



Canada's source for  
HIV and hepatitis C  
information

La source canadienne  
de renseignements sur  
le VIH et l'hépatite C

## CATIE-News

CATIE's bite-sized HIV and hepatitis C news bulletins.

### **Canadian study links food insecurity to detectable viral loads and decreased CD4+ cells**

30 November 2017

- Canadian study of people with HIV and hepatitis C co-infection finds that limited access to food is associated with higher levels of HIV in the blood and 10% fewer CD4+ immune cells.
- Ontario research reports 70% of HIV-positive participants had experienced food insecurity over the past year, six times greater than HIV-negative people.
- Researchers say addressing underlying food insecurity could improve treatment adherence and health outcomes of people living with HIV.

Researchers who explore issues of hunger and access to food often use the term *food insecurity*, which they define as follows: "A limited or uncertain ability to acquire acceptable foods in socially acceptable ways, or a limited or uncertain availability of nutritionally adequate and safe foods."

According to a study done in Canada from 2012 through 2015, about 8% of Canadians "experienced some degree of food insecurity." Studies with HIV-positive people have found much higher proportions of people affected by food insecurity, usually at least 50%.

Among HIV-negative people, researchers have found that food insecurity is linked to a number of health issues, including higher-than-normal blood pressure and depression. Furthermore, it is likely that food insecurity is linked to poor overall health.

#### **Food insecurity in people with HIV and HCV co-infections**

Researchers with the [Canadian Co-Infection Cohort study](#), which is studying the health of people co-infected with HIV and hepatitis C virus (HCV), conducted a trial with 725 participants, regularly interviewing them about food insecurity. The study also collected information about their health and socio-demographic issues and analysed blood samples every three months.

#### **Results**

The researchers found that people who experienced severe food insecurity, even for a short duration, were more likely to have a detectable HIV viral load and had nearly 10% fewer CD4+ cells than people who were secure in their access to food. Furthermore, when researchers assessed data from people who had modest but sustained periods of food insecurity, they found that this "had a similar effect on viral load and CD4+ cell counts to severe food insecurity [of a shorter duration]."

The researchers noted that their findings are consistent with other studies and underscore the growing pool of evidence that "food insecurity is a risk factor for poor treatment outcomes among people co-infected with HIV and HCV."

#### **Multiple connections and consequences**

Although the present study was not designed to assess exactly how food insecurity affects HIV viral load and CD4+ counts, the researchers suggest that "poor medication adherence" likely plays a role, as this issue has been raised in other studies of food insecurity. The researchers added:

“Suboptimal adherence leads to HIV drug resistance, jeopardizes immune reconstitution and accelerates progression to AIDS. In addition, it may substantially change drug resistance profiles in the community if patients are already on second-line and third-line treatment regimens.”

## **Bear in mind**

Based on their results, the researchers made the following statement about co-infected people with food insecurity in Canada: “Food supplementation may be a viable option to improve treatment adherence and subsequent health outcomes.”

Although the researchers focused on HIV-related measures of health, they noted that if co-infected people were having difficulty adhering to HIV treatment, it was also likely that they would have difficulty adhering to HCV treatment.

Due to built-in design limitations of the study, its findings are highly suggestive of the link between food insecurity and poorer HIV health results rather than being definitive. It is possible that there might have been unmeasured factors that could have played a role in affecting the conclusions drawn. Indeed, the researchers underscored that other studies have unveiled different reasons that might explain why some people experience food insecurity, such as having a low income, experiencing depression and struggling with addiction. All of these reasons could potentially play a role in poor HIV health outcomes

Much work remains to be done in the area of food insecurity among people living with HIV. However, the present study could serve as the impetus for planning and delivering programs that provide relief from this problem.

## **In Ontario**

Researchers with the [Ontario HIV Treatment Network \(OHTN\)](#) have been studying food insecurity among people with HIV who were connected with AIDS service organizations in the province. In a sample of 649 people surveyed between 2011 and 2013, the researchers found that an alarmingly high figure—70%—reported experiencing food insecurity in the past year. This figure is about six times greater than has been found among HIV-negative people in Ontario.

The researchers stated: “Single parents (predominantly women) with children living at home reported the highest prevalence of food insecurity (83%).”

The top three statements in the survey that were endorsed by participants were as follows:

- “Worried that food would run out before we get money to buy more” - 69%
- “Couldn’t afford to eat balanced meals” - 69%
- “Food didn’t last and there wasn’t money to get more” - 64%

The researchers found that participants reported the following things occurring due to food insecurity:

- “Cutting portion sizes or skipping meals” - 41%
- “Feeling hungry but not able to afford food” - 31%
- “Unintentional weight loss” - 31%
- “Not eating for a whole day due to lack of sufficient food” - 17%

Based on the results of their findings, the OHTN researchers proposed “broad multisector interventions that address income, housing affordability, substance use and mental health issues” to address the high degree of food insecurity in their study. They noted that other research has linked food insecurity to poor adherence to HIV treatment, depression, hospitalization and death. All of these poor outcomes cost health systems and society money. The OHTN researchers suggested that future public health spending could be reduced by implementing their ideas to alleviate the underlying causes of food insecurity.

