



HIV/AIDS: The Silent Epidemic Plaguing Canada's Aboriginal Population



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ABSTRACT

Background: In Canada, HIV/AIDS disproportionately affects people of Aboriginal (AB) descent, where prevalence rates have grown more than in any other ethnic group during the past decade and can therefore be correlated to specific risk factors.
Purpose/objectives: To compare HIV prevalence rates and associated risk factors in AB populations across Canada who reside in rural communities versus urban settings, off reserve.
Methods: A structured literature review of PubMed, Medline, Scopus and PsychInfo (using keywords 'Aboriginal', 'HIV', 'AIDS', 'Canada', 'urban' and 'rural') was used alongside specific inclusion and exclusion criteria.
Results: Epidemiological evidence is inconclusive in demonstrating a higher prevalence of HIV/AIDS amid AB peoples living in urban regions versus a rural setting. Related risk factors with high HIV/AIDS prevalence, in both settings, include injection drug use (IDU), non-consensual sex, sex-work and living in Vancouver.
Conclusion: Further investigation is needed to establish the qualitative difference in HIV/AIDS prevalence between rural and urban AB communities.

INTRODUCTION

HIV gradually disables the body's immune system by destroying host CD4 cells. If left untreated, HIV progresses with a latency period between 3 and 15 years to AIDS, which leaves the body vulnerable to opportunistic infections and/or infection related cancers¹. The virus is primarily transmitted via body fluids such as semen, blood, pre-seminal fluid, rectal fluids, vaginal fluids and breast milk and is transmitted sexually, via contaminated injections, from mother to child and less frequently via contaminated transfusions/transplants^{1,2}. The standard treatment for HIV consists of a combination of at least three drugs (called "highly active antiretroviral therapy" or HAART) that that work to reduce the viral replication¹. HIV/AIDS diagnosis and, furthermore, treatment, are affected by numerous determinants of health in the worldwide population, most specifically the access to health services³. Thus, the prevalence of HIV/AIDS can be correlated to specific risk factors. In Canada, HIV/AIDS disproportionately affects people of AB descent, where prevalence rates have grown more than in any other ethnic group during the past decade^{4,5}. Related risk factors with high HIV/AIDS prevalence amid this population include IDU (frequency and duration), non-consensual sex and sex-work^{4,6-8}.

