

Commentary

The need for universal hepatitis C screening in incarcerated populations

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Abstract

Hepatitis C carries a large burden of disease in Canada. Barriers to care, especially in the incarcerated population, may impede effective treatment and the achievement of targets for disease eradication. Access to universal screening in incarcerated populations could support engagement in the care cascade, and local studies around prevalence and screening efficacy could be used to justify and inform screening programs. A focus on incarcerated populations is an important step toward HCV eradication and ensuring equitable healthcare for all. This article will discuss the HCV care cascade, the unique burden of HCV in correctional facilities, and provide an argument in support of universal screening in incarcerated populations.

Keywords: HCV, Hepatitis C, Universal screening, Prison(er) health, Incarcerated populations

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Health burden of Hepatitis C

Hepatitis C virus (HCV) is a bloodborne RNA flavivirus known to cause chronic liver disease (1). HCV can be transmitted vertically through childbirth, or horizontally through percutaneous blood exposure such as injection drug use. Following an acute, mostly asymptomatic infection, most patients will eventually develop chronic HCV, leading to cirrhosis and hepatocellular carcinoma. Globally, 71 million people currently live with chronic HCV, including 194 500 Canadians as of 2017 (2).

Acknowledging the global health burden of HCV, the World Health Organization (WHO) has set a goal to eliminate the disease by 2030. The WHO intends to enhance the link between screening and treatment as the central pillar of their strategy (3). However, Canada is currently not on track to accomplish this target (4). In the context of national and international efforts to eliminate HCV, there is a need to define HCV epidemiology and engage people in the HCV care cascade, especially within subpopulations that experience a disproportionate burden of disease and barriers to care.

The Hepatitis C care cascade

Since the discovery of HCV in the late 1980s by Alter, Houghton, and Rice (5), substantial advances have been made in the diagnosis and treatment of this disease. The steps from diagnosis to treatment are collectively known as the HCV care cascade (Figure 1). Today, laboratory testing for the HCV antibody is the mainstay of screening, followed by RNA testing to confirm the active disease. Patients who test positive for HCV through screening or assessment are usually referred to a health care provider with expertise in HCV treatment. Treatment can then be initiated with direct-acting antivirals (DAA) over eight weeks or more, depending on the viral genotype (6). DAAs have a very high efficacy as they were seen to induce a sustained virologic response in 96.6% of cases and significant decreases in rates of cirrhosis and hepatocellular carcinoma (7). Therefore, early screening, diagnosis, and treatment of HCV in asymptomatic individuals can prevent these largely irreversible complications.

Despite effective treatment options, care cascade engagement remains a common barrier to treatment. We define ‘engagement with the care cascade’ as ensuring that individuals at risk of HCV are offered appropriate screening, with subsequent linkage to diagnostic tests and treatment if indicated. Given bloodborne transmission of HCV, high-risk populations include those who share needles (e.g. related to injection drug use, tattooing), recipients of blood products (before 1992), and those who use drugs intranasally (8). In 2011, Trubnikov et al. estimated that 44% of Canadians with chronic HCV remain undiagnosed (9). O’Neill et al. found that only one-third of newly diagnosed HCV cases in Alberta were successfully referred to a specialist, and just 11% of new cases were prescribed treatment within two years (10). Untreated chronic HCV carries substantial societal costs, and in 2012, it was reported that HCV had the greatest burden of disease of any infectious pathogen in Ontario (12). In a 2014 study, Myers et al. estimated that by 2032, HCV will cost the Canadian healthcare system an estimated \$260 million per year.

Most of this amount is attributed to the medical and social costs of chronic disease management (12). Within the context of available treatment, the burden of undiagnosed HCV is enormous. In addition to the risk of preventable long-term complications, the undiagnosed and untreated population also represents a reservoir for further disease spread. Therefore, it is essential for high-risk populations to be screened and engaged in the care cascade as quickly and effectively as possible.

