



Excellence in viral hepatitis elimination – Lessons from Georgia

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Globally, there are more than 70 million people living with chronic hepatitis C virus (HCV) infection, and an estimated 257 million people are living with hepatitis B virus (HBV) infection, both of which cause significant morbidity and mortality primarily as consequences of chronic infection, including hepatocellular carcinoma and liver failure.¹ Georgia, a small country in the South Caucasus, has a high prevalence of HCV infection with an estimated 150,000 adults living with hepatitis C, representing 5.4% of the adult population.² Georgia was the first country in the world to undertake the challenge of hepatitis C elimination. A serosurvey in 2015 laid the foundation for the elimination program; the survey not only defined the burden of hepatitis C in the country, but also identified the major risk factors for transmission (injection drug use and receipt of blood products) and the demographic profile of those infected, thus allowing for clear characterization of the epidemic including identifying the most at-risk populations.² The cost of treatment in 2015 was prohibitive, so a key partnership was established with Gilead Sciences, who agreed to support the elimination program by providing free-of-charge treatment directly to the country because of the government's commitment to hepatitis C elimination nationwide.

Georgia launched the hepatitis C elimination program in April, 2015³ and set an ambitious goal of 90% reduction in hepatitis C prevalence by 2020.^{4,5} The initial program focus was on treatment, and through April 2019, nearly 60,000 persons had initiated treatment (Fig. 1). However, because of an appreciation of the importance of prevention, the program embraced a comprehensive approach, developing a strategy that addresses prevention, surveillance, advocacy, education, quality diagnostics, screening, and linkage to care, in addition to treatment.⁶ Further, Georgia has invested in and developed an advanced hepatitis C information system,⁷ which links screening, labora-

tory diagnostics, and treatment data allowing for near real-time monitoring of the care cascade (Fig. 1) and feedback on the effectiveness of programs and interventions, providing policy-makers with the ability to quickly identify deficiencies and make evidence-based adjustments.

Another critical element of the success of the program has been the country's commitment to scientific excellence. To accomplish this, Georgia has assembled an international group of experts in all aspects of hepatitis C elimination that come together annually as the Technical Advisory Group (TAG)⁷ to review progress and make recommendations to the program. Georgia has also developed a Scientific Committee⁷ that oversees and coordinates the research agenda for the elimination program. The Scientific Committee is also charged with documenting progress, assessing program effectiveness through the monitoring of key performance indicators, developing and testing innovations, and ensuring scientific integrity.

A further key to success has been the country's openness to working with partners and community. One group of key partners are without a doubt the clinicians and patients in Georgia that were early on aggressively advocating for ways to obtain treatment with the new life-saving direct acting antivirals (DAAs). Among the clinicians, providers from the four major infectious diseases hospitals provided critical leadership. The dedicated infectious disease specialists from these four centers were the first to offer treatment in the country, and have been instrumental in the scale-up of the program. The United States Centers for Disease Control and Prevention (CDC), another key partner, has been providing technical assistance to the program since 2013. The program has over time gained additional external partners, ranging from non-governmental organizations, to industry, to academic institutions, to patient advocacy groups (see acknowledgements); each of these partners bring key expertise and perspectives.

Despite the significant progress of the Georgia hepatitis C elimination program since its launch, challenges remain. A substantial portion of the estimated 150,000 HCV infected people still need to be identified and linked to care (Fig. 1). The number of patients entering the program has slowed after peaking at more than 4,000 patients per month in late 2016.

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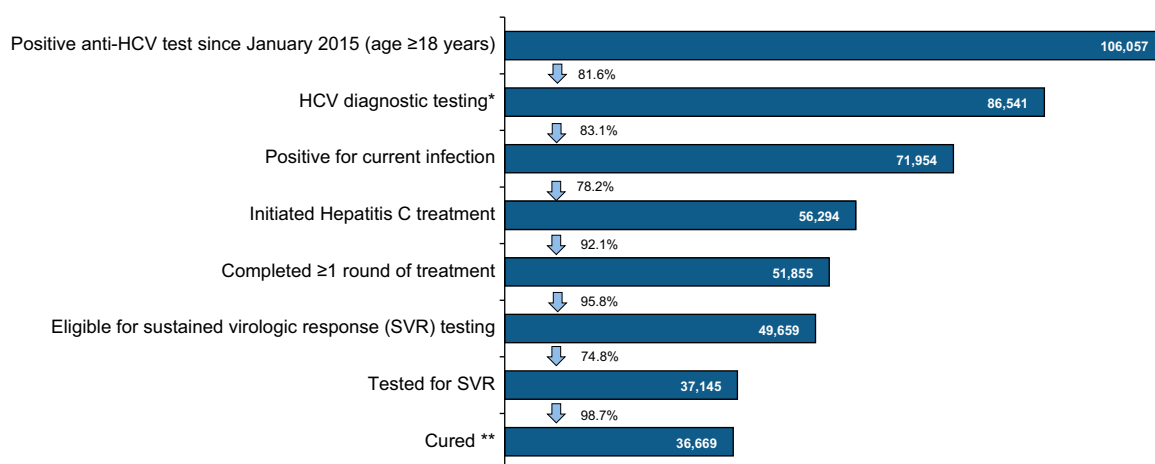


Fig. 1. Georgia hepatitis C elimination program care cascade, April 28, 2015 – April 30, 2019. *Either hepatitis C virus RNA or core antigen testing, **Includes retreatments. Among 37,582 persons tested after their 1st round of treatment, 36,098 (96.1%) achieved SVR. 1,327 persons initiated a 2nd round of treatment, with 94.2% (615/653) of those tested achieving SVR. HCV, hepatitis C virus; SVR, sustained virologic response.

