COMMENTARY

Hepatitis C, Illicit Drug Use and Public Health

Does Canada Really Have a Viable Plan?

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ABSTRACT

Some 300,000 individuals are infected with the hepatitis C virus (HCV) in Canada. HCV infection is associated with major morbidity, mortality and health care costs; these indicators are projected to rise over the next decade. The vast majority of prevalent and incident HCV infections in Canada are illicit drug use-related; thus, the HCV disease burden can only be addressed through interventions targeting this primary risk factor. Both preventive (e.g., needle exchange, methadone treatment) and therapeutic (e.g., the accessibility of HCV treatment for illicit drug users) interventions aimed at HCV in illicit drug users have been broadly expanded in Canada in recent years. However, evidence suggests that existing preventive measures only offer limited effectiveness in reducing HCV risk exposure. Also, due to restricted resources, treatment for HCV currently only reaches an extremely small proportion (i.e., <5%) of HCV-infected drug users. Thus, on the basis of current HCV incidence as well as given interventions and their impact, Canada is not achieving a net reduction in the prevalence of HCV-related to illicit drug use. In order to reduce the HCV disease burden, Canada needs to reconsider the scope, delivery and resourcing of both preventive and treatment interventions targeting the primary risk population of illicit drug users.

MeSH terms: Hepatitis C; public health; street drugs; policy; Canada

In Canada – as in most other Western market economies – the combination of illicit drug use and hepatitis C virus (HCV) infection constitutes a major source of disease burden and costs.[1] Approximately 50-90% of street drug user populations are HCV-infected.[2-4] The vast majority of the currently 300,000 prevalent HCV infection cases in Canada are illicit drug use-related; this risk factor is estimated to cause 75% of the approximately 6,000 or more new HCV infections per year.[5,6] The subsequent disease and cost burden of the HCV epidemic is extensive, given that up to one in four HCV-infected persons will develop cirrhosis within twenty years of infection, and cirrhosis leads to substantive annual rates of liver failure (2-4%) and/or hepatocellular carcinoma (1-7%). At least one in eight HCV-infected persons are expected to die as a result of their infection.[7,8] The annual economic costs of HCV-related disease have been crudely estimated to be up to $500 million in Canada,[9,10] with current indicators suggesting that HCV-related morbidity, mortality and costs will considerably increase in the next two decades.[6] Hence, an effective strategy – while acknowledging the pivotal causal role of illicit drug use – is urgently needed to reduce the incidence of HCV infection and HCV-related morbidity and mortality in Canada.

While the HCV epidemic among illicit drug users has long been a neglected issue both in the hepatology and addiction fields, some general developments are reasons for optimism:

- illicit drug use is now acknowledged as a key risk factor for HCV in official strategy documents;[1,11]
- prevention programs for high-risk drug users (e.g., needle exchange programs [NEPs], safer injection sites [SIS], 'safer crack use kits', opioid substitution treatment) are available in Canada;[12,13]
- a series of recent studies has demonstrated the potential feasibility and effectiveness of state-of-the-art pharmacotherapy treatment for HCV with illicit drug user samples.[14,15]

Yet, one must ask whether our collective good intentions are truly enough as a strategic approach to reverse the expansive trend of the HCV disease burden? In other words, is Canada taking effective and sufficient steps aimed at reducing the HCV

La traduction du résumé se trouve à la fin de l'article.

