



# HIV prevalence and testing among street-involved youth in Ontario



## Questions

- What is the prevalence of HIV among street-involved youth in Ontario and Canada?
- To which risk groups do these youth belong?
- What street-involved youth-specific testing interventions have been conducted?
- What is the seropositivity rate found in these testing interventions?

## Key Take-Home Messages

- Although the evidence about rates of HIV transmission among street-involved youth is unclear, this group is at risk of sexually transmitted bloodborne infections due to factors such as their age, socioeconomic status, housing status and engagement in higher risk behaviours (1).
- There is limited evidence about HIV prevalence among street-involved youth in Ontario. However, HIV prevalence within Canadian street-involved youth ranges from 0.2% to 1.9%, and within Ontario new diagnoses of HIV among this group remain low compared to other risk groups such as men who have sex with men and people from HIV endemic countries.
- HIV-positive street youth tend to be: older, male, have sex with other men, inject drugs, take part in sex work and non- Caucasian. HIV prevalence rates are also substantially higher among Aboriginal youth (2-10).
- HIV risk behaviours of Canadian street-involved youth can be grouped into three main categories: homelessness, sexual risk behaviours and injection drug use.
- We did not find any peer-reviewed literature on testing interventions for street-involved youth in Canada; however some interventions conducted in the US demonstrate that youth preferred to get their testing results over the phone rather than face to face, and that peer supported case management models can help attract more youth to testing, and link them to ongoing health care (11;12).

## EVIDENCE INTO ACTION

The OHTN Rapid Response Service offers HIV/AIDS programs and services in Ontario quick access to research evidence to help inform decision making, service delivery and advocacy. In response to a question from the field, the Rapid Response Team reviews the scientific and grey literature, consults with experts, and prepares a brief fact sheet summarizing the current evidence and its implications for policy and practice.

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## The Issue and Why It's Important

Street-involved youth are between the ages of 15 and 29 who have experienced unstable housing or homelessness (2), and are living or working on the streets of urban centres (13). In Canada, there are an estimated 150,000 street-involved youth (5).

Being homeless and living on the street has important health implications for both youth and adults. Individuals who are homeless have higher levels of morbidity and mortality (1) and more difficulty accessing regular health care. They often seek care in hospital emergency departments, which is costly to provide and increases the burden on the health care system (1).

Among street-involved youth, factors that increase their risk of health problems include: unsafe sexual practices, recreational drug use, inadequate diet, unstable housing, exposure to violence and low levels of social support (2). Street-involved youth may also be at greater risk of sexually transmitted and blood-borne infections because of their age, socioeconomic status, housing status and engagement in higher risk behaviours (4). The prevalence and incidence rates of sexually transmitted and blood-borne infections, specifically chlamydia and gonorrhoea, are 10 to 12 times higher in street-involved youth than in non-street involved youth of the same age (14).

Since the Public Health Agency of Canada began its reporting, 27% of all HIV-positive test results were attributed to people between the ages of 15 and 29 (13). The agency also concludes that street involved youth, youth who inject drugs, and youth who have sex with men are particularly at risk for HIV infection (13). For Ontario, the Ontario Community HIV and AIDS Reporting Tool (OCHART) (15), a collaborative project of the AIDS Bureau, Ontario Ministry of Health and Long-Term Care, and the Public Health Agency of Canada, Ontario Regional Office, reported that youth under 19 accounted for 2% of all new HIV diagnoses between 2010 and 2012, the lowest it has been in almost a decade. This was considerably low compared to men who have sex with men and people from high HIV endemic countries who respectively accounted for 55% and 19% of new diagnoses between this period.

Although rates of HIV infection in youth are not high (compared to other age groups), street-involved youth – particularly men having sex with men and youth who inject drugs – may be at higher risk than other youth and would benefit from effective prevention and testing interventions.

## What We Found

### What is the prevalence of HIV among street-involved youth in Canada?

Several studies aimed to determine HIV prevalence among street-involved youth in major urban centres in Canada. Although overall HIV prevalence among street-involved youth is generally low, ranging from 0.22% to 1.9%, prevalence is much greater among certain groups of street-involved youth.

