

**HIV care and support services and the treatment outcomes of
newcomers living with HIV in Manitoba.**

by

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ABSTRACT

Introduction: Despite the over-representation of immigrants and refugees (newcomers) in the HIV epidemic in Canada, there is limited research on their HIV care needs, care outcomes and services available. This study sought to address this knowledge gap by describing how newcomers are linked into HIV care after immigration, barriers and challenges faced when accessing care and the treatment outcomes of newcomers in comparison to Canadian-born persons living with HIV in Manitoba.

Methods: An environmental scan was performed to collect data from targeted and grey literature sources, and from semi-structured interviews with key informants who provide services to newcomers. Environmental scan data were examined using qualitative content analysis. Clinical data, from 1986 to 2017, were obtained from a cohort of people living with HIV who receive care from the Manitoba HIV Program. Retrospective cohort analysis of secondary data was completed using univariate and multivariate statistics to compare differences in socio-demographic and clinical characteristics and treatment outcomes between newcomers, Indigenous and Canadian-born non-Indigenous persons upon entry into HIV care.

Results: Newcomers are linked to the Manitoba HIV Program through pathways that involve the Surveillance Unit at Manitoba Health, Seniors and Active Living, Regional Health Authorities' Public Health Departments, Settlement Coordinators and physicians. Effective linkage and engagement in care may be limited by language barriers, stigma, distrust of medical systems, trauma, financial insecurity and lack of holistic support.

By the end of 2017, there were 86 newcomers, 259 Indigenous and 356 Canadian-born non-Indigenous persons enrolled in the cohort. Newcomers in the cohort were younger, with a mean age of 43 years compared to the Indigenous group (45 years) and Canadian-born non-Indigenous group (52 years) ($p < 0.05$). Newcomers were more likely to be female (45%) compared to Indigenous (42%) and Canadian-born non-Indigenous (13%) cohort participants ($p < 0.05$). A higher proportion of newcomers

self-reported their HIV risk exposure as heterosexual contact (80%) compared to the Indigenous group (53%) and Canadian-born non-Indigenous group (30%). Average CD4 counts at entry into care did not differ significantly between the groups. A higher proportion of newcomers were also diagnosed with tuberculosis (TB) within 6 months of entry into care (21%), compared to 6% of Indigenous and 0.6% of Canadian-born non-Indigenous persons. By the end of 2017, newcomers and Canadian-born non-Indigenous persons achieved viral load suppression (<200 copies/ml) at a similar proportion (93%), different from 82% of Indigenous participants who had a suppressed viral load ($p<0.05$).

Conclusion: This study is the first to provide insights into the newcomer population living with HIV in Manitoba and their HIV care pathways. Newcomers achieved a viral suppression rate of over 90%. However, they still experience various challenges when accessing HIV care and require holistic support beyond antiretrovirals alone. Tuberculosis also continues to be a common co-infection among newcomers living with HIV highlighting the importance of TB screening, early access to treatment and prevention with treatment of latent TB.

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To my grandparents, Rosebela and Francis Songok Getwo

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LIST OF ABBREVIATIONS

ACB	African/Caribbean/black
AIDS	Acquired Immunodeficiency Syndrome
AMC	Assembly of First Nations Chief
ART	Antiretroviral therapy
ARV	Antiretroviral drug
CATIE	Canadian AIDS Treatment Information Exchange.
CIC	Citizenship and Immigration Canada
EAL	English as an Additional Language
HIV	Human Immunodeficiency Virus
HIRGC	Health Information Research Governance Committee
HREB	Human Research Ethics Board
IME	Immigration Medical Exam
IRCC	Immigration, Refugees and Citizenship Canada
IRPA	Immigration and Refugee Protection Act
LHIV	Living with HIV
MHSAL	Manitoba Health, Seniors and Active Living
MSM	Men who have sex with men
NAT	Notice of Arrival
PHAC	Public Health Agency of Canada
PMTCT	Prevention of Mother to Child Transmission
RHA	Regional Health Authority
SSA	Sub Saharan Africa
STBBIs	Sexually Transmitted and Blood-borne Infections

TB	Tuberculosis
UNHCR	United Nations High Commissioner for Refugees
WHO	World Health Organization
WRHA	Winnipeg Regional Health Authority

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CHAPTER 1: INTRODUCTION AND STUDY OBJECTIVES

1.1 Introduction

The number of immigrants and refugees (newcomers) living with Human Immunodeficiency Virus (HIV) in Canada has increased over the years due to changing migration patterns, an increase in the size of the global epidemic and changes in the national immigration policy (Krentz & John Gill, 2009). Reports from the Public Health Agency of Canada (PHAC) showed that the proportion of immigrants and refugees testing positive for HIV increased from 2.9% of all cases in 1998 to 7.7% in 2006 (PHAC, 2007). The Immigration and Refugee Protection Act (IRPA) was introduced in 2001, replacing the Immigration Act of 1976 which regulates immigration to Canada. The IRPA details several policies, procedures and guidelines set by the Canadian government regarding immigration. The guidelines specify standard requirements for various immigration classes and includes various testing and screening requirements (Government of Canada [GC], 2018). The IRPA stipulated that immigrants and refugees coming to Canada should be screened for HIV infection during the Immigration Medical Exam (Citizenship and Immigration Canada [CIC], 2001). Prior to this, HIV screening was not mandatory for newcomers during the Immigration Medical Exam (IME) and it was up to the discretion of a physician to test applicants based on specific indicators as determined by the physician (Klein, 2001).

Currently, the government of Canada recognizes five categories of immigrants: economic, family, refugees (overseas), refugee claimants (in Canada), and others (e.g. visitors, workers, students). Refugees are referred to Immigration, Refugees and Citizenship Canada (IRCC) for resettlement in Canada by the United Nations Refugee Agency (UNHCR), other referral organizations and private sponsorship groups. Government-assisted refugees are supported by the Government of Canada in their initial resettlement. Privately sponsored

refugees are supported by volunteer groups or organizations in Canada who must provide support for one year after they arrive or until they can support themselves, whichever comes first. Many private sponsors represent faith-based communities, ethno-cultural groups and settlement organizations (Canadian Council for Refugees, 2019). Refugee claimants are individuals who apply for refugee status from inside Canada. Immigrants are people who choose to resettle in Canada and may come as skilled workers in the economic class or through family sponsorships.

The regulations as per the IRPA are different depending on the immigration category of the person seeking entry into Canada. HIV screening is required for all clients undergoing the IME who are at least 15 years of age and older. Anyone less than 15 years old who presents with signs or symptoms consistent with HIV or is deemed to have certain risk factors are also screened for HIV (PHAC, 2010). For those coming to Canada on a visitor's visa, not all are required to undergo a medical examination that includes HIV screening. Visitors who are required to undergo a medical exam are: those who will be coming to work in certain occupations where public health protection is essential, those who are to remain in Canada for more than 6 months (long term visitors, students and migrant workers), and those who have recently been living in a country where the incidence of certain communicable diseases are higher than Canada (GC, 2019; Klein, 2001). All other categories of immigration applicants must undergo the medical examination. The IRPA may deny entry to economic class immigrants who have tested positive for HIV at time of screening from coming into Canada under the excessive-cost clause as the infection places an "excessive burden on public health services" (CIC, 2001). However, refugees, spouses and children of citizens and permanent residents cannot be denied entry into Canada based on the excessive-cost clause (CIC, 2001).

Immigration medical examinations usually take place in the country of origin of the applicant (Klein, 2001). Some applicants who apply for immigration within Canada (mostly refugee claimants and visitors changing their visas) undergo the medical exam within the province they are applying from (Klein, 2001). The exam is performed by designated Panel Physicians and applicants are referred to a physician based on the country, territory or region they are applying from. Only Panel Physicians who are approved by Immigration, Refugees and Citizenship Canada can administer the medical exam (IRCC, 2018).

The Public Health Agency of Canada categorized HIV as a nationally notifiable disease in the year 2000 (PHAC, 2018). This means that all provinces and territories have to monitor and report HIV cases based on legislation. In Manitoba, positive test results for HIV are reportable from testing laboratories to the Surveillance Unit of the Public Health Branch in Manitoba Health, Seniors and Active Living (MHSAL) as per *The Public Health Act* (Government of Manitoba, 2016). For those screened during the immigration process and who indicate settling in Manitoba, IRCC refers the names of individuals who had a positive test result to the Public Health Surveillance Unit within MHSAL (Government of Manitoba, 2016). Manitoba, along with other provinces and territories report the total number of HIV diagnoses each year, including those screened through IME, to PHAC for a National Surveillance Report (CATIE, 2018). IRCC also provides de-identified data of immigrants diagnosed during the IME process to PHAC for their HIV surveillance report (PHAC, 2015).

By 2005, a few years after the new regulation for mandatory testing of HIV during immigration was introduced, PHAC reported that people born outside of Canada were overrepresented in the HIV/AIDS epidemic, primarily those from HIV endemic countries (PHAC, 2007). Between 2013 and 2017, the HIV diagnosis rate among newcomers to Canada

relative to the total number of IMEs taken in the same calendar year was relatively stable at 0.14% (Haddad et al., 2018). Despite that, due to an increase of newcomers to Canada over the years, the absolute number of those testing positive increased from 2015 to 2017; 835 people tested positive for HIV during the IME in 2017, compared to 751 in 2016 and 550 in 2015. Among the 835 people who tested positive during screening in 2017, 549 (66%) underwent IME in Canada while 286 (34%) were screened overseas (Haddad et al, 2018). Among individuals from HIV-endemic countries, the infection rate is estimated to be at least 12.6 times higher than among other Canadians (PHAC, 2007). Surveillance data from 2012 showed that although persons born in HIV-endemic countries comprised 2.2% of the Canadian population, they accounted for 13% of the newly diagnosed HIV cases (PHAC, 2013).

At the regional level, estimates of populations most impacted by new HIV infections varies from region to region. In Manitoba, 16.2% of the total population comprises immigrants including people from HIV-endemic countries listed in Appendix G (Statistics Canada, 2006; Becker et al., 2012). Estimates from 2015 show that 21% of the people entering into HIV care were from HIV endemic countries (Manitoba HIV Program, 2016). In 2016, 25% of people reported HIV exposure from an endemic country and in 2017, 28% of people entering into care reported exposure in a HIV endemic country (Manitoba HIV Program, 2018).

Despite their overrepresentation in the epidemic, little is known about the care needs and HIV outcomes of the increasing number of newcomers arriving in Canada who are living with HIV and those who become infected post immigration (Krentz & Gill, 2009). People living with HIV need access to a continuum of services in order to achieve an undetectable viral load, which is one of the goals of HIV treatment. The continuum commonly known as the HIV treatment cascade begins with HIV testing and diagnosis, then linkage to appropriate medical care, support

while in care, access to antiretroviral treatment (ART) and support while on treatment in order to achieve an undetectable viral load. Gaps in the treatment cascade, or losses at each step, can occur due to late HIV diagnosis, suboptimal linkage to care, low retention in care, low ART coverage and poor adherence to ART (Gardner et al., 2011).

In 2014, UNAIDS proposed a “90-90-90” strategy for the HIV treatment cascade targeting that by 2020, 90% of all people with HIV will know their status, 90% of people diagnosed with HIV will be on ART, and 90% of all people receiving ART will have achieved an undetectable viral load (UNAIDS,2018). Canada endorsed these targets in 2015 and reported that in 2016, using surveillance data from provinces and territories, an estimated 86% of people with HIV were diagnosed, with 81% on treatment and 91% of people on treatment having an undetectable viral load (PHAC, 2017). Statistical modelling was used to estimate the 90-90-90 measures for Canada in 2016. Despite the national cascade, it is important to examine the cascade among subgroups as HIV does not affect a population homogeneously (Lourenco et al., 2014) and the nature of seeking and accessing care among people in a population is not homogenous either (Oberoi et al., 2016) It has been suggested that the cascade can be even more informative if it takes into account the heterogeneity among populations (Hall et al., 2013).

Research Purpose

- There is a lack of research looking at the various steps along the treatment cascade for newcomers living with HIV, not only at the national level but regionally in Manitoba as well. There is also a gap with regards to what is known about factors that impact the HIV treatment cascade among newcomers (Raboud, 2012). The purpose of this research study was to: (1) describe pathways into HIV care for newcomers living with HIV in Manitoba;

(2) to describe socio-demographic and clinical characteristics of newcomers living with HIV in Manitoba; and (3) understand whether treatment outcomes of newcomers living with HIV in Manitoba differ as compared to Canadian-born Indigenous and non-Indigenous persons living with HIV. This research provides important information regarding newcomers in HIV care in Manitoba, and their treatment outcomes. It also fills a critical knowledge gap by mapping out their pathways into HIV care and the barriers encountered when accessing care. The work carried out in this study was part of a larger Canadian Institute of Health Research (CIHR) funded study led by Dr. Marissa Becker. The Advancing Primary Healthcare for Persons Living with HIV in Canada (LHIV) is a multijurisdictional cohort study aimed to determine the emerging primary healthcare needs of people living with HIV in Canada. The LHIV study focused on creating provincial cohorts of people living with HIV to compare health, health service utilization and HIV outcomes across jurisdictions.

1.2 Research Objectives

The following research objectives were addressed in the study:

1.2.1 Research objective 1: Pathways to Care and Treatment Program Characteristics.

1a. To determine how newcomers living with HIV enter into care after immigration. 1b.

To describe the treatment programs and support services that exist in Manitoba. 1c. To describe the challenges and barriers that may limit linkage and retention in HIV care.

1.2.2 Research objective 2: Socio-demographic Characteristics

To describe the socio-demographic characteristics of newcomers who are receiving HIV care in Manitoba and to compare these characteristics to Canadian born persons (Indigenous &

non-Indigenous) in care. I hypothesized that newcomers in HIV care are younger and more likely to be female.

1.2.3 Research objective 3: HIV-Specific Clinical Characteristics

3a. To examine HIV-specific clinical characteristics of newcomers at time of diagnosis or at entry into HIV care in Manitoba. 3b. To compare HIV-specific clinical characteristics of newcomers to Indigenous and non-Indigenous Canadian-born persons living with HIV. I hypothesized that newcomers living with HIV will present at an earlier clinical stage and with a higher absolute CD4 cell count compared to Indigenous and non-Indigenous Canadian-born persons in care.

1.2.3 Research objective 4: Treatment Outcomes

To determine the proportion of newcomers engaged in care who have achieved virological suppression and to compare the estimates to Canadian-born persons living with HIV by the end of 2017. I hypothesized that the proportion of newcomers who achieved virological suppression would be similar to Canadian-born persons in care (Indigenous & non-Indigenous).

1.3 Ethical Considerations

Informed consent was obtained from all participants interviewed during the environmental scan (Appendix A). All results from the interviews have been published in summary form with no identifiable data. The data set used from research objective 2-4 is from an existing cohort. The data have been de-identified with cohort participants having been assigned a unique patient identification number to protect their privacy. The data set was only accessed from a secure password protected work station. Participants in the cohort had consented to the use of their personal health information for research projects that have received Research Ethics

Board (REB) approval. Ethical approval was obtained from the University of Manitoba Bannatyne Campus Health Research Ethics Board (HREB; reference number H2018:043 (HS21483); Appendix B). In order to compare outcomes with Indigenous populations, approval for the larger LHIV cohort study was obtained from the Health Information Research Governance Committee of the Assembly of First Nations (AMC-HIRGC; Appendix C).

CHAPTER 2: LITERATURE REVIEW

This review provides an examination of the socio-demographic characteristics, clinical trends and treatment outcomes of newcomers living with HIV in Canada, United States and Europe. It also explores environmental scanning as a methodology in public health research and examines previous scans conducted on services for newcomers living with HIV. Finally, this chapter highlights the gaps in newcomer HIV research as well as limitations that exist in HIV research among this population group.

2.1 Epidemiology of HIV in Canada and Newcomer Challenges

There are about 36.7 million people living with HIV worldwide and researchers, practitioners and communities are continuously working to develop, implement and optimize approaches for prevention, testing and treatment for those living with HIV (UNAIDS, 2016). In Canada, approximately 63,110 people (range between 55,500 and 70,720) were estimated to be living with HIV at the end of 2016 (PHAC, 2018). Many countries including Canada, United States, and several countries in Europe report that there has been an increase in the absolute number and relative percentages of new HIV diagnoses, HIV cases and AIDS found among immigrants and refugees (Krentz & Gill, 2011).

Newcomers living with HIV can achieve the best possible outcomes if they are linked early into care and remain consistently engaged and supported while in care. However, retention of newcomers living with HIV in care may be more challenging for those newcomers who are living in marginalized communities, those emigrating from countries where HIV denialism is prevalent, and those whose social or religious communities view HIV infection as a moral fault (Cyrus, 2017). Furthermore, the stress usually associated with resettlement after migration and the lack of familiarity with the Canadian medical system can negatively influence access to health care ultimately resulting in poorer treatment outcomes for newcomers living with HIV (Lefebvre, 2014). In some cases, stigma among communities and the perceived rejection from families and communities may further create an obstacle to testing and accessing the right care (Cyrus, 2017). Discrimination, social isolation and financial insecurity are common barriers faced by many newcomers in general and a diagnosis of HIV adds an additional stress (Raboud et al., 2012). There are a variety of cultural, religious and economic differences that exist among immigrant and refugee communities. Despite this important heterogeneity, many newcomers living with HIV may share some of these same common barriers when it comes to accessing medical care.

Despite the growing numbers of newcomers living with HIV and the unique challenges they face, data regarding their clinical characteristics and treatment outcomes is largely lacking in the literature. The following review will highlight some key findings from available research in Canada, United States and Europe.

2.2 Socio-demographic trends of newcomers diagnosed with HIV

Available literature suggests many similarities in the trends of newcomers diagnosed with HIV across North America. A Southern Alberta Cohort, Canada enrolled participants who were living with HIV anywhere in Southern Alberta from 2001 to 2007 (Krentz & Gill, 2009). The number of persons from Sub Saharan African (SSA) in the cohort increased from 6% in 2001 to 31% in 2006. Persons from SSA were more likely to be female, younger and with heterosexually acquired HIV as compared to the Canadian-born population and individuals from regions other than SSA, who were more likely to be male and to report same sex partnerships as a dominant risk factor (Krentz & Gill, 2009). In Ontario, Canada between 1985 and 2011, 51% of persons diagnosed with HIV from endemic countries were women. Further, persons in the endemic category were diagnosed at a younger age compared to persons living with HIV in other risk categories (Remis & Liu, 2011). A retrospective cohort study of adults living with HIV who were seen at the Toronto Hospital Immunodeficiency Clinic between 2001 and 2009 found that immigrants in care were more likely to be female, black and to have acquired HIV through heterosexual intercourse. Eighty percent of the female immigrants in care at this clinic were originally from Africa (Raboud et al., 2012). In this study, immigrants were defined as those persons who had moved to Canada within 10 years of their first visit to the clinic.

Similar to studies conducted in Canada, immigrants in the US were also more likely to report heterosexual contact as their HIV risk exposure category (Crawford et al., 2012). In Europe, similar results have been observed in cohorts in Netherlands and Switzerland where immigrants living with HIV were found to be younger, predominantly female and more frequently infected through heterosexual activity when compared to non-immigrants (Sumari-de Boer et al., 2012; Staehelin et al., 2003).

