# IDENTIFYING FACTORS INFLUENCING THE UPTAKE OF VIRAL ILLNESS CARE IN TRANSGENDER POPULATIONS

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To Two-Spirit, queer, and trans elders, past, present, and future...

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#### ABSTRACT

**Background:** Transgender (trans) people globally are disproportionately burdened by viral illnesses, particularly human immunodeficiency virus (HIV), human papillomavirus (HPV), and by related comorbidities due to intersecting psychosocial and structural factors that intensify health inequities and exacerbate barriers to comprehensive and gender-affirming health care. Investigating the factors influencing the uptake of viral illness care in trans populations may improve health outcomes and aid in the development of appropriate training and practice guidelines.

**Objectives:** The first manuscript aims to compare the prevalence of disclosure of trans identity, comfort discussing trans identity and trans-specific health care needs, and negative experiences with HIV physicians, among trans women with HIV in Canada. The second manuscript investigates the acceptability of screenings for cancers associated with HPV in trans populations. Methods: Baseline and cross-sectional data from a subset of 54 trans women with HIV from the Canadian HIV Women's Sexual and Reproductive Health Cohort Study (CHIWOS) were analyzed. Participants self-reported the disclosure of their trans identity to their family/HIV physicians, their comfort discussing their trans identity and trans-specific health care needs with their family/HIV physicians, and negative experiences with their HIV physicians. The prevalence of disclosure, comfort and negative experiences were reported, and Fisher's exact tests were performed to determine any association between the gender and training of HIV physicians and self-reported comfort. A scoping review of the literature, adhering to the recommendations of PRISMA, was also performed to answer the research question: "what is the acceptability of screenings for cancers associated with HPV in transgender populations?" The search included MEDLINE, CINAHL, Embase, Web of Science, and Scopus. Articles were

reviewed by two independent reviewers, and data was extracted by the primary author to be presented in a narrative summary with accompanying tables.

**Results:** At baseline, of the 54 trans women in CHIWOS, 39 (72.2%) had an HIV care physician defined as a physician who primarily looked after a participant's HIV medical care in the year preceding. Among this subset, 94.9% had disclosed their trans identity and 82.1% reported feeling comfortable discussing trans-specific health care needs with this physician. Of the 27 (50.0%) who reported having a regular family physician other than their HIV care provider, 92.6% had disclosed their trans identity and 88.9% were comfortable discussing trans-specific health care needs. The most prevalent negative trans-specific experience with HIV physicians reported at baseline was being told by the physician that they did not know enough about transrelated care to provide care (16.7%). Acceptability of cervical and anal cancer screenings varied depending on context and population. Anal cancer screening acceptability in transmasculine and transfeminine populations may be improved by community education, by culturally competent outreach and screening practices, and by encouraging provider recommendations. The acceptability of cervical cancer screening in transmasculine populations was hindered by past negative experiences, pain, and a lack of provider willingness to provide Pap tests and bolstered by the option to self-test and by providing campaigns and screening sites dedicated to transmasculine people.

**Conclusion:** Our results demonstrate the need for comprehensive, trans-specific training for health care providers practicing with trans populations in viral illness settings. The available evidence indicates that gender-affirming viral illness care models may improve retention in HIV care and regular screening for HPV-related cancers in trans populations.

# RÉSUMÉ

**Contexte :** Les personnes transgenres (trans) souffrent de manière disproportionnée de maladies virales, en particulier du VIH et du VPH, et de comorbidités connexes, en raison de facteurs psychosociaux et structurels croisés qui intensifient les inégalités en matière de santé et exacerbent les obstacles à des soins de santé complets et respectueux de l'égalité entre les genres. **Objectifs :** Le premier manuscrit vise à mesurer la prévalence de la divulgation de l'identité trans, l'aisance à discuter de l'identité trans et des besoins de soins de santé spécifiques aux personnes trans, ainsi que les expériences négatives avec les médecins spécialistes du VIH, parmi les femmes trans vivant avec le VIH au Canada. Le second manuscrit étudie l'acceptabilité des dépistages des cancers associés au VPH dans les populations trans.

Méthodes : Les données de base et transversales d'un sous-ensemble de 54 femmes trans vivant avec le VIH de l'étude de CHIWOS ont été analysées. Les participantes ont déclaré elles-mêmes avoir révélé leur identité trans à leur médecin de famille ou à leur médecin spécialiste du VIH, s'être senties à l'aise pour discuter de leur identité trans et de leurs besoins en matière de soins de santé spécifiques aux trans avec leur médecin de famille ou leur médecin spécialiste du VIH, et avoir vécu des expériences négatives avec leur médecin spécialiste du VIH. La prévalence de la divulgation, de l'aisance et des expériences négatives a été rapportée, et des tests exacts de Fisher ont été effectués pour déterminer toute association entre le sexe et la formation des médecins VIH et l'aisance déclarée. Une revue de la littérature, conforme aux recommandations de PRISMA, a également été réalisée pour répondre à la question de recherche : "Quelle est l'acceptabilité des dépistages des cancers associés au VPH dans les populations trans ? **Résultats :** Au départ, sur les 54 femmes trans participant à CHIWOS, 39 (72,2 %) avaient un médecin traitant pour le VIH, c'est-à-dire un médecin qui s'était principalement occupé des soins médicaux du participant pour le VIH au cours de l'année précédente. Parmi ce sous-groupe, 94,9% avaient révélé leur identité trans et 82,1% se sentaient à l'aise pour discuter avec ce médecin de leurs besoins en matière de soins de santé spécifiques aux trans. Sur les 27 personnes (50,0 %) qui ont déclaré avoir un médecin de famille habituel autre que leur fournisseur de soins VIH, 92,6 % avaient révélé leur identité trans et 88,9 % se sentaient à l'aise pour discuter des besoins de santé spécifiques aux trans avec ce médecin. L'expérience négative la plus fréquente des trans avec les médecins spécialistes du VIH, rapportée au départ, a été de s'entendre dire par le médecin qu'il n'en savait pas assez sur les soins aux personnes trans pour leur prodiguer des soins (16,7 %). L'acceptabilité du dépistage du cancer de l'anus dans les populations transmasculines et transféminines peut être améliorée par l'éducation de la communauté, par des pratiques de sensibilisation et de dépistage culturellement compétentes et par l'encouragement des recommandations des prestataires. L'acceptabilité du dépistage du cancer du col de l'utérus dans les populations transmasculines a été entravée par des expériences négatives passées, la douleur et le manque de volonté des prestataires de fournir des tests de Pap, mais elle a été renforcée par l'option de l'autotest et par la mise en place de campagnes et de sites de dépistage dédiés aux personnes transmasculines.

**Conclusion :** Nos résultats démontrent la nécessité d'une formation complète et spécifique aux personnes trans pour les prestataires de soins de santé qui travaillent avec des populations trans dans le cadre de maladies virales. Les données disponibles indiquent que les modèles de soins des maladies virales qui tiennent compte du genre peuvent améliorer la rétention dans les soins du VIH et le dépistage régulier des cancers liés au VPH dans les populations trans.

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#### PREFACE AND CONTRIBUTION OF AUTHORS

This thesis is presented in the manuscript-based format. It includes two manuscripts which have been written based on the conventions generally employed in health sciences research. In accordance with the manuscript-based thesis guidelines from McGill University, this thesis also includes the following major sections: an introduction, a comprehensive review of the literature, a scholarly discussion, and a conclusion. Other components include a title page, table of contents, abstracts in English and French, this preface, details of the contributions made by each author, a list of abbreviations, a list of tables and figures, a bridge between manuscripts, a reference list, and appendices.

**Bluma Kleiner**, as the MSc Candidate and first author, was responsible for the conceptualization of the research questions and objectives, data analysis, interpretation, presentations at scientific meetings and conferences, and for the writing and editing of all components included in this thesis.

**Dr. Alexandra de Pokomandy**, as a Principal Investigator of CHIWOS and MSc Supervisor, was responsible for the conception and management of the CHIWOS cohort and provided guidance in all aspects of the thesis such as planning, interpreting results, and writing and editing.

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## LIST OF ABBREVIATIONS

2SLGBTQ+: Two-spirit, lesbian, gay, bisexual, trans, queer, and other queer/trans identities

- AIDS: Acquired immunodeficiency syndrome
- ART: Antiretroviral therapy
- CDC: Centers for Disease Control and Prevention
- CFPC: College of Family Physicians of Canada
- CHIWOS: Canadian HIV Women's Sexual and Reproductive Health Cohort Study
- GAHT: Gender-affirming hormone therapy
- gbMSM: Gay and bisexual men who have sex with men
- HIV: Human immunodeficiency virus
- HPV: Human papillomavirus
- hr-HPV: High-risk human papillomavirus
- HRA: High resolution anoscopy
- PRA: Peer research associate
- PrEP: Pre-exposure prophylaxis
- WHO: World Health Organization
- WPATH: World Professional Association for Transgender Health
- UNAIDS: Joint United Nations Programme on HIV/AIDS

#### **CHAPTER I: INTRODUCTION**

#### Defining the 'trans' umbrella

Before beginning to explore issues in primary health care for transgender (trans) people, it is important to define the limits of the subject population of this thesis. Firstly, sex and gender must be defined to understand the unique experiences of members of the trans community more appropriately. Sex is typically understood as a biological construct, whereas gender refers to a socially constructed identity (1). Though often framed within a binary, it is increasingly understood that neither sex nor gender can be defined neatly into two diametrically opposite categories; each may vary tremendously. In the case of sex, intersex individuals are born with sex characteristics, including chromosome patterns and gonads, that do not fit those typical of the male or female sex (2). In the case of gender, trans individuals may identify on a spectrum, and it is heavily dependent on the individual's understanding of their own personal gender. The term 'transgender' has no singular meaning and holds varied significance to each who identify with it. It often encompasses identities and experiences of sex and gender variance, changing, and blending (3). Framing the community as existing under a dynamic umbrella is useful to best understand how members of this community may collectively break the traditional boundaries maintained by status quo notions of binary sex and gender divisions (3). One of the defining features of members under the trans umbrella is the incongruence of their current gender identity to their sex assigned at birth (4). This umbrella can further be compartmentalized into individuals on the transfeminine or transmasculine spectrums. Generally, the 'transfeminine' spectrum encompasses many diverse identities, including trans women, unified by the assignment of male at birth, whereas the 'transmasculine' spectrum encompasses those, including trans men, unified

by the assignment of female at birth; people along these spectrums may further identify with various terms, such as non-binary, genderqueer or gender-fluid (5,6). These identities contrast with those of cisgender individuals, whose gender identity is consistent with their sex assigned at birth. Though the definitions of transfeminine and transmasculine are not exhaustive, they best classify the main terminologies currently used by community members, as well as by clinicians and health researchers, in the provision of care to trans people within a Western/North American context. Counteracting traditional assumptions of gender, and understanding the lack of a singular gender experience for trans people, is particularly important for clinicians to provide culturally competent and gender-affirming care to trans people (6). This thesis will primarily focus on the experiences of trans people who identify as either trans men/transmasculine or trans women/transfeminine in various primary health care and viral illness prevention settings.

### Primary care for trans people

According to the College of Family Physicians of Canada (CFPC), family physicians provide comprehensive medical care to their patients by providing holistic, patient-centered care, by prioritizing health promotion and illness prevention, and by building long-lasting relationships (7). Therefore, it can be understood that the goals of primary care provision are similar across many diverse populations; however, primary care providers practicing with trans people must take into account the additional goal of their patients "achieving lasting personal comfort with their gendered selves, in order to maximize their overall health, psychological well-being, and self-fulfillment" (8). The primary care needs of trans people have necessitated the development of guidelines to construct a framework to ensure the delivery of safe and effective medical care (8,9). The World Professional Organization for Transgender Health (WPATH), based in the United States but with an international community of professionals in regional organizations, provides comprehensive clinical guidance for health professionals in primary care, gynecologic and urologic care, reproductive care, voice and communication therapy, mental health, and hormonal and surgical treatment settings (8).

Although many trans people choose to not undergo any gender-affirming medical procedures, a large component of primary care for trans people is often the provision of gender affirming hormone therapy (GAHT) and referrals to specialist physicians for surgical interventions to improve quality of life. The purpose of GAHT for trans people is to administer exogenous endocrine agents to induce feminizing or masculinizing changes that assist with the alignment of gender identity and physical characteristics (8). Therefore, GAHT can generally be categorized as feminizing or masculinizing based on its target population. Feminizing hormone therapy is administered to trans individuals who were assigned male or intersex at birth and who wish to reduce the endogenous effects of testosterone; it typically consists of anti-androgens to suppress testosterone and estrogens to induce feminization. Masculinizing hormone therapy is administered to trans individuals who were assigned female or intersex at birth and who wish to induce the development of masculine secondary sex characteristics; it typically consists of only testosterone therapy. Despite the need for specialized gender-affirming care, the primary care needs of trans people are nearly indistinguishable to those of the rest of the population, bearing in mind several key considerations, such as extensive trans-specific barriers to care (10).

Trans people often face barriers to accessing inclusive and comprehensive primary care, generating population-level disparities in health outcomes; these barriers include pervasive stigmatization, structural and financial barriers, particularly in settings lacking universal health care systems, and a lack of provider training on competent practice with trans populations (11– 13). A study of transgender youth and young adults by Clark et al. determined that health status was correlated with disclosure of trans identity and comfort with health care providers in discussing their trans identity and trans-specific health care needs; hindered comfort with these professionals can be understood as a major barrier to the provision of care (14). The aforementioned barriers may be more pronounced for trans individuals seeking comprehensive HIV care from primary care providers, who may be unaware of the presence, if any, of drug-drug interactions between GAHT and antiretroviral therapy (ART), and who may have difficulty retaining their high-risk trans patients due to both patient-related and provider-related factors; high-risk patients may be defined as those who face additional intersectional barriers to adequate care, such as trans women of color, or trans individuals living with disabilities (15,16).

