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Environmental Scan of In-Process Research Activities in Canada Related to Health, HIV and Aging

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Realize is the leading national, charitable organization working to improve the health and well-being of people living with HIV and other episodic disabilities, across the lifespan, through integrated research, education, policy and practice. **Realize** members come from across Canada, as well as internationally, and include people living with HIV and other chronic conditions, members of community-based HIV and disability organizations, national associations of health professionals, government agencies, private businesses, universities, and the employment sector.

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- **Sunny Wang, Puja Ahluwalia, Kate Murzin** – Data collection & Report Co-Authorship
- Puja Ahluwalia and Kate Murzin – Reviewing and coding data
- NCC RWG – Interpretation of findings

Environmental Scan of In-Process Research Activities in Canada Related to Health, HIV and Aging

Background

The Public Health Agency of Canada estimates that 62,050 people were living with HIV in Canada in 2018.¹ While national-level prevalence data is not disaggregated by age, based on estimates from other jurisdictions, it is reasonable to estimate that 40-50% of people living with HIV in Canada (approximately 25,000 - 31,000 people) are now over the age of 50.^{2,3} This proportion continues to grow given the significant impact of modern antiretroviral therapy on longevity among people living with HIV, as well as a steady stream of new diagnoses in this age group. In 2019, about 1 in 4 new HIV diagnoses among men, and 1 in 5 new HIV diagnoses among women, were in people age 50 or older.⁴

Research is an important tool for documenting how aging, HIV and a person's environment intersect to impact their body and mind, social inclusion, and opportunities. Through research on HIV, aging and older adulthood, we can understand more deeply the experiences of an individual or group; identify strengths, challenges, and unmet needs among diverse communities of people growing older with HIV; and identify factors that are more likely to affect the well-being of aging and older people living with HIV than their HIV-negative peers. Research also enables us to evaluate the impact of our policy and programmatic responses to HIV/STBBIs and/or aging on older adults living with or vulnerable to HIV. New knowledge can be used to create evidence-informed policies and practices that foster well-being, increase equity, and respond to the unmet needs of aging and older people living with HIV.

Objectives & Scope

The National Coordinating Committee on HIV and Aging (NCC) conducted the first *Environmental Scan of In-Process Research Activities in Canada Related to Health, HIV and Aging* in 2013. The original scan resulted in a searchable point-in-time inventory of in-process Canadian research activities related to HIV and aging, and an analysis of these research activities based on the health domains they addressed.

Knowing that most research grants in Canada are short and that all in-process research projects captured in the 2013 environmental scan would now be complete, we opted to replicate the scan in 2021. Our objectives were:

- 1) To systematically identify in-process HIV and aging-related research in Canada, replicating the methods used to conduct the 2013 scan

¹ Public Health Agency of Canada. (2020). Estimates of HIV incidence, prevalence and Canada's progress on meeting the 90-90-90 HIV targets.

² Smit M, Brinkman K, Geerlings S, Smit C, Thyagarajan K, Sighem Av, de Wolf F, Hallett TB; ATHENA observational cohort. Future challenges for clinical care of an ageing population infected with HIV: a modelling study. *Lancet Infect Dis*. 2015 Jul;15(7):810-8.

³ Autenrieth, C. S., Beck, E. J., Stelzle, D., Mallouris, C., Mahy, M., & Ghys, P. (2018). Global and regional trends of people living with HIV aged 50 and over: Estimates and projections for 2000-2020. *PloS one*, 13(11), e0207005.

⁴ Haddad N, Weeks A, Robert A, Totten S. HIV in Canada—surveillance report, 2019. *Can Commun Dis Rep* 2021;47(1):77–86.

- 2) To provide a preliminary analysis of in-process HIV and aging-related research in Canada in 2021 and compare results against those from the 2013 scan to identify changes in the research landscape over the last decade
- 3) To inform the development of The Pan-Canadian Research Agenda on HIV, Aging, and Older Adulthood which will serve as a roadmap for HIV and aging research stakeholders, including funders, investigators and teams, and knowledge users.

