

Hepatitis C Virus Elimination Requires More Than Good Drugs

Oluwaseun Falade-Nwulia[®]

Division of Infectious Diseases, Johns Hopkins University School of Medicine, Baltimore, Maryland, USA

(See the Major Article by Tsertsvadze et al on pages 1263–8.)

There are over 71 million people globally infected with the hepatitis C virus (HCV) [1]. Hepatitis C, like many other infectious diseases, is a major cause of morbidity and mortality, but has unique features relevant for elimination. As a leading infectious disease killer, it has garnered special attention and is now unique among chronic viral infections because it is curable with a brief course of oral, direct-acting antiviral (DAA) pills, offering significant reductions in HCV-related morbidity and mortality for over 95% of patients who are able to access and take these medications [2–4]. The treatment and cure of HCV have the additional advantage of prevention of HCV transmission to others, thus potentially stopping the HCV transmission cycle. In recognition of the significant public health threat posed by viral hepatitis and spurred by the availability of these highly effective, very tolerable DAAs, as well as other tools with proven effectiveness at the prevention of incident viral hepatitis, the World Health Assembly adopted the call for viral hepatitis elimination as a public health threat by 2030 [1]. In 2017, the World Health

Organization published a report defining the HCV elimination goals as reductions in the HCV incidence by 90% and in HCV-related morbidity by 65% (relative to 2015 rates) [1]. Key strategies outlined by the World Health Organization include the diagnosis of 90% of HCV-infected individuals and the treatment of 80% of those eligible for treatment [1].

In 2015, Georgia, a lower-middle-income country in Eastern Europe (population of 3.7 million people), became the first country to launch a national hepatitis C elimination program [5]. This program was launched with the full political commitment of the Georgian government, in partnership with the US Centers for Disease Control and Prevention and with a commitment from Gilead Sciences to donate DAAs to treat all HCV-infected Georgians. The Georgia elimination plan is to reduce the HCV prevalence primarily through a test-and-treat approach, strengthened by effective prevention measures. The strategy is clearly articulated based on milestones, with targets to diagnose 90% of people with HCV and treat 95% of those diagnosed by 2020. Tsertsvadze and colleagues [6], in this edition of the journal, present findings on the progress towards achieving these targets as of March 2018, 3 years into implementation of the elimination program. Data on screening and treatment were pulled from the Georgia National HCV screening and treatment databases, so the demographic characteristics of individuals screened and treated were not reported. Of the national population of 3.7 million people, 974 817

had been screened for HCV antibodies, of which 86 624 (8.9%) tested positive. Among those anti-HCV positive, 61 925 (71%) underwent confirmatory testing. In this group, 52 856 of 61 925 (85%) were diagnosed with chronic HCV, of which 45 334 (86%) initiated HCV treatment. Overall, 30% of the estimated 150 000 adults living with chronic HCV in Georgia had initiated HCV treatment 3 years into the HCV elimination program [6].

The findings from this laudable project are instructive to other elimination programs and teach a number of lessons. Perhaps most glaring is that despite focused effort from the Georgian government and universal access to HCV treatment, treatment uptake has been significantly lower than the Georgian 2020 goals, suggesting that there remain several barriers that will need to be addressed to achieve these goals, both in Georgia and in other parts of the world. The step in the Georgian HCV care continuum with the steepest slope is diagnosis of infection. Similar challenges related to a lack of knowledge of infection are evident globally, with only an estimated 20% of the 71 million infected aware of their infection [1]. While the epidemic differs by geographic region and will need to be optimized regionally, potential strategies to increase overall testing and awareness of HCV infection include universal HCV testing recommendations, such as those proposed in the United States Preventive Services Task Force draft recommendations, which propose a category B rating for screening for HCV infection in adults

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Correspondence: O. Falade-Nwulia, Division of Infectious Diseases, Johns Hopkins University School of Medicine, 725 North Wolfe Street, Suite 215, Baltimore, Maryland 21205 (ofalade1@jhmi.edu).

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aged 18 to 79 years [7]. Such a screening recommendation in the United States is predicted to be cost effective in modelling studies [8, 9]. The simplification of the current 2-step HCV testing algorithm of HCV antibody testing, followed by confirmatory RNA testing, could also significantly address drop-offs from the HCV care continuum. In the Georgia study, approximately 25 000 participants were lost to follow-up after testing positive for HCV antibodies. If this had been a 1-step test to assess for evidence of an ongoing infection, it may have led to an additional 20 000 HCV diagnoses, based on the 85% chronicity rate among those that followed up for HCV RNA testing. If the goal of elimination is to detect and eradicate HCV viremia, should we be considering affordable 1-step strategies for the detection of HCV viremia or core antigen as the testing strategy for HCV elimination plans? This will be particularly important as much-needed efforts to move HCV testing and treatment out of clinics and to community-based sites gain momentum. Similar to the policy described in the Georgia study, continued efforts to decentralize HCV care—including the provision of care in nonspecialist settings, such as primary care offices, prisons, substance use disorder facilities, and mental health programs—and the expansion of testing and treatment services to rural areas will be needed in many regions of the world.

In Georgia, as in many high-income countries, the core of the HCV epidemic is people who inject drugs (PWID), the majority of whom do not access health care in traditional health-care settings. HCV elimination programs must target the unique needs of this population, which has the potential to sustain HCV epidemics due to ongoing transmission. In the United States, for example, rather than being reduced, the HCV incidence tripled between 2010 and 2016 and has continued to rise, largely driven by an ongoing opioid use epidemic [10]. The HCV care engagement needs of hard-to-reach

populations, such as PWID, will need to be considered, and thoughtful approaches to testing, linkage to care, and treatment will need to be developed for these populations. If people potentially infected with HCV will not come to clinics for testing and treatment, perhaps more concerted efforts need to be made to go to communities where these individuals can be found. The mobile delivery of testing and treatment services and the integration of testing and treatment services into programs already serving populations of PWID may reduce barriers [11]. More implementation studies are needed to develop best practices and assess the effectiveness of these approaches.

Overall, the simplicity and tolerability of HCV oral DAAs create a unique door of opportunity for HCV control at the population level. While unrestricted access to HCV therapies is necessary to achieve these goals, good drugs alone are not going to be sufficient. Every step in the HCV care continuum must be optimized to ensure that HCV-infected individuals are aware of their infection, linked to HCV treatment, and able to access these treatments. There are no one-size-fits-all strategies. As such, public health interventions, research efforts, and public-private partnerships will be critical to develop and implement affordable, simplified, preferably point-of-care diagnostics and treatment models for the testing and delivery of HCV treatment, combined with harm reduction strategies for hard-to-reach populations, such as PWID, and innovative models to assure access to HCV therapy for all HCV-infected individuals. The elimination of an infectious disease on this scale, with treatment rather than a vaccine, would be unprecedented, so efforts to develop an effective prophylactic HCV vaccine should also be prioritized appropriately [12].

The State of Georgia and its collaborating partners deserve a hearty congratulations for the steps that have been taken, the progress that has been made, and for

leading the way in taking on the challenge of HCV elimination as a nation.

Notes

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