

Test and treat Hepatitis C: effectiveness and cost-effectiveness of an extended access to risk reduction measures and treatment

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Hepatitis C is one of the most common blood borne infection: globally, 1% of the population is chronically infected, leading to 400,000 deaths per year. Among people who inject drugs (PWID), the seroprevalence is usually high due to the sharing of injecting equipment: in France, it is still around 60% for PWID in Paris area vs. less than 1% in the general French population. The implementation of harm reduction measures like the provision of injecting equipment or opioid substitution therapies (OST) had a moderate impact on Hepatitis C prevalence in France. Currently, 33% of PWID in Paris area reported they have difficulty to access to sterile syringes. Moreover, there is a strong discontinuity in OSTs: if 85% of PWID reported they have been under OST in the past 6 months, only 37% of them have been under OST more than 10 months during the past year. Thus, there is still room of improvement for risk reduction measures. In addition, before 2011, the standard treatment for hepatitis C using the dual-therapy peg-interferons + ribavirin was poorly tolerated by the patients, leading to the treatment of patients at an advanced stage of the liver disease induced by the infection. However, since 2011, new antiviral regimens prescribed for a shorter duration, more effective and with a higher tolerability than the previous dual-therapy peg-interferons + ribavirin are becoming available to treat chronic hepatitis C. These new treatments could be used to decrease the disease burden in general population, but also to try to eliminate HCV in high incidence subpopulations (like PWID) by treating infected people before they can transmit the disease ("Treatment as Prevention"). However, this strategy would require an effective cascade of care, with quick diagnosis, linkage to care and treatment initiation after the infection. In addition, the new treatment regimens are costly (>28 000 euros per patient), questioning the efficiency of this strategy. We used a dynamic model for HCV transmission including the cascade of care and natural history of chronic hepatitis C. Our results show that an improvement in current risk reduction interventions would have a limited impact on the health of PWID. Initiating antiviral treatment independently of the severity of the liver disease would have an important impact on the HCV disease incidence and prevalence. However, for a "Treatment as Prevention" strategy to be highly effective and cost-effective high improvements in the entire cascade of care of chronic hepatitis C are needed. This strategy would allow to control the epidemic by decreasing HCV transmission and the related morbidity-mortality and it would be cost-effective. However, a middle-term elimination of HCV would remain unlikely.