

# **Evaluation of Physician Assistant Students' Perceived Preparedness in Providing Health care to people who may identify as Lesbian, Gay, Bisexual, and Transgender**

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## **Abstract**

People who identify as lesbian, gay, bisexual, and transgender (LGBT) face barriers to accessing appropriate, non-discriminatory culturally-safe health care. An important strategy to address the disparities experienced by the LGBT population is to ensure preparedness of students graduating from health care professions. Canadian Physician Assistant students' level of preparedness in caring for LGBT+ patients is unknown. This study used an online survey distributed to students and alumni of the Master of Physician Assistant Studies at the University of Manitoba to characterize the LGBT+-related health curriculum, and to determine Physician Assistant students' self-reported preparedness in providing care to patients who identify as LGBT+. We also conducted an interview with a curriculum developer to further characterize the curriculum and to confirm survey findings. Of 34 survey participants, 32 were included in the final analysis. Most students/alumni rated the LGBT+-related curriculum as "fair" or worse. The topics that students and alumni felt most prepared to address were HIV, sexually transmitted infections, alcohol use, tobacco and other drug use, safe sex and gender identity. They felt least prepared addressing sex reassignment surgery, transitioning, adolescent health, disorders of sex development, and body image. Finally, by using our findings as a needs assessment, we proposed recommendations for inclusion of LGBT+-related health content in the Master of Physician Assistant Studies program at the University of Manitoba.

## **Introduction**

A significant portion of the Canadian population identifies as LGBT+, yet members of these communities continue to face barriers to equitable health care. In 2003, lesbian, gay and bisexual (LGB) individuals comprised 1.7% of the Canadian population. In this study, among LGB individuals aged 18-59, 21.8% reported unmet healthcare needs, which was nearly twice the proportion of heterosexual individuals surveyed (12.7%) (1). These unmet needs may influence

the health disparities experienced by LGBT+ populations when compared to their heterosexual counterparts, which include increased risk of drug misuse, cancers, sexually transmitted infections, mental illness and other chronic diseases (2-7).

Addressing the health disparities experienced by LGBT+ populations requires a multifactorial approach. One important strategy is to adequately train and ensure preparedness of students in healthcare professions (8). In a recent position statement, the Association of American Medical Colleges (AAMC), states the necessity that “medical school curricula ensure that students master the knowledge, skills, and attitudes necessary to provide excellent, comprehensive care for LGBT+ patients” and in order to do this, programs should be including “comprehensive content addressing the specific health care needs of patients” in their curricula (8). They also suggest regular evaluations of student preparedness in LGBT+-related health topics, which can provide training programs with feedback on strengths and weaknesses in the curriculum.

In 2015, the Stanford School of Medicine published the “Lesbian, Gay, Bisexual and Transgender Medical Education Assessment (LGBT-MEA),” which was a survey used to evaluate the perceived comfort and preparedness of North American medical students in providing health care services to patients who identify as LGBT (9). In this study, most Canadian medical students felt their curriculum was “fair” or worse, however, most students felt more prepared as a result of their training. Notably, there are few studies that have evaluated Physician Assistant (PA) curricula. In 2015, Seaborne et al distributed surveys to American PA programs to evaluate their sexual health curricula. They found that lesbian, gay, bisexual and transgender topics were covered less thoroughly than the general sexual health topics, with most LGBT-related topics covered only “somewhat” or less (10). Perceived preparedness of Canadian PA

students in caring for LGBT+ populations has not yet been evaluated. Evaluating perceived preparedness in the PA profession is important, as Canadian PAs are increasing in number and are working in a variety of specialties including primary care, psychiatry, surgical specialties and emergency departments (11,12). Our specific research question for this study was: Do students/alumni feel that the Master of Physician Assistant Studies (MPAS) curriculum on LGBT+-related health topics at the University of Manitoba increased their preparedness in providing care to patients who may identify as LGBT+, as compared to their preparedness prior to the MPAS program. To do this, we created a survey adapted from the LGBT-MEA (9). We also conducted an interview with a curriculum developer from the University of Manitoba MPAS program to confirm our survey findings and to better characterize the MPAS LGBT+-related health curriculum. Our findings then served as a needs assessment to create a proposed curriculum for the MPAS program. With this study, we hope to contribute to positive health outcomes for people who identify as LGBT+.

## **Methods**

Our study had two main purposes. First, to characterize the LGBT+-related health curriculum in the MPAS program at the University of Manitoba. Second, to evaluate any perceived change in preparedness of students/alumni of the MPAS program at the University of Manitoba as result of this curriculum. Notably, there are many acronyms used in the LGBT+ community. In this study, we have chosen to use “LGBT+” in most instances. Other acronyms may use any combination of the following: LGBTQIAAP2S: Lesbian, Gay, Bisexual, Transgender, Queer, Questioning, Intersex, Asexual, Ally, Pansexual, Two-Spirit. The plus sign we have chosen to use represents the growing list of terms people use to describe their sexual orientation or gender identity.

## **Design**

This research used a mixed methods study with a convergent design (13). We conducted a survey of students and alumni of the University of Manitoba MPAS program to evaluate student perceived preparedness. We also conducted an interview with an MPAS curriculum developer to support our survey findings and to characterize the curriculum.

## **Ethics**

This study was approved by both the Health Research Ethics Board and the Survey Review Committee at the University of Manitoba. For both the surveys and interviews, participants were asked to read a consent disclosure statement. The interview participant agreed to being quoted directly.