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problem? Regretfully, a closer examination raises severe doubts. Recent epidemiological data suggest that, although preventive interventions for illicit drug users have been broadly expanded in Canada over the past decade, illicit drug user populations (e.g., VIDUS, SURV-IDU)[2,4] have seen insignificant declines in HCV incidence at best. Declines observed have been assessed to be most likely "due to saturation … of HCV" rather than accomplished by extrinsic interventions.[2(p38)]

While the broad availability of preventive interventions for high-risk drug users may ideally suggest substantial protection against HCV transmission, the reality of their impact is far less encouraging. This discrepancy originates from the combination of the comparably high (e.g., compared to HIV) infectivity of the HCV as well as the actual utilization dynamics of preventive interventions.[16] While the effectiveness of NEPs for reducing HIV incidence is widely proven, several recent studies have documented that, as a tool to prevent HCV, NEPs are "relatively ineffective" and "offer no protective benefits".[17-19] Key reasons for these shortcomings include that many drug injectors continue to share not only syringes but primarily other equipment, utilize NEPs only irregularly, and are likely to be HCV-infected already within months of injection uptake, so that HCV infection typically occurs faster than prevention resources can be utilized.[1,16,20] The preventive prospects of safer injection sites (SIS) – amplified by the existence of only one such facility in Canada – against HCV transmission offer a similarly restricted picture. To date, no reduction of HCV incidence attributable to SIS has been empirically demonstrated. Moreover, data from three continents show that the vast majority of SIS clients utilize these facilities only sporadically (e.g., once a week or less), meaning that most injections continue to occur under unsafe conditions. Furthermore, baseline rates of HCV infection among SIS clients are typically already high.[21-23] New interventions – specifically 'safer crack use kits' (SCUK) – to prevent HCV transmission among the growing population of oral crack users currently operate on hypothetical grounds: there is no definitive evidence to date that HCV transmission is actually caused by crack use (as opposed to other risk factors concentrated among crack users). Furthermore, the efficacy of SCUK to prevent HCV transmission has not yet been conclusively investigated.[24,25]

Considering addiction treatment, methadone maintenance treatment (MMT) is fairly widely available in Canada, reaching some 25-30% of estimated illicit opioid users.[26] Several studies have demonstrated MMT's impact on lowering HIV as well as HCV risks in treatment samples.[17,27] However, actual treatment realities reveal dilemmas similar to the above-described prevention efforts. The protective effect of MMT for HCV primarily hinges on clients' strict treatment adherence (and consequently, the avoidance of risk behaviours related to illicit drug use). Regrettably, MMT evaluations commonly only report outcomes on patient subsamples effectively retained in treatment, leading to skewed conclusions regarding program effectiveness.[27-29] In reality, most illicit drug users enter into MMT only after a lengthy injection history, and adhere to the treatment only for a short time or with interruptions.[29] Consequently, these lapses offer extensive opportunity for HCV exposure and subsequent infection if the client is not already infected.[15,17,29]

Recent research on antiviral treatment as a therapeutic approach to reduce the HCV disease burden among illicit drug users has provided encouraging news. Several clinical trials have demonstrated the feasibility and effectiveness of pegylated interferon/ribavirin-based HCV therapy for illicit drug users, resulting in virus clearance or 'cure' rates similar to non-drug user treatment samples.[1,14,15] In addition, guidelines have recommended the active consideration of illicit drug users for HCV treatment, and have therefore broken traditional barriers for inclusion.[1,11] Yet contrary to these positive indicators, a variety of obstacles exist for extensive HCV treatment uptake by illicit drug users: first, two thirds or more of HCV-positive drug users in Canada are infected with a genotype 1 strain of the HCV virus,[30] which requires 48-week-long treatment and is characterized by relatively low treatment response rates (<50%) compared to genotype 2 or 3 strains.[31] Second, HCV therapy is generally lengthy, expensive, and – especially for drug users' distinct patient needs – requires multidisciplinary expert care to ensure treatment adherence and completion, and subsequent positive treatment outcomes.[14-16,32] Unfortunately, resources for such quality care in this vulnerable target population are extremely limited. Compounding the problem of resources, a large proportion of HCV-infected drug users are either not motivated for treatment, or deterred by treatment requirements or possible side effects.[33,34] The following provides a concrete illustration of the limited reach of current treatment efforts. In the multi-site I-Track population, only 3.0% of HCV-positive IDUs had ever undergone HCV pharmacotherapy.[35] In British Columbia (BC), an estimated total of 5,000 HCV-infected persons have undergone treatment since January 2000. Assuming a cure rate of <50%, the effectively treated population translates into ~6% of the known HCV-infected population (41,000), or ~4% of the estimated HCV-infected population (60,000) in BC.[10] On this basis, it must be assumed that the number of cases effectively treated for HCV is smaller than the number of incident HCV infections per year in Canada, not even leading to a net reduction in HCV prevalence.

