Navigating Current Social and Economic Barriers for Pre-Exposure Prophylaxis (PrEP) Accessibility in Canada

Lara Virgilio

Department of Anthropology

McMaster University

ANTHROP 4S03: The Anthropology of Infectious Disease

Samantha Price, M.A.

May 27th, 2020

Introduction

Despite PrEP's potential for slowing HIV transmission rates, there are many barriers that prevent individuals from accessing the treatment. In this comprehensive investigation, the causes of these accessibility concerns in Canada will be explored. While the discussion surrounding HIV treatment is incredibly extensive in the literature, this paper will examine the issues surrounding PrEP, and solutions that can be implemented within a Canadian context will be proposed to address these barriers. Some such solutions are government programs, physician training, and public education efforts. Depending on the barrier itself and the community it is directly affecting, these proposals will vary and will require extensive research and modification to ensure that they are beneficial to these communities. Since HIV rates throughout the country have recently increased, it is crucial to continue the discussion around PrEP in order to approach and appropriately implement solutions that will ensure greater accessibility to the treatment.

A main framework used within this field of research is the social production of disease/the political economy of health theory. This theory hypothesizes that political and economic institutions which create and enforce economic and social privilege or inequality are fundamental causes of existing social inequalities in health (Link & Phelan, 1996). Therefore, this idea demonstrates how institutional arrangements and an individual's position within society affect their health (Amzat & Razum, 2014). Thus, in order to understand these key issues, it is critical to analyze the impacts these players have on health through this theoretical lens.

Background

Current Statistics of the HIV Epidemic in Canada

HIV is a worldwide health concern that affects millions of individuals each year. Globally, 2.1 million new infections were reported in 2015 (Bourgeois, et al., 2017). From 2017

to 2018, the diagnosis rate in Canada increased from 6.5 per 100,000 population to 6.9 per 100,000 population (Public Health Agency of Canada, 2019). Diagnosis rates in Canada vary widely between the provinces, as seen in Figure 1.

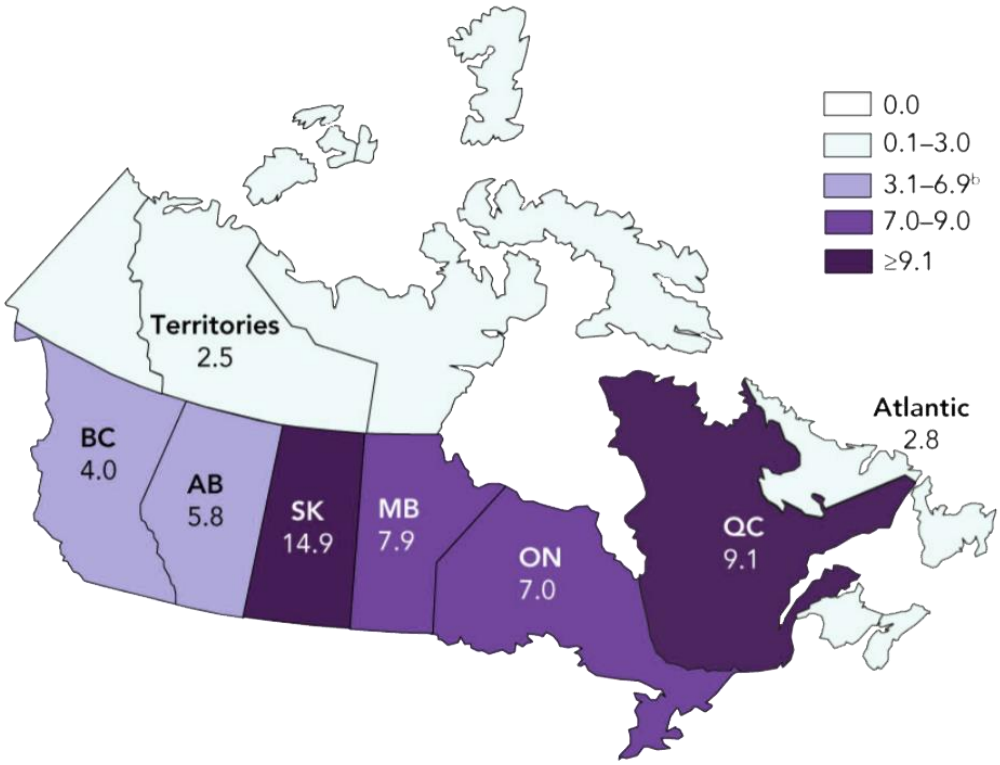

Figure 1. Map depicting HIV diagnosis rates per 100,000 population in Canada, 2018. Provinces are abbreviated as follows: AB-Alberta, BC-British Columbia, MB-Manitoba, ON-Ontario, QC-Quebec, SK-Saskatchewan. Rates for the Territories and the Atlantic areas are shown as averages. [b]6.9 cases per 100,000 population is the national rate (modified from Haddad et al., 2019).

Saskatchewan has the highest Canadian diagnosis rate at 14.9 per 100,000 population, followed by Quebec, Manitoba, and Ontario at 9.1, 7.9, and 7.0 per 100,000 population, respectively (Public Health Agency of Canada, 2019). In addition, the number of female diagnoses recently increased (Public Health Agency of Canada, 2019). Specifically, British Columbia, Manitoba, Ontario, Quebec and Saskatchewan observed increased HIV rates in the female population in 2018 (Haddad et al., 2019).