## **Participants**

Participant recruitment for both the survey and interview was via email. Survey inclusion criteria included (1) a current student of the Master of Physician Assistant Studies (MPAS) training program at the University of Manitoba, (2) an alumnus of the Master of Physician Assistant Studies (MPAS) training program at the University of Manitoba, (3) completed survey (consent obtained). Survey exclusion criteria included (1) a person who has already participated in the survey, (2) incomplete survey (consent not obtained).

Interview inclusion criteria included (1) an individual who is involved in the Master of Physician Assistant Studies (MPAS) training program curriculum development at the University of Manitoba, (2) consent obtained. Interview exclusion criteria include (1) a curriculum developer who has already been interviewed for this study, (2) consent denied or not obtained.

## **Data Collection**

The survey was provided online and was available from January 24<sup>th</sup> through February 27<sup>th</sup>, 2019. The survey was composed of 16 questions and designed to be completed in 15 minutes (Appendix 1). The survey questions were modified from the “Lesbian, Gay, Bisexual & Transgender Medical Education Assessment (LGBT-MEA)” developed by the Stanford School of Medicine in 2015 (9). Survey questions were reviewed by a faculty member of the Office of Educational and Faculty development at the University of Manitoba and a practicing PA with professional experience in LGBT+-related health.

The interviews were composed of 7 questions, designed to take 30 minutes (Appendix 2). Interview questions were reviewed by the Office of Educational and Faculty development at the University of Manitoba and a practicing PA with professional experience in LGBT+-related health.

## **Data Analysis**

First year students (class of 2020) were excluded from data analyses, as they were in their first term of the program at the time of survey administration, and the free textbox comments suggested that they may not be able to accurately evaluate the curriculum. Quantitative data was analyzed using descriptive statistics where appropriate. Student preparedness was assessed for 16 LGBT-related health areas. Students who said they were “insufficiently prepared” or “not at all prepared” were categorized as “not prepared.” Those who said they were “prepared,” “well prepared,” or “extremely well prepared” were categorized as “prepared” (9). Those who responded “don’t know” or declining to answer were considered neither prepared nor not prepared. We attempted to use a comparative analytic strategy by classifying participants into

alumni (classes of 2010-2018) and current students (class of 2019). We did this using chi-square analyses and Mann-Whitney U analysis where appropriate. The interview transcript was evaluated quantitatively. Interview responses were compared and integrated with survey data to interpret our study results overall. Programs used for data analysis include Microsoft Excel 2018 (Microsoft Corporation, Redmond, WA, USA) and SPSS Version 1.0.0.1131 (IBM, Markham, ON, Canada).

## **Results**

### **Survey**

***Characterization of participants.*** Of the 32 participants, 62.5% were alumni of the MPAS program, graduating from 2010 to 2018. The other 37.5% were current MPAS students in the class of 2019. (Table 1). When asked to indicate their gender identity, 68.75 % “female”, while the remaining 31.25% selected “male.” No participants identified as transgender or another gender. Most participants (90.6%) identified their sexual orientation as straight/heterosexual, while 9.3% identified as Lesbian, Bisexual, Gay, Queer or Questioning. Participants were asked to indicate any experiences they have had with people who identify as LGBT+ prior to entering the MPAS program. Most participants (75%) indicated having personal experience with people who identify as LGBT+, 21.9% of participants had no experience, and 28.1% had professional experience. For this question, participants were able to select multiple options, and so the total percentage exceeds 100%.



**Table 1: Survey participant characteristics**

<b>Grad year</b>	<b>Frequency/total (%)</b>
2010-2018	20/32 (62.50)
2019	12/32 (37.50)
<b>Gender identity</b>	
Female	22/32 (68.75)
Male	10/32 (31.25)
Transgender	0/32 (0)
Another gender	0/32 (0)
<b>Sexual orientation</b>	
LGBT+	3/32(9.38)
Straight/heterosexual	29/32 (90.63)
<b>Previous experience with LGBT+ populations</b>	
No experience	7/32 (21.875)
Professional experience	9/32(28.13)
Personal experience	24/32(75)

***Inclusion of LGBT+-related health topics.*** Participants were asked to answer questions related to the training they received in sexual history-taking as part of the MPAS curriculum. Almost all participants (96.9%) indicated that they were taught to ask about same-sex relationships. Half (50%) of participants indicated that they had been taught to obtain information about gender identity. There was no significant difference between alumni and current students when their answers were compared. Participants were also asked to indicate whether they received training on 16 specific content topics. The five content topics that were most commonly selected as “taught” were HIV in LGBT+ people, mental health in LGBT+ people, gender identity, barriers,

and sexual orientation (Table 2). The five content topics that were most commonly selected as “not taught” were coming out, sex reassignment surgery, unhealthy relationships, transitioning, and body image. Participants were also asked to suggest other topics that should be covered in a free text box. These suggestions included: a list of local resources for patients, hormone therapy, aging/geriatrics, HAART, sex positive conversations, and interview practice.