Based on the above overview, we must conclude that an effective reduction of the illicit drug use-related HCV disease burden in Canada cannot be expected in the near future. What other steps should be considered? First, the enormous gap between HCV treatment intentions and realities for illicit drug users must be narrowed – i.e., more treatment must be delivered, especially to those individuals infected with HCV-genotypes (e.g., 3) promising a high chance of successful treatment outcome. This ought to happen through the provision of targeted resources and community-based treatment delivery (e.g., via GPs) to this population, as demonstrated to be effective for both HIV treatment and MMT delivery in recent years.[36,37] The need for expanded HCV treatment for illicit drug users is encouraged by observed low re-infection rates as well as possible immuno-protective effects following treatment in this population, although more research is required on these issues.[38,39] Second, currently neglected preventive potentials for HCV must be explored. A considerable minority of street drug users

in Canada – following more pronounced trends elsewhere, e.g., in Europe – practice non-injection forms of drug use, and thus face lessened HCV transmission risk exposure.[3,40] While program initiatives exist,[41,42] little is currently done domestically to actively prevent (especially young) drug users' transition to injection behaviours, or to encourage current injectors to revert to non-injection practices. Third, additional addiction treatment programming – including diversified opioid and non-opioid maintenance programs with high retention potential – must be considered to decrease high-risk behaviours for HCV transmission as a consequence of persistent illicit drug use.[26,43] Finally, without an effective HCV vaccine on the horizon, the potential preventive utility of spontaneous clearance of HCV infection in illicit drug users must be better understood. Spontaneous clearance has been reported to occur in 20-50% of persons infected with HCV, and may subsequently provide protective immunity against HCV.[44] These processes may be modifiable and thus utilized for interventions to reduce HCV incidence.[45,46]

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RÉSUMÉ

Au Canada, quelques 300 000 personnes sont infectées par le virus de l'hépatite C (VHC). L'infection à VHC entraîne des coûts énormes sur le plan de la morbidité, de la mortalité et des soins de santé; on prévoit que ces indicateurs augmenteront durant la prochaine décennie. La grande majorité des infections à VHC courantes et incidentes au Canada est reliée à la consommation de drogues illicites; le seul moyen d'alléger le fardeau de l'hépatite C est donc d'intervenir en ciblant ce facteur de risque primaire. On a élargi ces dernières années au Canada les mesures de prévention (l'échange d'aiguilles, le traitement à la méthadone) et de traitement (l'accès aux traitements anti-VHC) axées sur les consommateurs de drogues illicites infectés par le virus. Par contre, des données laissent croire que les moyens de prévention existants ont une efficacité limitée en ce qui a trait à la réduction du risque d'exposition au VHC. De plus, les ressources étant limitées, seule un très petite partie (moins de 5 %) de la population des consommateurs de drogues illicites infectés a accès aux traitements anti-VHC. Donc, étant donné la fréquence actuelle d'infection par le VHC et le faible impact des mesures d'intervention, le Canada ne réussit pas à obtenir une réduction nette de la prévalence du VHC liée à la consommation de drogues illicites. Afin de réduire le fardeau de l'hépatite C, le Canada se doit de reconsidérer, de façon fondamentale, la portée, la distribution et les ressources attribuées aux interventions préventives et thérapeutiques visant la population la plus vulnérable, soit les consommateurs de drogues illicites.

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