Introduction to PrEP

Pre-exposure prophylaxis (PrEP) is a preventative treatment strategy for HIV-negative individuals who are considered being at a high risk of contracting the virus either through sexual encounters or intravenous drug use (Centers for Disease Control and Prevention, 2019). In Canada, an antiretroviral (ARV) medication named Truvada was granted market authorization for PrEP use in 2016 (Government of Canada, 2019). Another medication under the brand name, Descovy, was previously approved for anti-viral treatment of HIV-positive individuals, and it is currently being evaluated as an option for PrEP treatment in Canada (Gilead, 2019). If appropriately prescribed and followed, PrEP treatment is proven to be extremely effective at preventing HIV infection (Centers for Disease Control and Prevention, 2019). Common side effects for Truvada include headache, abdominal pain, and weight loss (Gilead, 2018). However, more serious side effects of the medication include kidney complications, accumulation of lactic acid in the bloodstream, and bone problems (Gilead, 2018).

Methods

American and Canadian government health websites, health organization websites, and peer-reviewed studies were analyzed to address gaps in PrEP accessibility. The government websites and health organization websites, listed in Table 1 of the Appendix, were used to collect and analyze recent information on HIV transmission rates, PrEP medication approvals, available health coverage plans, potential costs of the treatment in various provinces, and specific community experiences. The main focus revolved around the provinces with the highest HIV diagnosis rates in the country, including Saskatchewan, Ontario, Quebec, and Manitoba. Next, using scientific literature, surveys conducted amongst healthcare professionals and at-risk HIV groups were used to analyze knowledge, perceptions, and attitudes towards PrEP and other healthcare-related experiences. Both quantitative and qualitative data from scientific literature

and community studies, respectively, were used throughout this investigation to discuss various factors that limit PrEP accessibility. Lastly, solutions were proposed to address these potential barriers to the treatment.

Results & Discussion

PrEP Availability in Canada

Access to PrEP in Canada varies significantly since each provincial government has different coverage plans implemented. For instance, every province has a coverage plan for PrEP set in place except for Manitoba (Nine Circles Community Health Centre, 2017). This province has the third highest diagnosis rate in Canada at 7.9 per 100,000 population (Public Health Agency of Canada, 2019). Therefore, a lack of governmental PrEP coverage could potentially be contributing to this rate since patients need to pay for the entire cost of the treatment. However, individuals who have First Nations and Inuit Health Branch benefits are completely covered (Nine Circles Community Health Centre, 2017).

Starting in April 2018, Saskatchewan began covering the complete cost of PrEP for all residents under a provincial plan (Saskatchewan Health Authority, n.d.), however, this province continues to have the highest diagnosis rate of HIV in Canada to date. 67% of new HIV infections are transmitted through intravenous drug use (Government of Saskatchewan, 2017). Even though the Indigenous population only makes up 16.3% of the total provincial population (Statistics Canada, 2019), 89% of the cases transmitted through drug injection self-declared Indigenous ethnicity (Government of Saskatchewan, 2017). Therefore, drug use within Indigenous communities is a major concern that must be addressed. Overall, since PrEP has no financial limitations in this province, other factors contributing to this high HIV rate could include low awareness of general HIV or PrEP knowledge in vulnerable communities, as well as limited general healthcare access in remote areas.

In Ontario, residents have access to a prescription if they are covered by specific plans. Free access is given to those under 25 years of age, to low-income seniors, and to recipients of social assistance (Yoong, 2018). Citizens between the ages of 25-64 covered under Trillium, a provincial health program, in addition to high-income seniors, are required to pay a deductible based on their income (Yoong, 2018). However, this deductible under the Trillium plan is a barrier for low-income individuals to access the medication (CATIEinfo, 2018). Without insurance, PrEP medication under the Truvada brand costs approximately $876 per month (Government of Ontario, 2019). While generic tenofovir disoproxil fumarate and emtricitabine, a drug equivalent to Truvada, is available at a significantly cheaper price of $220 per month (Government of Ontario, 2019), this excessive cost remains a large barrier for many (Walmsley et al., 2019).

Similarly to Ontario, PrEP is not freely accessible in Quebec since coverage plans have their limitations. If covered by the Quebec Health Insurance Plan (RAMQ), patients will need to pay a maximum $87.16 per month (Rézo, n.d.), which again can be a barrier for those who cannot afford the treatment. For people who have private group insurance, the cost will vary according to each group insurance policy (Rézo, n.d.). However, prescriptions are free for individuals under the age of 18, or for individuals between 18-25 years old who are full-time students, are unmarried, are living with their parents or guardians, or do not have access to a private plan (Quebec Health Insurance, n.d.). For those who are 65 or over, the maximum out-of-pocket payment for PrEP would range between approximately $53 to $89 per month, depending on the individual's income supplement (Yoong, 2018). Therefore, free provincial coverage is limited, and these criteria restrict many people outside of these inclusion groups from obtaining this financial assistance. Thus, given that Quebec and Ontario have the second and fourth highest

diagnosis rates in Canada, respectively, financial barriers in accessing the medication likely contribute to these rates.

Physician Influence on Accessibility and Availability of Treatment

In addition to financial burden, the perceptions healthcare providers have towards PrEP play a major role in limiting patients' access to the treatment. According to Dr. Darrell Tan, an infectious disease physician and clinician scientist at St. Michael's Hospital in Toronto, Ontario, many physicians do not possess adequate knowledge on PrEP, preventing potential patients from receiving prescriptions or referrals to other specialists (CATIEinfo, 2018). A 2017 survey conducted at Tufts Medical Center with 80 medical professionals demonstrated current attitudes towards PrEP (Maude et al., 2017). As seen in Figure 2A, over 75% of participants eligible to prescribe medications would choose to refer patients to infectious disease specialists instead of treating them themselves (Maude et al., 2017).