In response, the government took additional steps to decrease barriers by lowering the cost of diagnostics and by integrating screening, care and treatment services into primary healthcare settings and harm-reduction centers throughout the country. Integration of these services allows infected individuals to receive hepatitis C care and treatment services in familiar and convenient locations, a strategy that has proven effective.^{8,9} Georgia plans to expand services to every district in the country, doubling the number of hepatitis C provider sites. In addition, the program provides services to the most marginalized and at-risk populations including people who inject drugs and incarcerated populations.

In line with the World Health Organization's (WHO's) targets to eliminate viral hepatitis B and C as a public health threat by 2030,^{1,10} many countries have developed and adopted viral hepatitis elimination strategies. However, despite the tremendous progress that has been made in recent years, only 12 of the 194 countries that endorsed the WHO global health sector strategy are on track to reach the WHO elimination targets.¹¹ Georgia was the world's first country to formally launch a national hepatitis C elimination program, although a few other countries, like Australia and Iceland, are now embarking on elimination as well.^{12,13} Georgia embraced a comprehensive hepatitis C elimination program⁶ that includes strategies in place to not only identify those infected with HCV and link them to care and treatment services, but also to safeguard the nation's blood supply, improve access to quality affordable diagnostics, and reduce infection among people who inject drugs and in the healthcare setting.^{4,7,14,15} Georgia's efforts are all the more remarkable as it is not a high-income country.¹⁶ The leadership exhibited by Georgia in hepatitis C elimination is the result of several factors including: the highest levels of political commitment, the allocation of significant resources, and the comprehensive nature of the program.⁶ This has culminated in the great success attained to date, and has led to the country being named as the World's first European Association for the Study of the Liver (EASL)-International Liver Foundation Center of Excellence in HCV Elimination,¹⁷ meeting all established criteria (Box 1).

The introduction of the Center of Excellence designation allows the EASL-International Liver Foundation to support viral hepatitis elimination efforts around the world. The EASL-

Box 1. European Association for the Study of the Liver-International Liver Foundation Criteria for Center of Excellence in Viral Hepatitis Elimination Designation.

CRITERIA:

A government department, ministry division, unit, or partner etc., prominent within a country's national/state viral hepatitis elimination program can be designated as an EASL-International Liver Foundation Centre of Excellence in Viral Hepatitis Elimination on behalf of the national/state viral hepatitis elimination program based on the fulfilment of the following criteria, as approved by EASL-International Liver Foundation

- A valid estimate of national/state viral hepatitis burden
- A funded comprehensive strategic plan for the national/state elimination of viral hepatitis as a public health threat
- A valid, time-bound, measurable targets for the national/state elimination of viral hepatitis as a public health threat
- Demonstrable progress towards national/state elimination of viral hepatitis through valid indicators
- High quality research outputs in relation to national/state elimination of viral hepatitis
- Demonstrable state of the art viral hepatitis training and educational programming
- Demonstrable partnership between state and non-state actors (academia, private providers, civil society groups, key affected groups and patients advocates) in hepatitis C elimination program planning and implementation
- Clear ability, capacity and readiness to contribute to the achievement of viral hepatitis elimination in other countries/states through technical assistance

International Liver Foundation is seeking to expand the Center of Excellence concept in viral hepatitis elimination to other regions of the world. For governments (e.g. a country or a region) which already fulfill the criteria, the designation provides a standardized framework and process to affirm their commitment towards viral hepatitis elimination. The designation may help elimination programs maintain their momentum during challenging times, such as changes in government or economic downturns that may jeopardize the government's commitment to elimination. For governments which are not meeting the Center of Excellence criteria, but

wish to obtain the designation, the EASL-International Liver Foundation may assist by providing technical assistance in support of fulfilling the benchmarks (Box 1). Such a community of designated Centers can serve as a global network of shared best practices and information exchange. Centers can support neighboring countries in launching comprehensive viral hepatitis elimination activities. As a Center of Excellence, Georgia has committed to sharing their experiences with the world, has hosted other countries, including delegations from Egypt and Afghanistan, and is available to provide technical assistance to neighboring countries. As a Center of Excellence, Georgia is working with the EASL-International Liver Foundation to ensure access to information and lessons learned, including their strategic plan, annual progress reports, TAG recommendations, and publications through the development of a website. The Foundation is fully committed to welcoming additional Centers of Excellence throughout the world; a network of viral hepatitis centers of excellence have the potential to contribute tangibly towards the goal of global viral hepatitis elimination by 2030.

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Conflict of interest

The other authors declare no conflict of interest.

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Disclaimer

The findings and conclusions in this report are those of the authors and not necessarily represent the official position of the U.S. Centers for Disease Control and Prevention.

Supplementary data

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