#### Sexually transmitted viral diseases in trans populations: HIV prevalence and related care

Trans people are disproportionately affected by HIV globally, and UNAIDS estimates that they are at a 13-times higher risk of acquiring HIV as compared with the general adult population (17). More specifically, compared to other individuals over 15 years of age, transfeminine individuals are 66.0 times more likely to seroconvert, and transmasculine individuals are 6.8 times more likely to (18). Interpersonal components, such as discrimination, and structural components, such as institutionalized practices and policies, contribute to the burden of HIV in these populations by limiting the availability, access, and uptake of prevention, testing, and treatment services along the HIV care continuum (19,20). The modified social ecological model recognizes that both social and structural factors contribute to HIV vulnerabilities, and these factors are representative of economic, social, organizational, and political levels (21). However,

and similarly to cisgender people living with HIV, ART is recommended for all trans people living with HIV to improve their overall health and reduce the risk of transmission to sexual partners (22).

It is recommended that HIV care services be provided within a gender-affirmative care model to reduce barriers to ART adherence and to maximize the achievement of sustained viral suppression (23). Gender affirmation is multi-dimensional and comprises social (e.g., use of preferred name gender pronouns, social support, and acceptance), medical (e.g., GAHT and surgical interventions), and psychological (e.g., self-esteem) components (24). Medical gender affirmation in HIV care leads to more favorable outcomes in trans people. Specifically among trans women living with HIV, adherence to GAHT is positively associated with ART adherence, and compared with cisgender sexual minority men, trans women living with HIV who were prescribed appropriate GAHT had better HIV care continuum outcomes (25,26); the correlation between gender affirmation in HIV care and positive outcomes cannot be understated.

#### Sexually transmitted viral diseases in trans populations: HPV prevalence and related care

The prevalence of HPV and the rate of HPV vaccination in trans populations has been poorly reported; much of the available data is not disaggregated and does not distinguish between trans and non-trans members of the 2SLGBTQ+ community (27). However, Singh et al. found that among their sample in the United States, trans women had a higher HPV prevalence (97.7%) than men who have sex with men (MSM), a population known to be disproportionately affected by HPV-related complications, and that knowledge surrounding HPV and preventative vaccination was low (28,29). Though Reisner et al. found similar high-risk HPV (hr-HPV)

prevalence in trans men as compared with cisgender woman at roughly 16.0%, systemic barriers to screening render this population particularly at risk for developing HPV-related cancers (30).

The risks of oncogenic HPV-related diseases, such as cervical and anal cancer, are particularly high for individuals living with HIV (31). Individuals living with HIV are known to present with impaired cell-mediated immunity resulting from diminished CD4 cell count (32). Even a current high CD4 count does not mean individuals living with HIV are unsusceptible to HPV-related diseases. A lower nadir CD4 count in gbMSM was associated with an increased risk of anal high-grade squamous intraepithelial lesions (HSIL), supporting the idea that despite recovered immunity after sustained ART, the oncogenic process begins while immunity is low, and subsequent cell changes may progress over decades (33). Persistent infections with hr-HPV types are directly linked to the development of lower genital tract precancerous and cancerous diseases (34). As one of the main risk factors for HPV infection and subsequent lower genital tract neoplasias and cancers is impaired cell-mediated immunity, individuals living with HIV are at a higher risk of comorbidities related to HPV. For example, cisgender women living with HIV who are severely immunosuppressed are five times more likely to develop lower genital tract neoplasias than cisgender women living without HIV (35). Further, since the introduction of effective ART in 1996, anal cancer has become the most common non-AIDS-defining cancer among individuals living with HIV (36,37). It is also estimated that 93% of cervical cancers are preventable through vaccination and screening (38). Trans individuals, both transfeminine and transmasculine, may be more vulnerable to HPV acquisition and related comorbidities due to higher rates of smoking, a higher prevalence of HIV, and significant barriers to vaccination (39). Though oncogenic HPV strains are associated with many different types of cancers, screening for anogenital cancers, such cervical and anal cancers, regular screening is possible and

encouraged for groups at high risk (40). Because trans people are more vulnerable to acquisition of HIV and HPV, and because of the prevalence of anal cancer among people living with HIV, interventions aimed at trans individuals must consider the unique needs of community members.

## **Objectives**

The objectives of this thesis are as follows:

(1a) To describe differences in trans women's disclosure of their trans identity to family physicians vs. HIV physicians among a cohort of trans women living with HIV in Canada
(1b) To compare trans women's comfort discussing trans identity and trans-specific health care needs with family and HIV physicians among this cohort and to identify any provider-related factors associated with this comfort

(1c) To report on the prevalence of negative trans-specific experiences with HIV physicians among this cohort

(2) To investigate the acceptability of screenings for cancers associated with HPV in trans populations

#### **CHAPTER II: LITERATURE REVIEW**

#### II.I. HIV

#### **II.I.I. Epidemiology of HIV in trans women**

#### Theoretical frameworks: intersectionality, gender affirmation, and multiple minority stress

Several theoretical frameworks informed the development and completion of the research projects included within this thesis and may help elucidate why trans populations experience inordinate levels of sexually transmitted infections such as HIV and HPV, notably intersectionality, gender affirmation, and multiple minority stress. The vulnerability certain trans people face to HIV seroconversion and subsequent poor health outcomes may be importantly understood through an intersectionality framework. Within the context of HIV, intersectionality describes how multiple interconnecting systems of oppression, such as racism, classism, misogyny, and in particular, transphobia, intensify HIV vulnerability and related health inequities, such as poor engagement along the HIV care continuum (41). For example, and despite difficulties in measuring intersectionality quantitatively, Wesson et al. determined that within a sample of trans women living in the San Francisco Bay area, trans women of color, specifically Black and Latina trans women, were more likely to have acquired HIV (42). Interestingly, this study also reported a lower risk of reporting discrimination among trans women of color as compared with white trans women, attesting to a diversity of experiences among this population (42).

Intersectional approaches to research also seek to situate identity, and subsequently risk, within a social structural context informed by societal, political, and institutional structures (43). It cannot

be ignored that trans women are at a greater risk of HIV acquisition due to constructed systems embedded with systems of oppression such as racism, sexism, and cissexism, to name a few; HIV acquisition risk may be mitigated through efforts to reduce the inimical effects of these systems, such as through trainings on cultural safety, through affirmative representation, and through the creation of new, more egalitarian power structures (44–46).

It has been suggested that trans women acquire HIV at greater rates due to sexual risk behaviors that may be considered to affirm their identity as trans, as women, and as female; this framework may be referred to as a gender affirmation framework (47). In more detail, the gender affirmation framework posits a direct pathway between stigma, and social oppression and psychological distress, and in turn leads to decreased gender affirmation and an increased need for such; the resulting identity threat may prompt high risk contexts, which beget practices that elevate HIV exposure, such as condomless sex with serodiscordant partners and heavy substance use (47). Though this framework is helpful to understand why some trans women may be at greater risk of acquiring HIV, it may be problematic, as it centers risk behaviors on the need for affirmation of identity, rather than on necessity due to structural difficulties, such as underemployment and ostracization from mainstream social, economic, and political networks (48).

This vulnerability experienced by trans women to seroconversion and other comorbidities related to sexually transmitted infections may be further understood through the multiple minority stress framework. This framework proposes that stigma, prejudice, and discrimination create hostile social environments that result in mental and physical health burdens for marginalized populations (49). Multiple minority stress describes this framework among individuals with multiple marginalized identities, such as among trans women of color or trans women living with disabilities (50). For example, an Italian qualitative study of 149 transgender people, which sought to analyze the effects of minority stress, confirmed that exposure to everyday discrimination and transphobia may result in greater mental health problems and increased practices that elevate HIV exposure. Better integrating the focal points of these frameworks into research initiatives may help clinicians and researchers with a better understanding of risk among trans populations, and it may subsequently reduce health inequities for trans people living with HIV and other sexually transmitted infections globally.

#### Factors increasing HIV exposure among trans women

Trans women's disproportionate risk of HIV acquisition is intimately tied to syndemic psychosocial and structural co-factors; substance use disorders, high involvement in sex work, victimization, violence, stigma, mental health disorders, and increased discrimination and transphobia all contribute to direct and indirect pathways of HIV acquisition and transmission in trans women (24,51–55). In shifting away from a deficits-based approach to understanding HIV risk among trans women towards a focus on structural causes of health disparities, it is particularly appropriate to present a lack of access to comprehensive and gender-affirming health care services as quite possibly the most salient risk factor in the treatment and prevention of HIV in these populations. More specifically, past negative experiences, a lack of peer involvement in outreach initiatives, personal prioritization of GAHT, and PrEP campaigns geared towards men who have sex with men (MSM) all present barriers to gender-affirming HIV care and are not centered on risk behaviors (56–58). Gender-affirming HIV care should facilitate the disclosure of trans identity and comfort discussing trans identity and trans-specific health care needs, and a lack of such can be considered a barrier to gender-affirming HIV care (59). Not only do these

issues present barriers for individual access, but they also hinder the achievement of the UNAIDS Fast-Track Targets of 95-95-95. In more detail, these targets aim for 95% of all people living with HIV to know their status, for 95% of those diagnosed with HIV to receive ART, and for 95% of those on treatment to be undetectable by 2030 (60). In Canada, concurrently with the 24<sup>th</sup> International AIDS Conference held in Montreal, the federal government announced a commitment to meeting these goals by 2025 (61). Importantly, the Canadian government recognizes transgender persons as a key population for sexually transmitted infections prevention; they recommend a sex and gender-based lens be applied to this population by stakeholders working in collaboration to reduce subsequent transmission (62).

#### II.I.II. Specialized primary and HIV care for trans populations

#### The HIV care continuum for trans populations

The primary goal of HIV treatment is the achievement of viral suppression, defined as an individual having less than 200 copies of HIV per milliliter of blood (63,64). Viral suppression is achieved within a progression of steps known as the HIV care continuum, or the HIV care cascade, and consists of five main steps: 1) diagnosis of HIV infection; 2) linkage to HIV medical care; 3) retention in HIV medical care; 4) adherence to ART; and 5) achievement and maintenance of viral suppression (65). The HIV care continuum is often depicted as a linear, unidirectional framework; however, people living with HIV often move through the continuum irregularly and may skip steps, exit the continuum for a period, and may retrogress to earlier steps (65). Broadly, among those living with HIV in Canada, it is estimated that 90% have been diagnosed; 87% of those are estimated to be on treatment, and 95% of individuals on treatment had a suppressed viral load, leaving approximately 16,690 people in Canada unengaged or

unrepresented in the Canadian HIV care continuum (61). As contextual factors facilitate and impede access to each step of the HIV care continuum, trans women experience a disproportionate prevalence of barriers and linkage to and retention in care, ART adherence, and subsequent viral suppression (66). A study from the United States by Baguso et al. found that trans women adhered less to their ART regimens than cisgender men and women and were subsequently less likely to achieve viral suppression (67). As a result, trans women living with HIV may not experience the health benefits associated with sustained ART use when adhered to optimally; these benefits include preserved immune function, decreased systemic inflammation, and an undetectable viral load (68).

#### II.II. HPV

#### **II.II.I. Epidemiology of HPV in trans populations**

#### Primary prevention of HPV

HPV is the most common sexually transmitted infection globally, and 50% of people will acquire it at least once in their lifetime (69). Infection with oncogenic HPV strains, specifically 16 and 18, contributes to the development of anogenital cancers (i.e., cervical, penile, anal, vaginal, and vulvar) (70). In fact, it is believed that HPV is responsible for more than 90% of anal and cervical cancers (71). HPV acquisition can be prevented primarily through the introduction of the gender-neutral prophylactic HPV vaccine prior to sexual debut. In Canada, two vaccines, Gardasil9 and Cervarix, are administered to youth and are effective in reducing cervical disease and anogenital dysplasia (72,73). Currently, Canadian guidelines recommend HPV vaccination for Two-Spirit, transgender, and non-binary people aged 9 to 26 years (74). In

Quebec, all children at school in fourth and ninth grades are recommended to be vaccinated against HPV, helping to close any gendered gaps in vaccination uptake (75). There is scant available data on the uptake of HPV vaccines among trans youth and adults in Canada; however, an integrative review on this topic in the United States reported low participation of trans individuals in studies pertaining to HPV vaccination and a subsequent gap in knowledge of HPV vaccination in these populations (76).

#### Factors increasing HPV exposure among trans populations

Risk factors for HPV acquisition vary based on sex assigned at birth and are well-documented in the literature. Risk factors for HPV acquisition in all populations include multiple sexual partners, anoreceptive intercourse, tobacco use, a history of sexually transmitted infections, and HIV acquisition (77). Sex-specific risk factors include acquisition of new male partners, having non-monogamous male partners, and long-term oral contraceptive use in female individuals; risk factors include inconsistent condom use and a lack of circumcision in male individuals (78,79). To elaborate further, one of the most important documented risk factors for individual HPV acquisition is number of sexual partners (80–82). Condom use is also associated with a lower risk of HPV acquisition among high-risk cisgender men, defined as non-monogamous men and men with no steady sex partner (83). Though there is minimal reporting as to the risk factors for HPV acquisition specific to trans populations, there is ample knowledge on the sexual practices of trans people as it pertains to risk of sexually transmitted infection acquisition. Literature from the United States suggests that trans adolescents may have more sexual partners than their cisgender counterparts, which is particularly a cause for concern in trans youth who have not yet received a full course of the HPV vaccine (84,85). However, some studies have found trans

adults to have a relatively low number of sexual partners as compared with their cisgender counterparts; though, trans individuals, particularly trans women, were more likely to report multiple sexual partners if they used the internet to meet their sexual partners (86,87). In their scoping review investigating the sexual health of trans men, Stephenson et al. found inconsistent condom use among studies of trans men (88). A study of trans women in the United States found that 61% reported inconsistent condom use during receptive anal sex (89). Due to the known risk factors in trans populations, and given the clinical significance of HPV acquisition, intervention measures specific to trans community members must consider the unique needs of trans individuals and must be grounded in research knowledge in this domain.