The process of assigning an HIV exposure category to HIV cases has a number of complexities. HIV surveillance usually focuses on the most probable mode of exposure (Schmidt and Mokotoff, 2003). At diagnosis, people living with HIV in Canada are usually assigned a single exposure category based on a national hierarchy of exposure categories presented by PHAC: 1. Perinatal transmission 2. MSM-IDU (men who have sex with men and inject drugs) 3. MSM (men who have sex with men) 4. IDU (injection drug use) 5. Recipient of blood/blood products 6. Heterosexual contact (6a. origin from an HIV-endemic country; 6b. sexual contact with a person at risk; or 6c. no identified risk/heterosexual) 7. Occupational exposure 8. Other 9. No identified risk (Figure 1). For the Heterosexual endemic (Het-endemic) category, PHAC defines HIV endemic countries as those where the prevalence of HIV among adults (15-49) is 1.0% or greater and one of the following: 1. 50% or more cases attributed to heterosexual transmission 2. Male to female ratio of 2:1 or less among prevalent infections or 3. HIV prevalence greater than 2% among women receiving prenatal care (PHAC, 2012). A list of countries categorized as endemic are listed in Appendix G. The Het-endemic category only includes people from countries where HIV is endemic and who acquire HIV through heterosexual transmission. It does not include people from endemic countries who acquire HIV through injection drug use or men who have sex with men (PHAC, 2009).

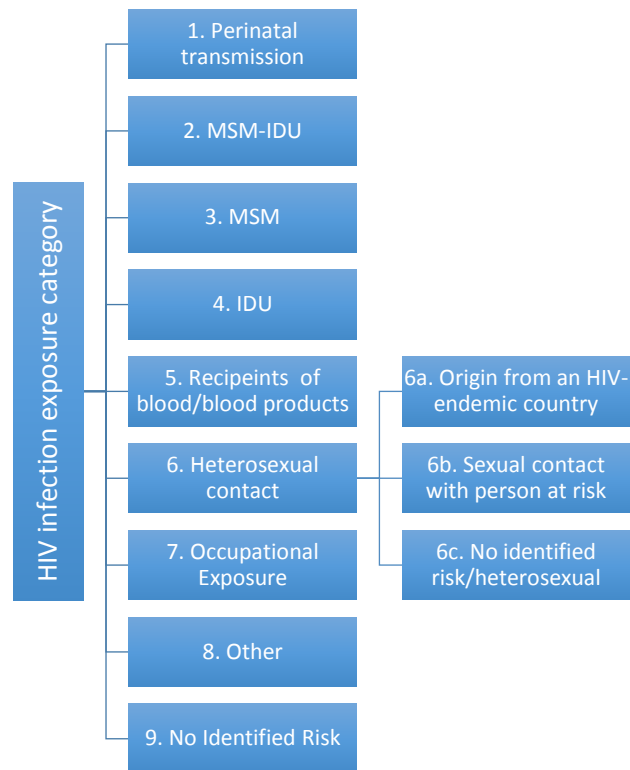


Figure 2.1 HIV Exposure Categories based on the National Hierarchy by the Public Health Agency of Canada (PHAC, 2012).

When more than one risk factor is reported, the exposure is reported based on the category that is listed first or appears highest in the hierarchy (PHAC, 2012). The risk hierarchy is based on HIV transmission associated with each behaviour. This process of classifying risk based on a single risk exposure using the hierarchy has its limitations. It is more useful in describing the exposure category for people who have only one reported risk behaviour (Schmidt and Mokotoff, 2003). This method also fails to distinguish between at-risk populations and behaviours (PHAC, 2014).

Characterizing HIV exposure category is important in guiding HIV prevention policies (Schubber et al., 2014). However, studies show that using one exposure category can overestimate the potential impact of interventions designed to target that source of infection

(Foss et al., 2011). In addition, interventions that target behaviours that are characterized lower risk in the hierarchy could also be underestimated (Foss et al., 2011) leading to inadequate resources of prevention services targeting those lower risk behaviours. PHAC recognizes some limitations of the current hierarchy of exposure categories and reports that it “would benefit from a review” (PHAC, 2014).

2.3 Clinical characteristics at diagnosis

There have been mixed findings in existing literature with regards to clinical characteristics of immigrants and refugees living with HIV in Canada and the US at time of HIV diagnosis. In the Southern Alberta Cohort, the median CD4 count at initial clinic visit was lower in persons from SSA (254/mm³ IQR: 122–382] and in other foreign-born patients (343/mm³ IQR: 205–481) compared to Canadian-born patients (359/mm³ IQR: 180–521). They concluded that immigrants are diagnosed at a later disease stage than non-immigrants with those from SSA having the lowest median CD4 count (Krentz & Gill, 2009). In contrast, at the Toronto Hospital Immunodeficiency Clinic, the median baseline CD4 count was similar between immigrant females and non-immigrant females but the median CD4 count of immigrant males was lower than that of non-immigrant males (Raboud et al., 2012). When comparing the viral load of all immigrants, they found that the median baseline viral load at their first clinic visit was similar to Canadian-born persons. In the Prairie Provinces (Manitoba, Saskatchewan and Southern Alberta), a study characterizing the HIV epidemic from retrospective chart reviews found that after controlling for sex and ethnicity, people from endemic countries were less likely to present late to care compared with Canadian-born persons who reported heterosexual transmission as their risk factor for HIV transmission (Becker et al., 2012).

In contrast to Canadian research, studies done in the US consistently show that people born outside the country present to HIV care at later stages. A comparative analysis conducted in Kentucky showed that those born outside the US were more likely to enroll into care with CD4 cell counts of <200 cells/ μ l compared to US born persons (50.8% vs. 32.5%, $P = 0.011$). Another study assessing differences in HIV epidemiology with data from 33 states found that African-born US residents were diagnosed with lower CD4 counts and higher rates of HIV associated illnesses compared to US-born persons and many other foreign-born groups (Johnson et al., 2010). In New York City, Africans living with HIV had a lower mean CD4 count at diagnosis and were more likely to present with HIV associated complications as compared to persons born in the US (30% vs 22%) (NYCDOHMH, 2009). Similarly, two retrospective studies of African-born persons receiving HIV care in a Minnesota hospital and Washington State found that they accessed care at later stages of HIV with lower CD4 counts compared to other persons living with HIV due to delayed testing (Akinsete et al., 2007; Page et al., 2009).

Limited studies have examined the prevalence and distribution of opportunistic infections associated with HIV among newcomers at time of diagnosis. In the Southern Alberta cohort, persons from SSA were found to have higher rates of a positive tuberculin skin test compared to Canadian-born persons (26% vs 7%), toxoplasma-positive serology (33% vs 8%), and hepatitis B infection (8% vs 2%). However, they had a much lower rate of hepatitis C infection (2% vs 18%) than Canadian-born persons (Krentz & Gill, 2009). In the US, immigrants are more likely to have multiple opportunistic infections compared to US-born persons with thrush, herpes simplex virus and cryptococcus meningitis being the three most common (Crawford et al., 2011). In Switzerland, immigrants from Africa had tuberculosis as the most frequent AIDS-defining event (Staehelin et al., 2003).

The differences in clinical characteristics experienced by people living with HIV in the US compared to Canada could be due to the lack of universal healthcare in the US thereby limiting access to care for immigrants. However, the availability of basic healthcare does not guarantee equitable access to treatment. In Switzerland, a cohort of people who immigrated from Africa living with HIV were diagnosed with more advanced clinical stage and lower absolute CD4 count compared to patients born in various countries in Western Europe despite the presence of a universal health care system (Staehelin et al., 2003). In Canada, despite universal health care, people living with HIV from low socioeconomic groups, which are more likely to consist of people from minority ethnic groups, were less likely to be prescribed antiretroviral therapy (Wood et al., 2002). These observations suggest that intersecting and complex factors contribute to the differences in clinical characteristics and service use of newcomers when diagnosed with HIV.

The studies conducted in Canada have examined socio-demographic characteristics and treatment outcomes among newcomers living with HIV, however limited data are available in Manitoba. In order to inform strategies and programming for newcomers living with HIV in Manitoba, Manitoba-specific data are needed.

2.3 Treatment Outcomes of Newcomers living with HIV

The health outcomes of people living with HIV are influenced by various factors. Several studies have shown that newcomers living with HIV in Canada who are engaged in care achieve the same treatment outcomes as Canadian-born persons. Data from the Southern Alberta Clinic showed that despite presenting at a later disease stage for HIV care and with more co-morbidities, newcomers living with HIV did as well as Canadian-born persons living with HIV

once they were engaged in HIV care (Krentz & Gill, 2009). The Toronto Hospital Immunodeficiency Clinic study showed that the clinical outcomes of recent immigrants attending the clinic were better than those who were born in Canada or those who had lived in Canada for more than 10 years before their first clinic visit (Raboud et al., 2012). In the same study, recent immigrants also had a lower risk of death compared to non-immigrant persons living with HIV, even after adjusting for age, CD4 count and viral load. Comparisons among persons initiating antiretroviral treatment showed that recent female immigrants reached virological suppression more quickly (HR 1.51, P=0.02) compared to male immigrants and all non immigrants (Raboud et al., 2012).

In Northern Alberta, a retrospective cohort study was conducted to compare the odds of achieving virological suppression among newcomers and Canadian-born Indigenous persons compared to Canadian-born non-Indigenous persons (Lefebvre et al., 2014). Among 322 treatment naïve individuals, of whom 122 were born outside of Canada, the odds of achieving initial virological suppression once treatment was initiated was similar between non-Indigenous persons and newcomers (OR=0.76, 95% CI: 0.33-1.73) after controlling for age, treatment regimen, intravenous drug user as a risk exposure and calendar year. However, Indigenous persons had significantly lower odds of achieving initial virological suppression compared to Canadian-born non-Indigenous persons (OR=0.44, 95% CI: 0.20-0.96).

In the US, a retrospective cohort study in Tennessee among people in HIV care found that virological suppression and CD4+ cell count recovery was similar between immigrants and US-born persons during their first year of receiving ART. However, newcomers were more likely than their US-born counterparts to be lost-to-follow-up during the first year (14.9% vs 6.2% in US-born) (Parrish et al., 2012). Another US study found that a higher percentage of

immigrants achieved viral suppression compared to US-born persons (Myers et al., 2016). In a Washington study, African-born black people accessed HIV care and developed HIV associated complications at a similar rate to US-born persons (Kent et al, 2005).

In one study conducted in Switzerland, similar outcomes in disease progression and survival were similar between immigrants from Sub Saharan Africa and non-immigrants up to 48 months after initiating treatment (Staehelin et al., 2003). In the Netherlands, immigrants were more likely to have a virological therapy failure compared to non-immigrants (Sumari-de Boer et al., 2011; Nellen et al., 2004). Another Netherlands cohort found non-European (African, Asian, Central and South American) patients had 4.6 times higher risk of virological failure than their European counterparts in the first 6 months of treatment. However, if their treatment was successful in the early phase of therapy, their response rates in the late phase were similar to Europeans (Van de Berg et al., 2005).

Differences in treatment outcomes among immigrants and non-immigrants vary widely in various countries, as well as in different regions within countries. Variations could be due to a number of factors including the duration of clinical follow up, whether adjustments were made for the baseline clinical characteristics at ART initiation, ART adherence and treatment disruptions and other potential confounders such as risk exposure category, age, and sex. Other factors such as income level, medication coverage, mental health issues and substances use problems may also interfere with HIV care and treatment outcomes (Ontario HIV treatment network, 2015) and could be considered to determine their effects on treatment outcomes.

2.5 Environmental Scan of HIV programs and services

People who are immigrants and refugees often face complex demands of settling and adapting in a new country including difficulties with access to housing and employment. Newcomers living with HIV face additional challenges of accessing HIV-related information, treatment and support. It is especially challenging to access this type of information and care in their language and in a manner that is also culture appropriate (Ahmed et al., 2016). The structure of the Canadian health care system can be problematic for newcomers as it may be significantly different than the system newcomers were accustomed to in their countries of origin making navigation difficult (Ahmed et al., 2016). These challenges and barriers have the potential to have a significant impact on their health outcomes and overall well-being.

It is important that newcomers living with HIV, health providers and other support workers are aware of all the services and targeted programs to facilitate and ensure optimum HIV support and care. An environmental scan can be an effective research tool to provide an overview on the healthcare services and associated support networks for newcomers living with HIV in the province. Environmental scans are increasingly being used as tools in public health research and practice (Wilburn et al., 2016). They have been mostly used by businesses and organizations when making assessments on their internal and external environments to guide decision making and to identify goals and strategies that can improve performance (Wilburn et al., 2016). In Public Health, environmental scans have been used to help with developing research priorities, guide interventions, educate decision makers, improve health outcomes and develop evidence-based policies (Wilburn et al., 2016, Graham et al., 2008). When used in public health practice, they help to collect information, and identify resources, links and gaps (Wilburn et al., 2016). The process of environmental scanning uses multiple strategies to collect

information including focus groups, in-depth interviews, surveys with patients and providers, literature assessments, medical chart reviews, personal communications, reviewing internal documents and policy analyses (Wilburn et al., 2016, Graham et al., 2008). However, there is no consistent process or definition of environmental scans in public health research and practice (Rowel et al., 2005; Wilburn et al., 2016), but the definition and process may likely evolve in public health as more health organizations and practitioners adopt environmental scanning as a tool, (Wilburn et al., 2016).

An environmental scan was conducted previously in Brandon and Winnipeg to identify service priorities in these two cities for newcomers “infected with, affected with or those who are at risk for HIV” (Campos & Manning, 2006). Key informant interviews and focus group discussions were conducted with direct service providers working primarily with newcomers or people affected by or living with HIV, and program managers or administrators who were overseeing services targeted for newcomers. The scan identified available services in Winnipeg and Brandon for people living with HIV, highlighted barriers in existing services and identified service priorities communicated by service providers and newcomers. Language was identified as one of the barriers to accessing services as some service providers were unable to provide interpretation services or service in a client’s first language. The authors of the scan also noted the need for interpretation services with training specific to health and more specifically HIV. It is important to explore if language still presents as a barrier after the introduction of the Language Access Program by Winnipeg Regional Health (WRHA) for healthcare professionals which provides interpretation services through trained health interpreters either in-person or over-the-phone. Currently, the program has interpreters who are available to provide interpretations in 31 languages. When a WRHA trained interpreter is not available, services are

provided through MCIS Language Solutions which provides over-the-phone interpretations in over 200 languages (WRHA, 2019).

Settlement workers interviewed in the environmental scan reported that their clients seemed to have limited knowledge of HIV, sexual health and related resources available to them. They also noted the lack of resource coordination related to newcomers and HIV. Challenges were attributed to a situation in which people who worked with newcomers knew little about HIV and people working in health care knew very little about immigration and newcomers. As such, important service priorities identified from the scan included improved coordination of services and improved communication between newcomer-serving service providers and health care providers. Over ten years have passed since this environmental scan was conducted and some updates are required to reflect the current landscape of HIV care and related services in the province. Research Objective 1 was conducted to attempt to fill this gap.

2.6 Limitations and knowledge gaps in existing literature

Few research studies that have examined the characteristics and health outcomes of newcomers living with HIV in Manitoba. Studies conducted in North America and Europe have had contrasting results with regards to the clinical characteristics and health outcomes of people who are immigrants and refugees living with HIV and there are a few potential explanations for these discrepancies. First, differences in how newcomers are defined contributes to major discrepancies. Many studies consider newcomers as anyone who was foreign-born. One study in Canada defined a specific duration of residency in the country relative to the year of diagnosis in order to be classified as a recent immigrant (Raboud et al., 2012). Similar to studies conducted in US and Europe, most studies characterized everyone born outside Canada as newcomers even if

the person migrated to the country as an infant, culturally identified themselves as Canadian and possibly had significant knowledge of and previous experiences with the Canadian healthcare system. This research study applied inclusion/exclusion criteria to the newcomer definition by excluding participants who immigrated to Canada in the 1980s and 1990s. We included newcomers who immigrated to Canada after 2001 when the new policy for mandatory HIV screening was introduced in the Immigration Medical Exam.

Many previous studies have failed to consider differences in diagnosis stages and outcomes between newcomer men and women. Women may be presented with an earlier opportunity for testing during pregnancy and combining data of men and women may mask a higher likelihood of late access to care among immigrant men as one study has shown (Raboud et al., 2012). In this research, I examined whether there were sex-related differences in the Manitoba cohort as this is an important consideration for gender related programming. Existing literature also does not always compare HIV trends among different population groups. In my research, I examined differences in outcomes between newcomers, non-Indigenous and Indigenous Canadian born-persons as the latter are also disproportionately affected by the epidemic in Canada and also face significant barriers to accessing equitable care (Bowen, 2000). It is important to explore differences among the population groups in Canada as some previous studies have shown differing trends in risk factors, clinical characteristics and diagnosis stage as well as differing characteristics between men and women within population groups (Krentz & Gill, 2009; Remis & Liu, 2011). Considering differences among populations ensures tailored prevention efforts and program support among the different population groups.

The current study also provides a map highlighting the pathways into care for newcomers living with HIV, the first of its kind to my knowledge. The previously conducted scan provided

valuable insights into priority areas and existing barriers for immigrants and refugees living with HIV in Manitoba (Campos & Manning, 2006). However, it did not highlight points of access into care and this study aimed to fill this knowledge gap.

CHAPTER 3: METHODS

3.1 Study Design

This research study involves two different methods: an environmental scan and secondary quantitative data analysis of an existing Manitoba cohort of people living with HIV.

3.2 Data Collection

3.2.1 Environmental Scan

The environmental scan was conducted to provide an overview of the pathways that newcomers may take to enter into HIV care in Manitoba, the services available to them and any challenges they may encounter during entry or after being linked into care. There are various steps to conducting an environmental scan depending on the nature of the scan and whether the scan is being done for strategic planning in business, program development, technology or other purposes. The four steps conducted in this environmental scan were adapted based on steps outlined by other environmental scans across various disciplines including public health (IRCU, 2003; Guion, 2010; Wilburn et al., 2016). The first step of every environmental scan involves identifying key issues and setting priorities of the environmental scan. Step 2 involves identifying data sources and gathering information. Data sources may include surveys, interviews, focus groups and website content reviews. Step 3 involves analyzing the data collected and synthesizing the results into a concise summary report. Step 4 involves dissemination of results to engaged stakeholders in ways that maximizes effectiveness and

impact of information. According to Wilburn and colleagues (2016), ideally the final goal of an environmental scan is to generate research priorities, identify funding gaps, create opportunities for effective intervention, and identify new partnerships that could be cultivated.

For my project for step 1, the environmental scan priorities included determining how newcomers living with HIV enter into care after immigration, describing the treatment programs and support services that exist in Manitoba, and describing the challenges and barriers that may limit linkage and retention in HIV care. Data sources for step 2 included website content reviews followed by interviews with key informants. This chapter describes website search methods and data collection from interviews.

3.2.2.1 Website search

Data were collected from targeted and general grey literature searches on Google, governmental and non-governmental websites. An online search of healthcare and community based programs for immigrant and refugees living with HIV in Manitoba was conducted. Federal based sites were also searched to determine any information or steps of linkages into HIV care in provinces for newcomers who are diagnosed with HIV during or prior to the immigration process. Online searches were completed using combinations of different key terms and phrases, including: immigrant, refugee, newcomer, HIV, healthcare and Manitoba. Programs and services offered by settlement agencies to refer new clients to appropriate health care services during initial settlement were reviewed.