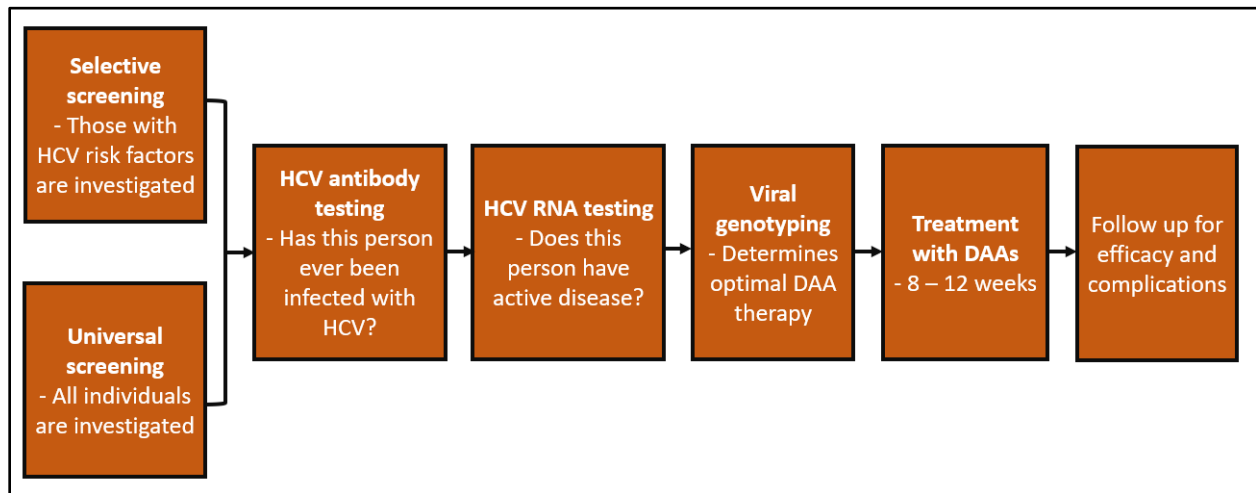


Figure 1. The HCV care cascade: screening, diagnosis, and treatment of hepatitis C virus (HCV) infection. Barriers exist in each step that prevent patients from progressing through the care cascade and accessing full treatment.

Hepatitis C in Canadian incarcerated populations

The prevalence of HCV is exceptionally high in the Canadian incarcerated population. In 2011, a study found that 25% of people in Quebec provincial correctional facilities were antibody positive – a prevalence rate 40 times higher than the general population (13). The high prevalence is a consequence of the high rates of injection drug use and needle sharing occurring within communities and during incarceration, in the context of the criminalization of drug use. Furthermore, a disproportionate percentage of people who experience incarceration are Indigenous, suffer from substance use disorders, or experience unstable housing situations. All these attributes are independently associated with a decreased likelihood of achieving milestones in the care cascade, adding an element of intersectionality within the incarcerated population (10).

For the purposes of this paper, it is necessary to explain the difference between Canadian federal and provincial correctional facilities, as they are governed by different policies. People sentenced to 24 months or more are incarcerated in federal correctional facilities administered by the Correctional Service of Canada. Those serving less than 24 months and those who are detained while awaiting trial are held in provincial and territorial correctional facilities, administered by provincial/territorial governments (14).

The time in correctional facilities provides an important opportunity to identify HCV infection through screening and to initiate engagement along the HCV care cascade (15). The Canadian Task Force on Preventive Health Care, the Canadian Association for the Study of the Liver, and the World Health Organization have all recommended universal HCV screening for people who experience imprisonment (7,16,17). There is currently routine screening in place at the time of admission to federal correctional facilities. However, in provincial and territorial correctional facilities, routine screening may not occur. Many common barriers to HCV care cascade engagement exist for people in these facilities (Table 1) including a short median length of stay and uncertainty regarding many people's release dates (18). Additional research and quality improvement are needed to address barriers to the HCV care cascade for those incarcerated in provincial correctional facilities.