**Table 2: Content topics taught**

Content topic	Frequency/total (%)		
	Taught	Not taught	Don't know
<b>Sexual orientation</b>	22/32 (68.75)	7/32(21.88)	3/32(9.38)
<b>Barriers</b>	21/32 (65.63)	10/32(31.25)	1/32(3.125)
<b>Gender identity</b>	17/32 (53.13)	11/32(34.38)	4/32(12.5)
<b>HIV in LGBT people</b>	15/32 (46.88)	15/32(46.88)	2/32(6.25)
<b>Mental health in LGBT people</b>	15/32(46.88)	13.32(40.63)	4/32(12.5)
<b>Disorders if Sex Development/Intersex</b>	14/32(43.75)	14/32(43.75)	4/32(12.5)
<b>Alcohol, tobacco, or other drug use among LGBT people</b>	10/32(31.25)	18/32(56.25)	4/32(12.5)
<b>Safer Sex for LGBT people</b>	10/32(31.25)	16/32(50.00)	6/32(18.75)
<b>Sexually transmitted infections (not HIV) in LGBT people</b>	10/32(31.25)	16/32(50.00)	6/32(18.75)
<b>Chronic disease risk for LGBT populations</b>	6/32(18.75)	18/32(56.25)	8/32(25.00)
<b>LGBT adolescent health</b>	6/31(19.35)	19/31(61.29)	6/31(19.35)
<b>Transitioning</b>	5/32(15.63)	22/32(68.75)	5/32(15.63)
<b>Body image in LGBT people</b>	5/32(15.63)	18/32(56.25)	9/32(28.13)
<b>Coming out</b>	3/32(9.38)	23/32(71.88)	6/32(18.75)
<b>Sex reassignment surgery</b>	3/32(9.38)	23/32(71.88)	6/32(18.75)
<b>Unhealthy relationships among LGBT people</b>	3/32(9.38)	22/32(68.75)	7/32(21.88)

**Coverage of LGBT+-related health topics.** Participants were also asked to indicate the level of coverage of 16 specific content topics (Table 3). When asked to evaluate the overall coverage of LGBT+ health topics, most participants rated the curriculum as either “fair” (40.63%) or “poor” (43.75%), while 9.4% rated the curriculum as “very poor” (Table 4). Of note, there was no significant difference in perception of coverage when alumni and current students were compared.

**Table 3: Coverage of LGBT health topics in the MPAS curriculum**

Content topic	Frequency/total (%)						
	Coverage not needed	Too little coverage	Basic Coverage	In depth coverage	Too much coverage	Don't know	Decline to answer
Sex reassignment surgery (RS)	1/32(3.13)	25/32(75.00)	5/32(15.63)	1/32(3.13)	0/32(0)	1/32(3.13)	0/32(0)
Transitioning	1/32(3.13)	24/32(75.00)	5/32(15.63)	0/32(0)	0/32(0)	2/32(6.25)	0/32(0)
Body image in LGBT people	0/32(0)	24/32(75.00)	6/32(18.75)	0/32(0)	0/32(0)	2/32(6.25)	0/32(0)
Coming out	1/32(3.13)	23/32(71.88)	6/32(18.75)	0/32(0)	0/32(0)	2/32(6.25)	0/32(0)
Unhealthy relationships among LGBT people	0/32(0)	22/32(68.75)	6/32(18.75)	0/32(0)	0/32(0)	4/32(12.5)	0/32(0)
HIV in LGBT people	1/32(3.13)	21/32(65.63)	7/32(21.88)	0/32(0)	0/32(0)	3/32(9.38)	0/32(0)
Chronic disease risk for LGBT populations	1/32(3.13)	21/32(65.63)	7/32(21.88)	0/32(0)	0/32(0)	3/32(9.38)	0/32(0)
LGBT adolescent health	1/31(3.23)	20/31(64.12)	8/31(25.81)	0/31(0)	0/31(0)	2/31(9.38)	0/31(0)
Safer sex for LGBT people	2/32(6.25)	19/32(59.38)	9/32(28.13)	0/32(0)	0/32(0)	2/32(6.25)	0/32(0)
Gender identity	0/32(0)	19/32(59.38)	11/32(34.38)	1/32(3.13)	0/32(0)	1/32(3.13)	0/32(0)
Mental health in LGBT people	0/32(0)	18/32(56.25)	13/32(40.63)	0/32(0)	0/32(0)	1/32(3.13)	0/32(0)
Alcohol tobacco, or other drug use among LGBT people	1/32(3.13)	17/32(53.13)	12/32(37.50)	0/32(0)	0/32(0)	2/32(6.25)	0/32(0)
Barriers to accessing medical care for LGBT people	0/30(0)	16/30(53.33)	13/30(43.33)	0/30(0)	0/30(0)	1/30(3.33)	0/30(0)
Disorders of Sex Development (DSD)/Intersex	0/31(0)	15/31(48.39)	14/31(45.16)	0/31(0)	0/31(0)	2/31(6.45)	0/31(0)
Sexually transmitted infections (not HIV) in LGBT people	1/32(3.13)	14/32(43.75)	16/32(50.00)	0/32(0)	0/32(0)	1/32(3.13)	0/32(0)
Sexual orientation	0/31(0)	13/31(41.94)	17/31(54.84)	0/31(0)	0/31(0)	1/31(3.23)	0/31(0)

**Table 4: Opinion of LGBT health content coverage on the whole**

<b>Opinion of content coverage on the whole</b>	<b>Frequency/total (%)</b>
<b>Good</b>	1/32 (3.13)
<b>Fair</b>	13/32 (40.63)
<b>Poor</b>	14/32 (43.75)
<b>Very poor</b>	3/32 (9.38)
<b>Missing</b>	1/32 (3.13)

*Curriculum delivery.* When asked about the delivery method of the LGBT+-related health content, most participants (62.5%) felt that the information was taught in a discrete, dedicated module. The remainder of participants thought that curricular material was taught interspersed throughout various parts of the curriculum (31.25%) or not taught at all (6.25%). Participants were also asked to select all strategies that they thought might be helpful in delivering LGBT-related content. The top 5 selected delivery methods were: lectures, case-based discussions, clinical experiences, faculty willing to teach the content and more time to teach the content (Table 5). One participant felt that LGBT-specific coverage was already sufficient. There was no significant difference between alumni and current students when their answers were compared.

