FACT SHEET

Hepatitis C Virus (HCV) infection and illicit drug use

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This fact sheet was prepared by Ms. Emma Haydon and Dr. Benedikt Fischer[*], and Dr. Mel Krajden[†] for the Canadian Centre on Substance Abuse (CCSA). It is intended to provide a brief summary of key empirical facts on the various research, program and policy links between HCV and illicit drug use in Canada.

Hepatitis C Virus (HCV) disease information

- Hepatitis C is a liver disease caused by the presence of the hepatitis C virus (HCV) in the blood of an infected person. When first discovered in the 1970s, it was called non-A, non-B hepatitis, and since 1989, the virus has been referred to as HCV.
- If not treated, infection with HCV becomes chronic in 50%–85% of individuals, causing serious illness or death in a sub-population of virus carriers[1].
  - 10%–20% of infected persons develop liver cirrhosis (scarring) within 10–20 years of first being infected.
  - 5%–10% of those with cirrhosis develop liver cancer (hepatocellular carcinoma).
  - For 2002, there were an estimated 400–450 annual direct HCV-related deaths, and this number is expected to increase over the coming years; the number of deaths indirectly related to HCV is much larger, but hard to estimate[2].
- There are at least six major HCV variations (called genotypes) and several subtypes. These vary by region. In North America, the HCV infection variations are mainly genotype 1 (approximately 65%–70%), and genotypes 2 and 3 (30–35%); others represent a very small percentage of cases.

Prevalence

- About 130 to 170 million people worldwide are infected with HCV.
- In Canada, about 0.8%–1.0% of the population (approximately 250,000–300,000 people) are infected with HCV; about one-third do not know they are infected because they have never been tested.
- It is estimated that 5,000–10,000 people in Canada are co-infected with HCV and HIV; there are approximately 55,000 people who are HIV-infected in Canada overall.
- Due to the lengthy incubation period between HCV infection and the development of symptoms, it is anticipated that the disease burden and social costs associated with HCV in Canada will continue to rise steadily over the coming years.

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Risk factors

- The primary risk factor for HCV transmission is injection drug use. More than half of prevalent HCV cases, and three out of four new infections are related to injection drug use in Canada[2,3]. Other transmission pathways include non-injection drug use, the receipt of infected therapeutic blood products, sexual transmission, accidental injuries, and vertical transmission (from mother to baby).
- Among injection drug users (IDUs), HCV is transmitted through the sharing of needles and other equipment needed for injection (e.g., water, cotton, etc.) coming into contact with and carrying infected blood particles. The longer that an individual has been injecting drugs, the higher their risk of contracting HCV (the first six months is a critical period).
- Intranasal (e.g., cocaine "snorting") and oral drug administration (e.g., crack "smoking") are also possible routes of HCV transmission and may explain some of the "unknown"cases [4]. Infected blood particles may be passed on through shared crack pipes or cocaine straws.
- The risk of HCV transmission in IDUs is exacerbated by certain individual factors (e.g., HIV co-infection, status of immune system, extent of risk behaviours) as well as social characteristics, including, for example, Aboriginal ethnicity, homelessness, and exposure to correctional environments.

Illicit drug user populations

- A review of international studies suggests that 50%–95% of IDU populations are HCV-infected [5].
- Studies of Canadian illicit drug user populations indicate similar numbers. For example, an IDU cohort of 1,345 persons in Vancouver—the Vancouver Injection Drug User Study (VIDUS)—demonstrated that 81.6% were positive for HCV antibodies (a measure of HCV infection) at recruitment[6]. An open cohort of IDUs in Montreal indicated that 70% were anti-HCV positive[7]. A cohort of illicit opioid users in five cities across Canada indicated a baseline positive rate of HCV antibodies (using saliva tests) of between 44.1% and 73.7% [8].
- Over a three-year follow-up period (1996-1999), the originally HCV-negative cases in the VIDUS study demonstrated an incidence rate of new HCV infections of more than 16 per 100 person-years[6].

HCV prevention measures

A variety of HCV prevention measures have been established, focusing primarily on injection drug use, since therapeutic blood products have been essentially eliminated as a source of transmission:

- Cleaning of needles with bleach to "kill" HCV and HIV viruses. However, this method only works if sterilization procedures are strictly adhered to (i.e., use of undiluted bleach, sufficient exposure of virus to bleach, etc.)[9,10]; other more effective prevention measures are therefore preferred.
- Needle exchange programs (NEPs) have been established since the 1980s and are available across Canada. NEPs provide clean needles (and other injection equipment) to IDUs in order to reduce the practice of sharing or re-using such equipment. Research evidence suggests that NEPs are an effective but not sufficient intervention for disease transmission; their degree of effectiveness also depends on a variety of factors, including program policies, ancillary services, extent of police support, etc.[11]. There is also limited evidence of the role of NEPs in reducing HCV transmissions[6].
- One pragmatic way to reduce HCV transmission risk is to encourage IDUs to use non-injection forms of drug administration (although these do not fully eliminate HCV risks).
- Drug treatment programs (e.g., methadone maintenance treatment for illicit opioid users) are effective in reducing infectious disease transmission risks among clients by reducing illicit drug use administration episodes[12].