The website search date was January 31, 2017. The first 4 pages of each search's hits were reviewed using the title and short text underneath. These represents 40 different results reviewed (10 per page) for each search term combination. Potentially relevant records were bookmarked in the web browser and reviewed. Potentially relevant hits included those that had

any of the key search terms and contained information regarding resources, programs or services relevant to healthcare of newcomers in Manitoba. Search terms and number of results retrieved and/or screened were recorded (Appendix F).

3.2.2.2 Interviews

Based on the programs and services identified from internet searches, a purposive sampling methodology was used to identify key persons from the health care centers and newcomer serving organizations who were contacted for interviews. Key persons included service providers who had content expertise based on their experiences of working with and providing services to newcomers living with HIV in Manitoba. The purposive sampling was designed to have representation across various organizations from clinics, community programs, and some of the major HIV care sites in Manitoba. Service providers identified additional organizations during initial interviews by naming contact persons in settlement service organizations who could potentially act as key informant given their expertise in providing support services to newcomers. Based on these referrals, a key person was interviewed from the largest organization in Manitoba that provides services to all newcomers and a second key person was interviewed from the main organization in Winnipeg that sponsors refugees through the private sponsorship system.

Contact was initiated with potential key informants through emails and follow-up phone calls when required. During interviews, service providers were asked to refer other organizations that provide services to newcomers living with HIV in Manitoba. Where possible, key persons from these referred organizations were contacted and also interviewed. Written informed consent was obtained prior to conducting the interviews.

Interviews were semi-structured and included both open and closed questions (Refer to Appendix D and E for interview guides). Two different interview guides were used. The first one was an interview guide that was adapted from the Canadian HIV Women's Sexual and Reproductive Health Cohort Study (CHIWOS) Manitoba study, which was examining women-centered HIV care services. This adapted form of the CHIWOS – Manitoba interview guide includes items related to type of services provided, programs offered specific to people living with HIV and newcomers living with HIV, services available in languages other than English, gaps in services, supports or training required to provide services to newcomers, and referrals to other organizations (Appendix D). Also, participants were asked to identify any other services that could potentially give more information regarding services provided to newcomers living with HIV. A second short interview guide was designed to obtain responses from refugee settlement organizations and sponsor organizations to learn about the process of linkage into HIV care for newcomers diagnosed with HIV during the immigration process (Appendix E).

The interviews lasted for a duration of half an hour to two hours depending on the number of people being interviewed in a group, the type of organization, the amount of information presented by respondents and the scheduling restrictions of respondents. All interviews were conducted at the work site of respondents except one interview that was conducted over the phone. Notes were taken using a word processor during the interview to record responses. One interview consisting of a larger group of participants was audio taped to supplement the notes taken during the interview. Interviews were held between May and October, 2018.

3.2.2 Secondary Quantitative Research

The objectives of the secondary quantitative data analysis were to determine and describe the socio-demographic characteristics of newcomers in HIV care, their clinical characteristics at entry into care and their treatment outcomes in comparison to Canadian-born persons in HIV care (Indigenous and non- Indigenous). Data for the quantitative analysis were obtained from a Canadian Institute of Health Research funded study conducted by the Living with HIV (LHIV) Innovation Team, an interdisciplinary team of researchers, health professionals, policy makers, HIV clinic managers and networks as well as people living with HIV in Manitoba, Ontario and Newfoundland. One component of the LHIV project is the establishment of provincial cohorts of people living with HIV to compare health, health service utilization and HIV outcomes across jurisdictions. The Manitoba LHIV study had enrolled adults living with HIV from the Manitoba HIV Program who provided informed consent to participate in the LHIV clinical cohort. De-identified socio-demographic and clinical data on individuals who consented to participate in the clinical cohort were entered into a database. Extracted data from this database were used for secondary analysis for my study.

The Manitoba HIV Program provides information, specialized care, treatment and support to over 1,300 people living with HIV across the province. The Program has three clinical sites: i) Nine Circles Community Health Center; ii) Health Sciences HIV Outpatient Clinic in Winnipeg; iii) 7th Street Health Access in Brandon. The Manitoba HIV Program includes infectious disease specialists, family physicians, a nurse practitioner, nurses, pharmacist, social worker, occupational therapist, dietician and various administrative staff. Persons living with HIV were recruited for the LHIV clinical cohort from the two Winnipeg-based sites. A total of 885 participants were enrolled in the clinical cohort at the time of data collection. Analyses were completed using de-identified data of 680 participants after excluding

cohort participants who were deceased as they would not have had viral load counts in 2017 needed to assess treatment outcomes.

Participants were divided into 3 population groups: self-identified Indigenous, Canadian born non-Indigenous and Newcomers. Sub-grouping for Indigenous participants was done by identifying self-reported ethnicity of participants that included First Nations, Métis, or Inuit. Newcomers were grouped based on self-reported year of immigration to Canada. This group included anyone who indicated an immigration year from 2001 and onwards. 2001 was used as the cut off as that year was when Immigration and Refugee Protection Act (IRPA) was introduced which stipulated that certain groups of immigrants and refugees would undergo HIV testing during the Immigration Medical Exam (as described previously). The Canadian-born non-Indigenous group included everyone who did not identify as Indigenous, and was not an immigrant. It also included persons born outside Canada who moved to Canada prior to the year 2001.

3.2.2.1 Research objective 2 -4 methods

Cross sectional information was obtained from the cohort database for all newcomer participants as well as Canadian-born persons for comparison. Socio-demographic characteristics had been extracted on consenting participants from the cohort by the LHIV study team via clinical chart reviews and entered into the database. Variables used to complete the analysis were age, sex, self-reported ethnicity, year of immigration to Canada, if client has a primary care provider outside the Manitoba HIV program, co-infections at or within 6 months of presentation to care, location of first HIV positive test, self-identified HIV exposure category, first CD4 count in Manitoba, if they were ever on antiretroviral therapy; first recorded date of ART start and HIV

viral load count at the end of 2017. For participants with more than one HIV risk exposure, the national hierarchy presented by PHAC was utilised and the most probable exposure was reported based on the category that appears highest in the hierarchy. However, I did not further sub categorize heterosexual exposure based on whether the person also originated from an endemic country. Instead, in addition to HIV exposure risk analysis, I determined the proportion of newcomers who were reported to have originated from an HIV endemic country regardless of their self identified HIV exposure category. Frequency counts were performed to determine the proportion of cohort participants who had their first HIV test in Manitoba, outside Manitoba or outside Canada.

To compare clinical characteristics at entry into care, the first CD4 count was used which is captured in the database as the first CD4 count in Manitoba recorded during their first HIV clinic visit. The proportion of newcomers presenting with a co-infection within 6 months of entry into care was compared to Indigenous and non-Indigenous persons. The co-infections analyzed were pneumonia, tuberculosis, oesophageal candidiasis (thrush) and hepatitis C.

To compare treatment outcomes, viral load counts measured in copies/ml were assessed. HIV viral load suppression is defined as having a viral load of <200 copies/ml in the last laboratory test performed during 2017. This cut off is commonly used for measuring viral load suppression in population-based studies (Castel et al., 2017). The proportion of newcomers who have achieved viral load suppression by the end of 2017 was compared to Indigenous and non-Indigenous Canadian-born persons in care. The comparison was stratified by sex to determine if there are significant sex-related differences within and across the different population groups. Viral load suppression was assessed for only those who had initiated ART treatment by the end of June 2017 to ensure that analysis was done for only those who had the opportunity to be on

treatment for at least 6 months prior to viral load measurement. Participants excluded from viral load suppression analysis were those without ART recorded in the second quarter of 2017 (until June 2017) and anyone who commenced ART after June 2017.

3.3 Data Analyses

3.3.1 Environmental Scan Analysis

The third step in the environmental scan, after identifying key issues, identifying data sources and gathering information is analysis of the data and synthesis of findings in a summary (IRCU, 2003; Guion, 2010; Wilburn et al., 2016). Data for the environmental scan were gathered from diverse sources using various methods (online searches, individual interviews, group interviews). Based on the different sources of information for the environmental scan, and the lack of a consistent methodology for environmental scans, there is no clear and accepted convention for analyzing the qualitative data obtained from the scan. There are various methods of analysing qualitative including coding, summarising, categorizing and identifying themes or patterns (IRCU, 2003). I elected to use a coding and categorizing approach to analyze website content and interview data to produce a concise summary of key results.

Data from the environmental scan were analyzed using content analysis. The thesis did not intend to provide a quantitative analysis of the website content and interview responses but rather a qualitative representation of key concepts. Content analysis was performed based on Elo and Kyngäs qualitative content analysis process (Elo & Kyngäs, 2008). The aim of content analysis is to make valid inferences from data to their context in order to “provide knowledge, new insights, a representation of facts and a practical guide to action” (Elo & Kyngäs, 2008). In content analysis, broad descriptions are then condensed into categories that describe the phenomenon.

An inductive approach to content analysis was performed to derive categories from the data. As per Weber (1990) and Burnard (1996), there are no systematic rules of analysing data in content analysis but the main objective is to classifying many words in a text into much smaller content categories (Weber, 1990; Burnard, 1996). There are three main phases for an inductive content analysis: preparation, organization and reporting (Elo & Kyngäs, 2008). The preparation phase begins with selecting the unit of analysis such as sentences, paragraphs, full text documents or entire interview protocols (Graneheim & Lundman, 2004). For the interview responses, I determined a unit of analysis to be a response from each question that consisted of one line to several lines. For information obtained from website searches, a unit of analysis were determined to be paragraphs in pages. Paragraphs in websites were scanned for units of meaning that were relevant to answering the research question.

The next step involves being immersed in the data in order to become familiar and make sense of the data. Written materials from the interviews and website searches were read through several times. Polit and Beck (2004) highlight that there can be no insights or theories from the data without the researcher being completely familiar with them.

The organization phase of inductive content analysis involves open coding, creating categories and abstraction (Elo & Kyngäs, 2008). Open coding was conducted by applying paraphrases or labels within the texts while reading in order to describe the content. Only the manifest content from the data were examined. By choosing to do manifest analysis, only what informants actually said was described, using some of their words to describe the visible. This is in contrast to latent analysis which is interpretive through finding underlying hidden meanings of texts and pays attention to silence, sighs, laughter, posture etc. (Elo & Kyngäs, 2008). The codes generated through a manifest analysis were then recorded in a separate Microsoft word

document. Categories were then freely generated based on these codes by grouping codes of similar or interrelated content that appeared to deal or discuss the same issue or idea.

Categorization continued and were grouped into higher order categories resulting in main categories and subcategories. This process of abstraction continued until general categories could no longer be formed. The codes and categorization system were independently reviewed by a second researcher.

The categorization process summarized the data to support answering the environmental scan research questions based on each objective: 1a. To determine how newcomers living with HIV enter into care after immigration. 1b. To describe the treatment programs and support services that exists in the Manitoba. 1c. To describe the challenges and barriers that may limit linkage and retention in HIV care. An example highlighting progression from codes to categorization is illustrated in Table 3.1.

Table 3.1 Example of Coding and Categorization of Environmental Scan Data

Codes	Sub category	Main category	Objective addressed
Social assistance to access free treatment	Medication affordability	Financial security	Describing challenges and barriers
Paying for education/training			
Lower income employment			
Previous education and credentials not recognized	Finding employment		
Official languages proficiency			

3.3.2 Quantitative Analysis

Data analyses to address research objectives 2, 3, and 4 were conducted using SAS version 9.4. The analyses explored differences in socio-demographic characteristics, clinical characteristics at entry into care and treatment outcomes. Univariate analysis was used to determine frequencies and distributions among the different variables of interest. Bivariate analysis (Chi-square tests) was conducted on selected variables to determine differences in the population group. Analysis of Variance (ANOVA) was used to test differences in mean between the three population groups. Age, and sex were compared to Canadian-born persons using chi-square tests to determine if there are any significant differences between the population groups. Since age is a continuous variable, it was converted into a categorical variable with six levels (<30, 30-39, 40-49, 50-59, 60-69 and 70+) to allow chi square analysis. Age was calculated as of April 17, 2018. The proportion of newcomer participants with primary care providers was compared to Canadian-born persons with primary providers using chi-square tests to determine if there is a difference in provider status between the population groups. Comparisons were made on self-identified exposure to HIV category and chi-square tests were used to determine if there are significant differences in the proportions of newcomers and Canadian-born persons acquiring HIV within each exposure category. Chi-square tests were performed to determine if there are any significant differences in the types of co-infection at time of entry, between the population groups.

Univariate statistics were used to determine if differences exist in CD4 count at diagnosis/entry into care between newcomers, Canadian-born Indigenous and non-Indigenous persons. CD4 counts were converted into four categories (0-199, 200-349, 350-499, >500

cells/mm³) representing various levels of immune suppression. The mean and median baseline CD4 counts of newcomers at time of entry into the program were also compared to the mean and median baseline CD4 count of Canadian born persons (Indigenous and non-Indigenous). Viral load was collected as a continuous variable and dichotomized as ≤ 200 and > 200 copies/ml for analyses. In all analyses, significance of bivariate statistics was determined at $\alpha \leq 0.05$.

CHAPTER 4: RESULTS

This chapter presents results of the research project. The first objective is addressed by presenting the results of the environmental scan to show the pathways that newcomers may take to enter into HIV care in the province. The objective also presents existing gaps and challenges for service providers and newcomers living with HIV and identifies suggestions for improving HIV care for newcomers. Results from objective 2 are summarized to compare various socio-demographic characteristics of newcomers living with HIV to Indigenous and Canadian-born non-Indigenous residents. Objective 3 investigated differences in clinical characteristics at diagnosis or during entry into care to compare newcomers when they enter HIV care with the two other population groups. Finally, this chapter closes with the result related to research objective 4 which explored the proportion of newcomers living with HIV who have achieved virological suppression compared to the other groups.

4.1 Research objective 1: Pathways to Care, services available and existing challenges in HIV care

Fifteen key informants were interviewed across seven organizations (Table 4.1). The organizations were: i) a hospital based clinic providing specialist HIV care; ii) a community

health center providing care and treatment of sexually transmitted and blood-borne infections; iii) a primary care clinic for newly arrived refugees; iv) a community based organization providing workshops, programs and resources to promote sexual health; v) public health department focusing on healthy sexuality and harm reduction vi) an agency that provides settlement services for newcomers, and vii) a non-profit organization that provides sponsorship to refugees and support while in Manitoba.

Table 4.1 Number and type of key informants interviewed for environmental scan

Organization Category	Number of Organizations	Total Number of Informants	Informant type
Refugee Sponsoring Agency	1	1	Settlement coordinator
Refugee Settlement Agency	1	1	Settlement coordinator
Service Providers	5	13	Social workers, Nurse practitioner, Public health nurses, Physician, Outreach workers, Counselor

4.1.1 Pathways into care for newcomers living with HIV

The pathways of entry into HIV care for newcomers settling in Manitoba derived from the information from key informant interviews and internet searches are illustrated in Figure 4.1. Four categories were used to describe linkage process to care: public health, settlement services, sponsoring agencies, and self-referrals. Another category described challenges encountered during the linkage process into care upon arrival.

4.1.1.1 Linkage through public health

HIV testing is a routine part of an Immigration Medical Exam and is required for: applicants 15 years of age and older; children who have received blood or blood products; children who have a known mother living with HIV and all potential adoptees where a risk is identified. As noted earlier, some immigrants may be denied entry if they test positive for HIV under the excessive-cost clause, but refugees and spouses or children of citizens and permanent residents cannot be denied entry based on the excessive-cost clause (Department of Justice Canada, 2018). As of June 2005, Immigration, Refugees and Citizenship Canada refers the names of those individuals who have tested positive for HIV during the immigration process (tested outside Canada) to MHSAL. This includes all accepted immigrants and refugees who have indicated that they will be settling in Manitoba. MHSAL then refers persons living with HIV to the appropriate Regional Health Authority for case management and follow up (Government of Manitoba, 2010). Case management by public health professionals may involve locating clients, informing clients of all resources and supports available, advice regarding legal and ethical issues concerning the disclosure of HIV status and ensuring medical follow up with a physician specializing in HIV care (Government of Manitoba, 2010). According to a service provider, there may be a delay in getting information from IRCC to MHSAL delaying public health follow up.

For people undergoing the immigration process while already in Manitoba, there are different pathways into care. All people applying for a visa or seeking asylum while in Canada are also required to go through an Immigration Medical Exam (IME) including HIV screening. Applicants already residing in Manitoba are sent to be examined by a Manitoban immigration doctor as soon as a claim is submitted. The testing laboratory sends results of individuals who received a positive HIV test result to the surveillance unit at MHSAL. A similar process occurs

where MHSAL refers information of persons living with HIV to the Regional Health Authority where they are residing for case management and follow up. Doctors who perform the tests may also refer the clients to the Manitoba HIV Program via a 1-800 referral line but public health nurses in the jurisdiction must follow up to ensure clients are connected into HIV care.

In summary, MHSAL receives notifications of all people who test positive for HIV as it is a notifiable disease. Notification for newcomers who test outside Canada prior to immigration come from IRCC and for people who test in Manitoba, notifications are received from the testing laboratory.

4.1.1.2 Linkage through settlement agencies

In addition to linkage through public health follow up by nurses, refugees living with HIV have additional ways of being connected to care. Government Assisted Refugees (GARs) are connected to settlement agencies upon arrival to the province. In Manitoba, the Manitoba Interfaith Immigration Council – Welcome Place, is the largest organization that provides services to GARs. Two weeks prior to their arrival in the province, IRCC sends a Notice of Arrival (NAT) with the profile of the newcomer along with information regarding a positive HIV status to the settlement agency. The agency sets up an appointment for the newcomer at BridgeCare Clinic within 2 weeks of their arrival. BridgeCare Clinic provides all GARs with initial medical assessments, screening and immunizations. GARs are assigned settlement workers from the agencies upon arrival who assist with the process of getting to appointments at BridgeCare and any other referrals. Newcomers living with HIV are then referred to the Manitoba HIV Program by physicians at BridgeCare clinic via the Manitoba HIV Program Referral Line. Typically, those individuals with a primary care provider are linked to the Health

Sciences Center HIV Outpatient Clinic and those without a primary care provider are linked to Nine Circles Community Health Center.

4.1.1.3 Linkage through sponsoring groups

Privately Sponsored Refugees (PSR) are refugees who are sponsored by Canadian citizens and permanent residents through organizations or groups. IRCC sends the sponsoring group the client's profile and information about any medical conditions that need health care. The sponsor is responsible for connecting the client to a local physician who can then refer to the Manitoba HIV Program. According to a key informant, staff at some sponsoring organizations are aware and have extensive knowledge of health services and systems and may directly refer their clients to the Manitoba HIV Program and provide assistance to make an appointment for their client upon arrival. BridgeCare is able to accept PSRs for appointments but only if they have openings, which is a rare case, as per a key informant.

4.1.1.4 Self referrals

Some newcomers may self refer to the Manitoba HIV Program. For everyone who tests positive outside Canada during the immigration process, IRCC provides a pamphlet with information regarding how to get connected into HIV care in every province, which in Manitoba is the Manitoba HIV Program. Thus, some people are already linked into care through their own efforts by the time public health nurses contact them after receiving a notification of a positive HIV test from MHSAL.