**Table 5: Delivery method strategies selected by survey participants**

<b>Delivery method strategies</b>	<b>Frequency</b>
<b>Lectures focusing on LGBT-related health/health disparities</b>	24
<b>Case-based discussion of LGBT-related health/health disparities</b>	23
<b>Clinical experiences with LGBT patients</b>	23
<b>Faculty willing and able to teach LGBT related curricular content</b>	18
<b>More time in the curriculum to be able to teach LGBT-related content</b>	14
<b>More evidence-based research regarding LGBT health/health disparities</b>	14
<b>Curricular material focusing on LGBT-related health/health disparities</b>	12
<b>Questions based on LGBT health/health disparities on national examinations</b>	12
<b>Methods to evaluate LGBT curricular content</b>	7
<b>Logistical support for teaching LGBT-related curricular content</b>	5
<b>Increased financial resources</b>	4
<b>Curricular material coverage required by accreditation bodies</b>	4
<b>LGBT-specific curricular coverage is already sufficient</b>	1

*Student/alumni self-reported preparedness.* The LGBT+-related health topics students/alumni felt least prepared to address were sex reassignment surgery, transitioning, LGBT adolescent health, disorders of sex development, body image in LGBT people and chronic disease risk for LGBT populations (Table 6). Participants were also asked to rate their overall change in preparedness as a result of the MPAS program (Table 7). Most participants felt either more prepared (35.5%) or felt that their preparedness had not changed (38.7%), while 22.5% of participants were unsure whether their level of preparedness changed. Again, there was no significant difference between alumni and current students when their answers were compared.

**Table 6: Self-reported preparedness in 16 topic areas**

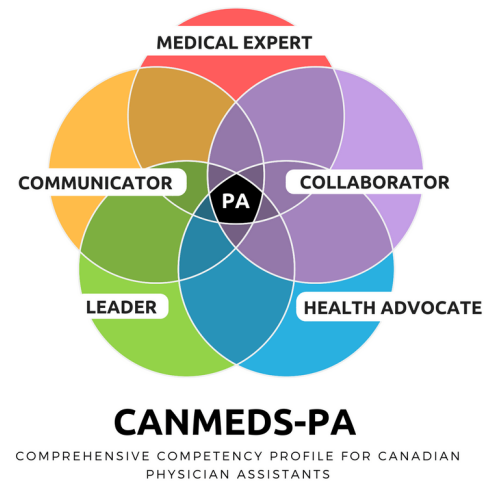
<b>Content topic</b>	<b>Prepared Frequency/total (%)</b>	<b>Not prepared Frequency/total (%)</b>
<b>Sex reassignment surgery (RS)</b>	3/32(9.38)	29/32 (90.63)
<b>Transitioning</b>	4/32(12.50)	28/32(87.50)
<b>LGBT adolescent health</b>	6/30(20.00)	24/30(80.00)
<b>Disorders of Sex Development (DSD)/Intersex</b>	7/32(21.88)	25/32(78.13)
<b>Body image in LGBT people</b>	7/31(22.58)	24/31(77.42)
<b>Chronic disease risk for LGBT populations</b>	7/31(22.58)	24/31(77.42)
<b>Unhealthy relationships among LGBT people</b>	7/31(22.58)	24/31(77.42)
<b>Barriers to accessing medical care for LGBT people</b>	8/32(25.00)	24/32(75.00)
<b>Coming out</b>	8/32(25.00)	24/32(75.00)
<b>Sexual orientation</b>	8/32(25.00)	24/32(75.00)
<b>Mental health in LGBT people</b>	10/32(31.25)	22/32(68.75)
<b>Gender identity</b>	12/31(38.71)	19/31(61.29)
<b>Safer sex for LGBT people</b>	12/30(40.00)	18/30(60.00)
<b>Alcohol, tobacco, or other drug use among LGBT people</b>	16/31(51.61)	15(48.39)
<b>Sexually transmitted infections (not HIV) in LGBT people</b>	18(56.25)	14(43.75)
<b>HIV in LGBT people</b>	18(56.25)	14(43.75)

**Table 7: Self-reported change in preparedness overall**

Overall change in preparedness as a result of the program	Frequency/total (%)
More prepared	11/31(35.48)
Preparedness has not changed	12/31(38.71)
Less prepared	1/31(3.23)
I don't know whether my level of preparedness has changed	7/31(22.58)
Decline to answer	0/31(0)

**Interview**

One faculty member was recruited for this part of the study. We will refer to this interviewee as “Curriculum Developer #1” or “CD1”. A full copy of the interview transcript is available in the appendices (Appendix 3).



**Figure 1: CAM-MEDS-PA**

**Development of the current curriculum.** According to CD1, the MPAS curriculum was developed using the principles of the CAN-MEDS-PA (Figure 1) and the standards set out by the Canadian Medical Association as a general framework (14,15). CD1 noted that there are no concrete guidelines for teaching LGBT+ health to PA students, explaining that “the reality is that LGBT health is not directly addressed in the CAN-MEDS or in any other standards. [The MPAS curriculum was] based on my decisions and my experience, as well as consulting with various other contributors to the curriculum development” (Appendix 3).



***Delivery of the current curriculum.*** Currently, the MPAS curriculum includes one 2-hour session dedicated exclusively to LGBT+ health. Prior to 2014, the MPAS program invited a local community organization to teach students about LGBT+-related health. Since then, the instructor of this 2-hour session has been a PA with several years of experience working in a primary care clinic where a high number of their patients identified as LGBT+. This instructor creates their own presentation based on a list of general objectives provided by the MPAS program (Appendix 4). Notably, there are other courses in the MPAS curriculum which touch on certain specific topics in LGBT+ health, including “Patient Assessment,” which is a course that teaches history taking and physical exam skills, “Pediatrics” which includes a session on Disorders of Sexual Development, and “Professional Studies” which touches on the Social Determinants of Health and Cultural Safety. Of note, LGBT+-related health content has always been presented to students in a didactic lecture-based format, with open discussion encouraged.

