

Hepatitis C and injection drug use:

treatment is possible

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Earlier this year, the Ontario government launched a public education campaign aimed at raising awareness about hepatitis C. As a result, an increasing number of people are expected to come forward to be tested for the hepatitis C virus (HCV).

Understanding the characteristics of the hepatitis C epidemic in Ontario is essential if infected or at-risk populations are to be effectively targeted by health-care providers.

The following article — the fourth in a series prepared by the Hepatitis C Secretariat at the Ministry of Health and Long-Term Care* — focuses on hepatitis C infection and injection drug use.

Hepatitis C treatment within a street-involved community

In June 2006, the Kingston, Ontario-based Street Health Centre began a multidisciplinary treatment clinic for clients diagnosed with hepatitis C. At that time, the Centre had approximately 375 unique individuals with positive HCV screens. Historically, many had been refused treatment by standard gastroenterology clinics due to concerns about past or ongoing drug use.

Street Health Centre staff, in a move consistent with the more recent consensus guidelines on the treatment of HCV,¹ developed a model of care to provide treatment and collect data on injection drug use (IDU) clients for whom treatment was medically indicated, and who were thought to be sufficiently stable.

Since that time, 10 individuals have been engaged in treatment. To date, three have successfully reached the completion of the treatment regimen.

HCV/IDU: importance and relevance both clinically and epidemiologically

Chronic hepatitis C infection is, and will continue to be, a significant economic and medical burden to Canadians.¹

HCV has been a reportable disease across the provinces and territories since January 1999. No large

studies are available to determine the prevalence of HCV in Canada, but experts believe prevalence will continue to increase since the number of new infections, and the number of infected people immigrating to Canada, exceeds the annual mortality rate and rate of cure from infection.

Canada has identified an estimated 65 per cent of cases. Approximately 4,000 new HCV cases may be expected each year in Canada.²

Patients currently asymptomatic with mild disease may progress to end-stage liver disease and/or develop hepatocellular carcinoma along with a host of other complications.

To predict the burden of HCV on Canada's health-care system, researchers performed a simulated analysis based on the number of currently infected Canadians at 240,000 (1998 statistic).

Between 1998-2008, researchers estimate the number of cases of HCV-induced cirrhosis will increase by 92 per cent; decompensated cirrhosis will increase by 126 per cent; liver transplantation will increase by 246 per cent; and hepatocellular carcinoma will increase by 102 per cent.²

At least 60 per cent of all new cases of hepatitis C infection in Canada are related to injection drug

use.² Current or past injection drug use is responsible for 56 per cent of all HCV infections in Canada.¹

In some studies, injection drug users have a 50 per cent prevalence of hepatitis C infection (range: four per cent to 88 per cent).^{2,3,4,5,6}

The recently completed I-Track study of Street Health Centre clients found 73.3 per cent of 202 individual samples tested positive for HCV.⁷ Treating, or ideally preventing, infection in this group will reduce HCV disease burden in Canada.

Case Study

Amy is a 49-year-old woman who is well known to the clinic as a methadone maintenance (MMT) patient. She began the program in 1999, after more than 20 years of injection drug use — mostly morphine, heroin and other opiates, but occasionally cocaine as well.

When Amy started the program, she was living with her long-term partner Bill, who also initiated MMT in order to reduce his 30-year dependency on illicit opiates, and repeated incarcerations for drug-related offences.

Bill was co-infected with HIV and HCV, and two years ago died from bleeding gastric varices resulting from hepatic cirrhosis.

Like Bill, Amy was first diagnosed with HCV infection in 1995, but has remained negative for HIV, and never exhibited any signs of hepatic decompensation.

During Bill's illness, Amy was too involved in caring for him to consider treatment, but after spending the last two years grieving for him, she now says that she is increasingly worried that she may face the same fate, and would like to try and eradicate the HCV infection.

This patient has a strong motivation to pursue treatment. Consultation with the program psychiatrist reveals that Amy has been ruminating on Bill's demise, and worrying almost obsessively about having the same thing happen to her. Her hope for successful treatment seems to play a significant

role in her ability to move on after Bill's death.

Amy and Bill were both infected with Genotype 3a, but her synthetic liver functions have been consistently normal, with typical elevations only of alanine and aspartate transaminases (ALT and AST).

Since Bill's death, Amy has relapsed on a few occasions to cocaine use, but made an effort to reconnect with her addictions counselor and has not used in the past two months, as evidenced by weekly urine toxicology screening.

Amy's dose of methadone has been stable at 85mg for three years. Amy wants treatment, and although there is not a clear and imminent biochemical or clinical need to treat her, there appears to be a fair expectation that successful treatment would be of great psychological benefit, and her infection with a "non-1" genotype means there could be a better than 80 per cent chance of success with 24 weeks of treatment. Added to this are the fact that Amy is female, has no other chronic illnesses, and has no history of alcohol abuse, which would increase the risk of advanced hepatic fibrosis.

The only feature of Amy's history that clouds the possibility of safe and effective treatment is her long history of depression and substance abuse, both aggravated by the very same experience that spurred her to seek treatment.

Because of her genotype and her desire to undergo treatment, it is elected not to subject Amy to a liver biopsy. The program psychiatrist concurs that Amy is a good candidate for treatment, and in view of her ongoing depressive symptoms, the psychiatrist starts Amy on a selective serotonin reuptake inhibitor. The psychiatrist arranges to review the response to the medication within a month, and agrees to follow Amy regularly once treatment begins.

The program counselor meets with Amy to complete the Addiction Severity Index (ASI) question-

naire, and the nurse practitioner completes a general assessment, including Pap test and baseline bloodwork.