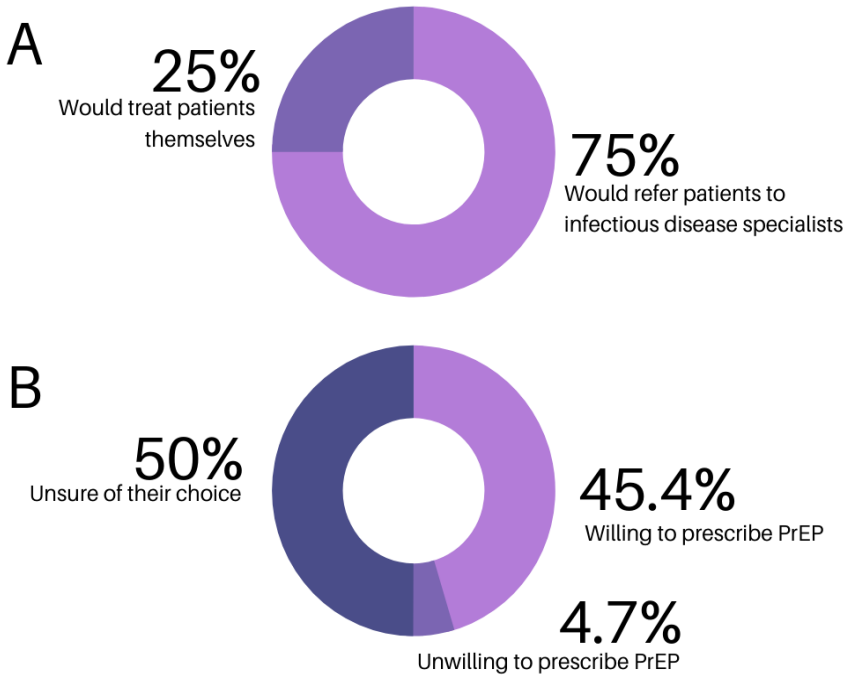

Figure 2. Perceptions and attitudes of physicians in the United States and Canada.
(A) Results from a survey conducted amongst physicians in the United States. Compiled with data from Maude et al. (2017). (B) Perceptions of Canadian doctors regarding PrEP prescriptions. Data taken from Sharma et al. (2014).

Choosing to refer patients to specialists also significantly limits accessibility to PrEP in Canada since these appointments are usually associated with extensive wait times. Approximately 56% of Canadians experience a wait period longer than four weeks to meet with a specialist (Chai, 2017). Therefore, since many individuals needing a prescription for PrEP are likely unable to access the treatment in a timely manner, many patients' care could be negatively affected since feelings of discouragement or the continuation of high risk behaviours prior to this intervention may prevent effective treatment.

Participants of the study by Maude and colleagues (2017) also identified several main barriers of prescribing PrEP. These included insufficient PrEP knowledge, lack of experience working with PrEP, and lack of insurance coverage (Maude et al., 2017). Even though this survey was conducted amongst healthcare professionals in the United States, this study provides insight into the perceptions of Canadian physicians. A major difference between these attitudes could be within insurance coverage since these plans vary significantly between Canada and the United States. Therefore, while this study does provide important information that could be relevant in the Canadian context, it must be considered that the reasons behind these perceptions may vary since Canada and the United States have differences within healthcare infrastructure.

Additionally, a 2014 Canadian study surveyed physicians on their attitudes towards PrEP (Sharma et al., 2014). Shown in Figure 2B, this survey found that less than half of the participants were willing to prescribe PrEP while exactly 50% were unsure of whether they would choose to prescribe the treatment or not. According to participants, major concerns associated with prescribing PrEP were cost and efficacy. Additionally, 75.3% of participants felt that information about PrEP was not adequately distributed, therefore, lack of PrEP knowledge was a major contributor. While these results are compelling, it must be noted that this study has

limitations since these perceptions may be outdated. This study was conducted prior to 2016, the year Truvada was approved for PrEP use in Canada, which followed with significant changes in provincial health coverage. Therefore, these ideas surrounding PrEP have likely altered within the Canadian context in recent years.

While both aforementioned studies have their limitations, they remain valuable to consider in this discussion since current data is lacking in this particular area. Therefore, these studies provide insight to past opinions and they give future researchers an opportunity to build upon this knowledge by conducting studies that will fill these gaps in the literature. With the collection of recent and relevant information, researchers will be able to answer the larger question of whether physicians in Canada continue to have these opinions, why these attitudes may be present, and how to move forward.

Barriers Within Vulnerable Groups

Men Who Have Sex with Men

Studies have found that men who have sex with men (MSM) were less willing to take PrEP due to concerns surrounding medication side effects, cost, discomfort of speaking to a medical provider, and a lack of a family physician (Patten et al., 2016). Another study by Wilton and colleagues (2016) found that a major barrier MSM faced was low knowledge surrounding HIV risk perception. Figure 3 shows three hypothetical PrEP cascades that were constructed with different variables to investigate barriers of PrEP accessibility (Wilton et al., 2016). The concept of a PrEP cascade was initially introduced to explore the structural and individual factors that prevent HIV-negative patients from using PrEP, which would limit the overall impact of the treatment on public health (Liu et al., 2012). These cascades are useful in evaluating the magnitude of gaps at each step and monitoring these numbers relative to demographic factors

such as age, ethnicity, education, or employment status (Liu et al., 2012).

