IMPACT AND COST-EFFECTIVENESS OF SCALING UP A NATIONAL POINT-OF-CARE HEPATITIS C TESTING AND TREATMENT PROGRAM IN AUSTRALIA: A MATHEMATICAL MODELLING STUDY

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Background: Point-of-care testing for hepatitis C virus (HCV) infection can improve diagnosis and treatment initiation, but the population-level impact and cost-effectiveness of scaling up this intervention remain uncertain. We evaluated the epidemiological impact and cost-effectiveness of a national point-of-care HCV testing and treatment program that scaled up antibody and RNA testing for people at risk of HCV infection in community and prison settings in Australia.

Methods: A dynamic deterministic model of HCV transmission, testing, and treatment was used to evaluate the epidemiological and economic impact of a national point-of-care HCV testing program among at-risk populations. Cost-effectiveness was evaluated from the healthcare provider perspective using costs and health-related quality-of-life utility data. Sustained implementation, reflecting program achievements from 2022–2024 and continued reach from 2025–2030, was compared with a counterfactual scenario without a national program over 2022–2041. Costs and quality-adjusted life-years were discounted at 5% annually.

Results: Compared with no national program, sustained implementation from 2022–2030 was projected to avert 4,350 infections and increase treatment initiations by 1,242 over the same period. The program was projected to screen 404,417 people and support treatment initiation for 55,753 people. Overall HCV RNA prevalence was projected to decline from 9.5% in 2021 to 2.4% in 2030 (75% relative reduction). Additional antibody and RNA diagnostic costs of A$20.5 million were more than offset by reductions in treatment costs of A$33.2 million and disease management costs of A$10.8 million, resulting in net healthcare savings of A$23.5 million by 2041. Sustained implementation of a national program between 2022-2030 was cost-saving, with every A$1 invested projected to generate A$1.78 in long-term healthcare savings.

Conclusion: Sustained national scale-up of HCV point-of-care testing could substantially reduce HCV prevalence, increase treatment uptake, avert new infections, and generate long-term healthcare cost savings.

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