MODELING HEPATITIS C VIRUS ELIMINATION IN THE UNITED STATES: ARE WE ON TRACK TO REACH INCIDENCE TARGETS?

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Background
Despite the proposed National Hepatitis C Virus (HCV) Elimination Plan in the U.S., the feasibility (80% reduction in HCV incidence, 65% reduction in HCV mortality by 2030) is unclear given the recent tripling of people who inject drugs (PWID) and increasing HCV incidence. We model what is required to achieve HCV elimination in the U.S given epidemiological changes.

Methods
We developed a general population model simulating HCV transmission and progression in the U.S., stratified by age and risk. The model was calibrated to data on: proportion HCV aware in 2014 and 2018, number treated 2001-2007 and 2014-2020, number of PWID in 2011 and 2018, proportion of PWID with chronic HCV in 2018, relative increase in HCV incidence from 2011-2019, number with chronic HCV infection in 2019, relative treatment among non-PWID from 2019/2020 compared to 2018, proportion treatments among PWID in 2016 and 2020, and HCV mortality in 2017. We used the calibrated model to simulate HCV incidence and mortality from 2015-2030 with current intervention rates and scenarios with intervention scale-up.

Results
The calibrated model predicts increasing HCV incidence from 218,350 [95%CI: 160,532–316,791] in 2015 to 310,703 [95%CI: 220,446–479,052] in 2030 alongside an increasing PWID population. Even if all diagnosed individuals are treated annually, new HCV infections are projected to increase unless transmission risk among PWID is reduced. Incidence targets could be reached by increasing HCV diagnosis (from an average of a test every 5 years to every 6.5 months), but even in this scenario the mortality target would be missed.

Conclusion
The U.S. is not on track to reach HCV elimination targets due to a projected 42% increase in HCV incidence alongside inadequate diagnosis and treatment. An urgent infusion of funding is required, alongside scale-up of combination harm reduction, point-of-care testing and treatment.