

THE COST-EFFECTIVENESS OF GENERAL POPULATION HCV SCREENING IN INDIA

Authors: Antoine Chaillon¹, Sanjay R. Mehta^{1,2}, Martin Hoenigl^{1,3}, Peter Vickerman⁴, Matthew Hickman⁴, Britt Skaathun⁵, Natasha K Martin^{5,4}

¹Division of Infectious Diseases, Department of Medicine, University of San Diego, California, USA., ²Department of Medicine, San Diego Veterans Affairs Medical Center, ³Department of Medicine, Medical university of Graz, Austria ⁴School of Social and Community Medicine, University of Bristol, UK ⁵Division of Global Public Health, University of California San Diego, USA.

Background:

HCV direct-acting antiviral therapies (DAAs) cure >90% of individuals, but many remain undiagnosed. In India, unsafe medical injections contribute to HCV risk in the general population (HCV seroprevalence 0.5-1.5%), but reinfection concerns limit the implementation of screening and treatment programs. We evaluate the cost-effectiveness of general population HCV screening in India, including risk of reinfection.

Methods:

A closed cohort Markov model of HCV screening, progression, treatment, and reinfection was parameterized to India. We compared a one-time general population screen to no screening (status quo). We utilize a health care provider perspective, and 100-year time horizon. For each disease stage, we attached India-specific costs (2015 USD\$) and literature-based health utilities (quality-adjusted life years, QALYs), discounted 3%/year. We model treatment uptake 20%/year and annual re-screening for reinfection. We assumed \$3 and \$35 per HCV serology and RNA test, respectively. We examine DAAs with 90% SVR at \$900/treatment. HCV seroprevalence was estimated at 1%, and varied 0.5%-1.5% in the sensitivity analysis. Reinfection rates are unknown; for the base-case we assumed 3%/year reinfection, consistent with a meta-analysis among high-risk individuals. We determined screening cost-effective or highly cost-effective if the incremental cost-effectiveness ratio (ICER) was below three-times or one-times India's per capita GDP, respectively (\$4740 or \$1580, respectively).

Results:

At 1% HCV seroprevalence, screening was cost-effective (ICER \$1817/QALY gained) assuming 3%/year reinfection, and highly cost-effective (ICER \$1471/QALY) with 1%/year reinfection. Screening remained cost-effective even with 10%/year reinfection (ICER \$2942/QALY). At 1.5% seroprevalence, screening was highly cost-effective (ICER < \$1580) for reinfection < 8%/year. Conversely, at a 0.5% seroprevalence, reinfection at or below 3%/year ensures cost-effectiveness (ICER < \$4740); at this prevalence screening could not be highly cost-effective.

Conclusions:

Despite uncertainty in HCV prevalence and reinfection, HCV general population screening in India is likely cost-effective, and could be highly cost-

effective, These data support a large scale screening program to address India's burgeoning HCV epidemic.

Disclosures: NM and PV have received unrestricted research grants from Gilead unrelated to this work. NM has received honoraria from Merck, Gilead, and Abbvie.