Eliminating hepatitis C in Pakistan could yield a return-on-investment of US$9.10 billion

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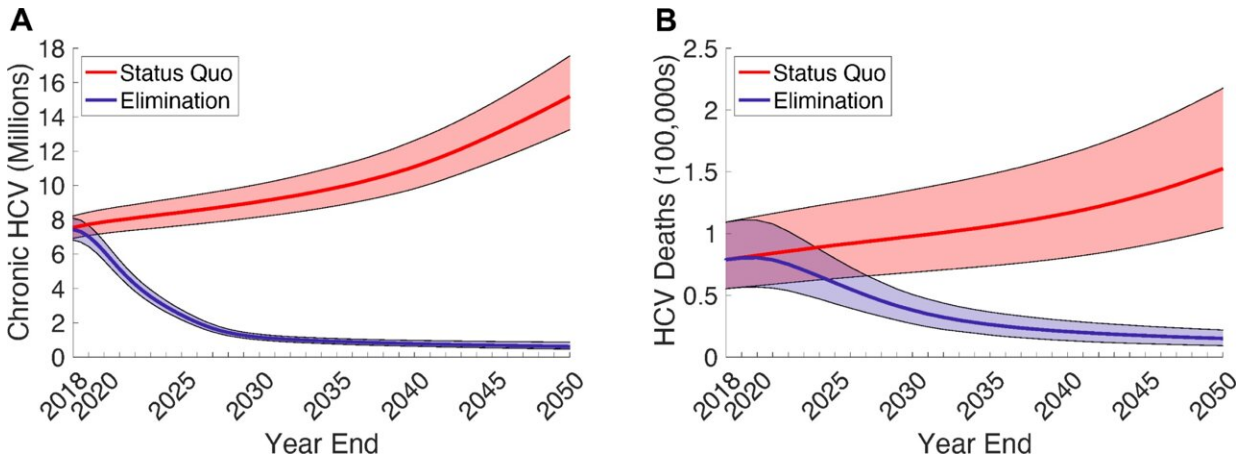

Fig 1. Estimated health impact of the SQ and EL scenarios on (A) the projected number of people living with hepatitis C and (B) the number of annual hepatitis C–related deaths. The solid line and shading indicate the median and 95% UIs across 1,151 model fits. EL, elimination; HCV, hepatitis C virus; SQ, status quo; UI, uncertainty interval. Credit: DOI: 10.1371/journal.pmed.1003818

Pakistan has one of the highest rates of hepatitis C virus (HCV) infection in the world, accounting for over ten percent of global HCV infections. A new modeling study led by the University of Bristol, UK, suggests that achieving the World Health Organization goal of eliminating HCV as a public health problem by 2030 in Pakistan is likely

to be highly cost-effective by 2030, cost-saving by 2031, and could deliver US$9.10 billion in savings to the Pakistan national economy by 2050.

The study, a collaboration across the University of Bristol, the Burnet Institute in Australia, and Aga Khan University in Pakistan, found that achieving HCV elimination in Pakistan could yield substantial societal health and economic benefits. These benefits include saving 333,000 lives and averting considerable morbidity due to ill health, leading to improvements in health-related quality of life and workforce productivity.

The research findings, published in *PLOS Medicine*, looked beyond the direct investment required to reach HCV elimination by evaluating the productivity and health gains to estimate the potential return-on-investment for eliminating HCV in Pakistan. The authors also investigated the costs saved from partially integrating HCV testing services into existing healthcare infrastructure.

Dr. Aaron Lim, Research Fellow in Infectious Disease Mathematical Modeling in the NIHR Health Protection Research Unit in Behavioral Science and Evaluation at the University of Bristol and lead author of the study, said: "Countries may be substantially underestimating both how much HCV is costing their economy and the benefits of elimination.

"We have previously estimated that a direct investment of US$3.87 billion is required for HCV elimination in Pakistan, but that previous study did not capture the wider societal benefits of achieving HCV elimination, such as gains in workforce productivity due to people being free of HCV infection. Understanding these wider benefits are important for informing decision-making.

"Our modeling suggests that when we include these indirect savings,

investing in HCV elimination can become cost-saving to the economy in 10 years' time."

Dr. Nick Scott, from the Burnet Institute and joint lead author, added: "This study is critical because it provides the evidence needed to support continued investment in HCV elimination as a priority for Pakistan."

Peter Vickerman, Professor of Infectious Disease Modeling from the University of Bristol, said: "Our study shows that through achieving HCV elimination, Pakistan can save over 300,000 lives while also saving money, especially if the required increase in HCV screening is integrated into existing healthcare services."

Hepatitis C is a blood-borne virus infecting 71 million people worldwide (about one percent of the world's population) and causes 400,000 deaths each year.

More information: Aaron G. Lim et al, Health and economic benefits of achieving hepatitis C virus elimination in Pakistan: A modelling study and economic analysis, *PLOS Medicine* (2021). DOI: 10.1371/journal.pmed.1003818

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