In 2006, the Public Health Agency of Canada published a report titled *Sexually Transmitted Infections in Canadian Street Youth* (8). Findings were based on data collected in the *Enhanced Surveillance of Canadian Street Youth* (E-SYS), a multi-centre sentinel surveillance system that used behavioral surveys and biological samples to monitor rates of sexually transmitted infections and behaviours among Canadian street youth (8). Between 1999 (phase II) and 2003 (phase IV), E-SYS recruited 4,728 street-involved youth between the ages of 15 and 24 (8). Over the surveillance period, HIV prevalence did not change significantly (8): about 0.8% of

4,697 youth tested HIV-positive, while 0.3% tested positive for hepatitis C (HCV) and HIV co-infection (4;16). Further analyses showed that among E-SYS participants, HIV infection rates were higher among youth ages aged 20 to 24 (2.3%) than youth ages 15 to 19, at (0.3%) (8).

A paper published in 2000 (9) aimed to estimate the HIV prevalence among a cross-sectional cohort of street-involved youth in Montreal. The prevalence of HIV among the 909 youth recruited was 1.9% (9): 1.1% among girls and 2.2% among boys (9). Multivariate regression analysis showed that being over the age of 20, injecting drugs, engaging in sex work and being born outside of Canada were all independently associated with HIV-infection (9). Another Montreal-based study, a prospective cohort published in 2003, (17) found HIV prevalence of 1.4% among 1,013 youth. From 1995 to 2000, the main predictors of seroconversion were injection drug use and engagement in survival sex 16(17).

A 2009 study of 138 street youth in Toronto (5) found that a higher proportion of the 16 youth who were HIV-positive were older street youth (8.6% of the 26 to 30 year olds) compared to those who were younger (4.4% of the 18 to 25 year olds). A higher proportion of males (10.2%) than females (1.4%) were HIV positive (5). Moreover, a higher proportion of Aboriginals (5.7%) and youth who identified as Black (4.3%) reported being HIV-positive compared to those who were Caucasian (3.0%) (5).

Aboriginal youth in Canada experience disproportionately higher rates of HIV prevalence. A Canadian review paper (3) found that Aboriginal street youth were more likely than non-Aboriginal youth to have higher HIV prevalence rates. In the *Cedar Project*, a cross-sectional and community-based study conducted between 2003 and 2005 (18) among young Aboriginal people in British Columbia, HIV prevalence was much higher in young women (13.1%) than in young men (4%). In that study, 70% of young women reported having experienced forced sex compared to 29% of young men (18). HIV prevalence was significantly higher among the 277 youth who lived in Vancouver (17%) than among the 235 youth who lived in in Prince George (7%)and, HIV prevalence was significantly higher among those in Vancouver (17%) compared to Prince George ( 7%) (10). In a study of 529 street youth in Vancouver, 15 (3%) reported being HIV-positive; of those, seven (47%) were Aboriginal youth (6).

Given the dearth of data, it is difficult to establish HIV prevalence among street-involved youth in Ontario. It is not possible to make estimates based on studies conducted in other provinces as the contexts, HIV epidemics and risk factors may vary.

### What are risk factors among street-involved youth?

A number of studies characterized HIV risk behaviours among Canadian street-involved youth, grouping them into three major categories: homelessness, sexual behaviours and injection drug use. It is important to bear in mind that these risk behaviours cannot be examined in isolation of one another. The street youth at greatest risk are those who are engaged in high risk activities, such as unprotected sex and injection drug use. However, those risk activities are often driven by larger social and structural factors, such as homelessness and early trauma/sexual abuse.

#### Homelessness

Homelessness is a major barrier that affects street-involved youth, influencing behaviours and health outcomes through various pathways. In a review paper by Marshall et al (19), homelessness itself was identified as a key structural factor that influenced risk: a lack of stable and safe housing was found to be linked to

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poverty, marginalization, HIV vulnerability and, ultimately, HIV infection (19). In a Montreal-based study (20) with 419 street youth, those who experienced unstable housing were more likely to exchange sex, inject drugs, use alcohol and drugs frequently and have multiple sexual partners. The *At Risk Youth Study* cohort of homeless youth in Vancouver had similar findings: homelessness was inversely associated with condom use and positively associated with greater numbers of sexual partners (21;22).

### Sexual behaviours

Sexual risk behaviours that are prevalence among street youth, such as inconsistent condom use, higher numbers of sexual partners and engagement in sex work or survival sex, can increase risk of HIV infection (23). In a Montreal-based study (24) of 542 male street-involved youth ages 14 to 23, 28% reported involvement in survival sex. Another Montreal-based study (23) of 330 street youth found that: girls involved in sex work were twice as likely to report binge drinking and five times more likely to report binge drug consumption (23); and girls who had a history of injection drug use were four times more likely to report involvement in sex work (23).