***Improvements and barriers.*** When asked about improvements that could be made to the program, CD1 notes that “there can always be improvements made to the curriculum, in particular related to addressing the health needs of underserved and minority communities” (Appendix 3). Despite an expressed desire to improve the curriculum, CD1 mentioned two major barriers to this: instructional time and finances. In a discussion about content topics that should be included in the future, CD1 explained that as generalists, PAs do not necessarily need teaching on highly specialized topics. Rather, a focus on more general topics, and issues that arise more frequently in primary care settings are more likely to be appropriate and relevant to future practice.

## **Discussion and recommendations**

This study had two main objectives: to characterize the LGBT+-related health curriculum of the MPAS program at the University of Manitoba and to evaluate MPAS student and alumni perceived preparedness in caring for people who identify as LGBT+ as a result of the program. To our knowledge, this is the first study to evaluate Canadian PA student preparedness to provide care to patients who identify as LGBT+. According to our findings, the MPAS program may not be adequately preparing students to care for people who identify as LGBT+. Most survey respondents rated the LGBT-related curriculum as either “poor” (43.75%) or “fair” (40.63%). These findings are similar to a study conducted on Canadian medical students, in which 69.6% of students described their curriculum as “fair” “poor” or “very poor” (9). Our findings can serve as a needs assessment and identify potential areas of improvement in the MPAS program.

### **Curricular content on sexual Orientation and gender identity**

MPAS students and alumni were asked to indicate whether they had been taught to acquire information about same-sex relationships and gender identity when taking patient histories. Less than half (46.88%) of students felt that they had been taught to teach about gender identity. Gender identity is a person’s deeply felt psychological identification as a male, female, transgender, no gender or another gender. When taking a patient’s history, it is important to gather information about gender identity, as it may or may not correspond to the person’s body or designated sex at birth. In order to address these shortcomings, it would be important to include specific teaching on how to ask a patient about their gender identity and to evaluate students on their ability to do so in a respectful and sensitive manner.

### **Student/alumni self-reported preparedness**

When asked to rate change in preparedness overall as a result of the MPAS program, an almost equal number of participants felt either more prepared (35.5%) or that their preparedness had not changed (38.7%). This does not mirror the results of a similar study in Canadian medical students, where 65.7% felt more prepared as a result of their medical education (9). It is not clear why this discrepancy exists, however it may be related to a difference of approach in teaching LGBT+-related topics, or the length of training involved in medical school programs compared to PA programs.

Our survey asked students and alumni to indicate their preparedness regarding 16 topics which may be important in providing care to patients who identify as LGBT+. The content areas in which students felt most prepared were HIV and STIs, alcohol, tobacco and other drug use, safer sex and gender identity (Table 6). The content areas in which students felt most unprepared were sex reassignment surgery, transitioning, LGBT adolescent health, disorders of sex development and body image in LGBT people. These findings are similar to those published in a study by Seaborne et al, in which the most commonly covered LGBT topics in American PA programs were sexual orientation, gender identity and STIs and the least covered topics were transgender issues and sex reassignment surgery (10). As mentioned in the interview with a curriculum developer (Appendix 3), it is important to consider that the goal of the MPAS program is to produce graduates who are generalist practitioners, not specialists. Once graduated, certified PAs are expected to become more specialized as they progress in their specific area of work. For this reason, it is important to consider whether the topic areas in which students/alumni feel most unprepared are realistic and necessary for a generalist's body of knowledge. We thought it would be informative to evaluate each of these 16 topics and give a brief overview on how they could

be taught in a PA program. Consideration of factors specific to practicing in Manitoba are addressed as appropriate. The topics are ordered from the topic in which students/alumni felt least prepared to most prepared.

***Sex reassignment surgery and transitioning.*** These were the two topics in which our participants felt most unprepared. Sex reassignment surgery and transitioning are relatively specialized topics. It would be unrealistic to provide a generalist with in-depth instruction in these topic areas. More specifically, most graduates from the MPAS program at the University of Manitoba will be practicing in Manitoba, where bottom surgery is not currently performed. An appropriate level of instruction on sexual reassignment surgery would include a basic definition of the term, a list of available procedures, and a brief explanation on how referrals can be made. Coverage of transitioning in PA programs should include a definition of the term, and a brief overview of hormonal and surgical interventions.

***LGBT adolescent health.*** LGBT youth face unique challenges, as they must deal with both the developmental concerns common to the general adolescent, while also dealing with internal and external stigmatization (16). Primary care providers have the role of addressing concerns of sexual identity, as well as the social and psychological stressors associated with being part of a sexual minority group. As generalists, it is important for PAs to have a basic knowledge in the common issues that arise in this population. For a PA program curriculum, review of the health disparities experienced by adolescent youth when compared to their heterosexual counterparts would be an appropriate level of instruction.

**Disorders of Sexual development.** Ideal care for a person with DSD involves a multidisciplinary approach with experts in medical, surgical and psychological care. For PA training purposes, an overview of the role of primary care providers would be an appropriate level of information (16). The goals of primary care for patients with DSD are to enhance innate life skills, talents, relationship and sexual abilities, and assist with parenthood or fertility if desired. Any further specialized knowledge would not be practical for a generalist body of knowledge.

**Body image in LGBT people.** This topic is applicable to both primary care and psychiatry, the latter being one of the specialties in Manitoba that has the largest number of PAs. A general overview of body image in LGBT people would be appropriate for a PA trainee. It is generally recommended that primary care providers screen for eating disorders in patients who identify as LGBT+ (16). The Fenway guide to LGBT health recommends the “SCOFF” tool for screening of eating disorders in primary care settings (Table 9)(17).