Table 1. Potential barriers to HCV care cascade engagement in provincial correctional facilities.

Logistical barriers
Short median length of stay
Uncertainty around length of stay/date of release
Interpersonal barriers
Lack of trust between patients and healthcare providers
Institutional barriers
No universal screening policy
Challenges in access to health care
Focus on acute medical issues rather than preventive care
Competing priorities
Stress of incarceration
Acute medical issues (e.g. withdrawal, lack of continuity of care)
Legal issues

Logistical, interpersonal, and institutional barriers to engagement with the HCV care cascade during incarceration in provincial correctional facilities. Universal opt-out screening is currently not implemented in Ontario provincial facilities (18).

Universal screening

Universal screening for HCV for people within provincial correctional facilities represents one way to support engagement in the care cascade. Universal screening involves consensual laboratory testing for all people admitted to correctional facilities, regardless of known risk factors for HCV. Integrating screening into the admission process would remove some barriers to the first step of the care cascade (Figure 1) since it would support access to testing for people with shorter imprisonment lengths. Thus, this policy change could increase the likelihood of people receiving their diagnostic results prior to release.

Several trials have assessed the impact and cost-effectiveness of universal screening for HCV in prisons (19,20,21). A US modelling study identified voluntary opt-out screening in prisons as highly cost-effective while also reducing HCV transmission rates in the community.

The researchers found estimated incremental cost-effectiveness ratios between \$19 600 to \$29 200 per quality-adjusted life-year (15). A UK trial found universal screening to be cost-effective if at least 40% of detected cases were linked with community treatment upon prison release (22). A separate trial demonstrated high cost-effectiveness if screening was followed up with an eight-to-twelve-week DAA treatment in the community (23).

Nevertheless, various limitations exist in implementing universal screening programs in Canadian provincial correctional facilities. While pilot trials have been promising, knowledge gaps regarding the widespread implementation of screening persist. For instance, a 2018 systematic review of HCV screening in prisons found no research assessing how enhanced screening measures impacted treatment uptake (24). It is still unknown if universal screening would lead to improved outcomes, such as lower incidence of cirrhosis and hepatocellular carcinoma. As screening represents only a portion of the care cascade, additional barriers exist for other stages which need to be addressed in tandem to generate meaningful health outcome improvements. For example, transportation to a specialist clinic for treatment was a major barrier in an Australian study of HCV in prisons (25). Connections to appropriate services for follow-up in the community upon release were also difficult to establish and maintain. Shorter incarceration times for those in provincial prisons may be insufficient to complete the DAA treatment course. These limitations identify potential areas for further research around HCV screening in incarcerated populations.

Next steps

To address gaps in knowledge regarding HCV epidemiology and its care cascade, we are conducting a study at a local provincial detention centre, with the goal of better understanding limitations in screening access for this population. At this facility, HCV screening is currently ordered by a physician. Given scarce healthcare resources, several weeks often pass between admission and initial physician consultation. In the context of short lengths of stay, many people may not see a physician or receive their screening results before discharge. Universal screening on admission could therefore remove this barrier to the HCV care cascade. However, it is necessary to first obtain objective data regarding the efficacy of the current physician-ordered, opt-in model. We will review patient charts to identify HCV risk factors and information on HCV status, HCV testing, referral for HCV care, and HCV treatment. We plan to link provincial public health laboratory data to ascertain data on positive tests in the community and correctional facilities. Finding low rates of screening and testing for people who experience incarceration, especially for people with multiple risk factors for HCV, will support the case for implementing universal opt-out screening in provincial correctional facilities in Ontario.

Conclusion

Hepatitis C carries a large burden of disease in Canada. Barriers to care, especially in the incarcerated population, may prevent effective treatment and the achievement of targets for

eradication. Universal screening in this population could support engagement in the care cascade, and local studies around prevalence and screening efficacy could be used to justify and inform screening programs. A focus on incarcerated populations is an important step toward the goal of HCV eradication and to ensure equitable care for all.

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