Advancing elimination targets for viral hepatitis and human immunodeficiency virus in Australia: estimating the cost-effectiveness of emergency department opt-out testing for blood-borne viruses

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Background:

Despite significant progress towards global elimination targets of blood-borne viruses (BBVs) in Australia, many individuals remain undiagnosed or receive a late BBV diagnosis, particularly those underserved by current testing strategies. An estimated up to 31% of hepatitis B (HBV), 16% of hepatitis C (HCV), and 8% of human immunodeficiency (HIV) infections remain undiagnosed. Emergency department (ED) opt-out testing (OOT) has the potential to overcome these barriers and increase diagnosis and linkage to care, as the ED is often the point of access to healthcare for high-risk groups. This study evaluates the potential health and economic impacts of ED BBV OOT in high-prevalence areas in Australia.

Methods: A hybrid cost-effectiveness model was developed to compare projected outcomes of ED BBV OOT with current testing in ED as standard of care (SoC). A decision tree simulated testing and linkage to care (LTC) for ED attendees requiring blood tests who do not opt out; a Markov model estimated long-term outcomes. Publicly available country-specific parameters informed the model, supplemented with international literature and national expert opinion. Primary outcomes were the number of new diagnoses, number LTC, quality-adjusted life years (QALYs) and healthcare costs, using a national health service perspective over a lifetime.

Results: ED OOT resulted in 32 incremental new BBV diagnoses per 10,000 attendees in Australia compared to SoC, of which over 85% were active chronic viral hepatitis cases. Additionally, an incremental 17 patients per 10,000 were linked to care. Combined testing for all three BBVs was highly cost-effective, with an incremental cost per QALY gained of $3,273.

Conclusion: ED BBV OOT is estimated to have a positive impact on health outcomes, whilst being deemed cost-effective for policy-makers. Scaling up real-world ED BBV OOT testing could transform early diagnosis and move Australia closer to ending preventable BBV infections and meeting transmission elimination goals.

Disclosure of interest

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