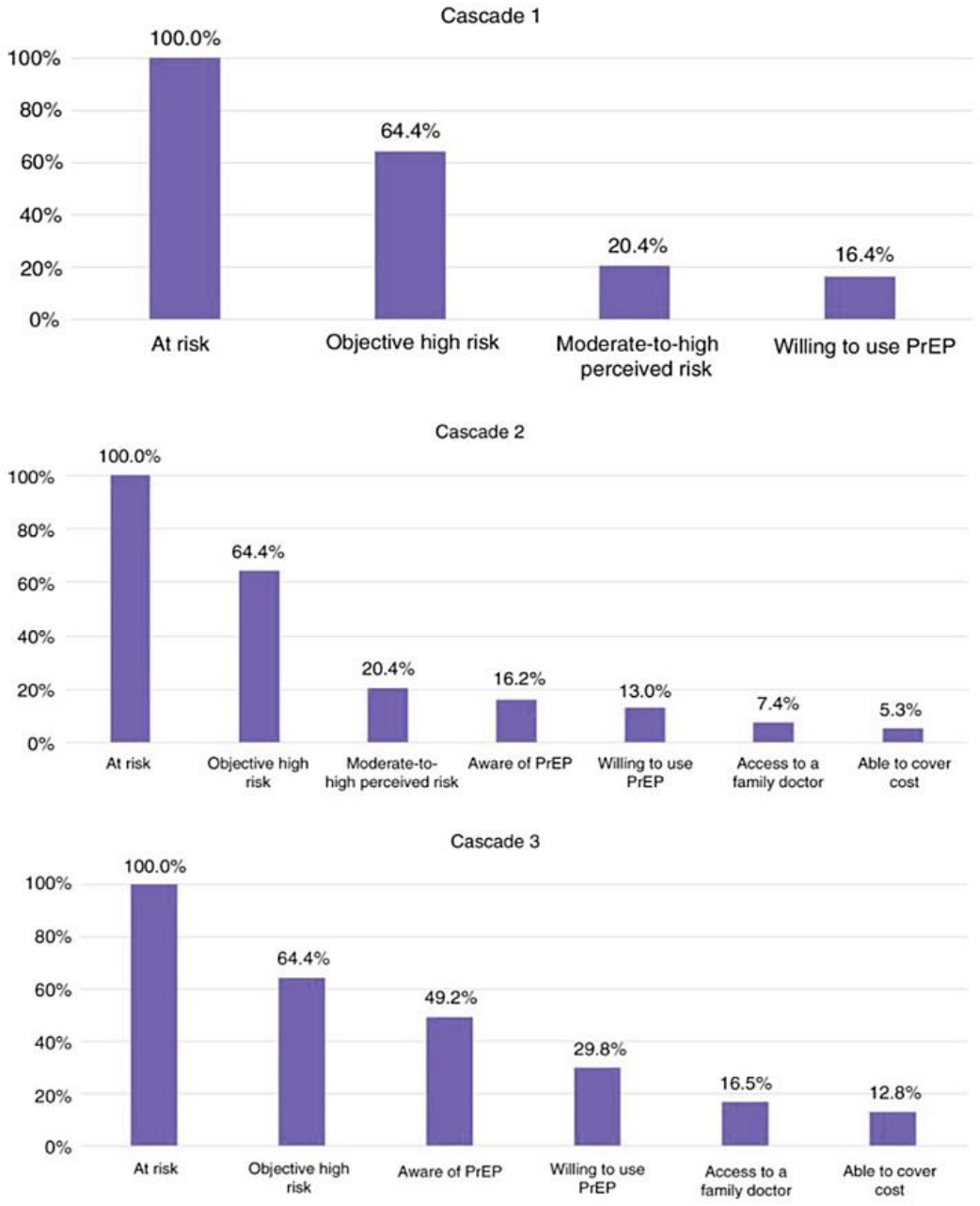

Figure 3. Proportion of men who have sex with men (MSM) that may benefit from PrEP in current conditions in Toronto, ON. Three cascades factoring in different variables are shown. Overall, accessibility issues are mostly related to low HIV risk perception, participants' willingness to take the treatment, access to a family doctor, and cost coverage (modified from Wilton et al., 2016).

In order to fully benefit from PrEP treatment, investigators reasoned that certain criteria must be met by MSM participants, therefore, the following variables were considered: 1) are at risk of HIV infection, 2) are at an objectively high risk, 3) self-perception of their risk is moderate-to-high, 4) are aware of PrEP, 5) are willing to use PrEP, 6) have access to a family doctor that they are comfortable discussing sexual health with, and 7) have insurance coverage for prescription costs or are willing to pay the medication in full (Wilton et al., 2016). In order to gather this data, patients from Hassle Free Clinic's satellite testing locations in Toronto, Ontario were asked whether they wished to participate in an anonymous survey which included questions regarding these seven variables. All participants that chose to take the survey were included in the initial at-risk step of each cascade. One data set was collected and within each of the three cascades, some of the variables that affect potential PrEP usage amongst the participants were either included or excluded as "steps", and participants were either moved on through the cascade or discontinued based on their answers to related survey questions (Wilton et al., 2016).

Cascade 1 and Cascade 2 show significant decreases in participants at the risk perception step, which is the third factor in the above list. When all proposed steps are present in Cascade 2, only 5.3% of participants could potentially benefit from PrEP treatment within these conditions (Wilton et al., 2016). However, while risk perception is a large contributor in lowering potential access to PrEP, other variables downstream of the cascade also play a significant role in reduced usage. To demonstrate this, Cascade 3 excludes the risk perception step from the criteria and any participants that may have been potentially lost at this step were included again and were moved on to the next stages in the cascade. Therefore, Cascade 3 sees heavy decreases of participants at the "willing to use PrEP" and "access to a family doctor" steps with only 12.8% of total participants potentially benefitting from PrEP (Wilton et al., 2016).

Thus, a main contributor to reduced PrEP usage that cannot be discounted is a low self-perceived risk of contracting HIV among MSM. This may be caused by an overall low awareness of HIV transmission in general, as well as stigmatization within these social groups that leads to this decreased knowledge and acceptance of current risk. However, as seen in Cascade 3, other factors such as PrEP awareness, access to a family physician, and drug cost coverage are also critical players in patients' engagement with PrEP treatment.

People Who Inject Drugs

People who inject drugs (PWID) are 59 times more likely to become infected with HIV compared to individuals who do not use injectable drugs (Yang et al., 2016). However, despite this significant risk, research with PWID showed an overall unwillingness to take PrEP due to concerns regarding the side effects of the medication (Escudero et al., 2015). A 2018 study by Biello and colleagues also showed that PWID experienced several barriers to PrEP utilization including negative personal experiences with healthcare professionals, involvement in the criminal justice system, homelessness, and lack of identification to access coverage plans, among others, seen in Figure 4. Therefore, these social factors negatively affect the overall healthcare of PWID and limit access to PrEP.

