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Hepatitis C virus prevalence and level of intervention required to achieve the WHO targets for elimination in the European Union by 2030: a modelling study.

European Union HCV Collaborators.

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Abstract

BACKGROUND: Hepatitis C virus (HCV) is a leading cause of liver-related morbidity and mortality worldwide. In the European Union (EU), treatment and cure of HCV with direct-acting antiviral therapies began in 2014. WHO targets are to achieve a 65% reduction in liver-related deaths, a 90% reduction of new viral hepatitis infections, and 90% of patients with viral hepatitis infections being diagnosed by 2030. This study assessed the prevalence of HCV in the EU and the level of intervention required to achieve WHO targets for HCV elimination.

METHODS: We populated country Markov models for the 28 EU countries through a literature search of PubMed and Embase between Jan 1, 2000, and March 31, 2016, and a Delphi process to gain expert consensus and validate inputs. We aggregated country models to create a regional EU model. We used the EU model to forecast HCV disease progression (considering the effect of immigration) and developed a strategy to achieve WHO targets. We used weighted average sustained viral response rates and fibrosis restrictions to model the effect of current therapeutic guidelines. We used the EU model to forecast HCV disease progression (considering the effect of

immigration) under current screening and therapeutic guidelines. Additionally, we back-calculated the total number of patients needing to be screened and treated to achieve WHO targets.

FINDINGS: We estimated the number of viraemic HCV infections in 2015 to be 3 238 000 (95% uncertainty interval [UI] 2 106 000-3 795 000) of a total population of 509 868 000 in the EU, equating to a prevalence of viraemic HCV of 0.64% (95% UI 0.41-0.74). We estimated that 1 180 000 (95% UI 1 003 000-1 357 000) people were diagnosed with viraemia (36.4%), 150 000 (12 000-180 000) were treated (4.6% of the total infected population or 12.7% of the diagnosed population), 133 000 (106 000-160 000) were cured (4.1%), and 57 900 (43 900-67 300) were newly infected (1.8%) in 2015. Additionally, 30 400 (26 600-42 500) HCV-positive immigrants entered the EU. To achieve WHO targets, unrestricted treatment needs to increase from 150 000 patients in 2015 to 187 000 patients in 2025 and diagnosis needs to increase from 88 800 new cases annually in 2015 to 180 000 in 2025.

INTERPRETATION: Given its advanced health-care infrastructure, the EU is uniquely poised to eliminate HCV; however, expansion of screening programmes is essential to increase treatment to achieve the WHO targets. A united effort, grounded in sound epidemiological evidence, will also be necessary.

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