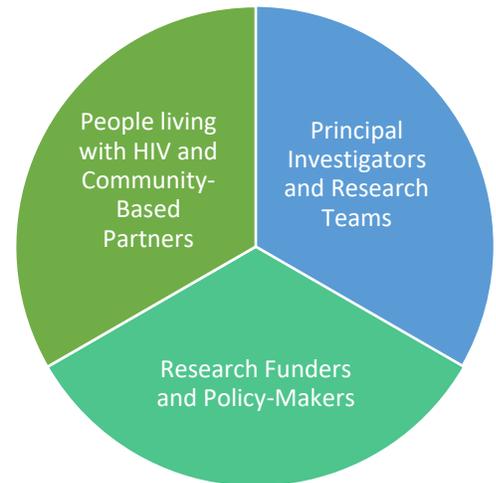
Who is this report for?

This report and the research database provide a snapshot of the HIV and aging research underway in Canada at a single point in time.

Aging and older people living with HIV, their carers, and representatives of community-based HIV organizations can refer to the database to identify research projects that are currently taking place in their jurisdiction. This information may facilitate increased community participation in the research process, whether through research participation, research team membership, or advocacy for future research on particular topics or with specific communities.

Principal investigators and research teams can use these resources to identify gaps in the HIV and aging research landscape, information which may help them to shape future research questions. They can also use the database to identify potential collaborators who share a mutual interest in researching particular aspects of HIV and aging.

Research funders and policymakers can reference this report and database to better understand how resources are being allocated within this field of research, to inform research priority-setting activities, and to identify projects that may produce evidence needed to inform decision-making.



Methods

Search Strategy and Inclusion Criteria

In June, July, and August of 2021, we undertook an environmental scan of in-process research in Canada relevant to aging and older adults living with HIV. We catalogued relevant project details gathered from the following sources:

- Organizational and funder databases
- Survey responses from HIV and aging research stakeholders who participated in *Realize's* March 2021 Think Tank

- Correspondence with Coordinators of major cohort studies in Canada and/or organizations previously involved in HIV and aging research
- Conference abstracts (e.g., CAHR)
- Internet search engines (e.g., Google)

A list of the websites and databases searched can be found in Appendix A.

The scan was conducted in both English and French, and a web-based translation device was used to interpret French language websites and databases.

Search Strategy

First, the team generated a list of HIV research stakeholder (researchers, funders, knowledge users) websites. Depending on the source website (e.g., funding databases, organizational websites), one or more of the search strategies described below was used to identify HIV and aging-focused research:

- Keyword search within a database (e.g., “aging”, “ageing”, “HIV”, “older”, “elder” and variations of these keywords);
- Keywords search on a web page using the website search engine and computer “search” function (command+F);
- Keyword search within a PDF, PowerPoint presentation, or other text-format documents downloaded from a website; or
- Manual search by navigating to relevant sections of a website and clicking on links

Search Step Inclusion Criteria

Our scan focused on in-process research on HIV and aging in Canada. In order to capture any and all studies that were active time of the scan, we searched for studies funded from 2016 onwards. We included research projects that:

- Explicitly referenced “aging” or similar terms in the context of HIV (e.g., “older adults”, “people living and aging with HIV”)
- Appeared relevant to the physical, social, or environmental determinants of health for aging and older adults living with HIV
- Were focused on specific sub-populations aging with HIV (e.g., Indigenous elders, older women etc.)
- Focused on HIV and co-morbidity or disability since many chronic health conditions (e.g., cancer, HIV-associated neurocognitive disorders, cardiovascular conditions, etc.) are more prevalent with age

Information regarding each relevant research project was entered into an Excel spreadsheet (see Appendix C for data fields). In some cases, fields were left unfilled as the data source did not contain fulsome information on the project.

Reviewing and Coding

Project records were reviewed firstly by one reviewer familiar with the HIV & aging research landscape in order to apply a stricter definition of “in-process” research. If the funding period for a study had

ended between 2016 and 2020, research results had been published, or a student award recipient had graduated, the record was purged from the database. Travel awards were also removed. Two reviewers checked the remaining records to verify inclusion criteria, eliminate irrelevant entries and reach consensus on coding for health domain and categories.

To allow us to compare the findings of our scan with those of the 2013 scan, we categorized the studies using the same health domains and categories, originally used by the Ontario HIV Treatment Network in a scoping review on HIV, aging and health.⁵ Reviewers added a new health domain (“Cross-cutting”) for projects whose research focus applied to more than 3 of the existing health domains (see Appendix B).

As per the original scan, we created duplicate records for studies that were coded under 2 or 3 health domains.

Results

Funding

The total monetary investment in HIV and aging research was \$27,437, 150. This represents a nearly twofold increase compared to 2013 (\$15 million), but the number of active studies has decreased.