#### **II.II.II. Screening for cancers associated with HPV**

#### Cervical cancer screening in trans populations

Cervical cancer is largely preventable, not only through vaccination, but also through screening for precursor lesions in the Papanicolaou (Pap) test, which collects cervical cells for cytological examination. In more detail, the process of cervical cytology collection seeks to detect abnormal cells, which will then allow for histological examination of a biopsy taken through colposcopy to identify any precancerous lesions (90). The treatment of precancerous lesions prevents a further progression to cervical cancer. HPV testing may also be used with cytology to identify people most at risk of developing cervical HSIL (90). A significant proportion of transgender men and transmasculine people retain their cervix and forgo a hysterectomy, leaving them at risk for developing cervical cancer and necessitating regular screenings (91). The Canadian Cancer Society recommends that transgender men and transmasculine people 21 years of age or older seek regular Pap testing for cervical cancer if they have not had a hysterectomy, if they have had

a hysterectomy that left their cervix intact or partially intact, or if they had a complete hysterectomy and a prior history of cervical cancer or precancerous conditions (92). In the latter case, because the cervix has been removed, it is recommended to have vaginal vault or cuff smears until three normal tests have been documented (92,93). There is very little research and consensus on neocervical cancer risk for trans women and transfeminine people who have undergone reconstructive gender-affirming vaginoplasty and who possess a neovagina and neocervix. Trans women and transfeminine people do not have a natal cervix; often, the neovagina is constructed from penile skin, and it is known that HPV is a cause of penile cancer (94,95). Despite a possible risk of HPV-related cancer of the neovagina, the American College of Obstetricians and Gynecologists does not recommend routine cytologic screening of trans women and transfeminine people who have undergone gender-affirming vaginoplasty (96). Some professionals recommend the continuation of regular clinical postoperative follow-up for trans women in order to detect potential lesions and prevent adverse outcomes (97).

#### Anal cancer screening in trans populations

Like cervical cancer, anal cancer is largely preventable through vaccination and screening measures in high-risk populations, such as those living with HIV (98). In the past two decades, the incidence of anal cancer in the United States has risen by more than 2% each year (99). The purpose of anal cancer screening is to detect and intervene on precancerous anal high-grade squamous intraepithelial lesions (aHSIL) in the anal canal (100). Screening for abnormal cells in the anal canal and subsequent precancerous lesions involves a similar cascade of care to that of cervical cancer screening; however, cytological collection occurs in the anal canal, and is followed-up by high-resolution anoscopy (HRA) and directed biopsy to guide treatment (31).

Secondary prevention of anal cancer, including HRA, may consist of regular discussions of risk with all high-risk patients with an aim of diagnosing and managing aHSIL to prevent progression to invasive cancer. If aHSIL is not detected, health professionals maintain surveillance of the patient, and if aHSIL is detected, HSIL is treated using electrocautery ablation, infrared coagulation, ablation or excision, topical fluorouracil, or topical imiquimod (101). Given the recent findings of the Anal Cancer Outcomes Research (ANCHOR) Study in treating aHSIL, including their finding that 67.1% of transgender participants were confirmed to have aHSIL, and given the high incidence of HIV and HPV in trans populations, more comprehensive anal cancer prevention and screening guidelines inclusive of trans populations are warranted (101).

The American Society of Clinical Oncology (ASCO) recommends that individuals at high risk of developing anal cancer, defined as individuals living with HIV who engage in anal receptive intercourse, be screened regularly as a preventative measure; however, they do not provide any further guidelines for screening for anal cancer (27). Canada's Drug and Health Technology Agency (CADTH) released a comprehensive review detailing the clinical utility of, diagnostic accuracy of, cost-effectiveness of, and guidelines for anal cancer screening in high-risk populations; though, they did not define trans people, neither with nor without HIV, as a high-risk population due to limitations in their literature review (102). Furthermore, a recent meta-analysis of anal cancer incidence by risk group did not include trans populations due to a lack of high-quality data (103). It can be understood that a lack of research investigating anal cancer incidence and outcomes may hinder the development of clear guidelines, particularly those that are also inclusive of trans populations. A key methodological element of a high-quality clinical practice guideline, particularly in the context of cancer screening, is a thorough assessment of the quality of available evidence; this, in turn, is tied to the strength of the recommendation, which is

dependent on the degree of acceptability to the target population (104). Therefore, a synthesis of the available evidence on the acceptability of screening for cancers associated with HPV in trans populations can be understood as crucial to the development of comprehensive guidelines, particularly for anal cancer given the lack of available evidence.

## **Research** questions

My thesis aimed to answer the following questions:

(1a) What is the prevalence of disclosure of trans identity to family and HIV physicians among trans women living with HIV in Canada?

(1b) What is the prevalence of comfort discussing trans identity and trans-specific health care needs with family and HIV physicians among trans women living with HIV in Canada? Are there any provider-related factors associated with this comfort?

(1c) What is the prevalence of negative experiences with HIV physicians among trans women living with HIV in Canada?

(2) What is known about the acceptability of screenings for cancers associated with HPV in trans populations?

#### **CHAPTER III: MANUSCRIPT I**

#### **III.I. PREFACE**

The experiences of trans women with HIV in accessing primary and specialized HIV care are often influenced by many intersecting biopsychosocial factors, including patient-provider relationships and associated comfort. Given the significant role of patient-provider relationships in the uptake of HIV care in trans populations, it is necessary to understand levels of disclosure of trans identity and comfort discussing trans identity and trans-specific health care needs more deeply to gauge how prevalent gender-affirming HIV and primary care environments may be within a Canadian context.

The purpose of this manuscript was therefore to contribute to the limited evidence on disclosure of trans identity, comfort discussing trans-specific health care needs with different types of physicians that trans women with HIV may encounter as they seek HIV- and transition-related primary care, and the prevalence of negative experiences with HIV care providers among a Canadian cohort of trans women with HIV. Our observation of longitudinal changes over three study waves sought to understand how comfort and disclosure may change over time in this population. This evidence on the relationship between trans women with HIV and their care providers gives necessary insight into how comprehensive, gender-affirming care for trans women with HIV may be improved.

# III.II. DISCLOSURE, COMFORT, AND EXPERIENCES WITH HIV CARE PROVIDERS AMONG TRANSGENDER WOMEN WITH HIV IN CANADA

#### **III.III. AUTHORS AND AFFILIATIONS**

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## ABSTRACT

**Background:** Transgender (trans) women living with HIV often face barriers, such as stigma, discrimination, and providers' lack of appropriate training, to accessing inclusive and comprehensive primary and HIV care. We aimed to: (1) describe differences in trans women's disclosure of their trans identity to family physicians vs. HIV physicians, (2) compare trans women's comfort discussing trans identity and trans-specific health care needs with family and HIV physicians among this cohort and to identify any provider-related factors associated with this comfort, and (3) report on the prevalence of negative trans-specific experiences with HIV physicians.

**Methods:** Data of trans participants in the Canadian HIV Women's Sexual and Reproductive Health Cohort Study (CHIWOS) were analyzed across three waves (2013-2018). Descriptive statistics explored disclosure of trans identity and comfort discussing trans-specific health care needs with family physicians vs. HIV physicians. Fisher's exact tests of association explored the relationship between provider-related factors and self-reported comfort. Prevalence of negative trans-specific experiences with HIV physicians were reported.

**Results:** At baseline, of the 54 trans women in the cohort, 39 (72.2%) had an HIV care physician defined as a physician who primarily looked after a participant's HIV medical care in the year preceding. Among this subset, 94.9% had disclosed their trans identity and 82.1% reported feeling comfortable discussing trans-specific health care needs with this physician. Of the 27 (50.0%) who reported having a regular family physician other than their HIV care provider, 92.6% had disclosed their trans identity and 88.9% were comfortable discussing trans-specific health care needs. The most prevalent negative trans-specific experience with HIV physicians

reported cumulatively was being told by the physician that they did not know enough about trans-related care to provide care (16.7%).

**Conclusion:** Our findings demonstrate a high prevalence of disclosure of trans identity to family and HIV physicians among trans women living with HIV in our study. Our findings further suggest trans women have similar comfort discussing trans-specific health care needs with their family and HIV physicians; however, negative experiences reported with HIV providers indicate the need for gender-affirming, trans-specific training for health care providers.

Key words: HIV care, primary care, comfort, disclosure, transgender health
### **INTRODUCTION**

Transgender (trans) women are disproportionally affected by HIV globally, and it has been estimated that they are 66 times more likely to have acquired HIV as compared with other individuals over 15 years of age (1–3). Such a high prevalence of seropositivity in this population can be attributed, in part, to a syndemic of co-occurring health and psychosocial factors, such as stigma and violence, that are intersectional, interacting, and may increase vulnerability to HIV infection (4–6). In Canada, trans women living with HIV often face barriers to accessing inclusive and comprehensive primary health and HIV care, including enacted stigma in the provision of direct care, cisnormativity in sexual health services, and a lack of provider knowledge, training, and experience working with trans populations (7). Intersecting sociodemographic factors may present barriers that further limit access to inclusive and comprehensive primary and HIV care for marginalized populations, such as the intersection of trans-stigma and racism among trans women of color living with HIV. These experiences may be better understood through the multiple minority stress model, whereby intersecting social stresses may lead to poorer health outcomes and reduced uptake of health care services (8–11).

Positive patient-provider relationships are key to bolstering health care utilization and positive physical and mental health outcomes in trans individuals regardless of HIV status (12). The voluntary disclosure of trans identity to healthcare providers precedes the co-development of gender-affirming relationships (13). However, barriers to disclosure, such as the fear of discrimination and stigma, anxiety, and concerns regarding patient privacy, may hinder this co-development (14–16). For trans patients living with HIV, discomfort discussing trans health issues with family physicians may also hinder their engagement in necessary HIV primary care

and the broader care cascade (17). Conversely, comfort discussing gender-related health issues with a health care provider is associated with improved HIV prevention and treatment outcomes, including viral suppression (18).

Among women living with HIV, HIV-related stigma is associated with a lower likelihood of antiretroviral therapy (ART) initiation and suboptimal ART adherence (19). Stigma related to both HIV seropositivity and trans identity intersect to negatively impact access to and comfort with primary and HIV care in trans women living with HIV (20,21). Health care providers may enact trans- and HIV-related stigma in the provision of care for trans women living with HIV, which in turn may contribute to a feeling of mistrust of medical professionals in this population (22,23).

To improve access to trans-inclusive and culturally sensitive HIV prevention, care, and support programs in Canada, we must better understand the current landscape of patient-provider relationships between trans women living with HIV and their family physicians and HIV care providers. There exists a dearth of literature on the prevalence of disclosure and comfort with primary and HIV care providers among trans women living with HIV. Therefore, the objectives of this study are to: (1) describe differences in trans women's disclosure of their trans identity to family physicians vs. HIV physicians, (2) compare trans women's comfort discussing trans identity and trans-specific health care needs with family and HIV physicians among this cohort and to identify any provider-related factors associated with this comfort, and (3) report on the prevalence of negative trans-specific experiences with HIV physicians.

### METHODS

### Study design and participants

The Canadian HIV Women's Sexual and Reproductive Health Cohort Study (CHIWOS) was a multi-site investigation that followed 1422 women living with HIV across British Columbia, Ontario, and Quebec from 2013 to 2018. All participants were 16 years of age or older, had been diagnosed with HIV, and self-identified as women (24). The trans women subset (n = 54) included participants who, at baseline, indicated being assigned male or intersex at birth and reported woman or trans woman for their current gender identity. To best align with a community-based participatory approach, recruitment, and data collection in CHIWOS were conducted by Canadian women living with HIV trained as peer research associates (PRAs) (25,26).

Participants were followed longitudinally through three waves of structured web-based surveys. This study uses the baseline and longitudinal survey data collected between October 2013 to May 2015 (Wave 1), September 2015 to January 2017 (Wave 2), and March 2017 to September 2018 (Wave 3). Most interviews were conducted in-person in English or French in a confidential setting and some were conducted over the phone or Skype. Following completion of the survey, participants received \$50 in remuneration.

All study participants provided written informed consent prior to enrolment. Ethics approval was obtained from the Research Ethics Boards (REBs) of the University of British Columbia/Providence Health Centre, Simon Fraser University, Women's College Hospital, and the McGill University Health Centre. Study sites with independent REBs obtained approval independently prior to commencing enrolment (24). Ethics documents may be found in **Appendix B**.

### Measures

Participant characteristics including age, sexual orientation, residence, housing status, previous incarceration, and years living with HIV were included to better describe the sociodemographic positionality of trans women living with HIV across several provinces in Canada. Statistics Canada defines an urban residence as a location with a population equal to or greater than 30,000 (27). Stable housing was defined as dwelling in an apartment, house, self-contained room in a house or apartment, or a group home (28).

Participants were defined as having an HIV physician if they indicated having received HIV care primarily from one physician in the year preceding the completion of the survey. Participants were defined as having a family physician if they indicated having a regular family physician other than their HIV physician in the case that their HIV physician was trained as a family physician. Disclosure of trans identity to family physicians was assessed with the question, "*Does your current family doctor know about your trans identity and experience?*". Disclosure of trans identity to HIV physicians was similarly assessed through the question "*Does your HIV doctor know about your trans identity and experience?*". Response categories for both questions included "Yes, I told my family/HIV doctor," "Yes, my family/HIV doctor asked about my history," "Yes, my family/HIV doctor was informed of my trans identity without my consent," "No, it hasn't come up," "No, I don't feel comfortable telling my family/HIV doctor," and options for those who did not know or who preferred not to answer.

Comfort discussing trans identity and trans-specific health care needs with family physicians was assessed through the question "*How comfortable are you discussing your trans-specific health care needs with your family doctor*?" Comfort discussing trans identity trans-specific health care needs with HIV physicians was similarly assessed through the question "*How comfortable are you discussing your trans identity and trans-specific health care needs with your family doctor*?" Participants responded using a four-point Likert scale ranging from "Very comfortable," to "Very uncomfortable," with options for those who did not know or who preferred not to answer. Participants were also asked to report the gender and training of their HIV physician.

To investigate negative trans-specific experiences with HIV physicians, participants were asked *"Has your HIV doctor ever...?"* and were provided with a list of 13 to 15 response options, including "refused to discuss trans-related health concerns," "discouraged you from exploring your gender," and "insisted on examining parts of your body that were not relevant to your care." Responses to these items were summed into a total cumulative prevalence.