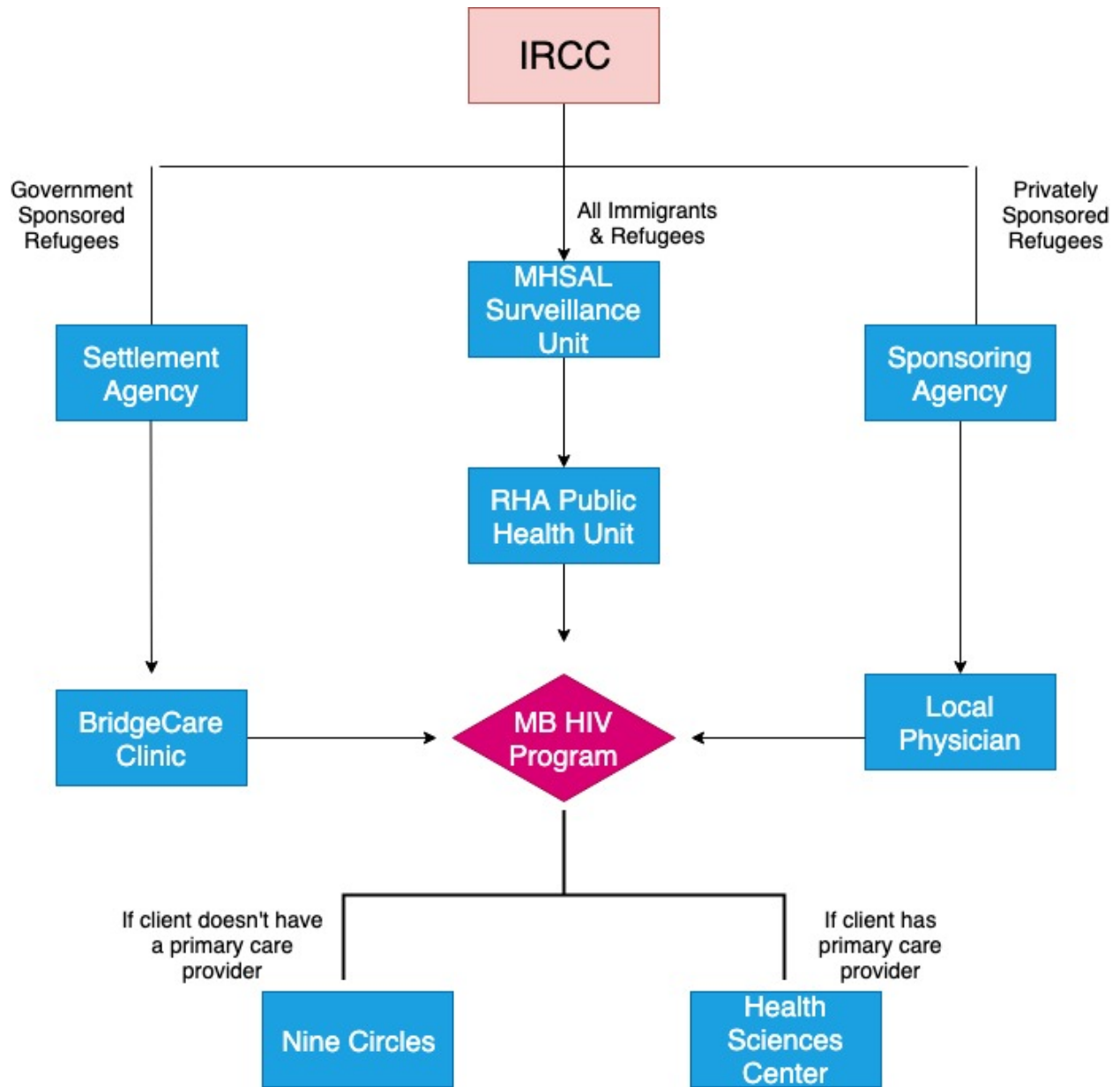


Figure 4.1 Pathways into HIV care for newcomers living with HIV in Manitoba

4.1.2 Challenges encountered during linkage into care upon arrival

Some service providers noted that the process of linking newcomers into care has various challenges. The time it takes for newcomers to be successfully linked into care is influenced by the time it takes to receive notifications from IRCC, quality of the locating information provided to find clients, whether clients are receiving support and referrals from settlement services, and presence of other competing priorities that the newcomers may have. Public Health nurses noted that contacting people after receiving notifications from IRCC via MHSAL has potential challenges. Some newcomers indicate their final destination as Manitoba but they move to other cities or provinces upon landing. Public Health nurses may have a challenging time locating these clients before they discover the clients have moved out of their jurisdiction. Clients may then move back at a later time without the knowledge of public health which could result in missed opportunities for linking into care. Linkage into care is also dependent on the quality of locating information. If the locating information is missing or incorrect, it may result in a longer period of time before newcomers are connected into care.

Linkage to care is especially challenging for those persons who seek asylum once they are in the province. For refugee claimants, linkage into care may take longer as they are not covered for treatment until their asylum cases are approved which vary on a case by case basis. Public Health nurses and settlement agencies noted that Manitoba has experienced an increase in the number of people who are arriving as refugee claimants, putting an increased pressure on existing resources for locating and linking refugee claimants into care. Settlement agencies also do not receive prior information regarding incoming refugee claimants who illegally cross the US-Canada border to seek asylum or those already in Canada who choose to make a refugee claim. For these refugee claimants, once a claim is submitted, the applicant is required to make

an appointment with a local immigration doctor for the IME as soon as an appointment is available.

4.1.3 Services providing HIV care and related services to Newcomers living with HIV

Relevant interview and website data were grouped into a main category describing existing services in the HIV care landscape for newcomers living with HIV. Sub categories included primary care, HIV treatment, support services, education and health promotion and referrals.

4.1.3.1 Primary Care

BridgeCare clinic provides primary care to GARs for up to one year. They provide initial medical assessments, including HIV screening and immunizations of GARs. Nine Circles provides primary care to newcomers living with HIV.

4.1.3.2 HIV treatment

As part of the Manitoba HIV Program, Nine Circles provides HIV care to newcomers living with HIV in Manitoba who do not have primary care providers. The Health Sciences Center Outpatient Clinic provides HIV treatment to newcomers living with HIV who have primary care providers outside the Manitoba HIV Program.

4.1.3.3 Support services

The Manitoba HIV Program through Nine Circles and the Health Sciences Center Outpatient Clinic provide access to counsellors, occupational health therapists, dieticians, pharmacists, social workers and outreach support workers for newcomers living with HIV. They also run a food bank available to people living with HIV. BridgeCare provides counselling services and a psychiatrist is available for consultations. To all newcomers, Welcome Place provides settlement services that include temporary accommodation, assistance with finding permanent housing,

interpretation services, counselling and assisting refugee claimants with applications for immigration.

4.1.3.4 Education and health promotion

Nine Circles and the Sexuality Education Resource Center (SERC) provide access to education and health promotion programs related to HIV. SERC provides education and resources on HIV and other sexual health topics to newcomers through community sessions and workshops including where to access health services. They provide information sessions promoting awareness of sexually transmitted and blood-borne infections (STBBI) including stigma reduction among African/Caribbean/black communities.

4.1.3.5 Referrals

SERC provides referrals to other support services required by newcomers living with HIV and provides a resources list for services that can be accessed by newcomers living with HIV. Nine Circles assesses the social determinants of health and makes referrals based on services needed by newcomers living with HIV. Welcome Place and Hospitality House provide referrals to community services.

4.1.4 Barriers in HIV Care for Newcomers

4.1.4.1 Language and culture

Several informants noted that language is a major barrier to providing services to newcomers in Manitoba including those living with HIV. Translation services in Winnipeg's health care system are usually offered through Winnipeg Regional Health (WRHA) interpreters through the Language Access Program. Interpretation services can be offered in-person or over-the-phone. Health care providers noted that over the phone interpretations are usually more challenging compared to having an in-person interpreter because in-person interpreters can read

body language and facial expressions. For example, they are more easily able to pick up if the client is confused and needs more explanation. Over-the-phone interpretations sometimes can be unclear due to network issues or background noise which can be distracting. However, informants noted that more newcomers prefer interpretation services over-the-phone as opposed to having them in-person. It was noted that there can be concerns of confidentiality with in-person interpretation. Some newcomer communities are small and there are concerns over being identified by the interpreter if they were to attend the appointment in-person.

Lack of interpreters can be a barrier. Some informants noted that interpreters who were fluent in certain dialects or languages were not available. During such instances, or if an interpreter is not available, clinic staff members who speak the particular language may be called upon or the client may be asked to bring a family member who can interpret. However, concerns over confidentiality were noted if individuals have not disclosed their HIV status and family may also not be familiar with medical terminology. In the HIV clinic within the Health Sciences Center Hospital, providers may page for staff who speak that language to assist with interpretation.

Public Health Nurses noted that they have no issue finding interpreters who are available throughout North America through the Language Access service provided by WRHA, but the quality of interpretations differed. They preferred having an in-person interpreter in clinic who has undergone training and accreditation provided by WHRA vs using over-the-phone interpreters located anywhere in North America provided by an external contractor service. These interpreters are trained but have not received WRHA specific accreditation and lack the Manitoba context that may prove useful when interpreting for Manitoba clients. A health care provider noted that interpreters who provide interpretation services for rare languages or dialects

may also not be available immediately and may have to be pre-booked limiting opportunities for urgent appointments or walk-ins.

Another concern raised regarding language barriers is that interpretation services are limited based on the service provided. In Winnipeg, WRHA only provides interpretation services for direct medical services provided by them. If health care providers refer clients to services beyond direct medical services, such as pharmacy visits, dieticians, physiotherapy etc., clients may not have access to an interpreter, creating challenges when accessing that service.

In addition to barriers created by language differences, informants noted the challenge of working with a very diverse group of people who identify as newcomers. They noted the diversity among their newcomer clients who came from different cultural backgrounds. Cultural awareness was discussed as a necessity when working with newcomer populations.

4.1.4.2 Stigma

According to a majority of the key informants, fear of being stigmatized is prevalent in newcomer communities. Newcomers living with HIV fear being shamed, discriminated against and isolated due to having a HIV diagnosis. Some health care providers noted having to schedule appointments for people coming from the same community at different times in order to prevent the clients meeting in waiting rooms at the clinic. They reported that some newcomer clients, especially those from smaller communities were reluctant to attend clinic appointments because of fear that they would be seen by other people in their community at a HIV clinic. There is also fear from newcomers over some of their hosts finding out their HIV status. Public Health nurses noted having to be aware of this when contacting clients over the phone.

Informants noted that some newcomers may not feel comfortable accessing other services beyond medical services due to fear of being stigmatized. They may be hesitant to attend social worker appointments, occupational therapists' appointments, counselling or utilize the food bank for people living with HIV provided by the Manitoba HIV Program. In particular, the food bank located at Nine Circles Community Health Centre is identified by service providers to be for people who are living with HIV so accessing the food bank may create a situation of indirect disclosure. Providers noticed that some newcomers do not access this service even when needed due to fear of stigma.

An informant noted that mental health services are often declined by newcomers due to self- stigma and fear of stigma from the community based on dealing with mental health concerns. They described the challenges faced when working with newcomers, as compared to non-newcomers, due to the differences in acceptability and culture around mental health services. The provider explained having to use culturally appropriate and descriptive terminologies to explain services offered and emphasize that that mental health therapy does not mean that someone is "crazy" as it had been misinterpreted by some clients.

Stigma due to infant feeding practices among mothers living with HIV was noted. Some providers noted that the current medical practice of formula feeding to prevent the risk of vertical transmission of HIV makes new mothers living with HIV uncomfortable with the idea of not being able to breastfeed. Mothers also have to deal with questions and concerns raised by their family and friends who question why they are not breastfeeding their infants. The pressure to breastfeed is very significant, and some newcomers fear that not breastfeeding will disclose their status indirectly and they will face stigma as a result. Informants noted that the pressure is magnified among cultures where breastfeeding has significant cultural importance. Mothers may

also encounter breastfeeding promotion messages and the importance of breastfeeding creating feelings of shame and guilt over not being able to breastfeed their infants.

4.1.4.3 Trust in System

Some informants noted that newcomers, especially refugees coming from politically unstable nations, may have a pervasive fear of government, government organizations or institutions, and related services. Public health nurses noted that some people associated public health with a government surveillance body creating mistrust. Some newcomers have experienced trauma from medical personnel resulting in concerns with accessing medical services. Informants noted that some newcomers fear sharing critical information relevant to their health with medical personnel and interpreters due to concerns about third party disclosure. As such, informants emphasized the important of assuring clients of confidentiality during their first initial meetings and continually assuring them that all the information they provide is kept confidential.

Some informants noted that improving the quality of care and interactions with newcomers living with HIV helps in gaining trust and makes newcomers feel that they are respected. Some noted that though it may take time, newcomers want to build trusting relationships with service providers in order to be comfortable sharing personal information and discussing their health and health needs.

4.1.4.4 HIV disclosure

Some service providers described a prevalent fear of criminalisation of HIV among newcomers due to misunderstanding of HIV disclosure laws in Canada. Informants noted that, during public health follow-up and group discussions with newcomers living with HIV, some newcomer clients were unaware of the legal obligations of when it was required to disclose one's

status with their sexual partners, creating a lot of fear and confusion. Another informant noted that the medical system does not provide sufficient information for newcomers regarding legal obligations and implications around having a diagnosis of HIV. One informant expressed the importance of creating more resources that provide appropriate information to newcomers living with HIV regarding their legal obligations on HIV disclosure. These resources would provide better understanding of the law around criminalization of HIV non-disclosure.

Some informants reported that some newcomers were confused regarding the impact of a positive HIV diagnosis on their immigration status, which added some reluctance in accessing care. Some would fail to give adequate information during initial clinic appointments after immigration, limiting the ability of service providers to give adequate care. Some informants attributed this to fear of newcomers' perception of medical personnel having government influence and that they would be sent back to their originating country if they disclosed that they are living with HIV.

4.1.4.5 Trauma

Medical personnel may not be aware of traumatic experiences faced by clients prior to immigration. According to key informants, some clients have difficulties talking to public health personnel regarding their HIV status especially when they acquired infection through assault. Some informants noted that health care workers providing services to newcomers had limitations in understanding the trauma that newcomers may have experienced prior to their arrival in Canada. The need for more training and resources for working with newcomers living with HIV in Manitoba was expressed. This includes sensitivity and awareness of assault and trauma and

better training for service providers in communicating with clients who have experienced trauma.

Experiences of trauma and torture also present as competing priorities for being linked to HIV care. Some informants reported that trauma and other psychological needs may supersede being linked into HIV care among some newcomers living with HIV. They may be dealing with effects from previous traumatic experiences and HIV may not be a priority at the time of landing in Canada which can result in delayed linkage to care. In addition to better training on working with newcomers who have experienced trauma, one informant expressed the need for enhanced counselling services specific to people living with HIV upon diagnosis and while linked to care.

4.1.4.6 Financial Security

For newcomers coming with foreign education and professional credentials, their education may not be recognized in the Canadian system and they are forced to work lower paying jobs. Those who do not speak English fluently have an added barrier and may have to take English as an Additional Language (EAL) courses which can have added costs. Policies around medication coverage may also fuel financial difficulties. An informant reported some newcomer clients struggle to choose whether to work in low-income jobs and pay for expensive medication or not work in order to access treatment at no cost through social assistance. Informants noted that those struggling with these options reported having to deal with stereotypes that come with being on social assistance and being seen as “lazy” if they were capable of working and choosing not to. For refugees, the Interim Federal Health Program (IFHP) provides medical coverage to all refugees and refugee claimants only for one year. Privately Sponsored Refugees are eligible for IFHP coverage but they cannot obtain social

assistance within the first year of arrival as the responsibility for all financial support lies on the sponsorship group.

Informants noted that, for newcomers encountering financial difficulties, competing priorities, such as looking for employment, finding affordable housing, attending English classes to get employment to support their family in Canada and abroad, may supersede linkage into care. They expressed the importance of addressing social determinants of health as key in ensuring optimal care for newcomers living with HIV.

4.1.4.7 Accessibility

Informants noted that newcomers who came from countries where the health care system was significantly different from Canada had initial challenges adapting to the new system and being linked to care. Service providers expressed that better support is needed for newcomers when navigating the healthcare system. Services such as providing transportation to initial clinic appointments and newcomers having access to childcare during appointments was viewed as a necessity with some newcomers requiring more enhanced support than others.

4.1.4.8 Partnerships

Refugee settlement agencies noted that newcomers often have a closer relationship with their settlement support worker than any other service provider after immigration. There are instances where clients have shared more information with their settlement workers than medical providers. During these instances, settlement workers will ask for consent to share that information with their health care providers if it is relevant to their care. The importance of an open line of communication between the settlement workers and health care providers was highlighted as a means of improving care among newcomers living with HIV. Some informants

also noted that newcomers expressed the importance of service providers being aware of immigration and immigration issues. There is still a concern regarding service providers not being aware of the difficult processes that their clients go through to arrive and settle in Canada. Informants also noted the importance of collaboration and partnerships for service providers in order to learn about various types of support services available to newcomers in Manitoba so that proper referrals or recommendations could be made.

An informant suggested that community leaders can be a resource to gain knowledge on what is missed in HIV prevention efforts among newcomer communities. They emphasized that, through engagement with affected newcomer communities, recommendations could be made regarding HIV prevention and support. An informant also discussed the gap on research findings in Manitoba regarding newcomers living with HIV. Much of the research has been conducted in Ontario and British Columbia. The informant advocated for an increased focus on newcomer populations regarding HIV in order to inform care practices and programming relevant to Manitoba to improve the quality of care given. The Manitoba HIV Collective Impact Network was discussed as a good initiative that provides a platform for knowledge sharing and collaboration among service providers working in HIV care.

4.1.4.9 Holistic support

Some informants expressed the importance of holistic support that goes beyond medical treatment. They emphasized that HIV care for newcomers should cover all aspects of their wellness and guidelines for people living with HIV should focus beyond the clinical aspects of treatment. To provide appropriate support, one informant stated that health should be seen from

many intersecting layers such as the immigration lens, being from a racialized communities lens, women's lens, and through many other overlapping and intersecting layers.

Retrospective Cohort Results

This section presents results from the secondary quantitative data analysis of the LHIV cohort.

4.2 Research objective 2: Socio demographic Characteristics of Newcomers Living with HIV

There were 336 Canadian-born non-Indigenous persons, 259 self-identified Indigenous persons (207 First Nations, 48 Metis, 2 Inuit and 1 unspecified Indigenous identity), and 86 newcomers (immigrants and refugees) in the clinical cohort. In total, there were significantly more male participants in the overall cohort (n= 486; 71.5%) compared to female participants (n=194; 28.5%) (p<0.0001).

