**Progress on Ontario’s HIV care cascade**

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Potent combination anti-HIV therapy (commonly called ART) can greatly improve the health and increase the life expectancy of HIV-positive people. Furthermore, by reaching and maintaining an undetectable viral load, the risk of spreading HIV is greatly reduced. This latter effect benefits society, as new cases of HIV infection are reduced. However, if these outcomes are to occur, many steps between receiving an HIV diagnosis and being in care and successfully using ART have to be crossed. Scientists who study health systems refer to this path between a positive HIV test result and achieving and maintaining an undetectable viral load as the continuum of care or the HIV care cascade. Research in the U.S., British Columbia and Southern Alberta has found gaps within the HIV care cascade. Thus, if the individual and societal benefits of ART are to occur, the HIV care cascade in cities or regions must be assessed and any gaps found need to be closed.

The Public Health Agency of Canada (PHAC) estimates that about 42% of Canada’s 71,000 HIV-positive people live in the province of Ontario. Researchers with the Ontario HIV Treatment Network (OHTN) operate a large database called the OHTN Cohort Study (OCS). This database collects health-related information from thousands of HIV-positive people. The data is fed into the OHTN by clinics in major teaching hospitals and in the community.

A recent analysis by scientists at the OHTN and elsewhere in Ontario sought to understand engagement in the HIV care cascade. In the decade between the years 2001 and 2011 the researchers found that large proportions of HIV-positive people (77%) were taking ART and, of these, 76% had low viral loads. Furthermore, over the course of the study more people entered care and began taking ART. What’s more, according to the research team, engagement in care was broadly similar across ethno-racial and other groups such as gay and bisexual men and people who injected street drugs.

**Study details**

The OCS collects health-related data from 10 clinics across Ontario from people who are 16 years of age and older. These 10 clinics care for about 75% of the 13,000 patients who undergo HIV viral load testing every year in Ontario. Bear in mind that the OCS is an ongoing study and requires yearly informed consent from participants. Not every HIV-positive patient in Ontario has agreed to be in the OCS.

The OCS researchers focused their analysis on 5,380 HIV-positive participants whose average profile at the time they entered the study was as follows:

- age – most were younger than 35 years, however, by 2011 the average age was 47
- 84% men, 16% women
- men who had sex with men (MSM) – 61%
- heterosexual – 25%
- people who injected street drugs – 9%
- MSM who injected street drugs – 5%
- major ethno-racial groups: white – 65%; African/Caribbean/Black – 14%; other (unspecified) – 13%; Aboriginal – 8%
- more than half (55%) of participants had their CD4+ count fall below the 200-cell threshold at some point in the past, suggesting that a severe level of immune deficiency had occurred
- co-infections: HIV + hepatitis C virus (HCV) – 9%; HIV + hepatitis B virus (HBV) – 5%; HIV + HBV + HCV – 1%
Results—Care

The researchers found that a majority (87%) of participants were “in care.” By this they meant that participants had one viral load test or one CD4+ cell count done per year.

The researchers found that a slightly smaller majority (80%) was in “continuous care.” By this they meant that participants had at least two viral load or CD4+ cell counts done 90 days apart within a year.

Results—Changes over time

Over a period of 10 years the proportions of participants with a suppressed viral load (defined by the researchers as 200 copies/ml or lower) were as follows:

- 2001 - 50% had a suppressed viral load
- 2011 - 76% had a suppressed viral load

Researchers considered participants having an “optimal health status” when their viral load was 200 copies/ml or lower and their CD4+ count was at least 350 cells/mm$^3$. According to their analysis, the proportion of participants with optimal health status at different points in time was as follows:

- 2001 - 39% had optimal health status
- 2011 - 76% had optimal health status

Variations in care—Focus at the population level

Engagement in care was generally higher among older adults. The following populations were about 5% less likely to be engaged in regular care:

- people who injected street drugs
- straight men

In general, fewer women (77%) were taking ART compared to MSM (84%). However, once women started taking ART the proportion with a suppressed viral load was similar to that of MSM.

Overall, people of African/Caribbean/Black ethnicity were about 5% less likely to be taking ART than white people.

Women born outside of Canada were more likely to be taking ART than Canadian-born women. The researchers stated that this likely occurred because such women had seen the effects of AIDS in their country of origin.

Key points

1. The researchers found a relatively high proportion of HIV-positive people in care (87%) and in continuous care (80%). Furthermore, most (77%) HIV-positive people were taking ART and 76% had a low viral load.

2. Over the course of the study more people took ART and more people had a low viral load. Such trends have been seen in the U.S. and in regions such as British Columbia and Southern Alberta. The Ontario researchers argue that these favourable trends are due to a combination of more tolerable and more effective ART and changes in treatment guidelines that encourage earlier initiation of ART.

3. Younger participants were less likely to be in continuous care, taking ART or having a low viral load. The Ontario researchers proposed the following factors that were affecting younger people:

   - substance use
   - recent HIV diagnosis
   - stigma about HIV
   - concerns about confidentiality
   - lack of transportation options
   - feelings of invincibility
   - poor connection with the medical-care system and community-based agencies and services
Bridging the gap

In the 5,000-plus-persons sample for this assessment of the HIV care cascade, engagement with care was relatively high. However, not all HIV-positive patients are having optimal outcomes, so future research will need to explore the following issues that likely impact engagement with care:

- substance use
- low socioeconomic status
- unstable housing
- undiagnosed, untreated or poorly managed mental health issues

A call for “strategic action”

The researchers stated that their findings have implications for “efforts to promote optimal engagement in HIV care.”

In cases where there are gaps in care, the researchers called for “strategic action”—targeted approaches with different populations, as follows:

- young people and those with a history of injecting street drugs – these populations “should be a priority for [interventions to increase engagement in care]"
- heterosexual men and people who have not initiated or who have interrupted ART – programs should at least aim to increase visits to clinics so that these patients can meet with doctors and nurses and begin to re-engage with care

Bear in mind

The OHTN research adds an important piece to the healthcare puzzle—the place of HIV-positive people in relation to engagement with the healthcare system. However, the OHTN’s sample was about 5,400 people. According to PHAC, there are about 33,000 HIV-positive people living in Ontario, so the OHTN’s analysis is a snapshot of some of those people.

The results of the START study showed that very early initiation of ART can help preserve the immune system. As the results of the START study diffuse across the medical-health care system and society, in the future when a diagnosis of HIV is made it is likely to be swiftly followed by an offer of immediate initiation of ART. In such a future, it will be increasingly important to be sure that all HIV-positive people in Ontario can engage with the healthcare system to maximize the benefits of ART for themselves and for society.

Resources

- Study confirms starting HIV treatment early prevents illness and death – CATIE News
- Alberta—Reducing deaths by strengthening the HIV Treatment Cascade – CATIE News
- Gaps in British Columbia’s HIV treatment cascade – CATIE News
- The Engagement Cascade – The Positive Side
- People living with HIV in Canada – CATIE infographic
- New HIV infections in Canada – CATIE infographic

REFERENCES:


Disclaimer

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