### Statistical analysis

Disclosure of trans identity to family and HIV physicians and comfort discussing trans identity and trans-specific health care needs with family and HIV physicians were analyzed using descriptive statistics. Due to the small sample size, Fisher's exact tests, rather than chi-square tests, were performed to determine any statistically significant associations between providerrelated characteristics, such as the gender and training of the HIV physician, and comfort discussing trans identity and trans-specific health care needs. Comfort was dichotomized to facilitate the creation of 2x2 tables for Fisher's exact tests of association. "Very comfortable" and "Comfortable" were combined to create the "Comfortable" group, and "Uncomfortable" and "Very Uncomfortable" were combined to create the "Uncomfortable" group. "Trans person" and "don't know" responses to the question about provider gender were removed due to limited observation. "Microbiologist" was combined with "infectious disease specialist" due to similarities in their training; infectious disease specialists are often referred to as microbiologists in the province of Quebec. "Nurse/NP" was combined with "family physician," and "unknown specialist" was removed from the provider specialty responses due to a lack of information regarding their prior training. The cumulative prevalence of negative experiences with HIV doctors is summarized using percentages. All statistical analyses were performed using R (version 4.2.2) and RStudio (version 2022.12.0+353), and p-values <0.05 were considered statistically significant.

### RESULTS

### **Participants**

The median age at baseline was 41 [interquartile range (IQR): 18-71] (**Table 1**). Most participants were assigned male at birth (96.3%). In terms of sexuality, 51.9% of participants identified as heterosexual, and 44.4% identified as LGBTQ (lesbian, gay, bisexual, Two-Spirit, or queer). Most participants resided in an urban area (98.1%), reported stable housing (74.1%), were Canadian citizens (83.3%) and earned less than \$20,000 annually (88.9%). 42.6% had been previously incarcerated, with 5.6% experiencing incarceration within the past year. The racial and/or ethnic composition of the subset was 37.0% Indigenous, 35.2% white, 9.3% African/Caribbean/Black, and 18.5% another race/ethnicity. The median age at the time of HIV diagnosis was 30 (IQR: 0-54), and most participants first accessed HIV care within 4 months of their diagnosis (59.3%).

The prevalence of disclosure of trans identity to family and HIV physicians across all three study waves is illustrated in **Figure 1**. At baseline, of the 54 participants in the trans subset, 72.2% (n = 39) reported having a physician who supervised their HIV care within the previous year. Of these, 94.9% (n = 37) had disclosed their trans identity to this HIV physician. Of 36 respondents in Wave 2, 97.2% (n = 35) had disclosed their trans identity to their HIV physician, and of 25 respondents in Wave 3, 100.0% (n = 25) had disclosed their trans identity. At baseline, 50.0% (n = 27) of participants reported having a family physician other than their HIV care provider. Of these, 92.6% (n = 25) had disclosed their trans identity to their family physician. Among the 21 respondents in Wave 2 and Wave 3, 100.0% (n = 21) had disclosed their trans identity to their family physician.

# Comfort discussing trans identity and trans-specific health care needs with family and HIV physicians

The prevalence of self-reported comfort discussing trans identity and trans-specific health care needs with family and HIV physicians is illustrated in **Figure 2**. At baseline, among the 39 participants who reported having a regular HIV physician, 82.1% (n = 32) reported comfort discussing their trans identity and trans-specific health care needs with this physician. At Wave 2, of 36 respondents, 66.7% reported comfort, and at Wave 3, of 25 respondents, 92.0% reported comfort. Among the participants who reported having a regular family physician other than their HIV care provider at baseline, 88.9% (n = 24) reported comfort discussing their trans identity and trans-specific health care needs with this physician other than their with a family physician, 90.5% reported comfort which increased to 95.2% at Wave 3.

Although not statistically significant, the odds ratio estimates suggest that compared to having a man as an HIV physician, having a woman as an HIV physician was associated with greater comfort discussing trans identity and trans-specific health care needs at baseline (OR: 1.55, 95% CI: 0.128 - 85.5, p = 1.00). The odds ratio estimates also suggest that compared to HIV physicians with training as infectious disease specialists, HIV physicians with training as family physicians were associated with greater comfort discussing trans identity and trans-specific health care needs at baseline (OR: 1.61, 95% CI: 0.0643 - 118, p = 1.00). This association was not found to be statistically significant either.

### Negative trans-specific experiences with HIV physicians

The cumulative prevalence of negative trans-specific experiences with HIV physicians is detailed in **Table 2**. Most participants did not experience any of the listed negative trans-specific experiences with HIV physicians. However, the three most common experiences were (1) being told by their HIV physician that they did not know enough about trans-related care to provide care (16.7%), (2) their HIV physician thinking the gender listed on their ID or forms was a mistake (9.3%), and (3) their HIV physician refusing to examine parts of their body because they are trans (9.3%).

### DISCUSSION

To create a culturally competent, affirming environment, trans women living with HIV must be empowered to disclose their trans identity and feel comfort discussing their trans identity and trans-specific health care needs with health care providers (8). To our knowledge, this study is the first to compare trans women living with HIV's disclosure of trans identity and their comfort discussing trans identity and trans-specific health care needs with family and HIV physicians in Canada. We found that most trans women in CHIWOS had disclosed their trans identity to family and HIV physicians, and most were comfortable discussing trans-specific health care needs with both family and HIV physicians.

According to a previous study on healthcare avoidance among trans women in Argentina, 27.4% of whom self-reported HIV infection, trans women who have experienced stigma in healthcare settings were more than three times more likely to avoid accessing care in the future compared to those who had not (29). Some of the negative trans-specific experiences that were reported by participants in CHIWOS are examples of trans-related stigma enacted by HIV care providers (e.g., HIV care providers discouraging participants from exploring their gender identity and HIV care providers using hurtful language to discuss participants' trans identity). Similar findings with sexual minority women accessing sexual and reproductive healthcare and with sexual minority men accessing preventative HIV care demonstrate a link between negative experiences and healthcare avoidance (30,31). Despite the low overall prevalence of negative trans-specific experiences with HIV physicians, the most prevalent negative experience with HIV physicians was that their HIV physician told them that they did not know enough about trans-related care to provide them care. These results are consistent with those of the Trans PULSE Project, where 29.1% of participants on the transfeminine spectrum reported their family physicians did not know enough about trans-related care to provide them care (17). To reduce health inequities and negative experiences with both family and HIV physicians, it is imperative that undergraduate medical and residency programs integrate more comprehensive trans-specific training into their standard curricula. Rather than through a singular exposure, trans health care may be best taught

through a shift to longitudinally integrated and clinical skills based pedagogical interventions from attitude and awareness-based interventions (32). Given the higher reported comfort of trans women living with HIV with HIV outreach and program staff who also identify as trans, barriers to disclosure and patient comfort for trans women living with HIV may be ameliorated by increasing the number of trans physicians, primary care providers, and community workers practicing gender-affirming primary and HIV care (8).

Given the reported instances of trans-related stigma, and to further understand and address the prevalence of enacted stigma in the provision of care for trans women with HIV, intersectional stigma frameworks must be integrated into interventions to improve primary and HIV care outcomes (33). Examples of these interventions include integrating screening for and addressing psychosocial syndemic conditions in existing HIV care interventions, fostering resilience by increasing solidarity within communities of trans women living with HIV, and even implementing multi-method arts-based strategies to build mutual connection among community members (34,35).

Our study has several limitations that must be noted when interpreting our findings. While a diversity of trans women living with HIV are represented in our study, the non-random, purposive sampling strategy utilized by the research team may have resulted in an overrepresentation of trans women living with HIV who were already engaged in care. Although the multi-site design of CHIWOS further allowed for a diversity of trans women living with HIV to be represented in our analysis, it must be noted that rates of disclosure of trans identity and comfort discussing trans-specific health care needs with providers likely vary throughout Canada and globally. Trans women living with HIV who face higher levels of stigma and discrimination

from health care providers may be underrepresented due to health care avoidance resulting from previous negative experiences. Despite the efforts of the research team, the small sample of trans women living with HIV was underpowered to detect statistically significant associations between provider-related factors and comfort. As the most common negative trans-specific experience with HIV physicians was that they were denied care, the type of care refused may have been interpreted differently participants (e.g., HIV care vs. trans-specific care). Also, only negative experience with HIV physicians were reported, and there were no questions investigating positive experiences with these physicians, nor for positive or negative experiences with family physicians. As is often the case with trans women living with HIV in health care and research settings, over the three study waves, retention decreased, varied, and resulted in fewer respondents who provided data to address the objectives of this analysis (36). Participants also may have not reported disclosure and comfort with physicians due to a lack of comfort with research staff. Furthermore, CHIWOS engaged women living with HIV living only in British Columbia, Ontario, and Quebec, and was unable to capture the experiences of women living with HIV who resided outside of these three provinces (24). Given that most trans women participants resided in urban centers, these findings may not be generalizable to populations of trans women with HIV living in smaller cities, towns, or rural areas within these three provinces. More research engaging larger samples of trans women living with HIV must be undertaken in Canada and globally to better understand the barriers and facilitators to disclosure and comfort.

### CONCLUSION

Our findings suggest that trans women living with HIV in Canada have similar comfort discussing their trans identity and trans-specific health care needs with family and HIV

physicians. Overall, we found a high degree of disclosure and comfort discussing trans identity and trans-specific health care needs with family and HIV physicians. Given the reported instances of negative trans-specific experiences with HIV physicians, there remains a need for gender-affirming, trans-specific training for HIV care providers. Further research, especially qualitative research, may help researchers and clinicians better understand the barriers to disclosure and comfort with family and HIV physicians.

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### **CONFLICTS OF INTEREST**

None.

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### **III.IV. TABLES AND FIGURES**

Variable	N (%) / Median (IQR)
Province	
British Columbia	11 (20.4%)
Ontario	29 (53.7%)
Quebec	14 (25.9%)
Sex Assigned at Birth	
Male	52 (96.3%)
Intersex	1 (1.9%)
DK/PNTA	1 (1.9%)
Age	41 (18-71)
Sexual orientation	× ,
Heterosexual	28 (51.9%)
LGBTQ	24 (44.4%)
DK/PNTA	2 (3.7%)
Racial and/or ethnic background	× /
Indigenous	20 (37.0%)
African/Caribbean/Black	5 (9.3%)
White	19 (35.2%)
Other	10 (18.5%)
Education	
Lower than high school	9 (16.7%)
High school or higher	44 (81.5%)
DK/PNTA	1 (1.9%)
Immigration Status	
Canadian citizen	45 (83.3%)
Landed immigrant/permanent resident	5 (9.3%)
Refugee/protected person	4 (7.4%)
Income	
Less than \$20,000 annually	48 (88.9%)
\$20,000 - \$40,000 annually	5 (9.3%)
DK/PNTA	1 (1.9%)
Urban Residence	53 (98.1%)
Housing	
Stable	40 (74.1%)
Unstable	14 (25.9%)
Incarceration	
Never	28 (51.9%)
Ever, but not last year	23 (42.6%)

**Table 1:** Baseline characteristics of trans women participants (n = 54).

Years Living with HIV	
Less than 6	14 (25.9%)
Between 6 and 14	24 (44.4%)
Greater than 14	15 (27.8%)
DK/PNTA	1 (1.9%)
Age Diagnosed with HIV	30 (0-54)
First Access of HIV Care	
After Diagnosis	
Never	4 (7.4%)
Within 4 months	32 (59.3%)
4 months or greater	14 (25.9%)
DK/PNTA	4 (7.4%)

IQR: interquartile range; LGBTQ: lesbian, gay, bisexual, Two-Spirit, and queer. DK/PNTA: Don't know/prefer not to answer

Response	N (%)	
Told you they don't know enough about trans-related care to provide you care	9 (16.7%)	
Thought the gender listed on your ID or forms was a mistake	5 (9.3%)	
Refused to examine parts of your body because you're trans	5 (9.3%)	
Used hurtful or insulting language about your trans identity or experience	4 (7.4%)	
Refused to discuss trans-related health concerns	3 (5.6%)	
Discouraged you from exploring your gender	3 (5.6%)	
Insisted on examining parts of your body that were not relevant to your care	3 (5.6%)	
Told you that you were not really the gender you identify with	2 (3.7%)	
Refused to see you or ended your care because you are trans	2 (3.7%)	
Told you that you had to stop taking hormones and/or choose between hormones and ARVs	1 (1.9%)	
Belittled or ridiculed you for being trans	1 (1.9%)	

**Table 2:** Cumulative prevalence of negative trans-specific experiences with HIV physicians (n = 54).



Figure 1: Percent stacked bar chart of disclosure of trans identity to family and HIV physicians.

Family Physicians



No, it hasn't come up

• Yes, my family doctor was informed of my trans identity without my consent

■ Yes, my family doctor asked about my history

Yes, I told my family doctor

**Figure 2:** Percent stacked bar chart of comfort discussing trans identity and trans-specific health care needs with HIV and family physicians.



**HIV Physicians** 

## Family Physicians



**Figure 3:** Mosaic plots of (A) gender (n = 37) and (B) training (n = 14) of HIV physician vs. comfort discussing trans identity and trans-specific health care needs at baseline.



(A)

(B)

### **CHAPTER IV: MANUSCRIPT II**

### **IV.I. BRIDGE AND PREFACE**

Given the high prevalence of viral sexually transmitted infections in trans populations, and given the barriers experienced by these populations in accessing preventative and treatment care, there is a need for evidence-based data analysis and knowledge synthesis on various factors influencing the uptake of viral illness care in trans populations. The first manuscript explored the prevalence of disclosure and comfort with HIV and family physicians, as well as the prevalence of negative trans-specific experiences with HIV physicians, among a subset of trans women from a cohort of women living with HIV in Canada. Specifically, there was a high prevalence of disclosure of trans identity and comfort discussing trans identity and trans-specific health care needs with both family and HIV physicians; however, reported negative trans-specific experiences suggest the need for more comprehensive and gender-affirming training for physicians supervising HIV care in trans populations. Further, Sankey diagrams depicting the longitudinal flow of disclosure of trans identity and comfort discussing trans identity and transspecific health care needs across the three study waves were created and can be found in **Appendix A** and may help elucidate retention. Before translating these findings into the design and delivery of gender-affirming viral illness care, we must investigate factors influencing the

and delivery of gender-affirming viral illness care, we must investigate factors influencing the uptake of care in other viral illness settings. Through the second manuscript, we thus sought to investigate the acceptability of screenings for cancers associated with HPV in trans populations. Due to the negatively synergistic effects of HIV and HPV co-infection, settings where HIV and HPV care are provided are not mutually exclusive, and barriers and facilitators to care for trans populations in each setting may be translatable to the other.