**Table 9: The SCOFF tool for screening of eating disorders in a primary care setting**

SICK	Do you make yourself Sick because you feel uncomfortably full?
CONTROL	Do you worry that you have lost Control over how much you eat?
ONE	Have you recently lost more than One Stone in a three-month period? (one stone is 14 pounds)
FAT	Do you believe yourself to be Fat when others say you are too thin?
FOOD	Would you say that Food dominates your life?
*One point for every “yes”; a score of $\geq 2$ indicates a likely case of anorexia or bulimia	

***Chronic disease risk for LGBT populations.*** It is well documented that LGBT populations are at higher risk for certain chronic diseases (3-7,16). An understanding that there are certain chronic diseases that affect LGBT+ populations disproportionately, and the importance of screening for these diseases, would be appropriate for PA student training. Information on diagnosis and management of chronic diseases should be addressed in other areas of the curriculum.

***Unhealthy relationships among LGBT people.*** Similar to the previous topic, it would be important for PA trainees to understand that people who identify as LGBT+ are more likely to experience inter-partner violence, and therefore it is important to screen for this in a primary care setting (16).

***Barriers to accessing medical care for LGBT people.*** A general understanding of the patient-level and provider-level barriers faced by people who identify as LGBT+ and basic strategies of how to minimize these barriers would be important for PA training.

***Coming Out.*** Coming out is the experience of becoming self-aware or the act of openly disclosing to others that one is LGBT+ (16). Coming out is often a challenging experience for people due to various factors including personal, familial, cultural, societal and religious factors. Health care providers can act as a support to people who identify or are beginning to identify as LGBT+, which contributes to the development of positive self-esteem in LGBT+ patients. It would be important for PA trainees to have an understanding of the stress involved in the process of coming out, and the importance of conveying acceptance and affirmation.

***Sexual Orientation and Gender identity.*** A patient's sexual orientation and gender identity are an important component in sexual history taking. This information is important for providing safe and respectful care, and can influence decisions to screen for certain diseases, and inform prevention strategies. For these reasons, PA training curricula should include instruction on how to gather this information in a respectful and safe manner during patient history-taking.

***Mental health in LGBT people.*** There are higher rates of depression, anxiety, suicide attempts and substance use disorders among people who identify as lesbian, gay and bisexual (3-5). It would be important for MPAS graduates to understand that this disparity exists, and to screen for it in a primary care setting.

***Alcohol, tobacco, or other drug use among LGBT people.*** LGBT youth and young adults are more likely to report a history of drug misuse compared to their straight counterparts (3,18). Members of the LGBT population are approximately twice as likely to smoke as the general population (19). Similar to the previous topic, a general awareness of these disparities is important for a generalist body of knowledge.

***Sexually transmitted infections in LGBT people.*** Disparities exist with respect to risk of STI acquisition, including HIV acquisition in certain LGBT+ communities (2). For the purposes of a PA's general body of knowledge, it would be important to know which STIs to screen for in which populations, as well as harm reduction strategies to prevent transmission.

## **Curriculum delivery**

Survey participants were also asked to indicate the delivery method used to instruct students on LGBT+ health topics. Approximately one third (31.25%) of participants indicated that the content was interspersed throughout the curriculum, while 62.5% of participants indicated that the content was taught in a discrete module. As far as we know, the majority of the LGBT+-related health content included in the MPAS program has always been taught in a 2-hour lecture-based session. In addition, certain topics are interspersed throughout other areas of the curriculum. As mentioned by CD1 in our interview (Appendix 3), a course on patient assessment teaches sexual history-taking and a pediatrics course touches briefly on disorders of sexual development. It is possible that when answering this survey question, some participants either forgot that certain topics were interspersed throughout the curriculum, or considered the time spent on these topics to be negligible, and thus considered the 2-hour lecture session as their only form of instruction. Participants were also asked to indicate strategies that they thought would be effective in delivering LGBT+-related health content. The most frequently selected strategies for content delivery included lectures focusing on LGBT health topics, case-based discussions, clinical experiences, faculty willing and able to teach LGBT related curricular content, and more time in the curriculum to teach these topics. As aforementioned, the majority of the LGBT+-related health content is delivered in a 2-hour lecture-based session. If time allows, there are a number of cases discussed at the end of this session. As mentioned in their study of American PA training programs, Seaborne et al reported a mean of 16.5 hours (range 2 to 60 hours) dedicated to sexual health curricula (10). In another study by Obedin et al, Canadian medical schools were found to dedicate a median of 4 hours (range 0 to 13 hours) to LGBT+-related topics (20). Considering that the duration of PA school is half of the duration of medical school, it would be reasonable that PA students learn LGBT+-related health topics in half the time



allotted to medical students. Additionally, the MPAS program is very condensed, and there is limited time to teach all curricular material. For this reason, it may not be realistic to increase the number of hours devoted exclusively to LGBT+-related health topics. The current instructor for this focused 2-hour lecture is a graduate of the MPAS program who has several years of experience working in a primary care clinic with patients who identify as LGBT+. Prior to the session, the instructor is provided with a list of general objectives (Appendix 4), from which they create their own lecture. In terms of clinical experience, the MPAS program has no mandatory clinical rotations focused on providing experiences in LGBT health, however, there is opportunity for students to complete elective rotations in clinics where the patient population is composed of a high percentage of people who identify as LGBT+.