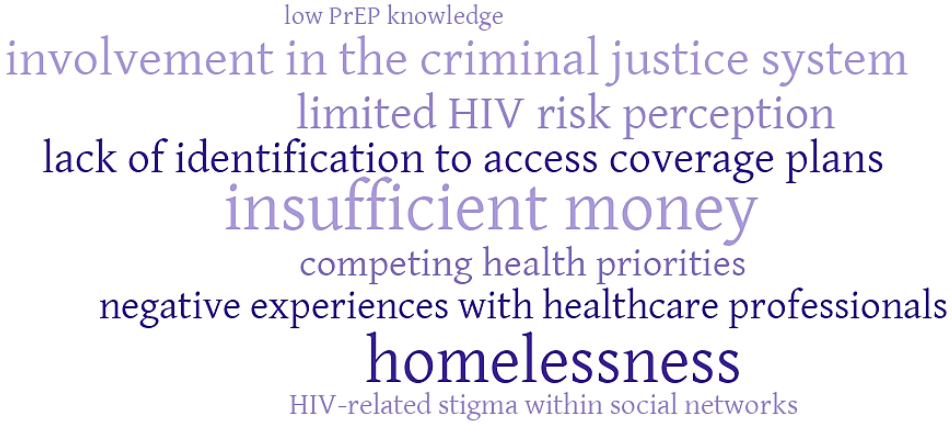

Figure 4. Word cloud listing the reasons why PrEP accessibility is limited amongst intravenous drug users. Created with data from Biello et al. (2018).

African, Caribbean, and Black Communities

African, Caribbean, and Black (ACB) communities are disproportionately affected by HIV (McCormack et al., 2016). In a 2019 study conducted by Zhabokritsky and colleagues, ACB men from Toronto, Ontario were surveyed to analyze gaps in PrEP usage. Only 25.4% of men who have sex with women (MSW) determined to be at high-risk self-identified as such, therefore, the ability of ACB men to self-assess their risk of HIV infection is low (Zhabokritsky et al., 2019). In addition, ACB MSW were less likely to accept PrEP compared to ACB MSM, suggesting that there are other barriers to consider within this group (Zhabokritsky et al., 2019). Some common reasons for declining PrEP were low perceived HIV risk and treatment side effect concerns (Zhabokritsky et al., 2019). However, while stigma towards HIV in ACB communities is known to greatly limit knowledge of HIV-related resources and support services overall (Canadian HIV/AIDS Black, African and Caribbean Network, n.d.), stigma did not affect PrEP uptake within this specific community (Zhabokritsky et al., 2019). Therefore, further research is required to distinguish these factors affecting PrEP uptake for various groups within ACB communities.

Additionally, studies within the United States have found that women of colour are at an increased risk of HIV infection due to the intersections of their minority status with their sexuality and gender (Ferguson et al., 2006). This increased risk is attributed to lack of control in sexual health decisions such as condom use (Flash et al., 2014), and cultural barriers that inhibit women from discussing and ultimately engaging in safer sex practices (Paxton et al., 2013). In a 2013 study by Quinlivan and colleagues, it was observed that factors such as powerlessness and loss of autonomy limit self-protective behaviours for women unaware of their HIV status. Overall, among women of colour, power imbalances between men and women contribute to the

high HIV risk observed in the United States (Raiford et al., 2007). Even though these findings are based outside of Canada, these issues are still important to consider when conducting new research within the Canadian context or when applying the research to relevant communities.

Indigenous Communities

Federal coverage of Truvada is available for qualifying First Nations and Inuit people under the Non-Insured Health Benefits program (Indigenous Services Canada, 2020). However, barriers still continue to exist since some individuals may not have access to general healthcare in remote communities, as well as others may have an overall lack of knowledge regarding the treatment and its availability. For instance, in British Columbia, Indigenous identifying individuals had free access to PrEP since 2013[1] but this coverage was hardly utilized (Sterritt, 2018). In an interview with CBC News, Jody Jollimore, a PrEP user and director of the Community-Based Research Centre in Vancouver, said that awareness and education about PrEP being free was lacking in First Nations communities (Sterritt, 2018). In addition, Dr. Julio Montaner, who is associated with the B.C. Centre for Excellence for HIV/AIDS stated that "when you have programs that are available to a particular community and not the larger community, the knowledge translation that happens in the community is limited" (Sterritt, 2018, para. 17). Therefore, while the availability of financial coverage of PrEP is certainly valuable, it is also important to acknowledge that this program may not be sufficient due to other factors that affect overall accessibility and usage within each community.

[1]Even though Truvada was approved by Health Canada in 2016, PrEP treatment was freely available for Indigenous communities in British Columbia since 2013 (Sterritt, 2018). Truvada was available on the market since 2012 in the United States (AIDSinfo, 2012), therefore, it is possible that special requests on behalf of community members were made to allow for access to Truvada during this time (Government of Canada, 2018). Another possibility is that a generic form of the drug was available on the market.

Solutions

Even though there are several issues revolving around PrEP which limit its overall usage, appropriate solutions can be implemented to address these problems. For Manitoba, the first step would be to initiate general provincial coverage. While it may not be feasible to completely cover the costs of PrEP in this province due to limited budgets, introducing a preliminary coverage plan would be useful for many individuals who are able to cover partial costs. Since Manitoba has the third highest diagnosis HIV rate in Canada, it is critical to advocate for an adjustment within the $6.8 billion provincial healthcare budget (Province of Manitoba, 2020). Thus, HIV prevention must become a priority in order to prevent further transmission.