# IV.II. ACCEPTABILITY OF SCREENINGS FOR CANCERS ASSOCIATED WITH HPV IN TRANSGENDER POPULATIONS: A SCOPING REVIEW

### **IV.III. AUTHORS AND AFFILIATIONS**

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### ABSTRACT

Human papillomavirus (HPV) and associated cancers may be more common among transgender (trans) populations as compared with the general population, especially among those living with HIV. Cervical and anal cancers are two cancers associated with HPV that can be prevented through screening. Despite newly emerging research on HIV and HPV co-infections and related cancer risk in trans people, little has been synthesized regarding the acceptability of screenings for cancers associated with HPV, including barriers and facilitators to screening, in trans populations. We conducted a scoping review according to PRISMA-ScR guidelines to investigate this acceptability and to examine barriers and facilitators to cervical and anal cancer screening in trans populations. Literature published in English was reviewed following a systematic search of MEDLINE, Embase, Web of Science, Scopus, and CINAHL in November 2022. Articles were screened by two independent reviewers, and data was extracted by the primary author; results are presented and discussed in a narrative synthesis alongside key considerations for clinicians and researchers. Thirty-two articles were included for synthesis; most articles originated from the United States (n = 24; 75%), employed exclusively qualitative (n = 11; 34%) or quantitative research methods (n = 12; 38%), and examined the acceptability of cervical cancer screening in transmasculine populations (n = 29; 91%). Facilitators of both cervical and anal cancer screening included positive patient-provider relationships and the option to self-sample as an alternative to provider-collected Pap testing. Barriers of both cervical and anal cancer screening included stigma, discrimination, and a lack of knowledge regarding HPV and the need for such screenings. It is possible that our search strategy did not capture all eligible documents due to the inclusion of English-language publications only. To address barriers to cervical and anal cancer screenings in trans populations, approaches could expand self-testing

options, offer clinics and services dedicated to trans people, and develop provider recommendations. These approaches offer opportunities to promote uptake of acceptable screening practices for both cervical and anal cancer screenings with trans communities. Further research can center the voices of trans community members in identifying optimal screening services that also consider past experiences of stigma and discrimination in accessing these services.

Key words: HPV, Pap test, cervical cancer, anal cancer, transgender health, screening

### **INTRODUCTION**

Human papillomavirus (HPV) is a common sexually-transmitted infection and causes cervical, oral, anal, penile, and head and neck cancers (1–3). HPV is preventable, with vaccination able to prevent cervical and anal cancers caused by the virus (4-6). HIV and HPV co-infection is associated with an increased risk of developing cancers associated with HPV in both cisgender and trans populations (7,8). HPV prevalence is particularly high in trans populations; trans women were found to have higher rates of HPV compared to gay, bisexual, and other men who have sex with men (gbMSM), an already high-risk population for HPV infection (9). Trans women are also known to have prevalence of HIV higher than that of the general United States adult population (10). Trans men, along with trans women, are disproportionately affected by HIV as compared with cisgender populations (11). According to the results of the Anal Cancer-HSIL Outcomes Research (ANCHOR) trial, 67.1% of screened trans participants were diagnosed with anal high-grade squamous intraepithelial lesions (HSIL) (12). In terms of screening, trans men and non-binary people assigned female at birth are recommended to undergo regular cervical cancer screenings if they have not had their cervix removed (13); however, despite limited research, evidence has shown that trans men and transmasculine individuals are less likely to access Papanicolaou (Pap) tests (cervical cytology) compared to cisgender women (14). Indeed, both transgender men and women have high HPV exposure and limited access to and uptake of preventative screenings for cancers associated with HPV (15). Although less common than cervical cancer screening, screening procedures for anal cancer and precancerous lesions include anal cytology, digital anal rectal examinations (DARE), and high-resolution anoscopy (HRA) (16–18). Recommendations for DARE published in 2019 by the International Anal Neoplasia Society did not include specific recommendations for trans individuals due to a lack of evidence; ANCHOR trial results indicating a high risk of anal cancer in trans individuals living with HIV were only published in 2022 (12,19).

Anogenital cancer screening is very acceptable with low prevalence of self-reported pain in cisgender women living with HIV screening for cervical and anal cancer and in gbMSM living with HIV screening for anal cancer (20,21). Barriers to acceptability of cervical and anal cancer screening initiatives in cisgender women and gbMSM include pain and lack of knowledge of the importance screening, which may be generalizable to trans populations (20,21).

To aid in the establishment of effective and inclusive guidelines for screenings for cancers associated with HPV, we must establish how acceptable these procedures are with key populations, such as trans populations (22). One systematic narrative review published in 2020 discussed barriers and facilitators to cervical cancer screening in transmasculine populations with a focus on the United Kingdom context; however, it did not include screenings for other cancers associated with HPV nor other trans populations (23). The objective of our review is to systematically examine the acceptability of screening for cancers associated with HPV in trans populations. The results of our review will provide researchers and health systems with knowledge of the extent to which screenings for cancers associated with HPV are acceptable in diverse trans populations to allow for a more holistic understanding of viral illness care for these populations.

### METHODS

A scoping review was the most appropriate review style given the broad nature of our research question and allowed us to summarize the available evidence and make recommendations based on our findings (24). This review followed the Preferred Reporting Items of Systematic Reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) (25). Our protocol was drafted using the Preferred Reporting Items for Systematic Reviews and Meta-analysis Protocols (PRISMA-P) and guidance from the Joanna Briggs Institute approach to scoping reviews (26,27). The final protocol was registered prospectively with the Open Science Framework on 26 November 2022 (https://osf.io/3vkac/).

### **Review** question

The following review question guided our scoping review process: what is known regarding the acceptability of screenings for cancers associated with HPV in trans populations?

### Inclusion and exclusion criteria

*Publication characteristics*. Primary empirical studies (e.g., qualitative, quantitative, and/or mixed methods) were eligible for inclusion; however, systematic reviews and meta-analyses, as well as scoping and narrative reviews, were not included due to a lack of original research. Opinion papers and personal narratives were considered on a case-by-case basis based on their relevance to our research question. Publications were only included if they were written in English due to the constraints of the research team.

*Population.* Our population of interest was all trans populations, including trans men/transmasculine individuals, trans women/transfeminine individuals, and non-binary or gender nonconforming individuals. We kept our population of interest as broad as possible due to varied definitions of (trans)gender identity and to allow for the reporting of comprehensive barriers and facilitators to acceptability in many diverse trans populations (28). Studies were excluded if they did not disaggregate between trans and other populations, such as men who have sex with men, in their data reporting.

*Intervention.* Documents needed to focus on screenings for cancers associated with HPV, including cervical and anal cytologies, high-resolution anoscopy, colposcopy, and visual examination.

*Outcomes*. Our main outcome was acceptability, and more specifically, feasibility, tolerability, and availability. We will report the main prevalent barriers and facilitators to screening procedures and initiatives and key recommendations based on our findings on acceptability.

### Search strategy

One academic librarian contributed to the development of a comprehensive database search strategy with BK. The following five databases were searched on 26 November 2022: MEDLINE, Embase, Web of Science, Scopus, and CINAHL. Our search strategy was guided by our research question and included various terms that identify individuals under the trans 'umbrella,' HPV and associated cancers or neoplasias, and terms regarding screening, testing, prevention, and treatment, as to keep the search as broad as possible for the inclusion of all relevant literature. The final search strategies for the five databases can be found in the **Appendix**.

### Screening

Screening was done in several stages. First, the primary author (BK) imported all identified records into EndNote 20, and duplicates were removed automatically followed by manual

verification by BK. After duplicate removal, search results were uploaded to Covidence by BK, where duplicates were removed automatically, then manually by BK. Two reviewers (BK and TG) screened all abstracts independently in Covidence based on the inclusion criteria, and disagreements were resolved using consensus discussions. BK and TG screened full texts in Covidence and resolved conflicts in the same manner. Percent agreement between the two reviewers was calculated in Covidence, as well as inter-rater reliability, using Cohen's kappa (*k*) (29).

### Data charting and analysis

A data-charting form was developed by BK to determine which variables would be extracted from included studies. Data was extracted by BK using the data-charting form adapted in Covidence. Abstracted variable included were title, year of publication, author, country, publication, sample size/study population, study design, methods, and key findings. To synthesize the evidence found within included studies, a narrative synthesis was completed, and results were grouped by type of cancer screened for and with key considerations for clinicians and researchers practicing in screening settings with trans populations. Narrative synthesis was chosen for our data analysis because it is helpful to summarizing the key points of a review in an efficient and timely manner (30).

### Critical appraisal

As per scoping review guidelines from the Joanna Briggs Institute, critical appraisal of the included documents was not performed (26).

### RESULTS

### Search results

The selection process for included studies is illustrated in a PRISMA flow diagram and can be found in **Figure 1**. A total of 4454 records were identified following our database search, and 2171 of those were unique records after automatic and manual duplicate removal. We removed 1992 of these based on our title and abstract screening criteria, and proportionate agreement between the two independent reviewers at this stage was moderate (92%; Cohen's k = 0.59). 179 full texts were assessed for eligibility, and 146 records were excluded, largely because they did not include any information on the acceptability of screening procedures/initiatives (n = 75), because they did not include any original data on acceptability (n = 41), or because data on trans populations was not disaggregated from that of men who have sex with men or other key populations involved in viral illness prevention (n = 13). Agreement at this stage was substantial (87%; Cohen's k = 0.63).

### Description of included studies

Thirty-two full text articles met the inclusion criteria following our database search and were therefore included in our review and narrative synthesis. All studies were published within the last decade (2013–present). Most of the included studies were published in the United States (n = 24; 75%); included literature also originated from the United Kingdom (n = 3; 9%), Australia (n = 3; 9%), Canada (n = 1; 3%), El Salvador (n = 1; 3%). A variety of study designs and methods are represented: most employed exclusively qualitative methods (n = 11; 34%) or quantitative methods (n = 12; 38%), and some employed both qualitative and quantitative methods to collect

data (n = 7; 22%). A few did not employ qualitative nor quantitative methods; one was a commentary on case studies and the other a personal narrative (n = 2; 6%). The majority were peer-reviewed journal articles (n = 24; 75%), while some were poster presentations (n = 3; 9%) and unspecified conference abstracts/presentations (n = 5; 16%). Characteristics in detail of each included study are found in **Table 1**.

To organize results, barriers, and facilitators to screening for anal and cervical cancer were grouped using elements from social ecological models, including one proposed by Baral et al., that situate health promotion and HIV prevention between social and structural contexts; these elements comprise several levels, including individual, network, institutional, and community (31,32). Individual, or intrapersonal factors, include attitudes, beliefs, and knowledge (32). Institutional factors in this context center on the provision of screening and prevention services and describe social institutions with organizational characteristics, including those who operate within those institutions (32). The modified social ecological model by Baral et al. was developed as a flexible model to guide epidemiologic studies among key populations at risk for acquiring HIV in diverse contexts (33). Given those living with HIV are at higher risk of cancers associated with HPV, and given trans populations are also at higher risk of these cancers, it is appropriate to apply this model to better situate barriers and facilitators to screening within a larger, more complex ecological structure. In addition, social ecological models may also help elucidate the multiple levels at which stigma related to trans identity operates (34).

### Screening for anal cancer

Five studies (16%) provided information on the acceptability of anal cancer screenings in both transmasculine and transfeminine populations. Of these five, three (9%) included information on
the acceptability for the collection of anal cytology, and one (3%) included information on the acceptability of DARE. Two (6%) did not specify the procedures for anal cancer screening and instead discussed screening in a broader context. Four studies (13%) discussed acceptability for both transmasculine and transfeminine populations. One study (3%) discussed acceptability specifically for Native Hawaiian and other Pacific Islander transfeminine people who fall under the Māhūwahine umbrella. Self-sampling for anal cytology was not discussed as either a barrier or facilitator to anal cancer screening.

# Individual factors influencing acceptability

Individual barriers to anal cancer screening were, on behalf of trans community members, a lack of perceived risk of developing anal cancer (n = 2; 6%), a lack of prior anal cancer screening (n = 2; 6%), lack of knowledge of anal cancer (n = 2; 6%) and anal cytology (n = 1; 3%), and a lack of willingness to undergo future screening (n = 1; 3%). A facilitator of anal cancer screening was, despite a lack of knowledge surrounding anal health and associated cancer screening, a willingness to undergo future anal cytology (n = 2; 6%).

# Institutional factors influencing acceptability

Institutional barriers to screening were a lack of provider-initiated discussions as to the need for anal cytology (n = 2; 6%), the cost of anal cancer screening for the patient (n = 1; 3%), a lack of offered anal cancer screening (n = 1; 3%), and stigma (n = 1; 3%) and discrimination (n = 1; 3%) related to trans identity. Facilitators to screening were provider recommendations (n = 1; 3%), culturally adapted screening discussions bundled with other health resources (n = 1; 3%), the use of a patient's preferred name (n = 1; 3%), and, for patients who engage in sex work, the use of

screening messages that appeal to a patient's desire to be attractive for business and pleasure (n = 1; 3%).

In one study, anal cancer screening providers did not discuss the need for anal cytology with trans women participants and described low uptake of screening among both transgender men and women (35). It was suggested that educational interventions targeted at both physicians and patients may improve screening and follow-up (35). Educational interventions were discussed as particularly important for trans individuals at risk of developing anal cancer, and despite a lack of knowledge regarding anal cancer and low perceived risk, most expressed willingness to undergo screening in a study of high-risk trans men and women (36,37).

#### Screening for cervical cancer

Twenty-nine included studies (90.6%) discussed the acceptability of cervical cancer screening, and subjects of each included article identified as transmasculine, as trans men or as gender nonconforming persons. Information on the acceptability of cervical cancer screening methods included that of traditional provider-collected cytology and increasingly prevalent self-sampling techniques.