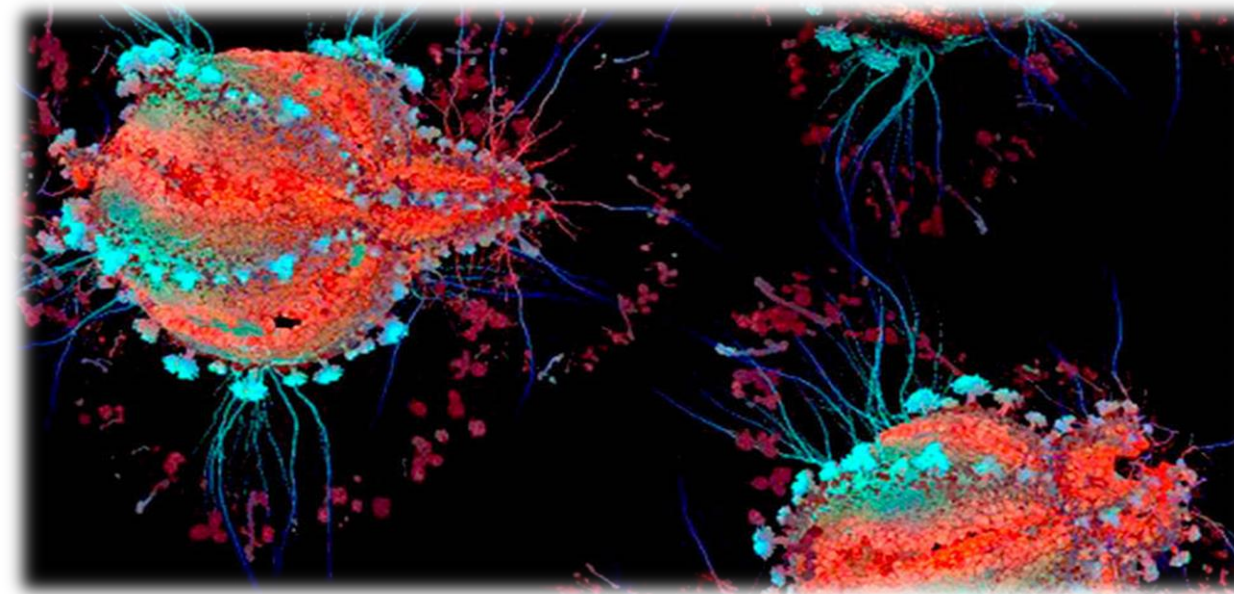


Figure 1. Viral particle as seen by SEM

RESEARCH QUESTION

Is there a difference in HIV prevalence rates and associated risk factors in Aboriginal populations across Canada who reside in rural communities compared to urban settings off-reserve?

METHODS

Four scientific databases were used: Pubmed, Medline, Scopus and PsychInfo. Articles were found using keywords: 'Aboriginal', 'HIV', 'AIDS', 'Canada', 'urban', and 'rural'. The article selection process is demonstrated in Figure 2.

Inclusion criteria for the articles:

1. Aboriginal Canadian
2. Ages 12 to 70 years old
3. Subjects must only have HIV and/or AIDS as an immune disorder
4. Published/conducted within Canada
5. Written in English or French
6. Published between 2000 and 2016

Exclusion criteria were any articles that did not fit the inclusion criteria.