### **Barriers to including LGBT+-related health content**

The curriculum developer interviewed identified two main barriers to including LGBT+ health content in the curriculum: lack of institutional time and financial constraints. This is consistent with the potential barriers outlined by the AAMC (8). Other barriers that may impede the inclusion of LGBT+ content into the MPAS curriculum include lack of course material demonstrated to be effective, absence of faculty willing and able to teach, perceptions that issues may not be relevant to course work, lack of professional development/continuing education for educators, and lack of LGBT- and DSD- related content on national examinations by accreditation bodies.

## **Current guidelines on curriculum development**

Physician Assistant programs are required to include courses in their curriculum that will prepare their graduates to provide care for diverse populations, including people who identify as LGBT+. However, specific guidelines for LGBT health curricula in physician assistant programs do not exist in Canada or in the United States. The most comprehensive document available was published to provide a guide to medical schools by the Association of American Medical Colleges (AAMC) Advisory Committee on Sexual Orientation, Gender Identity and Sex Development (8). This report is a comprehensive guide with a purpose of assisting medical schools in producing future physicians who are able to meet the needs of patients who are/may be LGBT, gender-nonconforming and/or born with DSD. In this report, the AAMC favors competency-based medical education (CBME) as a framework for educating undergraduate medical students. This framework is based on the idea that students should be developing and demonstrating concrete skills throughout their degree, rather than simply acquiring and re-iterating a body of knowledge. The report includes a list of competencies divided in to 8 domains: 1) patient care, 2) knowledge for practice, 3) practice-based learning and improvement, 4) interpersonal and communication skills, 4) professionalism, 5) Systems-based practice, 6) Interprofessional collaboration, 7) Personal and professional development. They recommend that content be delivered using a combination of didactic teaching, case-based learning, and application of skills on clinical rotations. Importantly, the AAMC also recommends strategies to ensure the creation of an institutional climate that promotes a culture that recognizes and supports students, employees and patients who are or may be LGBT, gender nonconforming and/or born with DSD.

## **Proposed LGBT+-related health curriculum for the University of Manitoba MPAS program**

**Curriculum content.** Based on our needs assessment, the above guidelines outlined by the AAMC, and information from other resources, we have developed a proposed outline for teaching LGBT+ health topics (Appendix 5). Nine specific learning objectives have been developed. An emphasis has been placed on topics necessary for a generalist's knowledge. Of note, this curriculum was tailored to best serve PAs who will be practicing in Manitoba.

**Curriculum delivery.** This curriculum has been designed to include a 2-hour dedicated session as well as interspersed components in other parts of the curriculum. The dedicated 2-hour session will use a didactic presentation as well as case-based discussion to address nine specific learning objectives (Appendix 5). This dedicated session should continue to be taught by an instructor who is both motivated and knowledgeable in LGBT+-related health topics. In addition to the dedicated session, we propose that the Patient Assessment didactic course undergo minor changes to emphasize the importance of comprehensive history-taking, including specific teaching about how to ask someone about their gender-identity. A proposed document for assisting students in learning how to take comprehensive sexual histories is included in the appendices (Appendix 6). In addition to specific and focused content, we recommend that LGBT+-related health topics be interwoven throughout all content delivered to PA students. One way to do this is to make broad changes to the bank of case-based discussions and exam questions used by the program in all courses. In addition, as recommended by the AAMC, institutional climate is important in fostering a general culture of inclusivity. We will not address strategies to modify institutional climate as this is outside the scope of this study.

***Student evaluation.*** We propose that student history-taking abilities be tested during a standardized patient case. The MPAS program currently uses the Objective Structured Clinical Examination (OSCE) assessment method to evaluate student clinical skills. We propose that one of the OSCE cases require a comprehensive sexual history. Examples of such cases may be a “first encounter” which requires a comprehensive history, or a person of child-bearing age, presenting as female and complaining of abdominal pain. Part of the OSCE evaluation would assess students based on their ability to ask a comprehensive sexual history and demonstrate safe, and respectful history-taking skills by asking non-judgmental, open-ended questions.

### **Strengths and limitations**

Our study’s main strength is that it is the first study to evaluate PA student self-reported preparedness in Canada. Our study also had some limitations. First, our sample size was limited, which meant we could not accurately compare alumni to current students. However, this small sample size is unsurprising, as Manitoba has roughly 100 PAs who graduated from the University of Manitoba MPAS program. Second, for our survey, there was likely a response bias for students and alumni with an interest in LGBT+-related health concerns. These participants may be more critical of their school curriculum than MPAS students/alumni overall. Third, student self-reported preparedness is a subjective perception. However, these perceptions may have a significant effect on a health care provider’s quality of care.

### **Conclusions and future directions**

Training future health care providers to provide safe and respectful services to patients who may identify as LGBT+ is an important component in addressing health disparities. Our study is the first to evaluate the preparedness of Canadian PA students in providing care for patients who are

LGBT+. Our results characterized the current LGBT+-related health curriculum in the MPAS program at the University of Manitoba and identified areas of improvement. Our proposed curriculum uses a combined approach of a focused didactic lecture, case studies, and assessments involving standardized patients. Importantly, it is imperative that future research on development of the curriculum include collaboration with Manitoba's local LGBT+ community.

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## Appendix 1: Student/Alumni Survey

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### STUDENT/ALUMNI SURVEY

**Title of Study:** “An evaluation of Physician Assistant Students’ Perceived Preparedness in Providing Health care to Lesbian, Gay, Bisexual, and Transgender Patients”

**Principal Investigator:** Lauren Girard, University of Manitoba, 260 Brodie Centre, 727 McDermot Avenue, Winnipeg, Manitoba, R3E 3P5, Canada, 204-793-0142, [girardl3@myumanitoba.ca](mailto:girardl3@myumanitoba.ca).

