BACKGROUND

Hepatitis C virus (HCV) elimination could be achieved in Italy by newly linking 36,400 patients to care and treating 38,000 patients annually by 2025. Cost-effective screening strategies are needed.

METHODS

Markov disease burden model, was populated with Italian data to quantify the annual HCV-infected population by liver disease stage, sex, and age. An economic impact module was added to quantify medical costs (costs of screening, antiviral treatment, including assessment and monitoring, and liver-related complications) and health effects, denominated in quality-adjusted life years (QALYs), associated with HCV infection, as well as the corresponding incremental cost-effectiveness ratio (ICER). Prevalence of asymptomatic HCV infections not yet linked to care was used to calculate the number of HCV antibody screens needed annually to diagnose one case. Modeled outcomes for disease burden, medical costs, and health effects of HCV infection were assessed under the status quo and as a scenario to achieve the World Health Organization’s (WHO) Global Health Strategy (GHSS) targets for eliminating HCV by 2030 under four screening strategies. The screening strategies included universal or targeted screening by birth cohort: the 1948–1978 cohort, the 1958–1978 cohort, and graduated birth cohort screening (birth years 1948–1958 beginning in 2020, expanding to 1948–88 gradually by 2026).

RESULTS

Figure 1. Cumulative diagnosed and treated patients as well as modelled viremic cases and liver-related deaths, by scenario, 2018-2031

All screening scenarios were found to be highly cost-effective (ICER of less than €5,000 per QALY gained) compared with the status quo. The graduated screening scenario was the least costly, with €5.8 billion in total medical costs by 2031. This was €92.7 million less than screening in the 1948–78 birth cohort, and €248.7 million less than universal screening. Graduated screening would gain approximately 141,000 QALYs by 2031, compared to 140,000, 137,000, and 123,000 QALYs for the universal, 1948–78 birth cohort and 1958–78 birth cohort, respectively.

CONCLUSION

In Italy, implementing graduated screening, beginning with the 1948–1958 cohort in 2020, was the most cost-effective option, and showed the greatest reductions in overall disease burden by 2030. This strategy should be considered to sustain Italy’s momentum towards achieving HCV elimination goals.

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CONTACT INFORMATION

Loreta Kondili MD, PhD. Center for Global Health, Istituto Superiore di Sanità, Rome. Email: loreta.kondili@iss.it