The projects included in this scan vary in sample size, length of study, and the total amount of funding. Large scale studies include those supported by Foundation Grants and Team Grants such as the HIV/AIDS Comorbidities Prevention and Health Living Team Grant. Mid-scale studies include those funded by Project Grants, and small-scale studies are mostly funded by the Social Science and Humanities Research Council (SSHRC). Other disbursements included doctoral awards and post-doctoral fellowships awarded by academic and health care institutions.

Distribution of Research Activity Across Health Domains

A total of 92 research records representing 62 unique researchers or research projects funded were analyzed.

The current environmental scan shows that research related to physical health in HIV and aging remains the area with the highest volume of activity (45%). Compared to the 2013 scan, the number of studies addressing this health domain has increased. Within this domain, research on comorbidities has surged, surpassing the volume of research on physical well-being which predominated in the 2013 scan.

Mental health and health services research represent the second and third most active domains of HIV and aging research, with each contributing 14% of all research activity identified in the scan. As compared to the 2013 scan, research in both areas has decreased. HIV-Associated Neurocognitive Disorders (HAND) is receiving the most attention in the mental health domain and research on health service access took top priority within the health services research domain.

⁵ Chambers, L.A., Wilson, M.G., Rueda, S. *et al.* Evidence Informing the Intersection of HIV, Aging and Health: A Scoping Review. *AIDS Behav* **18**, 661–675 (2014).

As compared to the 2013 scan, research on antiretroviral treatment (ART) has decreased, whereas studies on social participation and sexual health have increased in number.

Table 1: HIV and Aging Research Activity in Canada by Health Domain and Associated Categories

Health Domain	Research Activity n (%)	Categories within Health Domain	Research Activity n
Physical Health	41 records (45%)	Comorbidities	26
		HIV Markers	1
		Medications	3
		Mortality/Survival	2
		Opportunistic Infections	1
		Physical Well-being	8
Mental Health	13 records (14%)	HIV-Associated Neurocognitive Disorders	5
		Neurocognitive Functioning	4
		Psychological Well-being	3
		Substance Use	1
Health Services	13 records (14%)	Health Service Access	8
		Health Service Utilization – Health Care	1
		Health Service Utilization – HIV-related Care	1
		Health Service Utilization – Mental Health	1
		Health Service Utilization – Other	2
Social Participation	8 records (9%)	Labour force Participation	2
		Social Isolation	1
		Social Support	1
		Social Well-being	3
		Spirituality	1
ART	3 records (3%)	Treatment Adherence	1
		Treatment Response	1
		Treatment Alternatives	1
Sexual Health	6 records (7%)	STIs	3
		Reproductive Health	3
Cross-Cutting	8 records (9%)	Not applicable	N/A
Total Records	92		
<p><i>Thirty-two (n=32) projects focused on a single health domain; fourteen (n=14) either addressed two health domains (n=11) or two categories within one health domain (n=3); eight addressed three categories within one health domain (n=4), across two health domains (n=1), or across three health domains (n=3). Eight (n=8) records were coded as 'cross-cutting' meaning they addressed more than three health domains.</i></p>			

Population Focus

About one third (23/62) of the unique research studies identified in our search focused on a subpopulation of people living with HIV.

- Only three studies exclusively involved older adults living with HIV, with two recruiting people aged 65+ and the third recruiting people aged 60+
- Five projects engaged middle-aged/aging people living with HIV (age 50+)
- Two relevant studies focused on the wellbeing of Indigenous people living and aging with HIV
- No study had a population focus on racialized older adults
- Four studies exclusively engaged gay, bisexual and other men who have sex with men, and all were related to human papilloma virus (HPV) and anal cancer
- Six research projects focused women aging with HIV. The impact of female sex hormones on healthy aging and the experience of menopause were being studied, as was bone health. We identified one large cohort study that is focused on health and aging for women living with HIV, however it enrolls women of all ages. We found one intervention study involving a peer-led social program for women living with HIV.

Cohort Study Data

Data collected from participants in at least one large Canadian cohort study (the OHTN Cohort Study) is being analyzed to determine the characteristics of people aging with HIV (>50 years of age) with regards to gender, race, risk factors, comorbidities, education, income, housing, social support, substance use, cognition and response to ART.

Comparing the Findings of the 2013 and 2021 Environmental Scans

A significant amount of research related to HIV and aging was identified in the current Environmental Scan. Authors of the previous iteration of the scan noted that much of the research from 2013 did not cite aging as an explicit focus. Similarly, the current scan from 2021 captured many studies with a focus on HIV and comorbid diseases where age or aging is investigated as a variable contributing to disease burden rather than a primary focus of the research.