## Individual factors influencing acceptability

Individual barriers to cervical cancer screening were pain or discomfort during screening (n = 11; 34%), general negative personal experiences with past screening (n = 3; 9%), a lack of sexual and reproductive health knowledge (n = 3; 9%), a lack of knowledge or misconceptions regarding cytology and risk of developing cervical cancer (n = 4; 13%), including not viewing testing as important (n = 4; 13%). Some discussed separate screening clinics for trans individuals

as unnecessary and unfavorable due to a desire to not be treated differently due to their gender identity (n = 1; 3%). Just under one-third of included articles discussed negative feelings pertaining to gender, femaleness, and dysphoria triggered by screening (n = 10; 31%). Several included studies identified that self-sampling reduces experiences of pain and discomfort during cervical cancer screening, and when not available, allowing patients to insert the speculum themselves may improve acceptability (38).

Individual facilitators of screening were a preference for self-swabbing or self-testing (n = 8; 25%), a preference for screening sites and initiatives dedicated to the needs of trans men/transmasculine people (n = 5; 16%), knowledge regarding the need for cytology (n = 4; 13%), knowledge regarding low uptake of screening in transmasculine populations (n = 3; 9%), feeling in control during screening (n = 1, 3%), general sexual and reproductive health knowledge (n = 1; 3%), accessing health information online (n = 1; 3%), a preference for healthcare professional identifying as trans performing screening (n = 1; 3%), and liberal provider political views (n = 1; 3%).

#### Institutional factors influencing acceptability

Institutional barriers to cervical cancer screening were having a male sex identifier on medical documentation and insurance forms as a barrier to routine call and recall and insurance coverage for cervical cytology (n = 4; 13%), cost of screening (n = 4; 13%), poor provider understanding of trans health and associated guidelines (n = 4; 13%), difficult or limited access to cervical cancer screening with providers who are trained in administering healthcare services to trans populations (n = 3; 9%), experienced or anticipated stigma (n = 5; 16%), discrimination (n = 5; 16%), or mistreatment (n = 4; 13%) related to trans identity, perceived risk of provider assault (n

= 2; 6%), woman-centered screening centers and information materials (n = 2; 6%), cervical cancer screening policies that forgo any mentioning of trans people (n = 2, 6%), perceived lower sexual and behavioral risk of HPV acquisition resulting in a decreased need to promote screening among transmasculine patients (n = 2; 6%), lack of provider recommendation (n = 2; 6%), provider roughness during screening (n = 2; 6%), providers communicating to patients that because they had an HPV vaccine they do not need screening (n = 1; 3%), and reported experiences of general barriers to care (n = 1; 3%). Stigma, discrimination, and mistreatment were commonly discussed barriers to cervical and anal cancer screening in our review. In a single study, 49.3% of trans men and 63.9% of trans women reported stigma in seeking out cervical and anal cancer screening, and that same study reported a not insignificant prevalence of discrimination (35).

Institutional facilitators of screening were joint personalization of cytology collection to best fit the needs of patients (n = 4; 13%), provider-initiated discussions and recommendations for screening (n = 4; 13%), inclusive documentation and physical environments (n = 4; 13%), provider willingness to perform Pap tests on transmasculine patients (n = 2; 6%), providers openly discussing comfort with queer and trans patients (n = 2; 6%), promotion of traumainformed and sensitive cervical cancer screening (n = 2; 6%), offering HPV self-testing or selfswabbing (n = 1; 3%), respectful collection of sexual histories from patients (n = 1; 3%), and provider efforts to promote their spaces and practices as inclusive, and importantly, culturallycompetent (n = 1; 3%). One included article found that an anal cancer screening recommendation was associated with up to 241 times greater odds (95% CI: 11.50 – 5074.71) of seeking out screening (39). One-quarter of included publications explicitly linked positive patient-provider relationships in cervical cancer screening settings to greater acceptability of cervical cytology. Notably, providers who supported their patient's trans identity were more successful in motivating them to seek out screening (40). Qualitative data further affirmed the relationship between a trusting, trans-competent healthcare provider and regular uptake of cervical cancer screening in transmasculine individuals (41). Our review found that positive patient-provider relationships that recognize intersectional stigma may also better improve acceptability of cancer screening. Intersectional approaches to anal cancer screening improve acceptability, specifically in Native Hawaiian and other Pacific Islander populations, but with great generalizability to other marginalized populations, through providers recognizing that screening messages must consider traditional cultural orientations and stigma faced due to ethnocultural and sexual/gender minority status (42). In promoting cervical cancer screening in transmasculine populations, healthcare providers must also assess the risk of distress and traumatization and consider how it may jeopardize patient-provider relationships (43).

Just under one-fifth of included studies described the importance of cervical cancer screening promotions that target transmasculine populations and that are gender-neutral and inclusive (n = 6; 19%). Unique to cervical cancer screening in our review was the presence of culturally competent screening centers, screening procedures specific to transmasculine populations, and outreach campaigns targeted at trans men and transmasculine community members. Particularly, the "Paps Matter for Trans Men" campaign, launched by Rainbow Health Ontario in Toronto and developed by and for transgender men and their healthcare providers, represented diverse transmasculine people in its imagery and used inclusive rhetoric, such as "Guys Get Paps Too", to appeal to an under-screened audience (44). Another study reported unanimous positive

feedback from attendees of a screening clinic dedicated to trans men and non-binary individuals, and many reported, conversely, that they would not access screening if this clinic were not available (45).

One-quarter of the 32 included studies discussed self-collected cytology as a powerful facilitator of cervical cancer screening acceptability in transmasculine populations, which is consistent with prior research on acceptability of this intervention in under-screened cisgender populations (46–48). Reasons for why self-sampling was more acceptable in our review included it being less invasive, less traumatizing, easy to perform, and even more empowering than provider-collected cytology (49,50). Self-sampling may also mediate power differentials between transmasculine patients and their healthcare providers that may be present during the screening process by allowing patients more control and autonomy over their bodies and may, in turn, facilitate a favorable re-gendering of cytology, shifting its focus as an intervention not just for women, but rather for anyone with a cervix (51).

#### DISCUSSION

Our review helped identify factors influencing the acceptability of screenings for cancers associated with HPV in trans populations and prevalent barriers and facilitators to this acceptability on individual and institutional levels. Here, based on our findings, we present key considerations for clinicians and researchers practicing with trans populations in sexual health and viral illness prevention settings.

The presence of negative feelings surrounding cytology collection as it pertained to the gendered and sexed nature of cervical cancer screening emerged as a common theme in our review. Negative feelings, such as stigma and shame, surrounding cytology collection are shown to jeopardize its acceptability in cisgender women and must continue to be a careful consideration for clinicians and researchers (52,53). Although more than one-third of the included studies discussed patient pain and discomfort during both provider-collected and self-collected cytology, pain during self-sampling may not be entirely avoidable; the androgenic effects of masculinizing gender-affirming hormone therapy often result in tissue epithelial atrophy and shrinkage, leading to more experiences of pain and discomfort (54). Despite a preference for self-sampling, our review found that participants who self-sampled reported a lack of confidence as to whether they had performed the procedure correctly, which is consistent with data on self-sampling in cisgender women (50,55,56). Future educational interventions from healthcare providers for trans patients must therefore be jointly customized between patients and providers to ensure adequate confidence in performing the self-sampling. Meaningful investments in self-collected cervical cancer screening programs may be a worthwhile and effective strategy to increase uptake among trans individuals with a cervix.

Positive patient-provider relationships, particularly those that affirm trans patients' gender identities and prioritize clinical competence in practicing with trans individuals, are significant to enhancing health-seeking behaviors in trans individuals (57,58). Interventions that highlight the importance of positive patient-provider relationships may further improve acceptability of screening. Interventions improving anogenital knowledge among trans patients, coupled with provider recommendations, may also increase the acceptability of screening. The association between provider recommendation for cancer screening and uptake might be self-evident; however, a lack of provider recommendation may be due to multiple factors including a lack of awareness, clear clinical recommendations, and resources for HRA; in the case of anal cancer

screening, this lack may contribute to deficient uptake in trans populations. The association between cervical cancer screening recommendations in trans populations and uptake found in our review is consistent with that in cisgender women, suggesting that provider recommendations may enhance uptake of screenings in a diversity of populations (59).

Health promotion services catered to other sexual and gender minority populations have improved cancer screening acceptability. Cervical cancer screening providers have used similar strategies to increase participation of under-screened women in promoting cytology; for example, the "Lesbian Health Matters" campaign sought to increase participation of lesbian women in screening by developing content that would appeal to its target audience (60). Aside from targeted promotions for screening, reduction of enacted stigma and discrimination must also be a priority for screening providers. Stigma associated with anal cytology is known to be a barrier to acceptability among ethnically diverse queer and trans men (61). Similar findings among sexually minority women indicate its pervasive nature within screening initiatives targeted at under-screened populations (62). In fact, stigma and discrimination against trans populations are deeply embedded in healthcare structures and institutions (54,63). Inclusive guidelines and policies, and institutional efforts to increase diversity, equity, and inclusion of trans individuals, may contribute to greater acceptability of screening initiatives in trans populations.

# Limitations

This scoping review presents several limitations. The inclusion of only English-language documents may have limited the scope of our search, potentially excluding relevant documents published in other languages and overrepresenting research originating from the United States, in which three-fourths of our included literature were based. The overrepresentation of high-income countries in our included literature renders our findings less generalizable to low-to-middle income countries, where access to gender-affirming anal and cervical cancer screenings may be challenging due to a lack of comprehensive guidelines and relevant infrastructure (49). Data from included literature was extracted solely by the primary author, and despite having two authors screen search results independently, this may have contributed to bias in the review process (64). It is likely that our review did not identify all the barriers and facilitators to the acceptability of screenings for cancers associated with HPV in trans populations. Most of the literature included described interventions in primary care settings; since community-based organizations may not have the same resources to publish interventions, community-based efforts to improve acceptability in this population may have not been captured by the search (65).

# Conclusion

Positive patient-provider relationships, provider recommendations, and inclusive physical environments are all powerful facilitators of gender-affirming preventative screenings for cancers associated with HPV. Amongst other facilitators, our review identified self-sampling as salient to the provision of affirming viral illness care in transmasculine populations. Given the presence of barriers to the uptake of screenings for cancers associated with HPV in these populations, clinicians must remain abreast of advances in screening guidelines to provide culturally competent care to their trans patients. Despite our synthesized knowledge, more qualitative research must be done on how to improve the experience of anal cancer screenings in all trans populations and must focus on educational interventions to improve sexual and reproductive health knowledge.

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# **IV.IV. TABLES AND FIGURES**





\*Articles removed using automation tools

**Table 1:** Characteristics of included studies (n = 32)

**Reference Number and** Sample Size/Study Title Year Author Country Publication Population Study Design Methods **Key Findings** United States 1. Cervical and Anal 2018 Abern Journal of Lower 158 transgender men Ouantitative Survey investigating demographics, Barriers to acceptability include lack of Cancer Screening in Genital Tract and 24 transgender cross-sectional reproductive history, cervical and discussion on behalf of providers of Transgender Disease women study anal cancer screening, and access to need for cervical and anal cytology for Individuals health care trans men, and anal cytology for trans women: other barriers include cost. access, stigma, and discrimination 2 Cervical Cancer United States 2020 Abern et al Journal of Lower 570 transmasculine Ouantitative Completion of survey investigating 84% reported experiencing barriers to Screening and Barriers care, 63% reported difficulty accessing Genital Tract individuals ages cross-sectional demographics, medical history, to Health Care for Disease 21-64 cervical cancer screening, and care, 52% reported experiencing stigma study Transmasculine perceptions of the healthcare in accessing cervical cancer screening Individuals system 3. Examining differences 2022 Adsul et al. United States American Society 797 cisgender Quantitative Survey completion followed by data Of the 14% of respondents who identified based on gender and of Clinical women. cross-sectional analysis using descriptive statistics as transgender men or nonbinary, 25% sexual orientation for Oncology transgender men, study reported never having received a cervical cancer and nonbinary cervical cytology; 21% did not test due to prior HPV vaccination; 21% felt screening and individuals prevention behaviors cervical cytology was too painful, unpleasant, or embarrassing Perceived risk of cervical cancer and 4. Perceptions of cervical 2016 Agénor et al. United States Culture. Health 32 transmasculine Oualitative Semi-structured in-depth interviews cancer risk and individuals and 17 & Sexuality exploratory with patients and focus groups with subsequent odds of screening shaped by screening among healthcare study healthcare providers to investigate overall reproductive health and family transmasculine social and healthcare factors that history, limited sexual and reproductive providers individuals: patient and may influence cervical cancer health information for transmasculine individuals, and frustration over lack of provider perspectives screening among transmasculine individuals; some in-depth data; overall, patients that believed that interviews with clinicians who regular cervical cytology for transmasculine individuals was could not attend focus groups; data analysis through transcription using important grounded theory Pilot of a cervical screening clinic for 5. A UK-based pilot 2022 Berner et al. United Cancer Trans men and non-Quantitative Cervical screening clinics solely for trans cervical screening Kingdom Epidemiology. trans men and non-binary men and non-binary individuals are binary people exploratory clinic tailored to trans Biomarkers & pilot study individuals: 35 trans men screened highly acceptable; 100% of feedback men and non-binary Prevention in clinic; follow-up through from 20 screening attendees were people participant surveys positive; 60% of those reported that if the clinic were not available, they would not have accessed screening 6. Attitudes of 53% reported that they would like the 2021 Berner et al. United British Journal 137 participants Mixed methods Quantitative survey data analyzed transgender men and Kingdom of General (80% cross-sectional using descriptive statistics; freeoption to self-swap for high-risk HPV; non-binary people to Practice transmasculine and study text comments analyzed 51% reported being in favor of cervical screening: a 18% non-binary thematically automatic invitation for cervical cross-sectional mixedindividuals) screening; reasons for not attending