- In some Canadian cities, the distribution of drug use materials for crack smokers ("Safer Crack Use Kits") has begun or is being discussed. The public health rationale is similar to that of NEPs, aiming at the reduction of the sharing of crack smoking hardware to avoid the transmission of infectious disease by this route[13].
- In Vancouver, a supervised injection facility (SIF) pilot project opened in the fall of 2003, following model facilities in European countries and Australia. One objective of this facility is to allow users to inject their drugs more safely and cleanly, and thereby reduce mortality and morbidity (including HCV transmission)[14].
- In Canadian correctional facilities, bleach is available to reduce blood-borne infectious disease transmission; however, as discussed, the data on the efficacy and effectiveness of bleach are limited[15]. Methadone is also available to offenders, if appropriate. Given the nature of extensive continuing risky drug use in correctional facilities, the correctional system in Canada is being pressured to follow other countries and to implement NEPs[16].

Treatment for chronic HCV infection

- The current state-of-the-art treatment for HCV is Peginterferon (pegylated interferon) in combination with Ribavirin[17,18].
- HCV genotypes are important determinants of treatment outcome. Genotype 1 requires a 48-week course of pegylated interferon/ribavirin therapy with a 40%–45% probability of "sustained viral response" (SVR), meaning that the virus has been substantially reduced in the blood stream after treatment completion; in contrast, genotypes 2 and 3 require 24 weeks of therapy and 75%–80% of treated people achieve SVR[19]. As a result, some experts now refer to HCV as a "curable disease".
- Until recently, illicit drug users were considered ineligible for HCV treatment[20], mainly due to concerns regarding treatment adherence, disposition for psychiatric side-effects, and risk of HCV re-infection[21]. However, recent evidence suggests that these risks can be effectively managed by interdisciplinary teams involving hepatology, substance use, and mental health. Treatment efforts may also be helped by embedding HCV treatment within substance use programs (e.g., methadone maintenance treatment programs—MMT)[22].
- A few studies have shown that illicit drug users (either active users or in MMT) reach HCV treatment completion and outcome rates that are similar to general community patient samples; based on this evidence, such treatment appears to work as well in drug users as in the general population[23,24].
- As recent expert guidelines from Canada, the U.S. and elsewhere demonstrate, there is an urgent need to consider HCV treatment of illicit drug users as a tool for inducing a virological cure and prevention of ongoing transmission[22]. Such efforts will require substantial changes in the attitudes and practices of a treatment system where illicit drug users are excluded in order to eliminate treatment barriers.

HCV and illicit drug use—public health, policy and research

- Efforts to reduce HCV-related burden of illness must address the specific prevention, care and treatment needs of illicit drug users. Fundamental adjustments must be made by the HCV medical care system; HCV treatment for illicit drug users has been shown to be feasible and effective if delivered appropriately, yet requires necessary provisions in treatment delivery and setting to accommodate their special needs.
- A comprehensive harm reduction program involving NEPs, MMT, SIFs and targeted treatment needs to be further evaluated to assess the most effective way to reduce HCV and other blood-borne agent transmission. Expanded availability and accessibility of such interventions must go hand-in-hand with best practice standards and user education.

- There are certain populations (e.g., inmates, Aboriginal peoples, homeless drug users) in which HCV transmission risks are highly prevalent, yet targeted interventions (e.g., clean needles in correctional facilities) are not currently available or sufficiently effective. The development and/or implementation of such interventions is urgently needed.
- Systematic research is needed on the specific risks and determinants of HCV transmission through non-injection forms of drug use (e.g., crack smoking), as well as the utility of interventions such as "safer crack use kits" in order to allow for evidence-based programming and policy.

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Suggested links

- B.C. Health Services—Clinical Management Guidelines for Hep C: www.healthservices.gov.bc.ca/msp/protoguides/gps/hepc/hepatitis_c.pdf
- Canadian Hepatitis Information Network: www.hepnet.com
- Canadian Association for the Study of the Liver (includes link to Viral Hepatitis Canadian Consensus 2004): www.hepatology.ca
- The Canadian Harm Reduction Network: www.canadianharmreduction.com
- Canadian Liver Foundation: www.liver.ca
- The Hepatitis C Information Network: www.hepnet.com
- HIV and Hep C disease information website: www.hivandhepatitis.com
- National Canadian Research Training Program in Hepatitis C: www.ncrtp-hepc.ca
- NIH Consensus Statement on Hep C (2002): www.consensus.nih.gov/cons/116/116cdc_intro.htm
- http://www.harmreduction.org/pamphlets/html_presentation_folder/
- Public Health Agency of Canada—Hep C Resource Library: www.phac-aspc.gc.ca/hepc/hepatitis_c/pdf/hepcInformation/

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The Canadian Centre on Substance Abuse (CCSA), Canada's national addictions agency, was established in 1988 by an Act of Parliament. CCSA provides a national focus for efforts to reduce health, social and economic harm associated with substance abuse and addictions.

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