—Sean R. Hosein

REFERENCES:

1. Aibibula W, Cox J, Hamelin AM, et al. Food insecurity may lead to incomplete HIV viral suppression and less immune reconstitution among HIV/hepatitis C virus-coinfected people. *HIV Medicine* . 2017; *in press* .
2. Bekele T, Globerman J, Watson J, et al. Prevalence and predictors of food insecurity among people living with HIV affiliated with AIDS service organizations in Ontario, Canada. *AIDS Care* . 2017; *in press* .
3. Berkowitz SA, Seligman HK, Rigdon J, et al. Supplemental nutrition assistance program (SNAP) participation and health care expenditures among low-income adults. *JAMA Internal Medicine*. 2017; *in press*.
4. Aibibula W, Cox J, Hamelin AM, et al. Impact of food insecurity on depressive symptoms among HIV-HCV co-infected people. *AIDS and Behavior* . 2017; *in press* .
5. McLinden T, Moodie EEM, Hamelin AM, et al. Injection drug use, unemployment, and severe food insecurity among HIV-HCV co-infected individuals: A mediation analysis. *AIDS and Behavior* . 2017; *in press*.
6. Berkowitz SA, Berkowitz TSZ, Meigs JB, et al. Trends in food insecurity for adults with cardiometabolic disease in the United States: 2005-2012. *PLoS One* . 2017 Jun 7;12(6):e0179172.
7. Palar K, Napoles T, Hufstedler LL, et al. Comprehensive and medically appropriate food support is associated with improved HIV and diabetes health. *Journal of Urban Health* . 2017 Feb;94(1):87-99.
8. Cornelius T, Jones M, Merly C, et al. Impact of food, housing, and transportation insecurity on ART adherence: a hierarchical resources approach. *AIDS Care*. 2017 Apr;29(4):449-457.
9. Whittle HJ, Palar K, Seligman HK, et al. How food insecurity contributes to poor HIV health outcomes: Qualitative evidence from the San Francisco Bay Area. *Social Science and Medicine* . 2016 Dec;170:228-236.

## Produced By:



Canada's source for  
HIV and hepatitis C  
information

555 Richmond Street West, Suite 505, Box 1104  
Toronto, Ontario M5V 3B1 Canada  
Phone: 416.203.7122  
Toll-free: 1.800.263.1638  
Fax: 416.203.8284  
www.catie.ca  
Charitable registration number: 13225 8740 RR

## Disclaimer

Decisions about particular medical treatments should always be made in consultation with a qualified medical practitioner knowledgeable about HIV- and hepatitis C-related illness and the treatments in question.

CATIE provides information resources to help people living with HIV and/or hepatitis C who wish to manage their own health care in partnership with their care providers. Information accessed through or published or provided by CATIE, however, is not to be considered medical advice. We do not recommend or advocate particular treatments and we urge users to consult as broad a range of sources as possible. We strongly urge users to consult with a qualified medical practitioner prior to undertaking any decision, use or action of a medical nature.

CATIE endeavours to provide the most up-to-date and accurate information at the time of publication. However, information changes and users are encouraged to ensure they have the most current information. Users relying solely on this information do so entirely at their own risk. Neither CATIE nor any of its partners or funders, nor any of their employees, directors, officers or volunteers may be held liable for damages of any kind that may result from the use or misuse of any such information. Any opinions expressed herein or in any article or publication accessed or published or provided by CATIE may not reflect the policies or opinions of CATIE or any partners or funders.

Information on safer drug use is presented as a public health service to help people make healthier choices to reduce the spread of HIV, viral hepatitis and other infections. It is not intended to encourage or promote the use or possession of illegal drugs.

## Permission to Reproduce

This document is copyrighted. It may be reprinted and distributed in its entirety for non-commercial purposes without prior permission, but permission must be obtained to edit its content. The following credit must appear on any reprint: *This information was provided by CATIE (the Canadian AIDS Treatment Information Exchange). For more information, contact CATIE at 1.800.263.1638.*

© CATIE

Production of this content has been made possible through a financial contribution from the Public Health Agency of Canada.

Available online at:

<https://www.catie.ca/en/catienews/2017-11-30/canadian-study-links-food-insecurity-detectable-viral-loads-and-decreased-cd4-c>