Research objective 2 was addressed by descriptive and univariate analyses (Table 4.2.1). The Canadian-born population group had the highest percentage of males (n=290; 86.3%), followed by Indigenous persons (n=149; 57.5%) and lastly newcomers (n=47; 54.7%). Comparison across the groups shows that the newcomer population had higher percentage of females (45.3%). The mean age for Canadian- born non Indigenous persons in care was 52 years (IQR 46-60), compared to 45 years (IQR 37-54) among Indigenous participants and 43 years (IQR 37-52) among newcomers in care (p<0.0001). Across all the three population groups, the mean age for females (46 years among Canadian-born non-Indigenous; 43 years among Indigenous persons and 42 years among newcomers) was younger than males (53 years among Canadian-born non-Indigenous; 46 years among Indigenous and 45 years among newcomers) (p<0.0001). Majority of the Canadian-born non-Indigenous persons were mostly in the 50-59 year age group compared to Indigenous persons and newcomers who were in the 40-49 year age group.

Table 4.2.1 Select Socio demographic characteristics of cohort participants, population group

Characteristics	Canadian-born Non-Indigenous N=336	Indigenous N=259	Newcomers (Immigrants & Refugees) N=86	P
	n [%]	n [%]	n [%]	
Sex				<.0001*
Male	290 (86.3%)	149 (57.5%)	47(54.7%)	
Female	46 (13.7%)	109 (42.1%)	39 (45.4%)	
Age				
Mean, IQR	52 (46-60)	45 (37-54)	43 (37-52)	<0.0001*
Male mean	53	46	45	<0.0001*
Female mean	46	43	42	
<30	10 (2.9%)	19 (7.4%)	8 (9.3%)	
30-39	34 (10.1%)	64 (24.9%)	20 (23.3%)	
40-49	79 (23.5%)	86 (33.5%)	33 (38.4%)	<.0001*
50-59	134 (39.8%)	63 (24.4%)	21 (24.4%)	
60-69	58(17.3%)	20 (7.8%)	4 (4.7%)	
70+	21(6.25%)	5 (1.9%)	0	

*Statistically significant differences between groups at $\alpha=0.05$

When comparing self-reported ethnicity, in the Canadian-born non-Indigenous persons, majority were white/Europeans (87.8%) (Figure 4.2.2). Persons who identified as First Nations were the largest proportion in the Indigenous group (80.3%) (Figure 4.2.1). The largest proportion of cohort participants in the newcomer population were from Sub Saharan Africa, Caribbean or identified as black (79%) as seen on Figure 4.2.3.

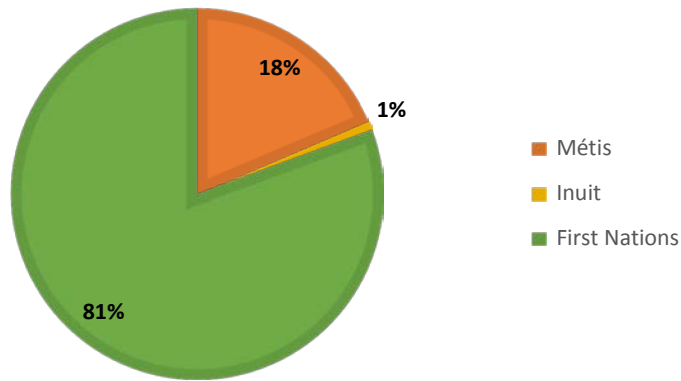


Figure 4.2.1 Self-identified ethnicity among Indigenous participants

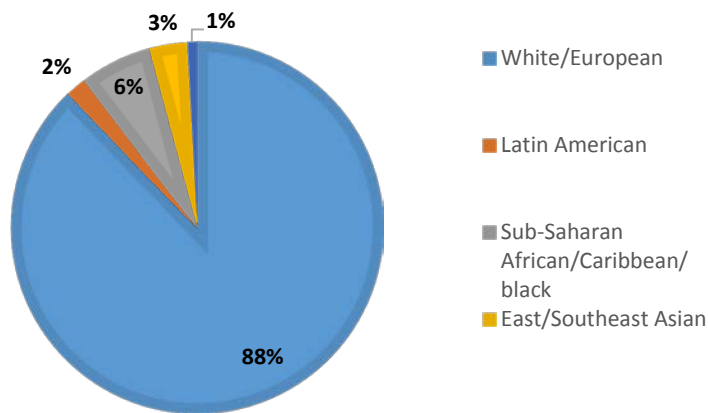


Figure 4.2.2 Self-identified ethnicity among Canadian born non-Indigenous participants

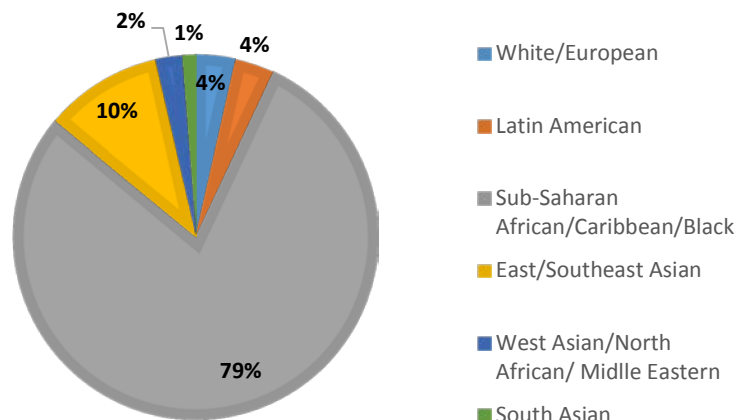


Figure 4.2.3 Self-identified ethnicity among Newcomer participants

MSM was the most common reported transmission risk category among the Canadian-born group while among Indigenous persons and newcomers, heterosexual transmission was the most common reported risk transmission category (Table 4.2.2). For newcomers, 73% of cases reported originating from an HIV endemic country. A majority of the newcomers (60.5%) also reported that their first HIV positive test was received outside of Manitoba. Among the newcomers who reported the test outside Manitoba, 96% of them reported that their first positive HIV test results were received outside Canada. A larger percentage of newcomers had primary care providers (94.2%) compared to Canadian-born persons (90.5%) while Indigenous persons had a lower percentage of people who had primary care providers (79.2%).

Table 4.2.2 HIV exposure category and select testing characteristics, by population group

Characteristics	Canadian-born Non-Indigenous N=336 n [%]	Indigenous N=259	Newcomers (Immigrants & Refugees) N=86	P
HIV exposure				<.0001*
Heterosexual	99 (29.5%)	138 (53.5%)	69 (80.2%)	For Newcomers 63 (73%) characterized as endemic exposure as well
MSM	191 (56.9%)	48 (18.6%)	12 (13.9%)	
IDU	37 (11.0%)	67 (25.9%)	2 (2.3%)	
Recipient of blood	3 (0.9%)	2 (0.8%)	0	
Occupational exp.	5 (1.5%)	0	2 (2.3%)	
Unknown	1 (0.3%)	3 (1.2%)	1 (1.2%)	
Not reported	0	1 (0.4%)	0	
1ST positive test in MB				P<.0001*
No	59 (17.6%)	25 (9.65%)	52 (60.5%)	
Yes	272 (80.9%)	233 (89.9%)	34 (39.5%)	
Unknown	5 (1.49%)	1 (0.4%)	0	
Outside MB				
Other Canada prov.	50 (14.9%)	27 (10.4%)	2 (2.3%)	
Outside Canada	12 (3.6%)	1 (0.4%)	49 (57.0%)	
General				

practitioner				
No				
Yes	32 (9.5%)	54 (20.9%)	5 (5.8%)	<.0001*
	304 (90.5%)	205 (79.2%)	81 (94.2%)	

*Statistically significant differences between groups at $\alpha=0.05$

4.3 Research Objective 3: Clinical characteristics of newcomers at diagnosis/entry into care

The aim of research objective 3 was to describe and compare clinical characteristics of people living with HIV at the time of entry into care in Manitoba (Table 4.3). The mean CD4 count at entry into care for Canadian-born non-Indigenous, Indigenous and newcomers were 376 cells/mm³, 376 cells/mm³ and 348 cells/mm³ respectively. The lowest initial mean CD4 count among males was seen in the Indigenous group (347 cells/mm³), while the lowest initial mean CD4 count among females was seen in the newcomer group (321 cells/mm³). Late presentation to care (CD4 counts less than 200 cells/mm³) was seen among 23% of participants overall with no significant differences across groups. Overall, 372 persons (54.6%) presented to care with a co-infection (Thrush, Hepatitis C, Tuberculosis, and Pneumonia) within 6 months of diagnosis/entry into care. The most common opportunistic infections were Thrush (21%) among Canadian-born population, Hepatitis C (30.9%) among the Indigenous population and Tuberculosis (20.9%) among the newcomer population. The Indigenous group also had the highest proportion of people presenting with any of the 4 co-infections within 6 months of entry into care (n=177; 68%) in comparison to the other two population groups (p<0.0001).

Table 4.3 Clinical characteristics of cohort participants at entry into HIV care in Manitoba, by population group

Characteristics	Canadian born Non-Indigenous N=336 n [%]	Indigenous N=259	Newcomers (Immigrants & Refugees) N=86	P
Initial CD4 count				
Mean	376	376	348	0.71
Median	330	327	325	0.97
Male average	373	347	370	0.89
Female average	389	411	321	
Male median	320	300	317	
Female median	393	360	328	
0-199	103 (30.7%)	78 (30.1%)	21 (24.4%)	0.23
200-349	76 (22.7%)	61 (23.6%)	32 (37.2%)	
350-499	64 (19.1%)	48 (18.5%)	13 (15.1%)	
>500	92 (27.5%)	72 (27.8%)	20 (23.2%)	
Co-infections at diagnosis				
Any	162 (48.2%)	177 (68.3%)	32 (37.2%)	<.0001*
Thrush	71 (21.1%)	61 (23.6%)	6 (7.0%)	0.004*
HCV	51 (15.2%)	80 (30.9%)	6 (7.0%)	<.0001*
TB	2 (0.6%)	18 (6.9%)	18 (20.9%)	<.0001*
Pneumonia	38 (11.3%)	18 (6.9%)	2 (2.3%)	0.015*

*Statistically significant differences between groups at $\alpha=0.05$

4.4 Research objective 4: Treatment outcomes of newcomers living with HIV

A majority of the cohort participants (97.6%, n=664) were reported to have ever been on ART (Table 4.4.2). Almost all Canadian-born non-Indigenous persons were recorded to have ever been on ART (98.8%) with newcomers and Indigenous persons having similar proportions of participants who had ever been on ART (96.5%), but the differences were not significant. Among male participants, a higher percentage of newcomers had not been on ART (6.4%)

compared to Canadian-born non-Indigenous (1.4%) and the Indigenous group (2.7%). For female participants, only the Indigenous group had women living with HIV who had never been on ART (4.6%).

Treatment outcomes (defined by viral load suppression) were measured by taking the most recent viral load count in 2017 for cohort participants. Viral load suppression was assessed for participants who were on treatment by June 2017 and had a viral load count measured in the same year. Fifteen participants were excluded from the analysis as they were not on treatment, one participant was excluded from analysis as they started ART after June 2017 and 53 participants did not have a viral load recorded in 2017. A total of 611 participants (89.0% of the cohort) were included in the analysis. Among those included in the analysis, a majority (88.5%; n=541) had achieved viral load suppression by the end of 2017. When comparing among population groups, newcomers had the highest proportion of participants who had achieved virological suppression (<200 copies/ml) (93.2%), closely followed by Canadian-born non-Indigenous participants (92.8%), and lastly the Indigenous population (81.5%; $p<0.05$) (Table 4.4.2). The differences among male cohort participants followed the same trend ($p<0.05$). Among female participants, Canadian-born persons all achieved virological suppression, while 94.2% of newcomers and 83% of Indigenous female participants had achieved virological suppression by the end of 2017 ($p<0.05$). Among all cohort participants, newcomers reported the highest mean viral load of 11,034 copies/ml compared to the other groups ($p<0.05$).

Table 4.4.1 Antiretroviral use among cohort participants, by population group†

Characteristics	Canadian born Non-Indigenous N=336 n [%]	Indigenous N=258 n [%]	Newcomers (Immigrants & Refugees) N=86 n [%]	P
On ART				0.14
Yes	332 (98.8)	249 (96.5)	83 (96.5)	
No	4 (1.2)	9 (3.5)	3 (3.5)	
Males on ART				0.09
Yes	286 (98.2)	144 (97.3)	44 (93.6)	
No	4 (1.4)	4 (2.7)	3 (6.4)	
Females on ART				0.13
Yes	46 (100)	104 (95.4)	39 (100)	
No	0	5 (4.6)	0	

*Statistically significant differences between groups at $\alpha=0.05$

†Ever on ART

Table 4.4.2 Viral Load Analysis of cohort participants†

Characteristics	Canadian born Non-Indigenous N= 304 n [%]	Indigenous N= 233 n [%]	Newcomers (Immigrants & Refugees) N= 74 n [%]	P
≤ 200	282 (92.8)	190 (81.5)	69 (93.2)	<.0001*
> 200	22 (7.2)	43 (18.6)	5 (6.8)	
Male	N= 261	N= 133	N=39	0.003*
≤ 200	239 (91.6)	107 (80.5)	36 (92.3)	
>200	22 (8.4)	26 (19.5)	3 (7.7)	
Female	N=43	N=100	N=35	0.018*
≤ 200	43 (100)	83 (83.0)	33 (94.2)	
>200	0	17 (17.0)	2 (5.7)	
Mean VL	4,490	7,069	11,034	0.004*

*Statistically significant differences between groups at $\alpha=0.05$

†Viral load measured in copies/ml

CHAPTER 5: DISCUSSION

The project aimed to describe the HIV care landscape for newcomers in Manitoba and explore their treatment outcomes. To achieve the first objective, I conducted an environmental scan of existing HIV care and support services in Manitoba and explored pathways into HIV care for newcomers living with HIV in Manitoba. The second aim was achieved by secondary quantitative analysis of existing cohort data from the Living with HIV (LHIV) project which comprises people living with HIV receiving care from the Manitoba HIV Program. Treatment outcomes of newcomers living with HIV were compared to Indigenous and non-Indigenous Canadian-born persons. Despite the HIV epidemic in Manitoba being overrepresented by newcomers, the various ways that newcomers can access HIV care in the province has not been examined. In addition, studies examining the clinical characteristics and treatment outcomes of newcomers living with HIV in Manitoba are also lacking in literature. This study aimed to fill these knowledge gaps by using two different research methods.

This chapter highlights results from this study, outlining the pathways into care for newcomers living with HIV as well as barriers and challenges encountered by newcomers when accessing care. This is the first study in Manitoba to provide a comprehensive summary of how immigrants and refugees are connected to HIV care after immigration. The chapter also provides insights of the socio-demographic and clinical characteristics of newcomers living with HIV in Manitoba, as well as their treatment outcomes in comparison to Canadian-born persons in care (Indigenous and non-Indigenous).

5.1. Environmental Scan

5.1.1 Pathways into HIV Care for Newcomers and services available in Manitoba

The environmental scan provided an overview of the pathways newcomers living with HIV can take in order to be linked to HIV care in Manitoba. The different pathways to care are dependent on the immigration classification of the newcomer, whether they are an immigrant or refugee or whether they are a Government Assisted Refugee or a Privately Sponsored Refugee. Linkage to HIV care involves the provincial and regional public health departments, settlement services, sponsoring organizations and, sometimes, through self-referrals. Pathways of entry into HIV care reflect various opportunities for all newcomers requiring HIV care in Manitoba to be linked to the Manitoba HIV Program. The pathway mapped in Figure 2 highlights the importance of collaboration and effective communication between immigration officials, settlement organizations, sponsoring organizations, primary care, specialist care and public health.

Several important potential “cracks” in these pathways exist and were noted in the scan. For example, reporting from IRCC to the surveillance unit at MHSAL may be delayed if the address of the client is unknown. A British Columbia (BC) study examining trends in the number of people immigrating to BC and living with HIV reported that it took anywhere from 11 days to 57 days for the BC Centre for Disease Control to get a report of a newcomer entering BC with a positive HIV diagnosis (Haag and Gilbert, 2007). Delays were due to the flow of data through IRCC based on the time it took to receive, process and match incoming IME data with the database of landed immigrants. They noted that some individuals had already retested within BC by the time the province received the notification from IRCC (Haag and Gilbert, 2007). Consequences of delayed reporting means that newcomers living with HIV may have a delay in

receiving public health support and services. Public Health Nurses in Winnipeg noted that there are some missed opportunities for linkage into care as well as opportunities for a swifter linkage into care. The time for linkage into care is dependent on the quality of locating information given to public health nurses to locate and engage with clients.

As noted in the scan, groups who sponsor refugees privately have a responsibility to provide financial and settlement support including ensuring access to healthcare services. According to a key informant from the environmental scan, Manitoba accepts the highest number of people who are Privately Sponsored Refugees in Canada. They noted that newcomers with helpful family or host sponsor link have better opportunities for accessing care compared to those who do not have sponsors as they receive help in navigating the healthcare system. A study conducted in Surrey, BC noted that a lack of coordination and gaps in service awareness disproportionately affected people who are Privately Sponsored Refugees (Surrey Welcoming Communities Project, 2014). My study did not review differences in service awareness among the different refugee categories but a key informant noted that for people who are Privately Sponsored Refugees, access to relevant services relies on the understanding and knowledge of their sponsors. People who arrive as Government Sponsored Refugees are able to access a standardized process of integration compared to privately sponsored persons who may not receive all the necessary services if their sponsoring group or organization are not aware of all existing services available to them. Thus, it is important for sponsors and groups to be aware of the different programs and services available to the refugees they sponsor. The creation of a resource guide for newcomers living with HIV in Manitoba that can be easily accessed by sponsoring groups, newcomers and other service providers needs to be developed to guide entry into care and referrals to other necessary services.

For newcomers living with HIV in Manitoba, newcomers are able to access primary care, HIV treatment, various support services from settlement and sponsoring organizations, education and health promotion programming as well as referrals to relevant services when needed. The various services available highlight that there are opportunities for newcomers to access HIV prevention, care, treatment and support in Manitoba.

5.2.2 Barriers encountered when accessing HIV care and services and Identified Service Priorities

The environmental scan also proved to be an effective tool to identify challenges encountered by both service providers and newcomers when providing and accessing HIV care in the province. The results suggest that there are many existing barriers that may impede linkage to care and support for newcomers living with HIV. There are some similar trends in barriers that exist from the last environmental scan conducted over 10 years ago that explored some of the same questions (Campos and Manning, 2006). Based on the challenges identified, the environmental scan also provided a good opportunity to infer different recommendations from service providers to inform and guide strategies for improving programs and access to care for newcomers. Some similar service priorities were identified in this scan that still exist from the last environmental scan conducted in Manitoba 10 years prior outlining that there are still opportunities for improving access to care for newcomers living with HIV.

Language barriers continue to present a challenge when accessing and receiving care for newcomers who do not speak any or have limited understanding of the official languages. Although interpretation services were noted as quite limited in the last scan, current interpretation services within the Winnipeg Regional Health Authority have vastly improved. As mentioned previously, this is due to the introduction of the WRHA Language Access Program

for in-person interpretations in 31 languages and approximately 200 languages for over-the-phone interpretation contracted through MCIS Language Solutions (WRHA, 2019). Despite the vast improvements over the years, there are still gaps such as the availability of interpreters for some languages or specific dialects and interpretations for some other services. Accurate assessments and treatment of newcomers living with HIV requires complete and optimal communication to reduce any risks of medical errors, inappropriate treatments, emergency room visits and lack of compliance with treatment (Bernstein et al., 2002; Ku and Flores, 2005). Thus, WRHA should continue to build its language bank through recruitment and training of various interpreters and ensure that all those who require interpretation have access to clear and accurate interpreters.

