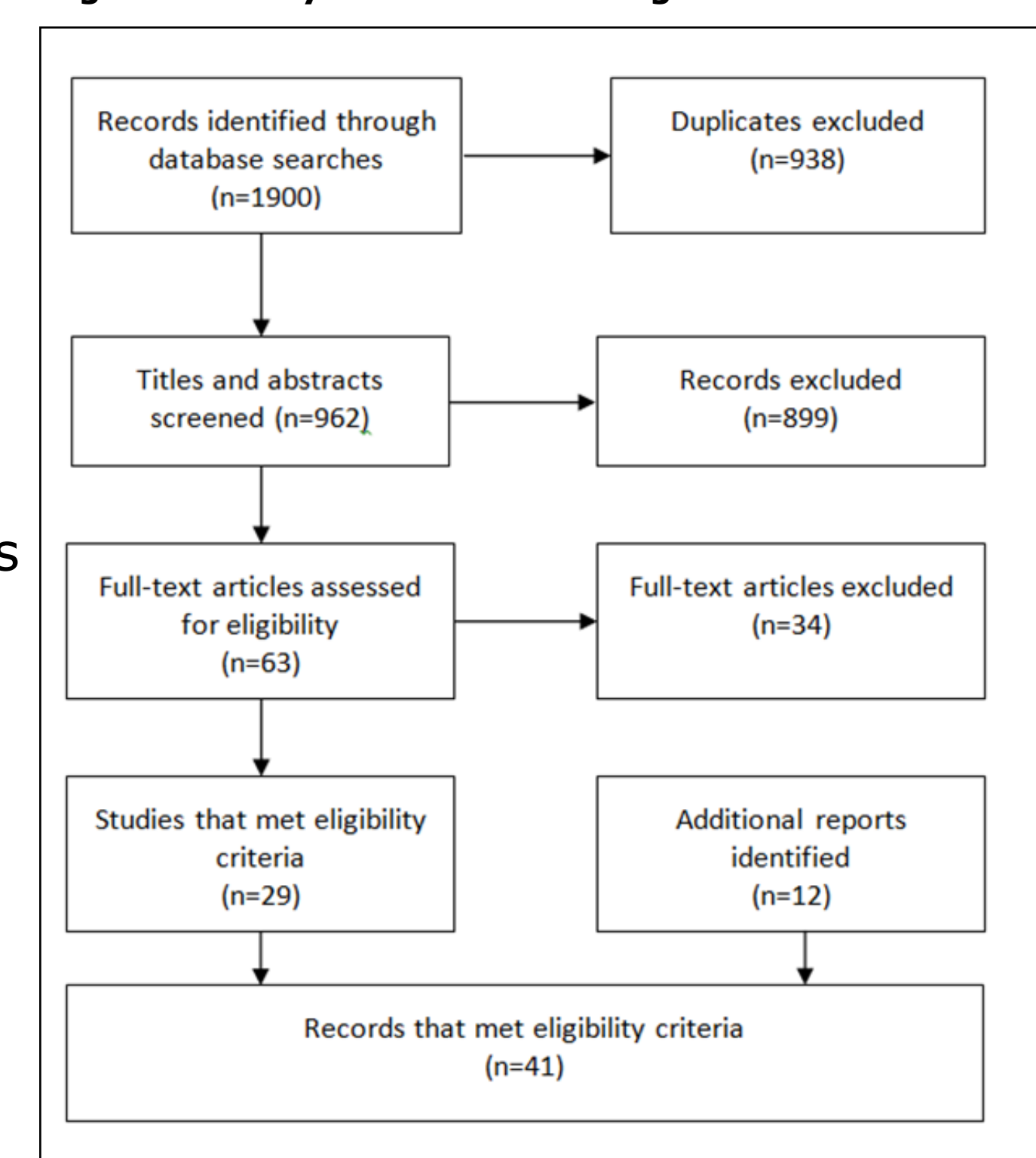
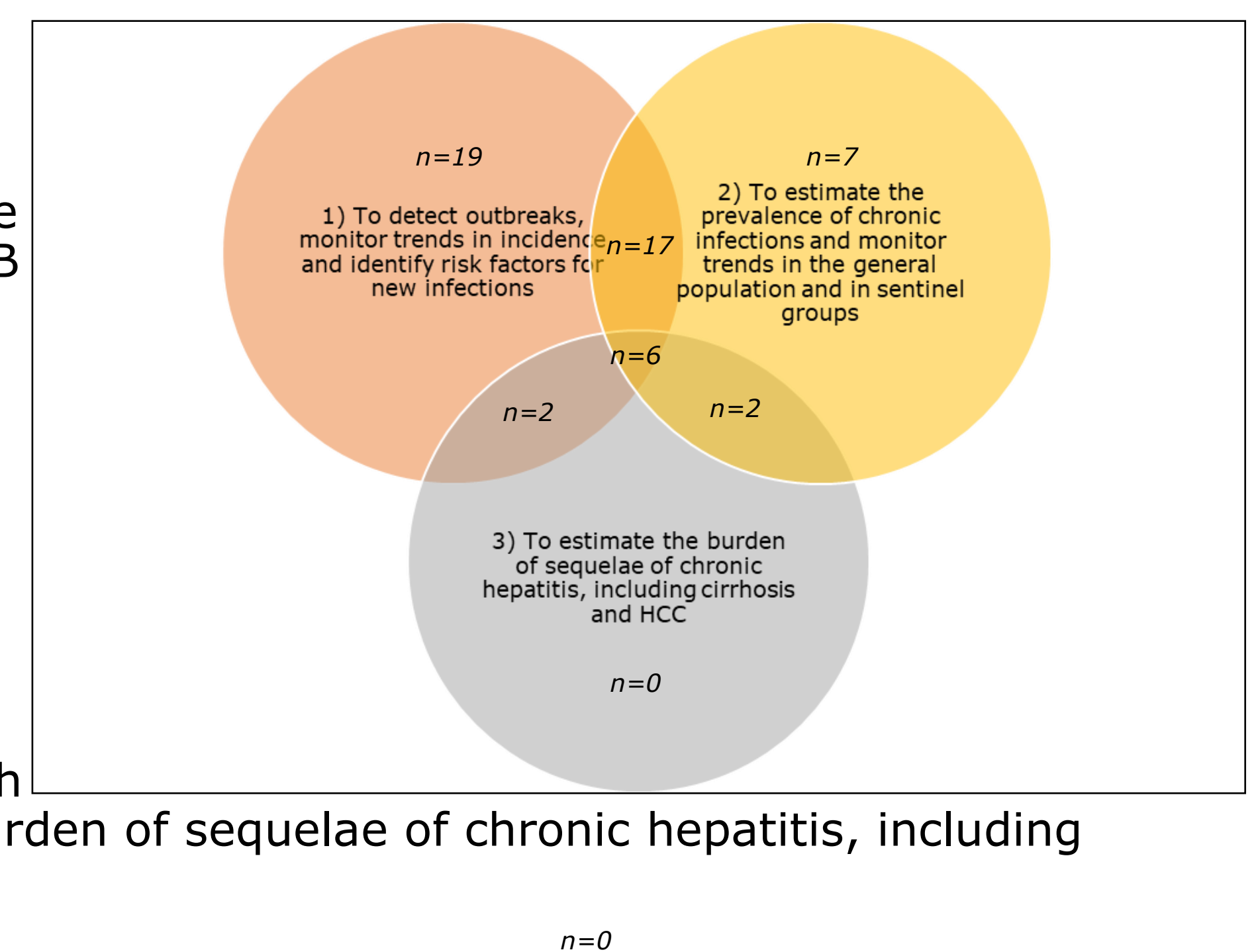