METHODS, CONT'D

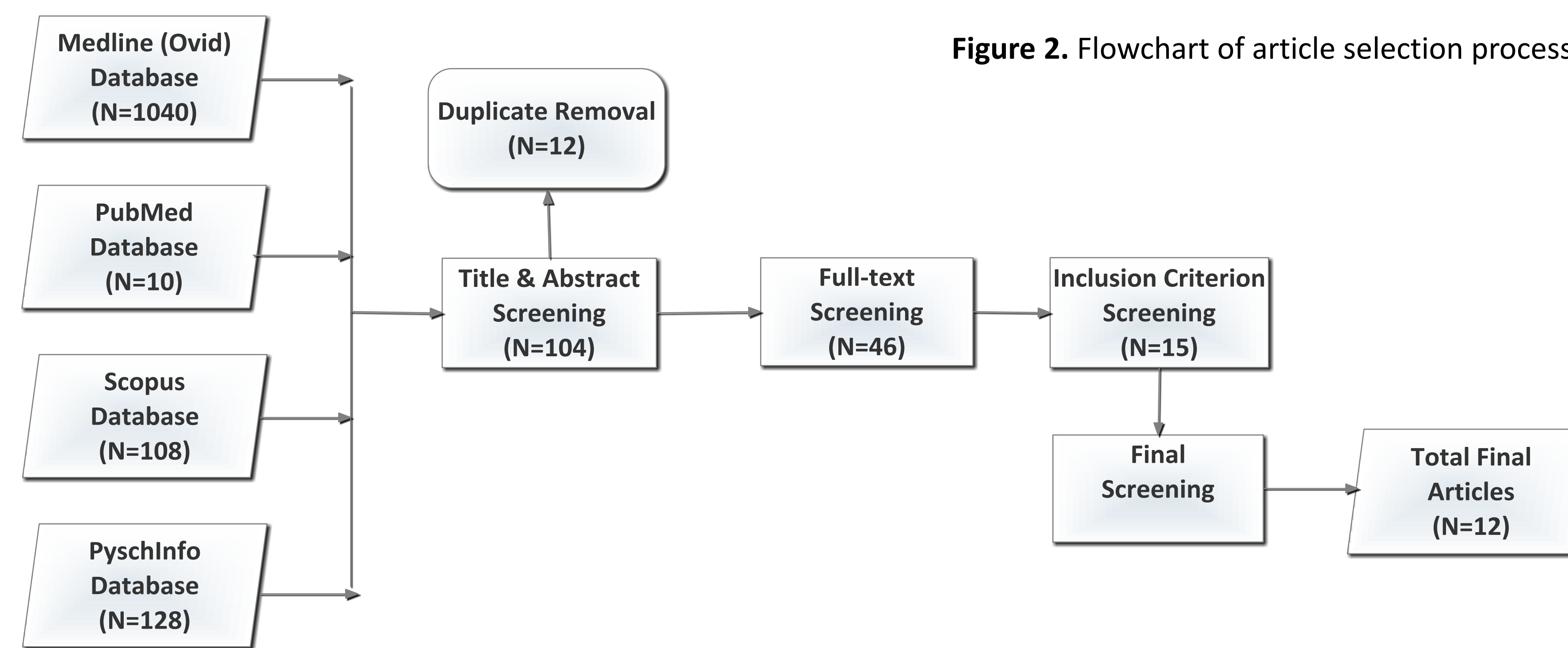


Figure 2. Flowchart of article selection process.

RESULTS

Table 1. Summary of articles included in review.

Study	Design	Principle Findings
Tjepkema et al., 2010	Prospective cohort (N=16,300)	<ul style="list-style-type: none">Prevalence of HIV/AIDS mortality rates in urban AB men 2x higher than non-AB; similar findings of AB mortality rates due to HIV/AIDS in metropolitan areas/smaller urban centresHIV mortality rates in urban AB men 2x higher than non-AB; similar findings of AB mortality rates due to HIV/AIDS in metropolitan areas/smaller urban centres
Marshall et al., 2008	Prospective cohort (N=529)	<ul style="list-style-type: none">Prevalence of HIV among AB street involved youth was 2.5x higher than non-AB youthAB ethnicity is correlated with HIV infection (OR: 2.87, 95% CI: 1.02-8.09)Risk factors: sexual abuse (reported by over 50% of ABs) and incarceration
Miller et al., 2006	Prospective cohort (N=291)	<ul style="list-style-type: none">AB youth who inject drugs were 4x more likely to have HIV than non-AB youthAB youth were more likely to inject crack cocaine on a daily basis = ↑ STI vulnerability65% of AB youth in study were female; more females using injection drugs and exposed to sex work
Mehrabadi et al., 2008	Prospective cohort (N=262)	<ul style="list-style-type: none">Prevalence of HIV is higher in women who are involved in sex work in Vancouver (17%) than in Prince George (12%)↑ rates of unprotected sex with clients in Vancouver (24%) vs. Prince George (2%)
Duncan et al., 2011	Systematic review of 46 studies	<ul style="list-style-type: none">↑ prevalence of HIV in AB population using illicit drugs (vs. non-AB counterparts)Risk factors: syringe sharing, frequency of drug injection, geographic & social factors (e.g. residing in Vancouver, history of non-consensual sex)
Bingham et al., 2014	Prospective cohort (N=225)	<ul style="list-style-type: none">AB ancestry → 3x more likely to experience generational sex workGenerational sex work among AB population → 3x greater risk of HIV infection
Spittal et al., 2007	Prospective cohort (N=512)	<ul style="list-style-type: none">↑ prevalence of HIV and HCV in young AB drug users in Vancouver and Prince George# of participants reporting difficulty in accessing clean syringes was higher in Prince GeorgeIndependent factors associated with ↑ risk of HIV: history of non-consensual sex, living in Vancouver, duration of IDU
Wood et al., 2008	Prospective cohort (N=2496)	<ul style="list-style-type: none">↑ HIV prevalence and incidence among AB IDUs in VancouverPotential link between elevated HIV rates in women (vs. men) and younger participants (vs. older)
Craib et al., 2003	Prospective cohort (N=1400)	<ul style="list-style-type: none">The cumulative HIV incidence in the AB group was ~2x higherAmong AB participants, frequent speedball or cocaine injection, heroin use and going on binges of injection drug were identified as significant predictors of seroconversion
Plitt et al., 2009	Prospective cohort (N=526)	<ul style="list-style-type: none">Barriers to testing = lack of perceived risk, stigma and mistrustCommon exposure risk categories: IDU (49.3%), heterosexual sex (29.5%), and men having sex with men (16.5%)75% of cases classified as residing in a metropolitan areaAB ethnicity and nonmetropolitan residence = significantly longer wait-times to care
Hogg et al., 2005	Prospective cohort (N=6000)	<ul style="list-style-type: none">HIV appears to be concentrated among IDUs and gay bisexual men25-33% of all infections among AB peoples in Canada occurred in BCRisk factors for HIV acquisition appear to vary by genderSyringe needle exchanges provide sterile equipment for only a small % of IDUs (10-25%)
Kumar, 2016	Systematic review of 94 studies	<ul style="list-style-type: none">Risk of HIV infection is 2-5x higher in people with STIsLack of privacy/confidentiality in small communities affect decisions to undergo testingMany studies show benefits for HIV prevention among men via male circumcisionLack of awareness and understanding of HIV among Inuit must be addressed