methods study in the UK								cervical screening include not liking to think about that part of the body and having to disclose condex identity.
7. Guys get Pap tests too: Developing cervical cancer screening patient outreach materials for female-to- male transgender patients	2014	Bernstein et al.	United States	Journal of General Internal Medicine	Individuals on the female-to-male (FTM) spectrum (32 IDIs and 65 completed online survey responses)	Mixed methods study	In-depth interviews (IDI) and an open-ended online survey exploring participant experiences with cervical cytology and preferences for a patient outreach campaign	FTM patients and their providers should jointly customize cervical cytology to fit varying patient needs and comfort levels; need for gender-neutral language and presentation of cervical cytology and health information; need for patients to feel in control during exam and to have confidence in provider competency; desire for representation of diversity of FTM community in outreach campaign and exclusion of images of women, medical equipment, and anatomical diagrams
8. Considering transgender and gender nonconforming people in health communication campaigns	2018	Combs et al.	Canada	Palgrave Communicatio ns	Transgender and gender nonconforming people (TGNC)	Commentary on case studies	Examination of cancer campaign case studies to explore messaging of sex-specific cancers and analyze how gender is used in campaigns	Discussion of how "Paps Matter for Trans Men" campaign launched by Rainbow Health Ontario uses images of diverse trans masculine people and were developed by and for transgender men and their health care providers; campaign received positive response from trans community
9. Transgender Men's Experiences With and Perceptions of Gynecologic Care	2017	Fein et al.	United States	Obstetrics & Gynecology	37 transgender men	Quantitative cross-sectional study	Anonymous web-based and paper survey distributed to sample of transgender men; responses presented as categorical data	23% of respondents reported mistreatment by a gynecologist; 59% reported avoiding or delaying gynecologic care due to gender identity concerns; only 27% considered routine cancer screening as extremely important
10. Low Perceived Anal Cancer Risk and Screening Utilization Among High-Risk Transgender Men and Women Living in an HIV/STI Epicenter	2021	Fein et al.	United States	AIDS and Behavior	79 transgender persons (54 transgender women (TGW) and 25 transgender men (TGM))	Quantitative cross-sectional study	Exploratory electronic survey assessing knowledge of anal cancer and associated screening tools, ascertaining self-perceived risk for acquiring anal cancer, and understanding willingness to undergo anal cytology testing; analysis using descriptive statistics, student's t tests, ANOVA, and Pearson's chi-squared test	43% reported little to no knowledge of anal cancer, and 82% had little to no perceived risk of developing anal cancer; 17% had undergone anal cytology; lack of education about anal HPV and cancer in trans populations is barrier to acceptability of screening uptake
<ol> <li>Anal Cancer Risk Factors and Utilization of Anal Pap Smear Screening Among Transgender Persons</li> </ol>	2018	Fein et al.	United States	Papillomavirus Research	24 transgender women (TGW) and 13 transgender men (TGM)	Quantitative cross-sectional study	Anonymous survey designed and distributed; descriptive statistical analysis performed	Most TGW reported little to no knowledge of anal cancer or anal cytology, only 38% of TGM were familiar with anal cytology; most TGW and TGM expressed willingness to undergo future anal cytology

12. Navigating trans visibilities, trauma, and trust in a new cervical screening clinic	2022	Gibson et al.	Australia	Culture, Health & Sexuality	12 key informants in cancer policy, sexual and reproductive health, and trans health advocacy	Qualitative study	Semi-structured interviews followed by theoretically driven inductive thematic analysis	Language of cervical cancer screening outreach being for 'women' may be alienating to trans men and non-binary people; previous trauma with healthcare providers may compound difficulty for these populations in being engaged in cervical screening
13. Improved Rates of Cervical Cancer Screening Among Transmasculine Patients Through Self- Collected Swabs for High-Risk Human Papillomavirus DNA Testing	2020	Goldstein et al.	United States	Transgender Health	Transgender men	Quantitative interventional study	Medical providers offered self-swabs for HPV once conventional speculum exam for cytology collection was declined; rates of uptake and adherence to cervical cancer screening among transgender men in study were assessed before and after implementation of self-collected swab intervention; retrospective chart review gathered baseline historical rate of cervical cancer screening	Following the introduction of self- collected swabs for hr-HPV, there was a two-fold increase in adherence to cervical cancer screening recommendations
14. Motivators and Barriers to Accessing Sexual Health Care Services for Transgender/Genderqu eer Individuals Assigned Female Sex at Bigh	2019	Harb et al.	United States	Transgender Health	17 transgender/gender queer individuals assigned female at birth (AFAB)	Mixed methods study	Quantitative knowledge survey followed by semi-structured qualitative interviews to determine sexual health care use and describe experiences with sexual health care services, including motivators and barriers to access	70% described cervical cytology as positive experience; 47% expressed anxiety about cervical cytology related to participants not identifying as female; qualitative results indicated uncertainty about competent care as barrier to seeking cervical cytology
at binn 15. Qualitative socioecological factors of cervical cancer screening use among transgender men	2020	Johnson et al.	United States	Preventative Medicine Reports	20 transgender men (TM)	Qualitative exploratory study	Semi-structured telephone interviews followed by deductive-inductive content analysis	Cervical cancer screening participants feel safer accessing healthcare organizations with gender neutral signage and bathrooms, as well as LGBT-friendly pamphlets; past negative experiences or discrimination negatively influence screening behaviors in transgender men; screening may trigger gender dysphoria and present as a barrier
16. Addressing Risk and Reluctance at the Nexus of HIV and Anal Cancer Screening	2016	Ka'opua et al.	United States	Health Promotion Practice	28 care providers	Qualitative study	Six provider focus groups to describe perceived influences on PLHIV participation in AIN screening and identification of culturally competent promotion/education strategies	Among Māhūwahine (Native Hawaiian and Other Pacific Islander transgender umbrella term), anal health communications, including screening information, should be bundled with culturally competent health care resources
17. Improving cervical screening in trans and gender-diverse people	2022	Kerr et al.	Australia	Cancer Nursing	196 individuals identifying as trans	Quantitative cross-sectional study	National survey conducted in 2018 to 2019; data analyzed using descriptive and multiple regression	44.6% of participants had never been recommended cervical cancer screening by healthcare provider (HCP); 21.9%

					and gender diverse (TGD)		analyses; items assessed include those related to cervical cancer screening, healthcare provider recommendation, and cervical	reported being regular screeners; 55.3% reported screening as being emotionally traumatic; 38.3% reported inability to find HCP with whom they are
18. Key Informants Discuss Cancer Care Research for Trans and Gender Diverse People	2021	Kerr et al.	Australia	Journal of Cancer Education	14 key informants with clinical and/or research experience with trans and gender diverse (TGD) populations, or who were community members who act as advocates	Qualitative exploratory study	cancer screening participation Semi-structured interviews followed by thematic analysis of transcripts	TGD people may experience dysphoria during cancer screenings and may find it distressing to be touched near the genitals; pain and provider roughness also act as barriers to cervical cancer screening
19. Cervical cancer screening with human papillomavirus self- sampling among transgender men in El Salvador	2020	Maza et al.	El Salvador	LGBT Health	24 transgender men	Mixed methods cross-sectional study	Questionnaire investigating demographics, HPV and cervical cancer history, and sexual and reproductive health, followed by opportunity to self-sample using a high-risk HPV test and routine physical examination; descriptive statistics used to analyze questionnaire items	Mostly positive perceptions of HPV self- sampling by those who accepted self- sampling, and all but one would perform self-sampling again
20. Cervical Cancer Screening Preferences Among Trans- Masculine Individuals: Patient-Collected Human Papillomavirus Vaginal Swabs Versus Provider-Administered Pan Tests	2017	McDowell et al.	United States	LGBT Health	63 trans-masculine individuals (31 in- depth interviewees and 32 survey participants)	Mixed methods study	Completion of in-depth interview or online survey followed by triangulation and data analysis	Preference for frontal HPV swab for cervical cytology due to it being less emotionally invasive and less provocative of gender discordance; more physical discomfort reported with cervical cytology; some prefer more thorough examination, including visual examination of the cervix
<ul> <li>21. Enacting power and constructing gender in cervical cancer screening encounters between transmasculine patients and health care providers</li> </ul>	2020	Peitzmeier et al.	United States	Culture, Health & Sexuality	32 transmasculine patients and 17 healthcare providers	Qualitative study	In-person, semi-structured in-depth interviews, and focus groups	Power imbalances can negatively affect acceptability of cervical cancer screenings among transmasculine people but can be mitigated by affirming patient choice, mitigating vulnerability, and encouraging self- advocacy; patients must be empowered to name themselves and their bodies to de- and re-gender cytology to give agency to screened individuals
<ul><li>22. "It Can Promote an Existential Crisis": Factors Influencing Pap</li></ul>	2017	Peitzmeier et al.	United States	Qualitative Health Research	32 individuals on transmasculine spectrum	Qualitative study	In-depth interviews to investigate transmasculine individuals' perceptions of HPV and cervical	Acceptability of cervical cytology was facilitated by trusting relationship with a skilled, gender-affirming provider and

test Acceptability and Utilization Among Transmasculine Individuals							cancer risk and prevention, experiences obtaining a cervical cytology, and gender identity in the context of cervical cancer screening; data analysis guided by principles of grounded theory	successful negotiation of masculine gender identity with 'feminized' conception of test; however, barriers, such as intolerable pain and providers unwillingness to adapt cervical cytology to make it more comfortable, were present
23. Cervical Cancer Screening for Patients on the Female-to-Male Spectrum: a Narrative Review and Guide for Clinicians	2015	Potter et al.	United States	Journal of General Internal Medicine	32 individuals on the FTM spectrum and 17 primary care physicians, gynecologists, physician assistants, and nurse practitioners	Qualitative study	In-depth interviews with individuals on the FTM spectrum; three focus groups with healthcare providers	Acceptability of cervical cancer screening can be improved by signaling acceptance (e.g., posting) inclusive nondiscrimination policies online), training of office staff to not make assumptions about patient's identity, avoiding of gendered terminology when inquiring about history or examination, and making accommodations considering pain that may be experienced due to testosterone therapy- related vaginal epithelial atrophy
24. Provider Recommendations Are Associated with Cancer Screening of Transgender and Gender- Nonconforming People: A Cross- Sectional Urban Survey	2020	Pratt-Chapman and Ward	United States	Transgender Health	58 transgender and gender- nonconforming people (TGNC)	Mixed methods cross-sectional study	Online survey followed by data analysis using descriptive statistics and logistic regression	Provider recommendation was significantly associated with receiving anal cancer screening (OR: 241.57; 95%CL: 11.50 - 5074.71; p < 0.0001); mixed responses among participants with cervix regarding preference for self-swab vs. clinician administered swab when screening for cervical cancer
25. "When the pain is so acute or if I think that I'm going to die": Health care seeking behaviors and experiences of transgender and gender diverse people in an urban area	2021	Pratt-Chapman et al.	United States	PLoS One	21 transgender and gender diverse people	Qualitative study	Interviews performed and data analyzed through coding using an emergent analytic approach	Improved provider communication skills, improved clinical knowledge and cultural competency may improve health care seeking behaviors including routine cancer screening; gender nonconforming respondent had great difficulty during cervical cytology collection due to provider not listening to them while they were experiencing pain
26. Test performance and acceptability of self- versus provider- collected swabs for high-risk HPV DNA testing in female-to- male trans masculine patients	2018	Reisner et al.	United States	PLoS One	150 trans masculine participants with a cervix	Mixed methods randomized control trial	One-time study visit consisting of self-report survey, self-collected vaginal HPV DNA swab, clinician- administered cervical HPV swab, and brief interview on acceptability of clinical procedures; participants then randomized to complete either self- or provider-collection	Over 90% of participants endorsed a preference for a self- over provider- collected swab and cited ease, privacy, minimal invasiveness, and self- empowerment as reasons; participants had concerns about whether they performed procedure correctly and about triggering gender dysphoria during the swabbing process

27. Six Tips for Giving Good Health Care to Anyone with a Cervix	2020	Sallans	United States	AMA Journal of Ethics	Transgender men	Personal narrative	N/a	Scheduling cervical cytology and pelvic exams may be emotionally difficult for trans men due to past negative experiences; providers should set honest and realistic expectations of gynecological procedures to improve
28. Understanding Transgender Men's Experiences with and Preferences for Cervical Cancer Screening: A Rapid Assessment Survey	2017	Seay et al.	United States	LGBT Health	91 transgender men	Quantitative cross-sectional study	Online survey to evaluate experiences with and preferences for screening; gathered data on opinions regarding HPV self-sampling as a primary cervical cancer screening	57.1% reported preference for HPV self- sampling over provider-collected cytology; participants who reported previous discrimination were 3.29 times more likely to prefer self-sampling
29. Understanding barriers to cervical screening uptake in trans men: an exploratory qualitative analysis	2016	Semlyen & Kunasegaran	United Kingdom	The Lancet	Trans men	Qualitative study	Interviews and focus group discussions with thematic analysis	Screening uptake heavily influenced by health care professionals' acceptance of patient gender identity; previous negative experiences with cervical screening deterred attendance; recognized need for education on the importance of screening within trans community
30. Gynecologic Health Care Providers' Willingness to Provide Routine Care and Papanicolaou Tests for Transmasculine Individuals	2019	Shires et al.	United States	Journal of Women's Health	60 attending gynecologic health care providers	Quantitative cross-sectional study	Electronic survey to measure experience of providers in working with trans people and willingness to provide care for transmasculine individuals; data analysis through descriptive statistics, chi-square tests, and t-tests	85.0% reported willingness to provide cervical cytology for transmasculine individuals; politically liberal or moderate providers, and those with experience providing care to trans people, were more willing to provide routine care to transmasculine individuals
31. Care of the Transgender Patient: A Survey of Gynecologists' Current Knowledge and Practice	2015	Unger	United States	Journal of Women's Health	141 obstetrics and gynecology (OBGYN) providers	Quantitative cross-sectional study	Anonymous survey sent via electronic mail to nine academic OBGYN departments across the United States; outcome measures were respondents' answers to survey questions; comparisons done using chi-souare tests	88.7% of providers reported willingness to perform routine screening cervical cytology on female-to-male transsexual patients who had not undergone hysterectomy
32. "Every now and then I get flagged for a Pap smear": Gender transition, embodiment, and "sex-specific" cancer screenings	2021	Wentling et al.	United States	Advances in Medical Sociology	35 transgender adults	Qualitative exploratory study	Semi-structured interviews followed by thematic narrative analysis to explore discrimination, discomfort, and hyperawareness of genitalia, strategic reframing and active management, and sex-specific health care encounters as positive and gender affirming	Negative experiences with cervical cytology and anticipated stigma can discourage trans men from seeking gynecological care in the future; physical discomfort and hyperawareness of genitalia can also act as deterrents to seeking care

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# **CHAPTER V: DISCUSSION AND CONCLUSION**

# V.I. GENERAL DISCUSSION

As detailed discussions of each study's results can be found in Chapters III and IV, this section summarizes the general findings in relation to the purpose and hypotheses of this thesis and situates the findings within the broader field of study. It will also discuss and propose directions for future research in viral illness care uptake for trans populations. Finally, this chapter concludes by discussing the implications of these findings for viral illness care uptake in trans populations.

