Automated universal testing for Hepatitis B in emergency department blood draws improves screening rates and detects the undiagnosed and untreated

Authors: Di Girolamo J[1,2,4], Gu B[1], Bagatella M[1], Manadhar S[1], Alshiwanna B[1], Petrovski I[6], Prudence AJA[1,4], Pipicella JL[1,2,4], Lawrence J[5], Cracknell R[6], Mackey A[1], Maley M[1], Foo H[1], Jones N[1], Dore G[2,3], Prince D[1,2,], Levy MT[1,2,4].

[1]Liverpool Hospital, Liverpool, NSW, Australia, [2]Faculty of Medicine, University of NSW, Sydney, NSW, Australia, [3]The Kirby Institute, University of NSW, Sydney, NSW, Australia, [4]Ingham Institute for Applied Medical Research, Liverpool, NSW, Australia, [5]Fairfield Hospital, Fairfield, NSW, Australia, [6]Campbelltown Hospital, Campbelltown, NSW, Australia.

Background: Chronic hepatitis B (HBV) infection causes cirrhosis and hepatocellular carcinoma (HCC), though some remain undiagnosed and/or not linked to care. Implementation of testing recommendations has been poor in hospital settings. This study evaluates an automated, universal HBV screening service in the emergency department (ED) setting.

Methods: A novel pilot clinical service, Screening of Emergency Admissions at Risk of Chronic Hepatitis eXtension-3 (SEARCH-3X), was implemented at three hospital EDs in Sydney, Australia. A computer algorithm automatically added a HBV surface antigen (HBsAg) test for adults with routine biochemistry tests ordered. Data were collected on patient demographics, HBV prevalence and clinical care. Ethics: 2022/ETH00158.

Results: 15,391 unique patients were tested, of whom 0.9% (n=144) were HBsAg positive, 56.2% were male and median age was 56.7 years. Patients aged ≥40 years were more likely to be HBsAg positive than those aged 18-39 years (1.2% vs. 0.4%, p<0.0001). Overseas-born (OB) were more likely to be HBsAg positive than Australian-born (1.4% vs 0.2%, p<0.00001), and Indigenous Australians were more likely to be positive than non-Indigenous (0.6% vs. 0.1%, p=0.00001). Prevalence increased to 1.5% for OB patients aged ≥40 years. Prevalence varied by birth country: Tonga (7/70), Cambodia (19/210), Vietnam (36/628), China (7/186), Philippines (8/238), Turkey (2/68), Lebanon (7/373) and Syria (5/278).

In HBsAg positive patients, 93.8% (135/144) were contactable – the diagnosis was new in 23.7%. In those with known diagnoses (n=103), 71.8% received HBV care in the year prior, though only 48.8% (42/86) underwent HCC screening (where indicated). No patient complaints were received, and ED throughput was unaffected.

Conclusion: Automated HBV testing in the ED is easy, acceptable and effective. The prevalence of HBV is higher among OB and Indigenous Australians – these may be key target populations for future screening initiatives. Analysis of data from 5 sites (n=25,000 tested) will be available in 2025.

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