Next, since PrEP is already financially accessible in Saskatchewan, the main focus is to create campaigns and plans to ensure all residents have access to PrEP knowledge and related resources. Since 67% of the new HIV diagnoses stem from intravenous drug use (Government of Saskatchewan, 2017), this specific area is of utmost concern and should be targeted. Specifically, Indigenous outreach is critical for knowledge translation and support. The implementation of supervised injection sites in and around Indigenous communities with on-site medical staff knowledgeable about PrEP could be effective in providing direct assistance and resources to Indigenous PWID. Several supervised injection facilities have already been introduced to Saskatoon, Saskatchewan and have been proven to be cost-effective and efficient at reducing HIV transmission (Jozaghi & Jackson, 2015). Therefore, combining these interventions within these communities could be a successful strategy in large cities. However, this approach may require reconsideration and modification in northern and isolated Indigenous communities or reserves since challenges unique to these communities could arise.

Additionally, while there is partial coverage available in Ontario and Quebec, more can be done to support low-income individuals that are not able to access the treatment. Similarly to Manitoba, it may not be feasible to budget free coverage for everyone, however, modified plans can be created to support those with the most financial need. These plans could provide financial assistance with treatment fees through either grants or through direct prescription coverage.

Next, to address the issues within healthcare professionals' perceptions and knowledge of HIV and PrEP, recent information surrounding PrEP needs to be demystified. To do this, medical conferences and workshops dedicated to current PrEP research could be introduced for primary care physicians to attend at least once a year. Information regarding HIV is consistently evolving with the publication of new research, therefore, it is imperative that medical practitioners are updated annually. If there is lack of funding for this sort of initiative, then resources such as PowerPoint presentations or brochures compiled by experts in the field could be widely distributed to medical practitioners. Even if some physicians do not feel comfortable prescribing PrEP following this training, they should possess adequate knowledge to offer accurate information and referrals to their patients when necessary, and to identify which of their patients are at a high risk so proper support can be provided in a timely manner.

In addition, to help support various communities across Canada, public education programs can be implemented to provide knowledge and resources. One program could include information sessions hosted by healthcare professionals and educators in either community centres or libraries. Depending on available funding, however, this approach may not be possible. Therefore, other methods of knowledge translation could be initiated, such as the distribution of flyers and pamphlets in clinics and other community centres. In addition, an effective and financially sustainable option could include posting flyers in high-traffic areas with

a message such as, “Worried about HIV?” with a QR code that redirects to a regulated website for community-based information. This approach would allow individuals who may feel uncomfortable attending public education events to research based on their own needs. In general, these programs would include key information surrounding PrEP such as an overview on the treatment itself, its effectiveness, potential side effects, coverages available in that specific region, and costs. Since many studies have found that individual risk perception is low in several communities, more research needs to be conducted to address this issue since the reasons why will differ between groups.

Overall, since every finding depends on the community that is being worked with, careful consideration must be taken when developing solutions to address these problems. In order for these solutions to be effective, they must be specifically modified to suit the needs of each group. Therefore, further research within each community of interest must be conducted to understand how these groups are affected. Moving forward, researchers, educators, and community members must work together to build strong foundations of knowledge in order to break down these barriers.

Conclusion

Overall, access to PrEP treatment in Canada is greatly limited by social and economic factors within society and healthcare including costs of the treatment, perceptions and knowledge of physicians, and various barriers within vulnerable groups. Several solutions including increased provincial coverage of PrEP for low income individuals, mandatory physician training, and community specific programs have been proposed to address these issues. When moving forward with further research and the implementation of programs, it is critical to consider the groups that are being worked with to ensure that these solutions are effective. By working together with various partners including government officials, researchers, healthcare educators,

and community members, key knowledge can be properly provided to support vulnerable communities affected by HIV.

References

AIDSinfo. (2012, July 16). *FDA approves first drug for reducing the risk of sexually acquired HIV infection*. Retrieved May 22nd, 2020, from https://aidsinfo.nih.gov/news/1254/fda-approves-first-drug-for-reducing-the-risk-of-sexually-acquired-hiv-infection

Amzat, J., & Razum, O. (2014). Social Production of Health. In *Medical Sociology in Africa* (pp. 107–128). Springer.

Biello, K. B., Bazzi, A. R., Mimiaga, M. J., Biancarelli, D. L., Edeza, A., Salhaney, P., … Drainoni, M. L. (2018). Perspectives on HIV pre-exposure prophylaxis (PrEP) utilization and related intervention needs among people who inject drugs. *Harm Reduction Journal*, *15*(1). doi:10.1186/s12954-018-0263-5

Bourgeois, A. C., Edmunds, M., Awan, A., Jonah, L., Varsaneux, O., Siu, W. (2017). HIV in Canada—surveillance report, 2016. *Canada Communicable Disease Report*, *43*(12), 248–56. doi:10.14745/ccdr.v43i12a01

Canadian HIV/AIDS Black, African and Caribbean Network. (n.d.). *HIV stigma in African, Caribbean and Black communities*. Retrieved May 17th, 2020, from http://www.icad-cisd.com/pdf/CHABAC/Publications-Presentations/CHABAC_Stigma-fact-sheet_FINAL_EN.pdf

CATIEinfo. (2018, January 29). *Dr. Darrell Tan: pre-exposure prophylaxis (PrEP) for HIV prevention in Canada* [Video]. Youtube. Retrieved February 24, 2020, from https://www.youtube.com/watch? v=l7WqMcj7erY

Centers for Disease Control and Prevention. (2019, December 3). *PrEP*. Retrieved February 25, 2020, from https://www.cdc.gov/hiv/basics/prep.html

Chai, C. (2017, February 17). *Canada has some of the longest wait times to see doctors, specialists: report*. Global News. Retrieved April 20, 2020, from https://globalnews.ca/news/3251833/ canada-has-some-of-the-longest-wait-times-to-see-doctors-specialists-report/