In addition, many healthcare providers noted issues over client's comfort with the interpreter and they noted that their clients preferred over-the-phone interpreters. This is largely due to confidentiality concerns driven by a fear of the clients having an interpreter who is from the same community as them, especially if they are from a small community. However, providers noted their preference of in-person interpreters as they are able to provide better interpretation by assessing more non-verbal cues from their clients. Interpreters should emphasize to their clients that they have signed a confidentiality pledge and are expected to adhere to strict privacy requirements (WRHA, 2019). In addition, for the benefit of newcomers who have concerns over confidentiality, WRHA trained interpreters can provide services over-the-phone in settings that ensure limited distractions and clear network over the phone. Other important things for providers to consider include the age, gender, ethnicity, religion, political views as well as the dialect of an interpreter in relation to their client in order to find the most appropriate match as all these factors may influence the client's comfort with interpreter (Leanza

et al., 2014). In addition, taking into account requests from clients over who they prefer for an interpreter may also be valuable in ensuring a well-suited match and that the client is comfortable with the interpreter (Leanza et al., 2014).

Stigma was reported as a barrier to accessing services as newcomers may fear being shamed, discriminated against and isolated when people learn they are living with HIV. Many study findings support key informants' views of stigma and fear of discrimination as barriers to accessing treatment, care and support for many people living with HIV (Sherr et al., 2011; Newman et al., 2008; Mahajan et al., 2008). Many informants noted that stigma reduction efforts are still needed in Manitoba to promote HIV testing among newcomer communities, and improve access to care. In Winnipeg, the Knowledge into Action (KiA) program is an example of a program in Manitoba that works with community leaders from African communities to reduce intersectional stigma associated with STBBIs (SERC, 2019). There are other programs that tackle HIV stigma among ACB communities in Canada that could be implemented in Manitoba. In Toronto, a program known as the "ACB Women Taking Control over HIV/AIDS and Sexual Health" recruits, trains and supports women from ACB communities who mobilize, engage and deliver HIV education among women in their communities. The lack of knowledge about HIV, how it is transmitted and availability of treatment contributes to stigma across populations (Audet et al., 2013; Fatoki, 2016). For the newcomer community especially among racialized communities disproportionately affected by HIV, efforts to reduce stigma may require intersectional approaches that also deal with issues of racism, homophobia, gender inequality and gender norms (Lawson, 2006). These efforts must involve media, educational institutions, health and service organizations, civic organizations, faith leaders and groups, and people living with HIV and their social networks (Campbell et al., 2005; Nyblade et al., 2003). Lawson (2006),

noted that another key aspect of addressing stigma among newcomers in African and Caribbean communities living in Canada is normalizing discourse around HIV being a chronic disease and away from the prevalent discourse of HIV being a disease resulting from “deviant behavior”.

Stigma may also cause or magnify the psychological, social and emotional impact of HIV (Turan et al., 2017) highlighting the need for mental health services. In addition to an HIV diagnosis, newcomers’ mental health may be impacted due to lack of income, lack of social support networks, lack of employment or poor working conditions, perceived racial discrimination, language difficulties and stress of migration (Hanson et al., 2010). Studies show additional mental health risks due to trauma from the events leading to refugee status, post immigration stress and isolation from family (Pumariega et al., 2005). Despite the many mental health risks, many studies have shown lower utilization rates of mental health services by newcomer ethnic communities, even in Canada where there is availability of publicly funded mental health services (Kirmayer et al., 2007; David, 2010; Tiwari & Wang, 2008). This may be driven in part by reluctance to access mental health services among newcomers which may be influenced by cultural beliefs and values (Wynaden et al., 2005). In addition to cultural beliefs and stigma, shame, level of acculturation and newcomer’s perceived lack of benefits from mental health therapy may also help to explain the lower utilization rates among newcomers and ethnic minorities in general (Park et al, 2013). In my scan, service providers also noted language barriers as a limitation of mental health service delivery and having to use an interpreter in the sessions. Mental health therapy may deal with strong emotional and complex psychosocial issues making it difficult for both the client as well as the interpreter during the sessions. Leanza and colleagues (2014), highlight key issues in mental health care where there are language and cultural differences, and they provide guidelines and practical recommendations during mental

health assessments with an interpreter. They note that for effective service delivery, professional interpreters with specific training in mental health are required.

Another barrier noted from the environmental scan was the social pressure on mothers to breastfeed their infants with women living with HIV being placed in a difficult situation as a result. With the scale up of Prevention of Mother to Child Transmission (PMTCT) services, there has been a decline in the number of new HIV infections among children worldwide (Mutabazi et al., 2017). However, breastfeeding still carries a small risk even with an undetectable viral load from the mother (CATIE, 2017). Therefore, exclusive formula feeding is recommended for infants born to mothers living with HIV in Canada regardless of their “clinical, immunological and virological status or ART received” (Bitnum et al., 2014). Service providers of newcomer women living with HIV noted the social pressure to breastfeed and concerns over dealing with scrutiny and suspicions of being HIV positive because women were not breastfeeding their infants. Other studies have also discussed the stigma attached to women not breastfeeding their infants especially in some African communities, with strong cultural endorsement of breastfeeding (Tariq et al., 2016; Bitnum et al., 2014) which can increase the pressure for women to breastfeed. In addition to social pressure, service providers in my environmental scan noted that women encountered messages and recommendations of breastfeeding by public health officials due to the health benefits of early breastfeeding and feeling shame or guilt over not being able to breastfeed. Therefore, it is important for health professionals to be aware of these difficulties encountered by mothers living with HIV in order to provide an open and judgment free discussion with their clients as well as appropriate emotional support. CATIE provides resources for health care providers including a step by step process for supporting mothers living with HIV (Loufty & Bitnum, 2019). They also provide resources for new mothers that address

questions about formula feeding and how mothers can cope with scrutiny over not breastfeeding their infants (CATIE 2015). In Manitoba, a provincially funded program covers the cost of formula for all women living with HIV which is provided through Nine Circles Community Health Center (CATIE, 2015).

Limited trust of the medical system and fear of government and medical systems is a recurrent theme and was identified in the earlier scan as well (Campos and Manning, 2016). Lingering distrust is common among newcomers who have had previous negative experiences with health systems or governments prior to arrival in Canada. Some providers noted newcomers would share more personal information and discuss their health concerns only after feeling a sense of trust and respect. Building newcomers' trust in the health care system is a necessary first step to ensure they are able to access the best quality of care as intended. Evidence suggests that the initial interactions with the healthcare system are key in either fostering "trust and confidence or mistrust and apprehension" (Robinson, 2016) and trusting that privacy and confidentiality will be maintained is critical to care effectiveness (Dahal et al., 2014). Providers should continually emphasize and be clear to newcomers that their patient information is confidential. Creating environments where newcomers living with HIV feel respected and heard is also instrumental in building trust and some service providers emphasized taking the necessary steps to foster good relationships in culturally appropriate ways. This may involve cultural safety training where providers not only learn how to deliver care that meets the social, cultural and linguistic need of their clients but they also acknowledge their lens and how it impacts their care delivery. Cultural safety analyzes "power imbalances, institutional discrimination, colonization, and colonial relationships as they apply to health care" (National Aboriginal Health Organization, 2009). In Canada, issues of distrust with the healthcare system are also prevalent among Indigenous

persons stemming from historical injustices with ongoing racism and discrimination (National Aboriginal Health Organization, 2009). When promoting cultural safety to improve health care access for newcomers, there must also be increased efforts to promote cultural safety within an Indigenous context for persons living with HIV.

In addition to patient and service provider trust, Isaacs and colleagues (2013) studied inter-organizational trust and collaboration and its effect on health care delivery for immigrant families. They found a correlation between trust and collaboration between organizations including referrals, shared resources and shared information. In my scan, newcomer-serving organizations emphasized the need to have open communication channels with healthcare providers. Refugees receiving settlement services develop a close relationship with their support workers who are then able, after consent, to provide relevant information to health care providers and/or encourage the newcomers to share that information with their healthcare providers. My study findings support the notion that trust between newcomer serving organizations, agencies and health care providers is critical in promoting service use and effective service delivery for newcomers living with HIV. Trust can be built through transparency, openness, willingness to hear different opinions, personal connections among leaders, and through the promotion of cultural competency within service networks (Isaacs et al., 2013).

Another barrier that impedes care for newcomers living with HIV is the fear around legal aspects of having a diagnosis of HIV. The law in Canada stipulates that non-disclosure of a positive HIV diagnosis before engaging in sexual activities that pose a “realistic possibility of HIV transmission” can result in criminal charges (Department of Justice Canada, 2018). A service provider working with newcomers noted that the limited information and resources regarding legal obligations of disclosure has created much fear and misunderstandings in

newcomer communities. Evidence from other studies conducted in Canada support these findings as they also identify the role of criminalization of HIV non-disclosure in creating barriers to engagement and retention in HIV care among various people living with HIV (Patterson et al., 2015). This law may also discourage testing due to fears of the legal implications around having a positive HIV diagnosis (Kesler et al., 2013; O’Byrne et al., 2013; Medjuck et al., 2015; Lax-Vanek et al., 2012; CATIE, 2018). Public education to increase newcomers’ awareness of the law along with knowledge of risks of transmission is needed to promote testing, support engagement while in care as well as reduce stigma around HIV. This information should be accessible and communicated in clear ways that can be translated to different languages for those who have limited understanding of the official languages. The Canadian HIV/AIDS Legal Network works to limit the negative consequences of HIV criminalization by helping community based organizations to understand the legal landscape of the criminalization of HIV non-disclosure (Canadian HIV/AIDS Legal Network, 2019). Community programs that work with newcomers living with HIV in Manitoba can benefit from their resources.

Dealing with emotional and psychological effects from previous traumatic experiences can take precedent over HIV care for some newcomers as noted by some key informants in the environmental scan. Informants noted that medical personnel may not always be aware of traumatic experiences previously experienced or faced by some of their newcomer clients. This is especially important as understanding or awareness ensures sensitivity when providing care and this awareness also provides an opportunity for taking steps to address these traumas and reduce barriers to care for clients (Canadian Pediatric Society, 2019). Campos and Manning (2006) also identified this similar issue noting the need for more training for service providers in

Manitoba when working with newcomer victims of assault or other forms of trauma. Evidence to support treating cross-cultural traumas among newcomers is growing but more evaluation is needed on the various intervention approaches and strategies (Ontario Center of Excellence for Child and Youth Mental Health, 2016). Suggested strategies for working with trauma affected newcomers include providing culturally competent services, addressing past and current stressors, harnessing resilience and protective factors, and reducing perceived power differentials (Ontario Center of Excellence for Child and Youth Mental Health, 2016). One organization in Manitoba, the NorWest Co-op Community Health provides counselling to immigrant women who have experienced trauma in their country of origin (NorWest Co-op Community Health, 2019).

Service providers mentioned financial difficulties among their newcomer clients living with HIV as a potential barrier to receiving care or having optimal care outcomes. Campos and Manning's scan in 2006 identified poverty as a barrier to the health of newcomers living with HIV in Manitoba. Recent immigrants and refugees disproportionately face financial difficulties due to unemployment, lack of recognition of their foreign credentials, lack of support to access education and training opportunities and language barriers. The urgent need to secure employment to support their families can result in newcomers securing lower paying jobs and thereby limiting their opportunities for training to advance to better paying jobs further perpetuating financial insecurity and further marginalization. A longitudinal study showed that newcomers experience higher rates of chronically low income in comparison to the Canadian-born population (Picot & Lu, 2017). In both the previous scan and my scan, providers noted that some of their clients find it difficult to access safe and affordable housing. Among all newcomer categories in Canada, refugees face the greatest difficulties when finding housing (Wyland,

2007). With daily survival becoming their primary focus, informants noted that some newcomers may not prioritize their health needs and focus on other pressing priorities such as looking for employment or attending English classes to secure better employment. For people experiencing financial challenges, finding transportation to attend clinic appointments, or finding and paying for childcare services during appointments were noted as an additional barrier. Outreach services are needed to assist with transportation to clinic appointments and provision of childcare during appointments.

Concern over medication coverage and affordability for newcomers living with HIV was also highlighted by a service provider. High medicine costs may lead to non-adherence as a result of financial burden (Gupta et al., 2018). Due to the high cost of antiretroviral drugs, providers noted some newcomers experience tension between working a lower paying job that would require them to make some out-of-pocket payments on their medication which could create a financial burden for them or their families, or choosing not to work and receive social assistance in order to receive full coverage for antiretroviral drugs. The Employment Insurance and Assistance (EIA) program of Manitoba covers the cost of medications. For those that have Pharmacare coverage, the provincial drug program, a deductible is required and is based on income earned. A deductible is a specified amount of money that must be paid on medication each year before Pharmacare coverage. Those on EIA would not be making any payments towards the deductible on eligible prescriptions (Government of Manitoba, 2019). However, as per an informant, choosing to receive social assistance may be a stressful decision for many newcomers as they want to be viewed as productive members of the society. Being able to work and earn a living is also associated with feelings of self-worth, gives a sense of identity and the work environment provides opportunities for forming social networks (Kovach, 2008). This is

especially important for newcomers who may have limited to no social ties upon immigration. It is therefore important for Manitoba to consider a policy that would provide full coverage for the cost of antiretrovirals with no deductibles or copayments regardless of age or income. In Canada, 6 out of 13 provinces and territories (British Columbia, Alberta, North West Territories, Nunavut, Prince Edward Island and New Brunswick) cover 100% of antiretroviral cost through provincial and territorial programs (some drugs may be exempt from the full coverage) (Yoong et al., 2018).

Informants suggested various training opportunities were necessary to provide optimum care to newcomers living with HIV. Providers discussed the importance of learning the necessary skills to be more being culturally aware. In Campos and Manning's scan (2006), being unaware of how to work in a cross-cultural way was considered a barrier for service providers to effectively engage with their clients. In this scan, service providers noted the challenge of working with a very diverse group of people who are all categorized as newcomers yet they have a range of cultures, values and beliefs. Important training on working with newcomers in this context may involve learning about immigration; the resettlement process and settlement stressors; social determinants of health; how to communicate cross-culturally; mental health, labels and communication about distress; expression of pain; how to work effectively with health care interpreters; religion, spirituality and health (Hospital for Sick Children, 2019). Some informants suggested that service providers learning about immigration and being aware of various immigration issues would promote more sensitivity when working with newcomers. Campos and Manning's scan from 2006 highlighted that people working in health care knew very little about the immigration process and resources available for newcomers. They

highlighted the importance of service providers being aware of different immigration status and eligibility of services so they can be able to make effective referrals.

Lack of knowledge regarding services and coordination of services among newcomer-serving organizations and the healthcare system presents as a barrier to effective service delivery for newcomers living with HIV. It is important for services providers, and anyone working with newcomers, to be aware of what services are available, how they can access those services and what services newcomers are eligible for based on their immigration status. Collaborating with various social agencies that serve newcomers will allow providers to know where to refer their clients (Isakson et al., 2015). Communication, collaboration and service integration across different sectors is crucial to meet the diverse needs of newcomers (Ontario Center of Excellence for Child and Youth Mental Health, 2016). In Manitoba, as discussed by a key informant, the Manitoba HIV Collective Impact Network provides a good start to foster connections for knowledge sharing and more collaboration across different groups was encouraged.

The importance of holistic support was made by some informants who highlighted that for newcomers living with HIV, good treatment outcomes cannot be measured solely through clinical characteristics such as CD4 counts or viral load. In order to provide holistic support that centers on full wellness, health should be seen from intersecting and overlapping layers such as being an immigrant, being from a racialized community, being a woman with other sexual and reproductive health needs, and experiencing financial challenges. HIV may impact every aspect of a person's life from the social, economical, physical, emotional and spiritual (Kovach, 2008). A key informant emphasized that policies and guidelines around HIV should not just focus on treatment but other broader aspects of health, well-being and socio economic development. By focusing on multiple forms of oppression and structural violence experienced by newcomers, an

intersectional lens has the potential of improving the ways in which health care services are organized and provided. Intersectional approaches can help to provide healthcare services that meet the complex needs of people marginalized by socio-economic status, racism and colonialism (Brown et al., 2011).

There are many barriers for newcomers living with HIV in Manitoba that may affect their access to care, treatment outcomes and overall wellness. All these barriers are even more magnified amongst refugees who may be more vulnerable after being separated from family members, after losing their homes, possessions, wealth and status, and after arriving at short notice via other countries or from refugee camps (McKeary & Newbold, 2010). Improving access to care for newcomers living with HIV and limiting their barriers may not be quick and easy but it is necessary to ensure the best optimal outcomes.

Strengths and Limitations of Environmental Scan

One limitation of the environmental scan is that it was limited to care and support services located in Winnipeg. Newcomers may settle outside Winnipeg but studies show that newcomers in Canada tend to settle in main urban centers (Vézina & René Houle, 2017).

Another limitation is that the data gathered from key informants were by self-report and based on individual perspectives as opposed to observations during service delivery. However, since the aim of the scan was to determine pathways into care as well as barriers encountered during service delivery, this limitation in the interview methodology is acceptable.

A limitation of the entry into care pathway is that it did not show different testing opportunities for newcomers in Manitoba. Testing for HIV infection is a critical and early element of the newcomers' care pathway (Pareek et al., 2018). However, it can be difficult to effectively map out all the testing pathways as HIV screening for newcomers can occur prior to

arrival, upon arrival or much later post arrival. Another limitation of the environmental scan is that it did not assess experiences from the perspectives of newcomer living with HIV.

Interviewing cohort participants living with HIV was beyond the scope of this study. In addition, not all service organization that provide services to newcomer were interviewed for the scan. Even though these organizations may not provide health care specific services or referrals, they may have further unique perspectives on providing support to newcomers living in Manitoba.

A limitation of the environmental scan was that all interviews were not audio recorded and data was not analyzed verbatim. However, since the overall research objective was well defined with pre-determined guidelines of questions, it required less adjustments in the interview process, making it easier to manually record responses on a word processor during interviews.

Measures to ensure the trustworthiness of findings examined strategies described by Tucker and colleague (2011) when conducting inductive content analysis. The content analysis process demonstrates trustworthiness, as a sequence of steps were followed during the analysis with documentation of the entire process from preparation, organization and reporting. Interested researchers have the ability to establish whether the results can be transferable to their settings. A strategy to show credibility was not performed as interview respondents were not consulted again to make certain that the responses were accurately presented due to limited time constraints. However, a review of the analysis process and generation of codes and categorization was performed by another researcher to increase comprehensiveness of the data.

A major strength of the environmental scan is that it is the first of its kind to explore pathways into HIV care for newcomers in Manitoba. It also incorporated diverse sources of information from internet sources and key informant interviews. Conducting interviews with key informants who provide services to newcomer populations in Manitoba provided key insights

into challenges and barriers encountered by service providers and their newcomer clients. These provided an opportunity to determine if there were any improvements or if similar challenges still exist as compared to the last environmental scan conducted in Manitoba by Campos and Manning (2006). The environmental scan findings are important for all the service providers working with newcomers in Manitoba, as they outline potential service priorities for improving the HIV care landscape for newcomers.