After meeting with her to review these results and go over any remaining questions about treatment side-effects, the program physician completes the Section 8 application to extend Amy's Ontario Disability Support Program (ODSP) drug benefits to cover the cost of pegylated interferon and ribavirin.

Amy is approved for treatment by the Drug Programs Branch for a period of 24 weeks. She begins attending the clinic weekly to have the interferon injection administered by the hepatitis clinic nurse, who checks in with her about side-effects, and dispenses a week's worth of ribavirin tablets to last until the next appointment. The nurse also draws blood every two weeks to monitor the complete blood count and the serum transaminase levels, which are reviewed for each patient at the weekly team meeting.

Amy continues to attend the clinic every day for methadone dispensing, and has her methadone dose reviewed monthly by the team physician, who also reviews her progress on hepatitis treatment.

In addition, Amy has an appointment with the team psychiatrist once a month, and meets with the counselor every week to check in on how she is coping with side-effects like fatigue and appetite loss. Once a month they complete the ASI questionnaire, and monitor whether Amy is feeling psychologically vulnerable to addictive behaviour.

Although Amy does inject herself with dilaudid on two occasions during treatment, she does so with clean, single-use equipment, and appears not to have exposed herself to any new infection risk. She is able to discuss her relapse with her counselor and together they devise a plan to deal with the emotions that triggered the use.

At four weeks, Amy's viral RNA level is undetectable, and she completes the 24 weeks with only one

downward adjustment of her ribavirin dose because her weight loss has dropped her to a different category.

Although her hemoglobin level drops predictably within the first month of treatment, it stabilizes at 109 g/L, and no further dose reduction is required for either drug for the duration of treatment.

Conclusion

Substance dependence is a chronic health condition, often accompanied by other health problems. Concerns about reinfection can be addressed through safer using strategies, or by the concurrent use of treatments like methadone.

Like any patient, suitability for treatment must be assessed along social, medical and psychological dimensions. Successful treatment can occur for patients with addictions histories; the most important variable seems to be having a consistent, long-term, trusting and reliable connection with health-care providers.

Obviously unstable patients require having their income, housing, crisis, mental health or addictions needs addressed first, or as part of a process that can and should include care for hepatitis C.

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** The Hepatitis C Secretariat at the Ministry of Health and Long-Term Care has prepared a series of articles on the topic of hepatitis C. The first article in the series, entitled "Ontario physicians to receive new hepatitis C risk assessment guide, office materials," appeared in the April 2007 issue (<http://www.oma.org/pcomm/OMR/apr/07maintoc.htm>). The second article, entitled "HIV*

and hepatitis C: enhancing care of the co-infected patient," appeared in the June 2007 issue (<https://www.oma.org/pcomm/omr/jun/07maintoc.htm>). The third article, entitled "Examining the prevalence of hepatitis C in Ontario," appeared in the September 2007 issue (<https://www.oma.org/pcomm/omr/sep/07maintoc.htm>).

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Injection Drug Use and Hepatitis C Infection in Ontario

Injection drug users (IDUs) are by far the population at greatest risk of contracting the hepatitis C virus (HCV), largely due to the practice of sharing needles and other drug-related equipment.

According to a recent study, 80 per cent of new HCV infections in Ontario in 2004 (2,678 of 3,336 cases) were acquired by active injection drug users.¹ By contrast, blood transfusions and hemophilia treatment products were found to be responsible for less than one per cent of incident HCV infections in the province that year, and other modes of transmission, such as sexual activity involving blood-to-blood contact, tattoos and piercings made with improperly sterilized equipment, occupational exposures, etc., accounted for the remaining roughly 20 per cent. Table 1 below provides a breakdown, by gender, of HCV incidence rates among injection drug users in Ontario in 2004.

Table 1
Hepatitis C Incidence Rates Among Injection Drug Users (IDUs) by Gender (Ontario 2004)²

<u>Gender</u>	<u>HCV Number</u>	<u>HCV Incidence</u>	<u>Proportion of Total HCV-Infected IDUs</u>
Male IDUs	1,815	17%	68%
Female IDUs	863	17%	32%
Total	2,678	17%	100%

The study also found that of the estimated 110,000 Ontarians infected with hepatitis C as of December 31, 2004, 21,842 (20 per cent) were active injection drug users, and 36,577 (33 per cent) had formerly injected drugs. Male IDUs, current and former, accounted for 59 per cent of the total number of HCV-infected men in Ontario in 2004 (data not shown). Active and past female IDUs made up 43 per cent of all HCV-infected women (data not shown). Table 2 below presents 2004 HCV prevalence rates in Ontario, by gender, within current and former injection drug-using populations.

Table 2
Hepatitis C Prevalence Rates Among Injection Drug Users (IDUs), Current and Former, by Gender (Ontario 2004)³

<u>Gender</u>	<u>Population</u>	<u>HCV Number</u>	<u>HCV Prevalence</u>
Male IDUs	25,444	14,750	58%
Male Ex-IDUs	49,071	24,632	50%
Female IDUs	12,306	7,092	58%
Female Ex-IDUs	23,919	11,945	50%

Further, of the total number of Ontarians co-infected with hepatitis C and HIV in 2004, 98 per cent (5,102 individuals) were either active or past injection drug users. Hemophilia patients made up the remaining two per cent, with 101 cases.

The full epidemiologic report on hepatitis C infection in Ontario can be accessed online at: www.health.gov.on.ca/hepc (select "Information for Health Care Providers" in the menu on the left).

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2. Expressed as either absolute numbers or rates, incidence represents a calculation of new cases of a disease in a specified population over a specified period of time.
3. Expressed as either absolute numbers or rates, prevalence measures the extent of a disease in a specified population at a given point in time.