### Injection drug use

Injection drug use is highly prevalent among Canadian street-involved youth: 21% of participants in the E-SYS reported injection drug use (4). Those who reported injection drug use and inconsistent use of clean equipment were significantly more likely to be female and older (4). In a Vancouver study, 29% of street-involved youth reported injecting drugs in the past six months (25). Those who injected in public (n= 124) were more likely to be homeless, engage in unprotected sexual intercourse, deal drugs, smoke crack, inject heroin and share syringes; they were also less likely to use injection sites (25).

### Other risks

Other HIV risk factors among street-involved youth include personal factors such as sexual orientation, social factors such as one's support network (22), and structural factors such barriers to accessing health care services, a lack of policies to support informal employment and the illegal activities in which street youth engage (19;22).

## **Are street youth accessing testing? What interventions have been used to increase testing among street-involved youth?**

We did not find any peer-reviewed studies on testing interventions with street-involved youth in Canada, but there were a few studies that had been conducted in the US. Based on those studies, street-involved youth are tested in a variety of locations including outreach locations, such as shelters and community-based organizations, and conventional medical clinics. Testing rates among youth vary considerably. In a study of 305 homeless sexually active youth in Los Angeles (26), 85% reported having been tested. Those who had been tested in the last three months were more likely to identify as gay, inject drugs and experience depressive symptoms, their testing patterns were unrelated to sexual risk behaviour (26).

In a New York study, where 217 homeless youth participated in structured interviews, (27) researchers found that, compared to youth who were linked to services, youth who were chronically homeless were less likely to have had a HIV test, had fewer HIV tests over their lifetime, were less likely to have had an HIV test in the past year, and planned to get tested for HIV less frequently in the future.

We found only one testing intervention study targeting street-involved youth that also reported on HIV seropositivity rates. A Portland, Oregon-based study (12), which aimed to increase the number of at-risk and homeless youth who

received HIV testing results and post-test counseling, offered oral HIV testing and counseling to homeless at-risk youth. Participants were randomized into receiving results/counseling either face-to-face or over the telephone (12) (the two youth who tested positive were automatically randomized to the face-to-face follow-up group). Youth, health professionals and community representatives identified community testing sites, and youth leaders were employed to involve the community, engage participants, advertise the event and mediate the interactions between street youth and health staff (12). Of the 351 youth who were tested for HIV, 48% followed up to receive test results and counseling (12). A higher proportion of youth in the telephone group than the face-to-face group followed-up to receive test results (12). These findings may indicate that traditional approaches to post-test counseling are a barrier to some youth getting their test results. The youth who were most likely to follow-up to receive their results were female, older, white and those who reported high risk behaviours (12).

Another youth-specific testing and counseling intervention in Seattle called *YouthCare* was designed to detect HIV early (11). Developed with input from youth in targeted communities (11), the program linked youth to appropriate case-management services. Case managers worked on the streets and at drop-in centres to engage youth, raise awareness of HIV and educate them about risks (11). When youth chose to get tested, they were linked to a case manager at a clinic site where they were offered anonymous, free HIV testing and counseling (11). Any youth who tested positive was linked to that case manager or another if preferred (11). Any youth who tested negative had the option to take part in prevention-oriented case management or to have less contact with case managers (11).

Although not a testing-specific program, one Toronto-based HIV prevention program for marginalized youth was found. The program, *Empower*, uses art to train diverse youth, which also include street-involved youth, to become HIV peer educators in their local communities (28). The project's goals are to: increase opportunities for youth engagement, peer education and HIV prevention through the arts, increase the capacity of youth to play an active role in locally-based HIV prevention and awareness efforts, and strengthening the voluntary HIV and sexual health sectors by integrating youth leaders in front-line organizations (28). The project is supported by Central Toronto Community Health Centres.

## Factors That May Affect Local Applicability

All studies included in this summary were conducted in either Canada or the US. It is important to note that many studies included in this review report on data from a limited number of large street-youth cohorts. Publications on testing interventions for street-involved youth did not exist in Canada, and were limited in the US.

## What We Did

We searched Medline, PsycINFO and Embase for articles using a combination of text terms (HIV) AND text terms [(youth) or (young) or (adolescent\*)] AND text terms [(street) or (homeless) or (housing)]. The search was limited to articles published since 2000 onwards, in English and among humans. We also searched grey literature databases including Google Scholar ([www.scholar.google.ca](http://www.scholar.google.ca)), the New York Academy of Medicine Grey Literature Report ([www.greylit.org](http://www.greylit.org)), and System for Information on Grey Literature in Europe ([www.opengrey.eu](http://www.opengrey.eu)). Key organizations and experts in the field of youth and homelessness in Ontario were also contacted.

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