# Summary of research findings

Though trans populations may be more vulnerable to acquiring viral sexually transmitted infections, their experiences with viral illness care, and barriers and facilitators to accessing these types of care, have not yet been well studied. To contribute to this growing area of research, the purpose of this thesis was to investigate factors influencing the uptake of viral illness care in trans populations, which was achieved through the two manuscripts presented in Chapters III and IV.

Chapter III investigated disclosure of trans identity and comfort discussing trans-specific health care needs with family and HIV physicians and reported the prevalence of specific negative experiences with HIV physicians, among a subset of trans women from a cohort of women living with HIV in Canada. I began by reporting the prevalence of disclosure and comfort to family and HIV physicians and compared differences in these measures. It was determined that the prevalence of disclosure of trans identity to both family and HIV physicians was very high,

indicating that family and HIV physicians in Canada may be facilitating treatment environments that affirm patients' gender identities. We also reported that the prevalence of comfort with family and HIV physicians was quite high, although the prevalence of comfort was slightly higher with family physicians who did not provide primary HIV care for their patients. Given that HIV physicians may have more experience working with stigmatized populations, such as those who use drugs, those who engage in sex work, and gbMSM, and may have more experience investigating sexual history, the finding that comfort was higher with family physicians was not necessarily consistent with our initial expectations. Though reported instances of stigma and discrimination enacted by HIV physicians are consistent with what we expected based on prior research, the rates of such instances were lower than initially expected, indicating that physicians specializing in HIV care may be well-trained to avoid stigmatizing their patients based on trans identity and/or serostatus.

In shifting to a different viral illness care setting in Chapter IV, and in focusing on screenings for cancers associated with HPV, we identified several barriers and facilitators to anal and cervical cancer screening in diverse trans populations; barriers included past instances of enacted stigma and discrimination, a lack of sexual health knowledge and knowledge regarding cancers associated with HPV, and facilitators included the option to self-sample and the prioritization of positive patient-provider relationships. Through my scoping review, it was determined that several measures may be taken, such as developing inclusive recruitment materials and investing in trans-centered screening clinics, to improve acceptability of these screenings and subsequent regular uptake in trans populations.

# Limitations

In addition to the limitations previously acknowledged in the manuscripts, it is important to recognize the difficulty in retaining trans women living with HIV in CHIWOS across the three study waves. Respondents to the questions on comfort and disclosure of trans identity varied throughout the three waves as well, leading to difficulties in quantitative analysis of these variables and difficulties extracting meaningful conclusions from the data.

Further, participants self-reported the training of their HIV physicians, and because it is possible that trans women participants in CHIWOS were not entirely aware of the training of their HIV care providers, they may have subsequently misclassified the training of their HIV physicians. As discussed in Chapter III, due to the small sample size, it became difficult to identify statistically significant relationships between provider-related characteristics and self-reported comfort discussing trans identity and trans-specific health care needs.

#### Future research

Our findings suggest that Canadian family and HIV physicians are, despite reported instances of enacted stigma and discrimination, facilitating the creation of positive patient-provider relationships and gender-affirming HIV care environments for trans women accessing HIV care; instances of enacted stigma and discrimination may necessitate the need for more comprehensive training on trans health in the context of HIV prevention and treatment. However, due to a small sample size and difficulties with retention, the power may have been insufficient to detect an association between provider-related factors and self-reported comfort. Despite this, and to my knowledge, CHIWOS is the largest study of trans women living with HIV in Canada to date.

Upcoming studies must focus on recruiting more trans women living with HIV and must focus their efforts on retaining these participants; despite significant efforts by the CHIWOS research team, higher retention of these populations in future research initiatives may be achieved through greater peer involvement in the construction of trans women-specific community advisory boards and more extensive cultural sensitivity trainings for research staff and collaborators (56). Due to a dearth of literature on how to retain trans women and other trans populations living with HIV in research initiatives, investment in research in this domain may be worthwhile.

Our findings also suggest that screenings for cervical and anal cancer in trans populations are acceptable when providers take key precautions to ensure the well-being of their trans patients and, in doing so, prioritize positive patient-provider relationships. While not a component of our scoping review, a quality assessment of existing and future data on cervical and anal cancer screening acceptability in trans populations may help identify gaps in the internal and external validity of findings (105). Future research should also focus on screenings for other cancers, such as breast cancer, in trans populations and other issues pertaining to the accessing of specialized care.

Given that the provision of primary health care services has changed since the onset of the COVID-19 pandemic, the role of telehealth in viral illness care provision for trans populations should also be explored. It is known that transgender youth may prefer to receive gender-affirming care through telehealth services for ongoing care and monitoring; this may translate well into HIV care settings and may facilitate a greater uptake of and comfort with these services (106). Due to the possibility of reduced anxiety and burden experienced by trans and non-binary individuals in accessing telehealth services as compared with traditional in-office visits, the

provision of HIV care through telehealth may also be a worthwhile investment (107). More research must be undertaken, specifically in the field of HIV telehealth provision for trans populations, particularly for those who may face multiple intersecting levels of stigmatization, and for those who reside outside of urban centers (107). These results may also have broader implications for the management of other illnesses for trans populations in primary care settings. Because trans populations experience health access disparities resulting from an avoidance of care due to cost, enacted stigma, and discrimination, to name a few, it may be worthwhile to explore how the management of other illnesses in primary care settings, such as disordered eating and chronic pain conditions, may be affected by both patient- and provider-related factors influencing comfort and the bolstering or diminishing of the patient-provider relationship (108).

# V.II. CONCLUSION

Trans populations are disproportionately more vulnerable to acquiring viral sexually transmitted infections, and as such, often require more specialized types of primary care; however, several noted barriers to uptake limit engagement in the HIV care continuum and in screenings for cancers associated with HPV (18,28,58,59,109). Both manuscripts presented in this thesis contribute significant evidence as to the factors influencing the uptake of viral illness care in trans populations. Through the first analysis of trans women's disclosure of trans identity and comfort discussing trans identity and trans-specific health care needs with family and HIV physicians, we identified high levels of both disclosure and comfort, and found that reported negative trans-specific experiences with HIV physicians indicate the need for more comprehensive gender-affirming training for health care providers working with trans individuals living with HIV. The second manuscript examined, in a different viral illness setting,

the acceptability of screenings for cancers associated with HPV in trans populations, identified several barriers and facilitators to screening, and provided key recommendations for researchers and clinicians practicing in this domain.

## **Implications**

Investigating factors influencing the uptake of viral illness care in trans populations is critical to ensuring the consideration and inclusion of trans individuals in primary care design and delivery for this population. By investigating trans women's levels of disclosure and comfort with their family and HIV physicians, and by identifying specific negative trans-specific experiences from these trans women in accessing HIV care, the first study demonstrated the importance of genderaffirmation in the provision of HIV care, which may be useful for the development of guidelines and protocols aimed at improving trans women's engagement in the HIV care continuum.

Aside from HIV and its complications, trans populations are also at high risk for HPV-related diseases, and cervical and anal cancer are preventable through vaccines and screening. The second study, thus, provides a review of the acceptability of screenings for cancers associated with HPV in trans populations. This synthesized knowledge allows us to generate meaningful recommendations regarding cervical and anal cancer screening guidelines. For example, self-sampling as a viable facilitator of cervical cancer screening in transmasculine populations may vastly transform the landscape of cervical cytology collection in these populations and in other key populations for cervical cancer prevention. Through my findings, I have generated meaningful knowledge that may assist in the development of better practices, policies, and ultimately, research involving and engaging trans populations across health domains globally.

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# APPENDIX A: SUPPLEMENTAL FIGURES FROM MANUSCRIPT I

**Supplementary Figure 1:** Sankey diagrams depicting longitudinal flow of disclosure of trans identity and comfort discussing trans identity and trans-specific health care needs (n = 54).



Disclosure of Trans Identity to Family Physicians Across Three Waves

Disclosure of Trans Identity to HIV Physicians Across Three Waves





Comfort Discussing Trans Identity and Trans-Specific Health Care Needs with Family Physicians Across Three Waves

Comfort Discussing Trans Identity and Trans-Specific Health Care Needs with HIV Physicians Across Three Waves



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# APPENDIX B: ETHICS APPROVAL FOR MANUSCRIPT I



L'Institut de recherche du Centre universitaire de santé McGill The Research Institute of the McGill University Health Centre

February 06, 2012

Dr. Alexandra de Pokomandy MUHC - MCI Room J8.26D

# Re: MUHC Authorization to Conduct Human Subjects Research 11-102-GEN

Dear Dr. de Pokomandy:

We are writing to confirm that the study titled "Canadian HIV Women's Sexual & Reproductive Health Cohort Study (CHIWOS), a Canadian Observational Cohort (CANOC) Affiliated Study." was submitted for all institutional reviews required by McGill University Health Centre policy.

The Genetics/Population Research/Investigator Initiated Studies (GEN) Research Ethics Board (REB) has notified us that ethical approval to conduct your study has been provided.

Please refer to the MUHC Study Code 11-102-GEN in all future correspondence relating to this study.

Enclosed you will find a fully executed original contract for your files (OCC# 2011-182).

**Important Note:** You are required to advise the MUHC once the study has been initiated. Please complete the Study Status Report through the *eReviews* system to indicate the date the study became active. Instructions for accessing and using the *eReviews* system are available on the RI MUHC portal.

On behalf of the MUHC, we wish you every success with the conduct of the research.

Sincerely,

amarcha

Miguel Burnier, MD, PhD Associate Director for Clinical Research The Research Institute of the McGill University Health Centre

Enclosure(s)

**REB** Study File cc: RI MUHC Study File Contract Study File

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Centre universitaire de santé McGill McGill University Health Centre Les nuilleurs soins pour la vie The Best Care for Life

Montreal, Monday, November 21, 2011

Dr. Alexandra De Pokomandy MCI

Re: REQUEST FOR APPROVAL OF RESEARCH PROTOCOL: "Canadian HIV Womens Sexual & Reproductive Health Cohort Study (CHIWOS), a Canadian Observational Cohort (CANOC) Affiliated Study" REB: 11-102-GEN e-view: 2035 Sponsor - CIHR

Dear Dr. De Pokomandy:

I hereby confirm receipt of the above-mentioned research protocol and my approval for you to proceed.

Please note that this permission does not waive the need for Research Ethics Board review and approval and is conditional to receipt of final MUHC authorization. For more information please contact the Research Ethics office at newstudy@muhc.mcgill.ca.

Sincerely,

Maciej (Mathias) Kalina, MD Associate Director of Professional Services McGill University Health Centre

MK/eh

Cc. Archives (MCI)

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#### **APPENDIX C: DATABASE SEARCH STRATEGIES FOR MANUSCRIPT II**

#### MEDLINE (via Ovid)

- (transgender or transsexual or transexual or trans woman or trans women or trans man or trans men or transwoman or transwomen or transman or transmen or nonbinary or nonbinary or transmasc\* or transfem\*).mp. or Transgender Persons/
- 2. (HPV or human papillomavirus or cancer\* or neoplas\*).mp. or exp Neoplasms/
- (screen\* or test\* or prevent\* or treat\* or vaccin\*).mp. or exp Vaccines/ or exp Mass Screening/ or exp Primary Prevention/
- 4. 1 and 2 and 3

#### CINAHL

( (transgender or transsexual or transexual or trans woman or trans women or trans man or trans men or transwoman or transwomen or transman or transmen or nonbinary or nonbinary or transmasc\* or transfem\*) or (MH "Transgender Persons+" or (MH "Trans Men+") or (MH "Trans Women+") ) AND (HPV OR "human papillomavirus" or cancer\* or neoplas\*) or (MH "Neoplasms+") ) AND ( (screen\* or test\* or prevent\* or vaccin\*) or (MH "Vaccines+" or (MH "Mass Screening+") or (MH "Primary Prevention+") )

#### Web of Science

((ALL=((transgender OR transsexual OR transsexual OR "trans woman" or "trans women" or "trans man" or "trans men" or transwomen or transwomen or transman or transmen or nonbinary or non-binary or transmasc\* or transfem\*) OR "Transgender Persons")) AND ALL=((HPV OR "human papillomavirus" or cancer\* or neoplas\*) or Neoplasms)) AND ALL=((screen\* OR test\* OR prevent\* OR vaccin\* OR treat\*) OR Vaccines OR Mass Screening OR Primary Prevention))

#### Scopus

(TITLE-ABS-KEY ( transgender OR transsexual OR transexual OR "trans wom?n" OR "trans m?n" OR transwom?n OR transm?n OR nonbinary OR non-binary OR transmasc\* or transfem\* OR INDEXTERMS ( "Transgender Persons" ) ) AND (TITLE-ABS-KEY ( hpv OR "human papillomavirus" OR cancer\* OR neoplas\* ) OR INDEXTERMS ( neoplasms ) ) AND ( TITLE-ABS-KEY ( screen\* OR test\* OR prevent\* OR vaccin\* OR treat\* ) OR INDEXTERMS ( vaccines ) OR INDEXTERMS ( "Mass Screening" ) OR INDEXTERMS ( "Primary Prevention) )

### Embase

- (transgender or transsexual or transexual or "trans woman" or "trans women" or "trans man" or "trans men" or transwoman or transwomen or transman or transmen or nonbinary or non-binary or transmasc\* or transfem\*).mp. or exp transgender/
- 2. (HPV or "human papillomavirus" or cancer\* or neoplas\*).mp. or exp neoplasm/
- (screen\* or test\* or prevent\* or vaccin\* or treat\*).mp. or exp vaccine/ or exp mass screening/ or exp primary prevention/
- 4. 1 and 2 and 3