



Micro-elimination of Hepatitis C in Low- and Middle-Income Settings: Challenges and Windows of Opportunity

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Micro-elimination of hepatitis C virus infection (HCV) has been proposed as a viable strategy to contribute toward achieving the World Health Organization's goal of eliminating viral hepatitis as a public health problem by 2030; thus, elimination of HCV has become an aspirational goal for liver disease specialists and health authorities. The recognition of the structural challenges faced in low- and middle-income settings, and the innovation strategies to overcome them, can help programs to learn from each other and catalyze the global agenda. The purpose of the present article is to describe some of the challenges and potential windows of opportunity regarding the implementation of micro-elimination strategies as part of a broader national program of elimination of HCV in Mexico.

PREVALENCE OF HEPATITIS C IN THE GENERAL POPULATION, HIGH-RISK GROUPS AND REGIONS

The prevalence of hepatitis C virus (HCV) in Mexico is estimated to be 0.4 to 0.6%¹; however, such frequency varies when it is measured in clusters of high-risk populations. For instance, the prevalence of HCV antibodies (anti-HCV) in patients on hemodialysis has been reported to be 6.7%,² whereas for other people living with HIV has been as high as 12.1%.³ A study in prisons in Mexico City found an overall prevalence of anti-HCV of 3.3%.⁴ This figure rose to 43.1% among prisoners with a history of injection drug use (IDU). Furthermore, during incarceration, HCV-infected inmates reported getting more tattoos and a greater use of

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drugs, including injecting and sharing materials, in comparison to non-infected inmates.⁵ Men who have sex with men (MSM) and are IDUs were at higher risk of acquiring human immunodeficiency virus (HIV)/HCV.⁶ HCV prevalence also varies according to region, for instance being higher in the northern part of the country, highlighting again the need of having a strategy that is focused on micro-elimination efforts, particularly in settings with limited resources (either economic or health-care personnel).

CHALLENGES

Access to Health Care

Mexico's population in 2020 was approximately 126 million, distributed in 32 states and 2,469 municipalities; 21% of the population live in rural areas with < 2500 inhabitants. Access to public health care is unequal, ranging from 49.6% to 83.5%. The access gap is bigger for tertiary care centers. In addition, every year, at least 35% of the population covered under different public social security systems lost or changed their health-care provider; thus, a coordinated program is essential to advance in a national initiative.

Early Diagnosis and Treatment Access

To achieve better outcomes for people and health-care systems, early detection and treatment access is fundamental. Unfortunately, the diagnosis and access to treatment was traditionally delivered only to symptomatic patients attending the health centers, mostly in advance stages of the disease. In 2016, a study found that, of the patients accessing to treatment, the fibrosis stage was F3 or F4 in 55.5% and liver cirrhosis was present in 44%.⁷ Before 2019, treatment access was restricted to people with liver cirrhosis and under 60 years of age.

Training and Awareness of Primary Health-Care Workers

The shortage of primary care providers is of major concern. There are 270,600 general practitioners in the country. In 2019, Mexico had an average of 2.4 practicing physicians and 2.9 professional nurses per 1,000 population, compared with the Organization for Economic Cooperation and Development average of 3.5 and 8.9. These gaps are more intense when analyzed by regions, states, and municipalities. Only 15% of patients had their first test of HCV ordered by a family physician. In general, public and physician awareness of HCV in Mexico needs to be

raised, based on low reported awareness prior to diagnosis as well as low physician awareness of symptoms.⁸

Destigmatization of the Disease

It is essential to separate the diagnosis of HCV from a moral issue to a disease, particularly among high-risk groups. Breaches of confidentiality impact on willingness to seek treatment, particularly in settings removed from specialized treatment.

WINDOWS OF OPPORTUNITY

National Program Coordination

In 2019, the Mexican Health authorities approved a National Program for the elimination of HCV; a coordinated approach across the different health-care institutions led by the National Center for HIV prevention and Control (CENSIDA). The national roll-out and implementation followed a primary health-care approach, taking advantage of their previous experience in the country regarding the diagnosis and treatment of people with HIV based on primary health-care and community led responses.

An Intensive Educational Program, for Professionals and the Public

Improving the quality of training at all levels has become a priority to empower the health-care system to respond to the challenge of elimination of HCV. The goal is to achieve a full geographic distribution of diagnostic and treatment services.

Provide Sustainability to the Micro-Elimination Program

The Government has secured resources for free-of-cost access to diagnostic point of care screening for HCV antibody and polymerase chain reaction (PCR) test confirmation as well as access to direct acting antiviral (DAA) treatment for any infected person living in Mexico. National screening campaigns have been promoted.

Giving Surveillance the Power to Make a Difference

Upgrading the information and communication systems will allow the monitoring of outcomes and effectiveness of the different strategies. Improving country-level surveillance of HCV prevalence across different population groups in all regions. This will also facilitate communication between the different stakeholders and will be the

base to build an extensive future agenda to influence the health outcomes and elimination of HCV.

MICROELIMINATION EFFORTS IN MEXICO

The main health-care public systems in Mexico have initiated micro-elimination plans among higher risk groups, such as high-prevalence counties across the country, and programs focused on high-risk groups, such as people living with HIV, prisoners, or people who use drugs. In blood banks, the strategy to screen donors has been expanded to also include donors that have been rejected. All these programs are in process.

CONCLUSION

The elimination of HCV requires the participation, effort, and commitment of different actors. Achieving WHO's 2030 targets requires the implementation of a number of strategies, one of which is micro-elimination in high-risk population groups. This will allow the plans of the National Hepatitis C Elimination Program to pursue its goals.

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REFERENCES

- 1) Corona-Lau C, Muñoz L, Wolpert E, et al. Hepatitis C screening in the general population *Rev. Invest Clin* 2015;67:104-108.
- 2) Méndez SN, Motola KD, ChavezTapia NC, Bahena J, Correa-Rotter R, Uribe M. Prevalence of hepatitis C virus infection among hemodialysis patients at a tertiary-care hospital in Mexico City. *Mexico J Clin Microbiol* 2004;42:4321-4322.
- 3) Rivas-Estilla AM, Ramírez-Valles E, Martínez-Hernández R, et al. Hepatitis C virus infection among HIV-1-infected individuals from northern Mexico. *Hepato Res* 2007;37:311-316.
- 4) Silverman-Retana O, Serván-Mori E, McCoy SI, Larney S, Bautista-Arredondo S Hepatitis C antibody prevalence among Mexico City prisoners injecting legal and illegal substances. *Drug Alcohol Depend* 2017;181:140-145.
- 5) Belaunzán-Zamudio PF, Mosqueda-Gomez JL, Macias-Hernandez A, Sierra-Madero JG, Ahmed S, Beyrer. Risk factors for prevalent hepatitis C virus-infection among inmates in a state prison system in Mexico. *C. PLoS One* 2017;12:e0179931.
- 6) Deiss RG, Brouwer KC, Loza O, et al. High-risk sexual and drug using behaviors among male injection drug users who have sex with men in 2 Mexico-US border cities. *Sex Transm Dis* 2008;35:243-249.
- 7) Chirino-Sprung RA, Dehesa M, Wolpert E, et al. Chronic Hepatitis C Treatment with Direct-Acting Antiviral Agents in a Real-Life Setting. *Rev Invest Clin* 2016;68:203-212.
- 8) Primary Health Care Systems (PRIMASYS) Case study from Mexico World hepatitis Alliance. 2017.