Research Article
Viral Hepatitis

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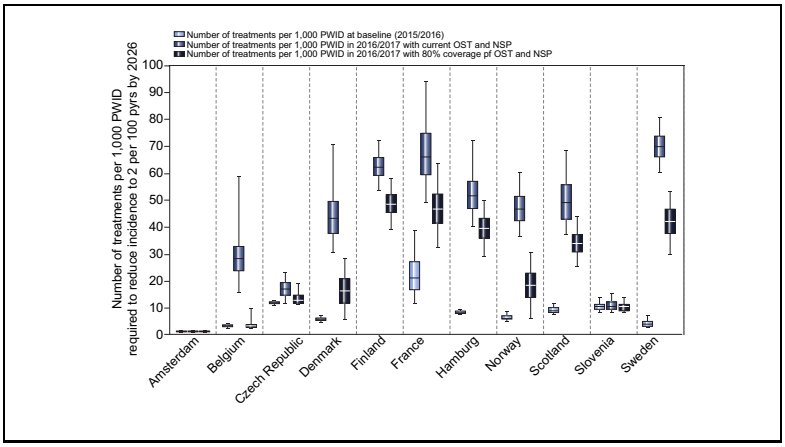
Model projections on the impact of HCV treatment in the prevention of HCV transmission among people who inject drugs in Europe

Graphical abstract



Highlights

- Chronic HCV prevalence and treatment rates among PWID vary widely across Europe.
- HCV treatment scale-up is required in most sites to reduce HCV transmission.
- Increasing OST/NSP coverage enhances HCV treatment prevention benefit.

Authors

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Lay summary

Measuring the amount of HCV in the population of PWID is uncertain. To reduce HCV infection to minimal levels in Europe will require scale-up of both HCV treatment and other interventions that reduce injecting risk (especially OST and provision of sterile injecting equipment).

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Model projections on the impact of HCV treatment in the prevention of HCV transmission among people who inject drugs in Europe

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See Editorial, pages 383–385

Background & Aims: Prevention of hepatitis C virus (HCV) transmission among people who inject drugs (PWID) is critical for eliminating HCV in Europe. We estimated the impact of current and scaled-up HCV treatment with and without scaling up opioid substitution therapy (OST) and needle and syringe programmes (NSPs) across Europe over the next 10 years.

Methods: We collected data on PWID HCV treatment rates, PWID prevalence, HCV prevalence, OST, and NSP coverage from 11 European settings. We parameterised an HCV transmission model to setting-specific data that project chronic HCV prevalence and incidence among PWID.

Results: At baseline, chronic HCV prevalence varied from <25% (Slovenia/Czech Republic) to >55% (Finland/Sweden), and <2% (Amsterdam/Hamburg/Norway/Denmark/Sweden) to 5% (Slovenia/Czech Republic) of chronically infected PWID were treated annually. The current treatment rates using new direct-acting antivirals (DAAs) may achieve observable reductions in chronic prevalence (38–63%) in 10 years in Czech Republic, Slovenia, and Amsterdam. Doubling the HCV treatment rates will reduce prevalence in other sites (12–24%; Belgium/Denmark/Hamburg/Norway/Scotland), but is unlikely to reduce prevalence in Sweden and Finland. Scaling-up OST and NSP to 80% coverage with current treatment rates using DAAs could achieve observable reductions in HCV prevalence (18–79%) in all sites. Using DAAs, Slovenia and Amsterdam are projected to reduce incidence to 2 per 100 person years or less in 10 years. Moderate to substantial increases in the current treatment rates are required to achieve the same impact elsewhere, from 1.4 to 3 times (Czech Republic and France), 5–17 times (France, Scotland, Hamburg, Norway, Denmark, Belgium, and Sweden), to 200 times (Finland). Scaling-up OST and NSP coverage to 80% in all sites reduces treatment scale-up needed by 20–80%.

Conclusions: The scale-up of HCV treatment and other interventions is needed in most settings to minimise HCV transmission among PWID in Europe.

Lay summary: Measuring the amount of HCV in the population of PWID is uncertain. To reduce HCV infection to minimal levels in Europe will require scale-up of both HCV treatment and other interventions that reduce injecting risk (especially OST and provision of sterile injecting equipment).

Introduction

Chronic hepatitis C virus (HCV) infection is a leading cause of liver disease and morbidity, causing more deaths than HIV in the United States and other high-income countries.[1–4] Preventing HCV transmission among people who inject drugs (PWID) is critical for averting future liver disease in Europe and elsewhere[5] and new HCV infections in this group.[6] Primary prevention through opioid substitution therapy (OST) and high-coverage needle

Keywords: Hepatitis C; PWID; Opioid substitution therapy; Direct-acting antivirals.
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