Escudero, D. J., Kerr, T., Wood, E., Nguyen, P., Lurie, M. N., Sued, O., & Marshall, B. D. L. (2015). Acceptability of HIV pre-exposure prophylaxis (PrEP) among people who inject drugs (PWID) in a Canadian setting. *AIDS and Behavior*, *19*(5), 752–757. doi:10.1007/s10461-014-0867-z

Ferguson, Y. O., Quinn, S. C., Eng, E., & Sandelowski, M. (2006). The gender ratio imbalance and its relationship to risk of HIV/AIDS among African American women at historically black colleges and universities. *AIDS Care*, *18*(4), 323–331. doi:10.1080/09540120500162122

Flash, C. A., Stone, V. E., Mitty, J. A., Mimiaga, M. J., Hall, K. T., Krakower, D., & Mayer, K. H. (2014). Perspectives on HIV prevention among urban black women: a potential role for HIV pre-exposure prophylaxis. *AIDS Patient Care and STDs, 28*(12), 635–642. doi:10.1089/apc.2014.0003

Gilead. (2018, May). *Truvada for PrEP–important facts*. Retrieved April 22nd, 2020, from https://services.gileadhiv.com/content/pdf/TRUVADA_for_PrEP_Important_Facts.pdf

Gilead. (2019, April 5). *Gilead submits supplemental new drug application to U.S. Food and Drug Administration for once-daily Descovy® for HIV pre-exposure prophylaxis*. Retrieved May 16th, 2020, from https://www.gilead.com/news-and-press/press-room/press-releases/2019/4/gilead-submits-supplemental-new-drug-application-to-us-food-and-drug-administration-for-oncedaily-descovy-for-hiv-preexposure-prophylaxis

Government of Canada. (2018, July 5th). *Special access programme–drugs*. Retrieved May 23rd, 2020, from https://www.canada.ca/en/health-canada/services/drugs-health-products/special-access/drugs/special-access-programme-drugs-1.html

Government of Canada. (2019, December 12). *HIV and AIDS: for health professionals*. Retrieved May 16th, 2020, from https://www.canada.ca/en/public-health/services/diseases/hiv-aids/health-professionals.html

Government of Ontario. (2019). *Formulary search*. Retrieved May 19th, 2020, from https://www.formulary.health.gov.on.ca/formulary/

Government of Saskatchewan. (2017). *2017 Saskatchewan HIV prevention and control report.* Retrieved March 28th, 2020 from http://publications.gov.sk.ca/documents/13/108029-2017-Saskatchewan-HIV-Prevention-and-Control-Report.pdf

Haddad, N., Robert, A., Weeks, A., Popovic, N., Siu, W., & Archibald, C. (2019). HIV in Canada—surveillance report, 2018. *Canada Communicable Disease Report, 45*(12), 304–312. doi: 10.14745/ccdr.v45i12a01

Indigenous Services Canada. (2020). *Drug benefit list–January 2020*. Government of Canada. Retrieved April 17th, 2020, from https://www.sac-isc.gc.ca/DAM/DAM-ISC-SAC/DAM-HLTH/STAGING/texte-text/nihb_benefits-services_drugs_dbl-index_1573154657223_eng.pdf

Jozaghi, E., & Jackson, A. (2015). Examining the potential role of a supervised injection facility in Saskatoon, Saskatchewan, to avert HIV among people who inject drugs. *International Journal of Health Policy and Management, 4*(6), 373–379. doi:10.15171/ijhpm.2015.73

Link, B. G., & Phelan, J. C. (1996). Understanding sociodemographic differences in health - the role of fundamental social causes. *American Journal of Public Health, 86*(4), 471–473. doi:10.2105/ajph.86.4.471

Liu, A., Colfax, G., Cohen, S., Bacon, O., et al. (2012). *The spectrum of engagement in HIV prevention: proposal for a Pre-Exposure Prophylaxis (PrEP) cascade*. [Presentation at 7th International Conference on HIV treatment and prevention adherence, June 3–5, Miami, Florida]. Retrieved April 16th, 2020, from https://www.iapac.org/Adherence Conference/presentations/ADH7_80040.pdf

Maude, R., Volpe, G., & Stone, D. (2017). Knowledge, attitude and practice of pre-exposure prophylaxis (PrEP) against HIV infection of medical providers at an academic center. *Open Forum Infectious Diseases, 4*(suppl_1). doi:10.1093/ofid/ofx163.1106

McCormack S., Dunn D. T., Desai M., Dolling D. I., Gafos M., Gilson R., et al. (2016). Pre-exposure prophylaxis to prevent the acquisition of HIV-1 infection (PROUD): effectiveness results from the pilot phase of a pragmatic open-label randomised trial. *The Lancet, 387*(10013), 53-60. doi:10.1016/S0140-6736(15)00056-2

Nine Circles Community Health Centre. (2017). *Pre-exposure prophylaxis (PrEP) for HIV prevention*. Retrieved February 24, 2020, from https://ninecircles.ca/wp-content/uploads/ 2017/12/Nine-Circle%E2%80%99s-PrEP-Information-handout-for-patients.pdf

Patten, S., LeBlanc, M. A., Jackson, E., Adam, B. (2016). *The resonance project: emerging biomedical discourses on HIV among gay men and their service providers–community report*. Health Initiative for Men. Retrieved April 16th, 2020, from https://checkhimout.ca/wp-content/uploads/2019/09/Resonance-Project-Full-Report.pdf

Paxton, K. C., Williams, J. K., Bolden, S., Guzman, Y., & Harawa, N. T. (2013). HIV risk behaviors among African American women with at-risk male partners. *Journal of AIDS & Clinical Research, 4*(7). doi:10.4172/2155-6113.1000221

Province of Manitoba. (2020). *Manitoba budget, 2020*. Retrieved April 17th, 2020, from https://www.gov.mb.ca/asset_library/en/budget2020/budget.pdf