Figure 2. Venn diagram showing alignment of hepatitis B surveillance systems with the Global Viral Hepatitis Surveillance Guide



Conclusions

- **Few hepatitis B infection surveillance systems in low prevalence settings collect data that can be used to estimate the burden of hepatitis B-related morbidity and mortality, including cirrhosis and HCC:** To monitor progress towards hepatitis B elimination the role of surveillance systems should not be limited to monitoring newly diagnosed infections only. Surveillance systems also need the ability to identify individuals living with chronic hepatitis B and increase the proportion that have engaged in care and treatment.
- **Notification rates are heavily biased by testing practices:** Very few hepatitis B surveillance systems collected denominator testing data which can be used to interpret the number of positive cases, with most systems collecting data on diagnosed cases only. Collection and reporting of hepatitis B denominator testing rates, particularly among priority populations, has great utility in targeting interventions to increase the proportion of people diagnosed and where possible, particularly in sentinel laboratory surveillance systems, it is recommended for surveillance systems to collect the information on all testing conducted rather than collating positive test results only.
- **Recording of ethnicity-related data is important but it is inconsistent:** Given the variation in profiles of culturally and linguistically diverse populations globally it is unlikely there will be harmonisation in classification of ethnicity related information however countries should continue to include ethnicity related information where possible in their surveillance systems.
- **The utility of hepatitis B surveillance systems would be greatly enhanced through expanding their scope to: 1) collect and link data related to the burden of sequelae of chronic hepatitis B infection, 2) facilitate linkage to and engagement in care, and 3) collect denominator testing data to aid in the interpretation of notification data.**