DISCUSSION

Findings:

Evaluation of the findings reveals that AB people residing in rural areas had significantly longer wait times for health care, less access to sterile equipment provided by needle exchange programs, and due to stigma and mistrust associated with social and ethno-cultural factors as well as a lack of privacy and confidentiality, were less likely to seek HIV testing^{2,3,9}. Significant predictors for HIV in rural and urban areas include: syringe sharing, frequency of drug injection (speedball, cocaine, heroin), younger age, high STI rates, frequency of unprotected heterosexual sex, frequency of non-consensual sex, residing in a metropolitan area, generational sex work, and men having sex with men^{6,10-12}. Risk factors for HIV acquisition appear to vary by gender as well².



Figure 3. CDN Aboriginal AIDS Network

Limitations & Implications:

- ❖ Potential for response biases from self-reported behaviours; could lead to an underestimation of certain HIV risk behaviours
- ❖ Very limited data exclusively from rural and urban communities, but particularly in rural areas
- ❖ AB women were ~3x as likely to be involved in generational sex work, irrespective of other risk factors; can be considered an independent confounding variable, likely resulting in an underestimation of HIV prevalence in AB women (criminalization of sex work → societal barriers → difficulty accessing health services and research)⁶
- ❖ Transmission of HIV/AIDS may be further reduced through interaction with medical or community services, which can reinforce risk reduction behaviors

Recommendations:

- ❖ Include research from all areas of Canada (10/12 studies were conducted in BC only)
- ❖ More focus on establishing a geographical association - HIV prevalence in urban versus rural areas
- ❖ Initiation of evidence-based programs (focus on sex-related and drug-related vulnerabilities)
- ❖ Ensure funding of culturally appropriate HIV prevention programs

CONCLUSION

Due to the lack of evidence in rural-based settings, it cannot be conclusively demonstrated that urban-based AB populations exhibit higher rates of HIV infection than populations living in rural settings. While the same risk factors (high incarceration rates, homelessness, IDU, unsafe sexual activity, and sex work) afflict both populations, it stands to reason that urban settings would tend to foster higher rates of HIV prevalence due to a higher concentration of risk factors in addition to ease of access to health services^{6,7,11,13}.

Overall, AB populations, whether in rural or urban settings, have higher incidences of HIV infection than their non-AB counterparts. The reasons for this are manifold and have longstanding historical roots, like the multi-generational trauma inflicted on AB populations by the residential school system, cyclical poverty, physical, sexual and substance-related abuse and substandard living conditions. These results suggest that evidence-based, culturally-appropriate intervention strategies are necessary for HIV/AIDS prevention.

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