Public Health Agency of Canada. (2019, November 21). *HIV in Canada: 2018 surveillance highlights*. Government of Canada. Retrieved April 15th, 2020, from https://www.canada.ca/en/public-health/services/publications/diseases-conditions/hiv-2018-surveillance-highlights.html

Quebec Health Insurance. (n.d.). *Drug insurance*. Retrieved May 19th, 2020, from https://www.ramq.gouv.qc.ca/fr/citoyens/assurance-medicaments/ Pages/montant-a-payer-medicaments.aspx

Quinlivan, E. B., Messer, L. C., Adimora, A. A., Roytburd, K., Bowditch, N., Parnell, H., … Pierce, J. K. (2013). Experiences with HIV testing, entry, and engagement in care by HIV-infected women of color, and the need for autonomy, competency, and relatedness. *AIDS Patient Care and STDs, 27*(7), 408–415. doi:10.1089/apc.2012.0434

Raiford, J. L., Wingood, G. M., & Diclemente, R. J. (2007). Prevalence, incidence, and predictors of dating violence: a longitudinal study of African American female adolescents. *Journal of Women's Health*, *16*(6), 822–832. doi:10.1089/jwh.2006.0002

Rézo. (n.d.). *PrEP*. Retrieved February 24, 2020, from https://www.rezosante.org/ta-sexualite/prevention/prep

Saskatchewan Health Authority. (n.d.). *HIV PrEP*. Retrieved February 24th, 2020, from http://www.rqhealth.ca/department/population-and-public-health/hiv-prep

Sharma, M., Wilton, J., Senn, H., Fowler, S., & Tan, D. H. S. (2014). Preparing for PrEP: perceptions and readiness of Canadian physicians for the implementation of HIV pre-exposure prophylaxis. *PLoS ONE, 9*(8). doi:10.1371/journal.pone.0105283

Statistics Canada. (2019, April 10). *Focus on geography series, 2016 census*. Retrieved April 18th, 2020, from https://www12.statcan.gc.ca/census-recensement/2016/as-sa/fogs-spg/Facts-PREng.cfm?TOPIC=9&LANG=Eng&G K=PR&GC=47

Sterritt, A. (2018, January 3). *'We dropped the ball': Some Indigenous people had access to HIV drug for years without knowing*. CBC News. Retrieved April 18th, 2020, from https://www.cbc.ca/news/canada/british-columbia/indigenous-people-had-access-to-a-drug-that-prevents-hiv-for-years-without-knowing-1.4468600

Walmsley, B., Gallant, D., Naccarato, M., Hull, M., Smith, A., & Tan, D. H. (2019). The PrEP you want: A web-based survey of online cross-border shopping for HIV prophylaxis medications. *Journal of Medical Internet Research*, *21*(7). doi:10.2196/12076

Wilton, J., Kain, T., Fowler, S., Hart, T. A., Grennan, T., Maxwell, J., & Tan, D. H. (2016). Use of an HIV-risk screening tool to identify optimal candidates for PrEP scale-up among men who have sex with men in Toronto, Canada: disconnect between objective and subjective HIV risk. *Journal of the International AIDS Society*, *19*(1), 20777. doi:10.7448/ias.19.1.20777

Yang, Q., Ogunnaike-Cooke, S., Halverson, J., et al. (2016). *Estimated national HIV incidence rates among key sub-populations in Canada, 2014*. [Presentation at 25th Annual Canadian Conference on HIV/AIDS Research (CAHR), 12–15 May 2016, Winnipeg, Canada]. Retrieved April 18th, 2020, from https://www.catie.ca/factsheets/epidemiology/injection-drug-use-and-hiv-canada#

Yoong, D. (2018). *Provincial/territorial coverage of ARV drugs for HIV prevention across Canada: post-exposure prophylaxis (PEP) and pre-exposure prophylaxis (PrEP)*. Immunodeficiency Clinic. Retrieved May 17th, 2020, from https://hivclinic.ca/wp-content/uploads/2018/04/ARV-Coverage_PEP-and-PrEP.pdf

Appendix

Table 1. Table listing the accessed websites mentioned in the Methods section. The government and health organization websites below were accessed to compile and analyze information regarding current HIV transmission rates, PrEP medication approvals, provincial or insurance coverage, additional costs for the treatment across Canada, and community experiences.

Website Name/Affiliation	Description of Source	URL
AIDSinfo	A website of the U.S. Department of Health and Human Services (HHS) which provides information regarding HIV/AIDS for researchers, medical professionals, and the general public.	https://aidsinfo.nih.gov
Government of Canada	Federal government website. The Public Health Agency of Canada and Indigenous Services Canada are under this domain.	https://www.canada.ca/en
Government of Ontario	Ontario drug formulary website.	https://www.formulary.health.gov.on.ca/formulary
Government of Saskatchewan	Provincial government website.	https://www.saskatchewan.ca
Immunodeficiency Clinic	Health organization based in Toronto, Ontario.	https://hivclinic.ca
Interagency Coalition on AIDS and Development	Canadian organization partnering with other groups and individuals to address the HIV/AIDS crisis. The Canadian HIV/AIDS Black, African and Caribbean Network is under this domain.	http://www.icad-cisd.com/our-work/canadian-hivaids-black-african-and-caribbean-network-chabac
Nine Circles Community Health Centre	Health organization based in Manitoba.	https://ninecircles.ca
Province of Manitoba	Provincial government website.	https://www.gov.mb.ca
Quebec Health Insurance	Provincial government website.	https://www.ramq.gouv.qc.ca
Rézo	Non-profit community organization for gay and bisexual men in Montreal.	https://www.rezosante.org
Saskatchewan Health Authority	Health organization in Saskatchewan.	http://www.rqhealth.ca
Statistics Canada	National statistics office.	https://www.statcan.gc.ca/eng/start