5.2 Socio-demographics, Clinical characteristics and treatment outcomes

5.2.1 Socio-demographic characteristics of newcomers in HIV care

The aim of this research objective was to examine the socio-demographic characteristics of newcomers living with HIV and to compare them with Canadian-born persons living with HIV in Manitoba. As hypothesized, we found that newcomers in HIV care were more likely to be female compared to Canadian-born persons in care as well as younger in comparison. Across all population groups, newcomers had the youngest average age at 43 years, with newcomer females having youngest average age overall. Male newcomers were also younger in comparison to males in the Canadian-born populations. These findings were consistent with findings in the literature review which showed that newcomers were more likely to be female and younger (Krentz & Gill, 2009, Remis & Liu, 2011, Raboud et al., 2012, Sumari-de Boer et al., 2012; Staehelin et al., 2003). Fortunately, routine testing during immigration and pregnancy screening provides opportunities for diagnosis for newcomer women (Raboud et al., 2012). Since newcomer women are overrepresented and diagnosed at a younger age, the sexual and reproductive health needs of women living with HIV must be addressed. Since newcomer women are disproportionately affected, gender-responsive HIV programming that aims to

address their specific needs as it relates to HIV is important. Gender-responsive programming aims to reduce gender-related barriers including stigma and discrimination, so services and programs can be accessible to all women living with HIV (UNAIDS, 2014). The Canadian HIV Women's Sexual & Reproductive Health Cohort Study (CHIWOS), was designed to understand the sexual, reproductive and HIV health needs of women living with HIV in Canada and to inform care. For male newcomers, there is a need to develop strategies to amplify existing efforts for promoting local HIV testing post immigration. Studies show that HIV testing rates among males are much lower compared to women in HIV endemic areas (Hensen et al., 2014; Andrews, 2011). In addition, evidence regarding knowledge of HIV risk perception among African/Caribbean and Black communities show low perceptions of HIV risk in Canada (Baidooobonso et al., 2013). Amplifying efforts for promoting local HIV testing among males post immigration needs to involve community engagement with ACB communities to promote messages of HIV prevention and testing.

A large majority of the newcomers in care in Manitoba are from Sub Saharan Africa, the Caribbean or identify as black (ACB). These findings are consistent with reports from the Manitoba HIV program where a disproportionate number of people who identify as ACB have been entering into HIV care (MHP, 2018). Thus, ACB communities should be engaged and involved in various aspects of HIV prevention, treatment and outreach. As noted in the environmental scan, SERC provides community workshops and sessions for African newcomers on issues of HIV awareness, treatment, support and addressing stigma reduction. Efforts could be enhanced through more community engagement in research and projects where communities disproportionately affected could provide insights that can guide more awareness and health promotion projects. Reports from organizations serving newcomer communities across Canada

show the need for more resources to enhance HIV prevention and treatment needs of ACB communities (ACCHO, 2010). In addition, there is a great need for collaboration between organizations working with ACB communities and organizations focused on HIV/AIDS work (James, 2006; Shimeles, 2010; Campbell, 2009). The results from the environmental scan support the development of strategies for effective collaboration to ensure proper linkage and engagement in HIV care for these communities.

The dominant risk factor for HIV acquisition among the newcomer group was unprotected heterosexual sex and many studies conducted on newcomers living with HIV found similar patterns in both males and females (Krentz & Gill, 2009, Remis & Liu, 2011, Raboud et al., 2012, Crawford et al., 2012, Sumari-de Boer et al., 2012; Staehelin et al., 2003). Knowing dominant risk exposure categories is important for developing targeted testing and prevention awareness strategies for different populations. Additionally, the majority of the newcomers also reported originally being from an endemic country highlighting that their HIV could have been acquired pre-immigration. However, without further analysis we cannot conclude that all who originated from an endemic country acquired HIV in their country of origin. Studies are beginning to show that HIV acquisition post-immigration is more frequent than previously thought of (Darcis et al, 2018, Alvarez-Del Arco et al., 2017; Fakoya et al., 2015; Desgrees-du-Lou et al., 2015). In Europe, the proportion of post immigration acquisition of HIV are higher among people from Latin America, Caribbean countries and people from Sub Saharan Africa with the highest risk among immigrant MSM (Alvarez-Del Arco et al., 2017; Fakoya et al., 2015). In the US, evidence shows the risk for HIV acquisition among foreign-born patients mainly occurs post immigration (Myers et al., 2016).

Despite newcomers (especially ACB communities) being highlighted as a priority group for HIV prevention, studies show that their perception of HIV risk and knowledge of the presence of HIV in Canada is low (Gray, 2006; Baidooobonso et al., 2013). This has been attributed to the comparative lower overall HIV prevalence in Canada compared to the countries they are immigrating from, with some members of ACB communities viewing the HIV/AIDS epidemic as non-existent in Canada (Baidooobonso et al., 2013; Tharao et al., 2006). Other reasons contributing to the low risk perception include lack of knowledge about HIV transmission, and lack of culturally appropriate prevention services (Gardezi et al., 2008; James et al., 2006; Tharao et al., 2006). Thus, there should be HIV prevention efforts that are geared towards ACB communities and other newcomer communities in Manitoba. The Canadian HIV/AIDS Black, African and Caribbean Network (CHABAC) is a national network a national network of organizations, individuals and other stakeholders who are dedicated to responding to issues related to HIV and AIDS in Canada's African, Caribbean and Black communities. Their fact sheet of interventions along the HIV engagement Cascade for African, Caribbean and Black communities provides examples ACB-focused interventions in Canada for community engagement, HIV awareness raising and prevention. They recommend methods of raising HIV awareness within ACB communities through awareness raising events, social marketing, workshops, presentation and outreach opportunities through partnerships with community groups such as spiritual centers, immigrant or refugee settlement agencies or community or cultural groups (CHABAC, 2017).

Out of the 60% of newcomers who received HIV testing outside Manitoba, a large majority received testing outside Canada possibly prior to immigration. The Immigration Medical Exam provides a good opportunity for HIV testing thus allowing newcomers to be made

aware of their HIV status, and supporting those who receive a HIV diagnosis to seek care. This testing is also a first necessary step for prevention as earlier and effective treatment of HIV infection can markedly decrease ongoing HIV transmission (Gardner et al., 2011; Heffelfinger et al., 2011). In Manitoba, there are still opportunities to improve uptake and frequency of HIV testing among newcomer communities. As noted by key informants in the environmental scan, factors such as stigma and criminalization of HIV non-disclosure impede uptake of testing among newcomers. Research is needed to determine rates of HIV testing among newcomers and specific populations such as African, Caribbean and black communities in Manitoba as this is important for planning and evaluating HIV prevention programs and services. Anonymous standardized questionnaires could be used to collect information on HIV testing among ACB communities with participants being recruited from community organizations serving ACB communities.

When examining primary care provision, a high percentage of newcomers had primary care providers (94.2%) compared to Canadian born non-Indigenous persons (90.5%) and Indigenous persons (79.2%). High rates of primary care provider among newcomers, especially refugees could be attributed to settlement agency services ensuring newcomers are connected to healthcare services. However, having a primary care provider may not be a predictor of service use when needed. Studies have shown that newcomers, especially refugees experience more difficulties navigating the health care system compared to other immigrants (Gagnon, 2002) and despite universal health coverage, health care is not equally accessible to all Canadian residents (Wellstood, Wilson and Eyles, 2006). Even where it exists and funding is provided, marginalized groups such as newcomers continually face multiple barriers to receiving care which can result in avoidance of the health care system even when its medically necessary (Asanin and Wilson,

2008). Understanding health care service use and patterns is an important area for future research in Manitoba, specifically to explore ease of access and use is like and the time it may take for various classes of newcomers to be connected to a primary care provider after immigration. Cohort participants could be surveyed to determine the duration from arrival in Canada to first appointment date with a primary care physician with results being stratified by immigration status upon arrival. As newcomers are well connected in HIV care, there is an opportunity to leverage these connections through effective communication between various care providers in order to strengthen linkages and improve care.

5.2.2 Clinical Characteristics of newcomers at entry into care

Research findings show that newcomers in care had a lower mean and median CD4 counts in comparison to Canadian born non-Indigenous and Indigenous persons, with female newcomers presenting with the lowest average CD4 count at entry into care. Studies investigating the clinical characteristics of newcomers living with HIV at diagnosis show mixed findings. Some studies have found similar results showing newcomers being diagnosed at later disease stages with lower CD4 counts at initial clinic visits (Krentz & Gill, 2009; Johnson et al., 2010; NYCDOHMH, 2009; Akinsete et al., 2007; Page et al., 2009; Staehelin et al., 2003; Raboud et al., 2012), while other studies have shown no differences in baseline CD4 counts between newcomers and non-newcomers (Raboud et al., 2012; Becker et al., 2012).

Late presentation to care was common among all population groups in the cohort with over 50% of cohort participants in each population group entering care with CD4 counts of less than 350 cells/mm³. In addition to having risks of transmission prior to diagnosis, late presentation to care is also associated with a negative impact on morbidity and mortality and

people who begin ART with CD4 counts of less than 350 cells/mm³ may not regain the normal CD4 naïve/memory T cell ratios (Robbins et al., 2009). Initiation of ART early on also limits the establishment of HIV reservoirs which are considered to be a major barrier to curing HIV infections (Ananworanich, J. et al, 2012; Darcis et al., 2017). Late presentation to care is also associated with increased costs to the health care system (Manitoba HIV Program, 2018). Due to the many negative consequences, it is important to understand the reasons behind late diagnosis and presentation in order to facilitate earlier engagement in HIV care. For newcomers, possible reasons gleaned from the environmental scan include late diagnosis, lengthy immigration processes with various stressors associated with resettlement, different pathways into HIV care in the province having varying times and challenges after immigration, reluctance to access care due to stigma, and many other impeding priorities for newcomers such as finding affordable housing, employment and dealing with trauma.

Additionally, over half of the cohort participants presented into care with at least one opportunistic infection within six months of diagnosis, highlighting once again that late diagnosis is common among all populations. The Indigenous population had the highest proportion of people presenting with any co-infection. Differences were also seen in the most common co-infection with Hepatitis C being the most common among the Indigenous group (30.9%) and Thrush being the most common among the Canadian born non-Indigenous group (21%). For newcomers, a large majority entered into care with infections of TB (20.9%) compared to Indigenous and non-Indigenous Canadian born persons. These findings are consistent with studies conducted with newcomer groups entering into HIV care with higher rates of TB (Krentz & Gill, 2009; Crawford et al., 2011; Staehelin et al., 2003). These findings show the importance of TB screening and treatment of latent TB, particularly for those at high

risk such as newcomers (Kiazyk and Ball; 2017). A strategy identified for treatment of latent TB is initiating a treatment regimen on anyone who has a risk of progression to an active infection (Kiazyk and Ball; 2017).

5.2.3 Treatment outcomes of newcomers living with HIV in Manitoba

Research objective 4 was completed by analyzing treatment outcomes in the cohort by assessing viral load counts taken by the end of 2017. A majority of cohort participants had achieved viral load suppression. Canadian-born non-Indigenous persons and newcomers had the highest proportion of participants who had achieved virological suppression (93%) in comparison to Indigenous persons living with HIV (82%). As seen in other studies, despite presenting to care with lower CD4 counts, newcomers did as well as Canadian-born persons once engaged in care (Krentz & Gill, 2009; Lefebvre et al., 2014). Some studies have shown better clinical outcomes for newcomers (Raboud et al., 2012). Despite the barriers noted in the environmental scan that newcomers face when accessing care services, these results suggest that treatment outcomes of newcomers are comparable to Canadian-born persons once linked and engaged in care. These positive findings suggest that the Manitoba HIV Program which provides care to people living with HIV in Manitoba, along with the efforts of newcomers in accessing care and other services aimed at improving the HIV continuum of care, are effective at addressing the HIV clinical needs of newcomers as evidenced by virologic suppression.

As discussed by a service provider in the environment scan, viral load and CD4 count should not be the only measures of success of treatment among newcomers living with HIV. Newcomers may be doing well with treatment and have undetectable viral loads but they may be dealing with other factors that affect their overall well being which also require care and support. From a program perspective, other evaluation markers can be used to determine the success of

HIV treatment. Lazarus and colleagues (2016) propose a “fourth 90” target whereby 90% of people who have achieved viral load suppression will have good health related quality of life.

5.2.4 Adverse Findings among Indigenous participants in cohort

While the aim of the study was not to assess outcomes of Indigenous persons living with HIV in depth, comparison analyses show that Indigenous participants have worse outcomes in comparison to the newcomer population and Canadian-born non-Indigenous population. Fewer Indigenous persons living with HIV had primary care providers and it was the only population group that had females reporting to not have ever initiated ART by the end of 2017. This population group also had the lowest proportion of participants who achieved virological suppression by the end of 2017. Indigenous communities remain over-represented in the HIV care landscape in Manitoba and Canada and experience less favourable treatment outcomes due to various social and economic disparities, experiences of racism including institutional racism and racial discrimination (Milloy et al., 2016; Kerkerian et al., 2018). These findings highlight that there is a need to explore opportunities that would improve treatment outcomes of Indigenous persons. This study is part of the larger LHIV cohort study support for this study was provided by the Health Information Research Governance Committee of the Assembly of First Nations. As such, these findings will be shared with the Assembly of First Nations with discussion on interpretation, further analysis, and discussion around implications and response to these findings. Results will also be shared at a Manitoba HIV Collective Impact Network event which has representation from Indigenous organizations.

5.3 Study strengths and limitations of Cohort Analysis

A limitation of the cohort analysis for this work is that it groups newcomers into one category despite having distinct socioeconomic characteristics that could cause differing outcomes. There is great diversity within the immigrant and refugee community. Refugee status is usually characterized by persecution based on social characteristics such as race or religion which may be associated with health disadvantages including poor nutritional status, inaccessibility to sexual and reproductive care, limited access to other health services and limited education (Gagnon et al., 2006; WHO, 2012; UNHCR, 2011). Therefore, refugees may experience a different set of health determinants than that of immigrants. Immigrants also have specific admissions criteria to Canada and may have health determinant advantages before and after migration (Gushulak et al., 2011). However, there was no available cohort data to determine if a participant arrived in Canada as an immigrant or a refugee.

Viral load analysis showed that majority of cohort participants achieved viral load suppression. These results should be interpreted with caution as people living with HIV who regularly engage with care may have been more likely to consent to participate in the cohort. Thus, they may have higher rates of virological suppression as they are regularly engaged in care. A limitation of this study objective is that it did not assess sustained viral suppression over the course of treatment from initiation of ART. The study also did not assess medication adherence patterns which is important as it has an effect on sustained viral load suppression. Using retrospective design to determine ART medication use does not fully capture fluidity of being on antiretroviral therapy. However, my study was limited by data available and medication adherence data was not available.

The retrospective analysis of cohort participants living with HIV was a useful method to examine newcomers in care and their characteristics during entry into care as well as their treatment outcomes. The LHIV cohort is within the Manitoba HIV Program and thus the study is well positioned to inform current and future care programs that are targeted towards newcomers living with HIV

CHAPTER 6: CONCLUSIONS AND FUTURE DIRECTIONS

6.1 Future Directions

6.1.1 Recommended Knowledge Translation activities

It is important to share these findings with the service providers providing health and other support services for newcomers living with HIV in Manitoba. The Manitoba HIV Collective Impact Network brings together a diverse group of people from Manitoba (service organizations, programs, policy makers, researchers, health care practitioners, persons with lived experiences etc.) to understand and develop solutions to address HIV-STBBIs through partnerships and collaborations (Nine Circles, 2016). They provide opportunities for people working in the HIV prevention and care landscape to share research findings and this particular study is able to contribute a key piece of knowledge. These results will be presented at a Collective Impact Network gathering. I will also present my findings to the Manitoba HIV Program to share findings with care providers working with persons living with HIV. Publishing this study and making it accessible in the peer reviewed literature will also fill a critical gap as there has been lack of research on newcomers living with HIV in Manitoba. SERC, as previously mentioned provides workshops and community sessions to newcomers in Manitoba and the results of this study could be used during their HIV awareness and health promotion

workshops. In addition, I will attempt to share findings with the Assembly of First Nations to show descriptive statistics and treatment outcomes of Indigenous persons living with HIV in Manitoba.

6.1.2 Future research questions to address

The environmental scan provided barriers encountered and identified service priorities that will support testing, linkage and good treatment outcomes among newcomers living with HIV. However, the scan did not assess newcomers' barriers from their own point of view. Despite service providers having great knowledge of the clients they support, there may be other barriers or challenges encountered not mentioned. Thus, it will be important to validate these findings with newcomers living with HIV themselves to see if the service providers' insights are an accurate reflection of their experiences.

Despite the availability of trained interpreters in health care settings, providers still highlighted language barrier as a limitation to providing optimal service and care. An area of further research is to conduct an inquiry through the Language Access Program to explore challenges faced by the program, challenges face by interpreters while interpreting in HIV care contexts, how they address issues of confidentiality and the process of selecting and training language interpreters.

Collaboration and partnership across various service sectors was one theme identified in the environmental scan. An area of future research would be to conduct a network analysis to determine how the different organizations are connected, how they collaborate, and possibly highlight gaps where better network or referrals could be made to ensure the best optimal services and support for newcomers living with HIV.

Quantitative research findings also showed that some newcomers received their first HIV testing and diagnosis in Manitoba. This includes participants who may have undergone IME in Manitoba but it could also include some newcomers who had settled in Manitoba and acquired HIV post-immigration. A possible area of future research is to look at post-immigration HIV acquisition trends to examine risks of acquiring HIV after immigration and factors that contribute to this. This study can also highlight opportunities for more HIV awareness messages and prevention among newcomer communities in Manitoba. There were also many newcomers entering into HIV care with CD4 counts below 350 cells/mm³. Late presentation to care may have serious implications for long term health outcomes as well as increased cost on the healthcare system. An area of further examination includes looking at testing opportunities for newcomers that may result in earlier diagnoses.

The study also did not assess medication coverage and ease of access for newcomers getting antiretroviral therapy. People in HIV care may be accessing various drug coverage programs to offset the costs of antiretroviral drugs. It may be important to explore patterns of medication coverage among newcomers and determine any challenges encountered such as affordability, knowledge of various programs and eligibility and transitioning from programs such as the Interim Federal Health Program which has a limited period of coverage for refugees.

6.2 Concluding remarks

This research study has provided important and novel insights into newcomers living with HIV in Manitoba. It contributes to a critical gap in research of the HIV care landscape for newcomers living with HIV in Manitoba by using two different methodologies to provide a comprehensive analysis. Despite presenting late to care, newcomers living with HIV have

achieved a viral suppression rate of over 90%. However, it is important to consider that they still experience various challenges and barriers when accessing HIV care in the province as noted by key informants in the environmental scan. In addition, the goal of HIV treatment should focus beyond clinical characteristics as HIV may impact every aspect of a person's life from the physical, psychological, social, economical, emotional, and newcomers may require other additional support. This study has established a base for further research to be conducted to assess the care landscape for newcomers living with HIV in Manitoba and existing referral networks. Results from the environmental scan are useful for decision making, establishing policies and guidelines as well as program planning for all services that provide support for newcomers living with HIV.