The 2013 scan showed a gap between the top three health domains (Physical Health, Mental Health, Health Services) addressed by the included studies and the bottom three (Social Participation, ARTs, Sexual Health). The current report shows a wide gap between the domain of Physical Health, which occupies 45% of total entries, and the other five health domains. Mental Health and Health Services research make up 14% each of total entries; Social Participation makes up 9%; Sexual Health occupies 7%; and ARTs takes 3%. Thus, it seems that HIV and aging research focusing on Physical Health has grown disproportionately compared to the other categories since the 2013 environmental scan.

One major difference in this year's scan is the addition of the "Cross-Cutting" domain, which classifies projects whose research falls under more than three of the existing health domains (see Appendix B).

In terms of research methodologies, reviewers found very few examples of qualitative and/or community-based research, as compared to a large variety of quantitative studies.

Conclusions

The results of the current scan show that researchers in the field of HIV and aging are mainly using quantitative research methods to investigate the physical health and comorbidities associated with aging with HIV. There appears to be significantly less investment in qualitative projects that focus on lived experience, especially within racialized communities.

Limitations

This environmental scan of in-process HIV and aging research activities in Canada was conducted using publicly available information obtained through online sources. It is likely this list of research activities is not exhaustive and that some of the information captured therein is out-of-date, but the scan does provide a snapshot of the current HIV and aging research landscape. If anything, our data may underestimate the amount of work being done on this subject. In addition, many sources did not provide detailed information on the study rationale or funding source and amount, leading to gaps in data collection.

The current scan was conducted during the COVID-19 global pandemic. Many research studies were put on hold for several months in accordance with public health restrictions on in-person work and gathering. When assessing records for inclusion, reviewers assumed that any study with funding scheduled to end between March 2020 (the beginning of COVID-related lockdowns in Canada) and the time the scan was conducted (June-September 2021) may still be “in progress”.

Appendix A – Information Sources

Government

University

HIV/AIDS Organizations and Institutions

Other Non-Governmental Organizations and Institutions

Pharmaceutical Industry

Appendix B: Coding Schema

In order to allow for comparison between the findings of the 2021 and 2013 Environmental Scans of In Process Research, we coded our data based on the same health domains and associated categories used in the original scan. This schema was originally used in the OHTN's 2012 *Evidence Informing the Intersection of HIV, Aging and Health: A Scoping Review*.

We kept the modifications made in 2013 and added a few more to the coding framework in response to the changing landscape of HIV and aging research in Canada. We added a new health domain – **Cross-Cutting** – to indicate studies/projects that addressed more than three of the existing health domains. We also added the category **Reproductive Health** under the domain Sexual Health.

Health Domain	Categories within Health Domain
Physical Health	Comorbidities – Cancer (Non HIV-related) Comorbidities – Cardiovascular Comorbidities – Endocrine/Metabolic Comorbidities Gastrointestinal Comorbidities – Hematologic Comorbidities – Kidney/Renal Comorbidities – Lung/Pulmonary Comorbidities – Musculoskeletal Comorbidities – Neurological Comorbidities - Other HIV Markers HIV-Related Symptoms Medications Mortality/Survival Opportunistic Infections Physical Well-being
Mental Health	HIV-Associated Neurocognitive Disorders Mental Health Conditions Neurocognitive Functioning Psychological Well-being Substance Use
Health Services	Health Service Access Health Service Utilization – Geriatric Care Health Service Utilization – Health Care Health Service Utilization – HIV-related Care Health Service Utilization – Mental Health Health Service Utilization – Other Hospitalization
Social Participation	Disclosure Labour force Participation Social Interaction Social Isolation Social Support Social Well-being Spirituality Stigma

ART Antiretroviral Therapy)	Treatment Adherence Treatment Response Treatment Alternatives
Sexual Health	Sexual abuse Sexual Functioning Sexual risk behaviours Sexuality STIs <i>Reproductive Health</i> (*new category 2021)
<i>Cross-Cutting</i> (*new domain 2021)	None

Appendix C: Database Headings

Principal investigator; principal investigator institution; co-investigators; funding sources; total funding; start date; term (years); research title; research question(s); health domain; category; keyword 1; keyword 2; keyword 3; population focus; study location; and notes.