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APPENDIX

Appendix A: Informed consent form

RESEARCH PARTICIPANT INFORMATION AND CONSENT FORM Individual Interview

Title of Study: HIV care and support services for newcomers and the treatment outcomes of newcomers living with HIV in Manitoba

Principal Investigator: Charity Maritim, University of Manitoba, [REDACTED], [REDACTED]

Co-Investigator: N/A

Sponsor: N/A

Funder: University of Manitoba Faculty of Graduate Studies

You are being asked to participate in a research study involving [service providers for newcomers to Manitoba](#). Please take your time to review this consent form and discuss any questions you may have with the study staff before you make your decision. This consent form may contain words that you do not understand. Please ask the study staff to explain any words or information that you do not clearly understand.

Purpose of this Study

This research study is being conducted to provide an overview of the health care services and other support services available to newcomers in the province that provide HIV testing, link individuals into HIV care and provide other support services that promote ongoing engagement into care in order to achieve the best optimal outcomes.

Participants Selection

You are being asked to participate in this study because as a person involved in providing services to immigrants and refugees in Manitoba, you may be aware of existing services and referral networks specifically targeted or provided to newcomers living with HIV in Manitoba.

A total of 10 participants will be asked to participate.

Study procedures

- The method of data collection for this study will be individual interviews.
- Participation in the study will be for **one session for approximately 30 minutes**.
- The principal investigator will be conducting the interview.
- You will be asked some questions relating to your experience with your organization, the services and type of services provided to newcomers living with HIV and if there are any links or referral networks to other organizations that provide services to newcomers living with HIV in Manitoba. These questions will help us to better understand the landscape of care in Manitoba and identify if there are potential gaps in service delivery for newcomers living with HIV.
- The sessions will be recorded on a word processor during the interview by Charity Maritim to ensure accurate reporting of the information that you provide.
- The notes will be destroyed 6 months after the completion of this evaluation

Aggregate results including results from internet searches will be published for the Manitoba HIV Program and a copy will be sent to you.

Risks and Discomforts

There are no anticipated physical risks to participants.

Benefits

Participating in this interview may not help you directly, but information gained may help the Manitoba HIV Program ensure the availability of services for newcomers living with HIV in Manitoba.

Costs

There is no cost to you to attend the [individual interview](#).

Payment for participation

You will receive no payment or reimbursement for any expenses related to taking part in this study.

Confidentiality

We will do everything possible to keep your personal information confidential. Your name will not be used at all in the study records. If the results of this study are presented in a meeting, or published, nobody will be able to tell that you were in the study. Please note that although you will not be identified as the speaker, your words may be used to highlight a specific point. The collection and access to personal information will be in compliance with provincial and federal privacy legislations.

Responses from the interview will be typed on a word processor and used to prepare a report. The typed notes will be kept for 6 months in a secure locked file cabinet and office. Only the research staff will have access to them and know your name.

Some people or groups may need to check the study records to make sure all the information is correct. All of these people have a professional responsibility to protect your privacy.

These people or groups are:

- The Health Research Ethics Board of the University of Manitoba which is responsible for the protection of people in research and has reviewed this study for ethical acceptability
- Quality assurance staff of the University of Manitoba and who ensure the study is being conducted properly

The data to be entered into the computer is the type of services, linkages and referrals that exist in the HIV care landscape in Manitoba. All records will be kept in a locked secure area and only those persons identified will have access to these records. If any of your research records need to be copied to any of the above, your name and all identifying information will be removed. No information revealing any personal information such as your name, address or telephone number will leave the Center for Global Public Health at the University of Manitoba.

Voluntary Participation/Withdrawal from the Study

Your decision to take part in this study is voluntary. You may refuse to participate or you may withdraw from the study at any time.

Questions

If any questions come up during or after the study contact the principal investigator and the study staff: Charity Maritim at [REDACTED]

For questions about your rights as a research participant, you may contact The University of Manitoba, Bannatyne Campus Research Ethics Board Office at (204) 789-3389

Consent Signatures:

1. I have read all 3 pages of the consent form.
2. I have had a chance to ask questions and have received satisfactory answers to all of my questions.
3. I understand that by signing this consent form I have not waived any of my legal rights as a participant in this study.
4. I understand that my interview responses, which may include identifying information, may be reviewed by the research staff working with the Principal Investigator and the agencies and organizations listed in the Confidentiality section of this document.
5. I understand that I may withdraw from the study at any time and my data may be withdrawn prior to publication.
6. I understand I will be provided with a copy of the consent form for my records.
7. I agree to participate in the study.

Participant signature: _____

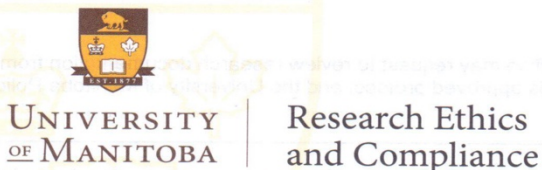
Date _____
(day/month/year)

Participant printed name: _____

Consent obtained by: _____

Please e-mail signed consent form to Charity Maritim at: [REDACTED]

Appendix B: University of Manitoba HREB Ethical Approval Forms



Research Ethics - Bannatyne
 P126-770 Bannatyne Avenue
 Winnipeg, MB
 Canada R3E 0W3
 Phone +204-789-3255
 Fax +204-789-3414

HEALTH RESEARCH ETHICS BOARD (HREB)
CERTIFICATE OF FINAL APPROVAL FOR NEW STUDIES
 Delegated Review

PRINCIPAL INVESTIGATOR: Charity Maritim	INSTITUTION/DEPARTMENT: U of M/Medicine/Community Health Sciences	ETHICS #: HS21483 (H2018:043)
APPROVAL DATE: February 16, 2018	EXPIRY DATE: February 16, 2019	
STUDENT PRINCIPAL INVESTIGATOR SUPERVISOR (If applicable): Dr. Marissa Becker		

PROTOCOL NUMBER: NA	PROJECT OR PROTOCOL TITLE: HIV care and support services for newcomers and the treatment outcomes of newcomers living with HIV in Manitoba (Linked to H2012:329)
SPONSORING AGENCIES AND/OR COORDINATING GROUPS: Faculty of Graduate Studies and CIHR	

Submission Date of Investigator Documents: January 2 and February 8, 2018	HREB Receipt Date of Documents: January 2 and February 9, 2018
-------------------------------------------------------------------------------------	--------------------------------------------------------------------------

THE FOLLOWING ARE APPROVED FOR USE:

Document Name	Version(if applicable)	Date
Protocol: Protocol including Clarifications as per Letter dated February 8, 2018		December 4, 2017
Consent and Assent Form(s): Research Participant Information and Consent Form - Individual Interview		08/02/2018
Other: Email Invitation Template		08/02/2018
Data Collection/Capture Sheet		08/02/2018
Environmental Scan Questionnaire		08/02/2018

CERTIFICATION

The above named research study/project has been reviewed in a *delegated manner* by the University of Manitoba (UM) Health Research Board (HREB) and was found to be acceptable on ethical grounds for research involving human participants. The study/project and documents listed above was granted final approval by the Chair or Acting Chair, UM HREB.

HREB ATTESTATION

The University of Manitoba (UM) Research Board (HREB) is organized and operates according to Health Canada/ICH Good Clinical Practices, Tri-Council Policy Statement 2, and the applicable laws and regulations of Manitoba. In respect to clinical trials, the HREB complies with the membership requirements for Research Ethics Boards defined in Division 5 of the Food and Drug Regulations of Canada and carries out its functions in a manner consistent with Good Clinical Practices.

- 1 -
 Research Ethics and Compliance is a unit of the Office of the Vice-President (Research and International)

umanitoba.ca/research

QUALITY ASSURANCE

The University of Manitoba Research Quality Management Office may request to review research documentation from this research study/project to demonstrate compliance with this approved protocol and the University of Manitoba Policy on the Ethics of Research Involving Humans.

CONDITIONS OF APPROVAL:

1. The study is acceptable on scientific and ethical grounds for the ethics of human use only. **For logistics of performing the study, approval must be sought from the relevant institution(s).**
2. This research study/project is to be conducted by the local principal investigator listed on this certificate of approval.
3. The principal investigator has the responsibility for any other administrative or regulatory approvals that may pertain to the research study/project, and for ensuring that the authorized research is carried out according to governing law.
4. **This approval is valid until the expiry date noted on this certificate of approval. A Bannatyne Campus Annual Study Status Report must be submitted to the HREB within 15-30 days of this expiry date.**
5. Any changes of the protocol (including recruitment procedures, etc.), informed consent form(s) or documents must be reported to the HREB for consideration in advance of implementation of such changes on the **Bannatyne Campus Research Amendment Form.**
6. Adverse events and unanticipated problems must be reported to the HREB as per Bannatyne Campus Research Boards Standard Operating procedures.
7. The UM HREB must be notified regarding discontinuation or study/project closure on the **Bannatyne Campus Final Study Status Report.**

Sincerely,



Larry Reynolds, MD, MSc, MHSc, FCFP
Acting Chair, Health Research Ethics Board
Bannatyne Campus

Please quote the above Human Ethics Number on all correspondence.
Inquiries should be directed to the REB Secretary Telephone: (204) 789-3255/ Fax: (204) 789-3414

Figure B.1 University of Manitoba HREB Certificate Approval, February 2018



Research Ethics
and Compliance

Rec. March 4, 2019

Research Ethics - Bannatyne
P126-770 Bannatyne Avenue
Winnipeg, MB
Canada R3E 0W3
Phone +204-789-3255
Fax +204-789-3414

HEALTH RESEARCH ETHICS BOARD (HREB)
CERTIFICATE OF ANNUAL APPROVAL

PRINCIPAL INVESTIGATOR: Charity Maritim	INSTITUTION/DEPARTMENT: U of M/Medicine/Community Health Sciences	ETHICS #: HS21483 (H2018:043)
HREB MEETING DATE (If applicable):	APPROVAL DATE: February 4, 2019	EXPIRY DATE: February 16, 2020
STUDENT PRINCIPAL INVESTIGATOR SUPERVISOR (If applicable): Dr. Marissa Becker		
PROTOCOL NUMBER: NA	PROJECT OR PROTOCOL TITLE: HIV care and support services for newcomers and the treatment outcomes of newcomers living with HIV in Manitoba (Linked to H2012:329)	
SPONSORING AGENCIES AND/OR COORDINATING GROUPS: Faculty of Graduate Studies and CIHR		
Submission Date of Investigator Documents: January 17, 2019		HREB Receipt Date of Documents: January 17, 2019
REVIEW CATEGORY OF ANNUAL REVIEW: Full Board Review <input type="checkbox"/> Delegated Review <input checked="" type="checkbox"/>		
THE FOLLOWING AMENDMENT(S) and DOCUMENTS ARE APPROVED FOR USE:		
Document Name(if applicable)	Version(if applicable)	Date

Annual approval

Annual approval implies that the most recent **HREB approved** versions of the protocol, Investigator Brochures, advertisements, letters of initial contact or questionnaires, and recruitment methods, etc. are approved.

Consent and Assent Form(s):

CERTIFICATION

The University of Manitoba (UM) Health Research Board (HREB) has reviewed the annual study status report for the research study/project named on this **Certificate of Annual Approval** as per the category of review listed above and was found to be acceptable on ethical grounds for research involving human participants. Annual approval was granted by the Chair or Acting Chair, UM HREB, per the response to the conditions of approval outlined during the initial review (full board or delegated) of the annual study status report.

HREB ATTESTATION

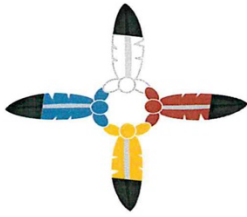
The University of Manitoba (UM) Health Research Board (HREB) is organized and operates according to Health Canada/ICH Good Clinical Practices, Tri-Council Policy Statement 2, and the applicable laws and regulations of Manitoba. In respect to clinical trials, the HREB complies with the membership requirements for Research Ethics Boards defined in Division 5 of the Food and Drug Regulations of Canada and carries out its functions in a manner consistent with Good Clinical Practices.

Research Ethics and Compliance is a unit of the Office of the Vice-President (Research and International)

umanitoba.ca/research

Figure B.2 University of Manitoba HREB Certificate of Annual Approval, February 2019

Appendix C: Assembly of Manitoba Chiefs HIRGC Approval Form



Nanaandawewigamig

First Nations Health and Social Secretariat of Manitoba

July 28, 2016

Dr. Marissa Becker
Centre for Global Public Health
University of Manitoba
R070 Medical Rehabilitation Building
771 McDermot Street
Winnipeg, MB R3E 0T6

Dear Dr. Becker:

RE: Living with HIV (LHIV) Innovation Team

Thank you for your presentation to HIRGC June 29, 2016 regarding your Living with HIV (LHIV) Innovation Team project.

As you know, the Health Information Research Governance Committee (HIRGC) founded in the mid 1990's was mandated by the Manitoba Chiefs-in-Assembly to, among other things, review academic proposals for research concerning First Nations and to promote First Nations benefits through research. This includes partnerships based on (i) prior informed consent; (ii) First Nations OCAP principles, that First Nations have Ownership, Control, Access and Possession of their own data; and, (iii) First Nations ethical standards.

Based on your presentation and application the HIRG Committee has agreed to support your project. Please note any proposed presentations or publications regarding this data must be sent for review to HIRGC prior to the event or publication; as well, a progress report is expected to be received annually and upon completion of the project.

If you have any further questions please contact Leanne Gillis at [REDACTED]

Miigwech.

Yours in the Spirit of Truth and Reconciliation

NANAANDAWEWIGAMIG

[REDACTED]
Kathi Avery Kinew, M.S.W., Ph.D
Manager, Social Development & Research Initiatives

HEAD OFFICE: 472 Madison Street, Winnipeg, MB. R3J 1J1 Telephone: (204) 946-9720 Fax: (204) 946-9769
Sub Office: Suite 1700 - 17th Floor Kensington Building - 275 Portage Avenue - Winnipeg, Manitoba R3B 2B3

Figure C.1 AMC -HIRGC Certificate of Approval for LHIV Team Project , July 2016

Appendix D: Key informants Interview Questionnaire 1

Environmental Scan Questionnaire

Assessing health care services, support services and programs for newcomers living with HIV in
Manitoba.

General Information:

Name of service/organization:

Contact information of service/organization:

Phone: _____

Email: _____

Web/Other: _____

Name of interviewee affiliated with service/organization:

Contact information of interviewee:

Phone: _____

Email: _____

Web/Other: _____

Name of person conducting interview:

Date of interview:

___ ___ / ___ ___ / ___ ___
Date month year

1. What is the **overall purpose or focus** of your service/organization?

2. How are people linked to HIV care services from your organization?

3. What 'umbrella' term would you use to classify/describe your service/organization? In other words, what **main type of service** does this service/organization fall under?

01. Community health clinics/centers
02. Community centers (not related to health)
03. Health clinics/centers
04. HIV/AIDS clinics
05. Sexual health clinics
06. Reproductive health clinics
07. HIV specialists
08. Services provided by a family doctor with expertise in HIV
09. Services provided by a nurse with expertise in HIV
10. Services provided by a therapist with expertise in HIV
11. Mental health services
12. Addiction services
13. Family and child development services
14. AIDS Service Organizations
15. Culture-specific organizations (e.g., Aboriginal services)
16. Immigrant and Refugee Services
17. Religious/spiritual centers
18. LGBTQ Services
19. Counselling Centers/Services
20. Legal services
21. Housing services (including second-stage abuse shelters/housing and transitional housing)
22. Violence and sexual assault support services
23. Community Food Banks and Food Bank Services
24. Income support services (e.g., Disability services, employment assistant programs, etc.)

25. Childcare services

26. Other (Please Specify):

3. What kind of services or programs do you offer that are specific to:

a) People living with HIV?

b) Immigrants and refugees (newcomers) living with HIV?

4. What **geographic area** does your organization support? *Please circle all numbers that apply.*

01. Rural location (Isolated area of open country with a

Population $\leq 2,500$)

02. Town (Population 2,500 - 50,000)

03. Small City (Population 50,000 - 500,000)

04. Large City (Population $\geq 500,000$)

05. Other (Please Specify):

5. What **language(s)** of operation do you provide services in? *Please circle all numbers that apply.*

01. English

02. French

03. Others (please
specify)

6. If a client cannot speak any of these languages, how do you handle this?

7. How do you advertise your services? How do you reach your target audience? How

does your target audience reach you?

8. How are people who use your services involved in directing the operation of the organization?

9. What kind of supports and/or training would you need to be able to provide more services to newcomers living with HIV?

10. Is there **anything else** that you would like to share with us regarding the your organization?

11. Are you aware of any other groups/organizations that provide services and programs to newcomers living with HIV in Manitoba?

12. How would you like the results of this research study to be presented to you?

Appendix E: Key Informants Interview Questionnaire 2

Environmental Scan Questionnaire

Assessing health care services, support services and programs for newcomers living with HIV in
Manitoba.

General Information:

Name of service/organization:

Contact information of service/organization:

Phone: _____

Email: _____

Web/Other: _____

Name of interviewee affiliated with service/organization:

Contact information of interviewee:

Phone: _____

Email: _____

Web/Other: _____

Name of person conducting interview:

Date of interview:

___ ___ / ___ ___ / ___ ___
Date month year

1. What is the **overall purpose or focus** of your service/organization?

2. How long do you provide support to newcomers upon arrival?

3. How are people linked to HIV care services from your organization?

4. What kind of supports or training would be needed to provide support for newcomers living with HIV?

5. Is there **anything else** that you would like to share with us regarding your organization?

6. Are you aware of any other groups/organizations that provide services and programs to newcomers living with HIV in Manitoba

7. How would you like the results of this research study to be presented to you?

Appendix F: Environmental Scan Search Terms

Search	# results	# results screened	# of new potentially relevant records	Total # records
HIV services for newcomers in Manitoba	32,000 results	30	3	3
HIV services in Manitoba for immigrants	166,000 results	30	1	4
HIV programs in Manitoba	327,000 results	30	0	4
HIV services in Manitoba	149,000 results	30	1	5

Appendix G: List of HIV-Endemic Countries

Caribbean, Bermuda and Central/South America

Anguilla	Dominican Republic	Netherlands Antilles
Antigua and Barbuda	French Guiana	St. Lucia
Bahamas	Grenada	St. Kitts and Nevis
Barbados	Guadeloupe	St. Vincent and the Grenadines
Bermuda	Guyana	Surinam
British Virgin Islands	Haiti	Trinidad and Tobago
Cayman Islands	Honduras	Turks and Caicos Islands
Dominica	Jamaica	U.S. Virgin Islands
	Martinique	
	Montserrat	

Asia

Cambodia	Myanmar (Burma)	Thailand
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Africa

Angola	Gabon	Nigeria
Benin	Gambia	Rwanda
Botswana	Ghana	Senegal
Burkina Faso	Guinea	Sierra Leone
Burundi	Guinea-Bissau	Somalia
Cameroon	Ivory Coast	South Africa
Cape Verde	Kenya	Sudan
Central African Republic	Lesotho	Swaziland
Chad	Liberia	Tanzania
Congo	Malawi	Togo
Djibouti	Mali	Uganda
Equatorial Guinea	Mozambique	Zaire
Eritrea	Namibia	Zambia
Ethiopia	Niger	Zimbabwe