This survey was adapted from the LGBT Medical Education Assessment developed by the Stanford School of Medicine:

White W, Brenman S, Paradis E, Goldsmith ES, Lunn MR, Obedin-Maliver J, et al. Lesbian, Gay, Bisexual, and Transgender Patient Care: Medical Students' Preparedness and Comfort. *Teaching and Learning in Medicine*. 6 ed. 2015 Jul 9;27(3):254–63.

Thank you for your interest in this research project!

This purpose of this research is to gather information that will help Physician Assistant (PA) training programs train their students to provide excellent care to lesbian, gay, bisexual and transgender (LGBT) individuals.

All current Master of Physician Assistant (MPAS) students and alumni of the University of Manitoba, regardless of sex, gender, identity, gender expression, sexual orientation, personal beliefs, or subject knowledge are invited to participate.

Please start the survey only once. You will need to complete the survey in one sitting. Instructions will follow on a future screen.

#### **Informed consent**

An informed consent detailing your rights as a research participant and our responsibilities to you as a researcher is available on the consent form provided before the survey. Completing the survey assumes informed consent was provided.

#### **Instructions**

This survey will ask you about the medical curriculum in your Physician Assistant (PA) training program. It focuses on how programs train Physician Assistant students to care for lesbian, gay, bisexual and transgender (LGBT) individuals.

This survey is for all University of Manitoba MPAS students and alumni regardless of sex, gender identity, gender expression, sexual orientation, personal beliefs or subject knowledge.

This topic can be difficult to discuss. We appreciate your time and energy in helping us better understand the effect of the PA curriculum on its students. Due to the small graduating class sizes of the MPAS program, please note that if you choose to answer both question 2 (year of graduation) and question 16 (gender identity), you may be identifiable. All questions are optional. If you do not wish to answer a question, please choose “Decline to answer.”

Contact information for the survey administrators is available at the bottom of each page. Please feel free to contact us at any time if you have questions



1. Are you currently enrolled in, or an alumni of the MPAS program at the University of Manitoba? If no, please indicate the PA training program you attend/attended. If you are not a student/alumni of the MPAS program at the University of Manitoba, thank you for your interest in our survey. At this time, we are only studying students/alumni of the University of Manitoba.

	Yes
	No [free text box]

2. What was your year of graduation? If you are a current student, what is your anticipated year of graduation?

	2010
	2011
	2012
	2013
	2014
	2015
	2016
	2017
	2018
	2019
	2020

3. What experiences did you have with LGBT populations prior to your PA training program?

	No experience with LGBT populations
	Personal experience with LGBT populations (yourself, friends, family etc.)
	Professional experience working with LGBT populations
	Other [free text box]

Comments: [free text box]

4. When learning how to conduct a sexual history in your PA training program, were you taught to obtain information about same-sex relations (e.g., asking “do you have sex with men, women or both?”)

	Yes
	No
	Don't know
	Decline to answer

Comments: [free text box]

5. When learning how to conduct a medical interview, were you taught to obtain information about gender identity? Gender identity: A person's deeply felt psychological identification as a male, female, transgender, no gender, or another gender, which may or may not correspond to the person's body or designated sex at birth.

<input type="checkbox"/>	Yes
<input type="checkbox"/>	No
<input type="checkbox"/>	Don't know
<input type="checkbox"/>	Decline to answer

Comments: [free text box]

6. Please complete the following statement: In the pre-clinical curriculum, LGBT content was \_\_\_\_\_.

<input type="checkbox"/>	Interspersed throughout various parts of the curriculum
<input type="checkbox"/>	Taught in discrete modules dedicated to the LGBT content
<input type="checkbox"/>	Not taught
<input type="checkbox"/>	Don't know
<input type="checkbox"/>	Decline to answer

Comments: [free text box]

7. Did your PA training program offer education for students in the following content areas at any point in the curriculum? (Definitions to terms marked with an asterisk "\*" appear after the answer choices.)

	Yes, in curriculum	Not in curriculum	Don't know	Decline to answer
Barriers to accessing medical care for LGBT people				
Alcohol tobacco, or other drug use among LGBT people				
Safer sex for LGBT people				
Sexually transmitted infections (not HIV) in LGBT people				
HIV in LGBT people				
Chronic disease risk for LGBT populations				
Sexual orientation*				
Coming out*				
Gender identity*				
Disorders of Sex Development (DSD)/Intersex*				
Transitioning*				
Sex reassignment surgery* (RS)				
LGBT adolescent health				
Mental health in LGBT people				
Body image in LGBT people				
Unhealthy relationships among LGBT people				

Comments: [free text box]

For the above questions, please use the following definitions:

Sexual Orientation: An individual's self-identified state of physical and/or emotional attraction. "Heterosexual," "bisexual," and "homosexual" are all sexual orientations

Coming out: A process of disclosure of one's sexual orientation or gender identity to oneself and/or others.

Gender identity: A person's deeply felt psychological identification as male, female, transgender, no gender or another gender which may or may not correspond to the person's body or designated sex at birth

Intersex: A general term used for a variety of conditions in which a person is born with reproductive or sexual anatomy that does not fit the typical definition of male or female. This is also known as "disorders of sex development" (DSD). Though these terms are used by many, some consider them offensive and prefer terms such as "anatomic variation."

Transitioning: The process through which a person modifies physical characteristics and/or manner of gender expression to be consistent with gender identity. This process, also referred to as "gender affirmation," may include hormone therapy, sex reassignment surgery and/or other components and is generally conducted under medical supervision based on a set of standards developed by medical professionals.

Sex reassignment surgery: The genital alteration surgery that transgender individuals sometimes undergo to change their physical bodies to match their gender identities. This was previously referred to as "sex change operation." This process is also referred to as "sex affirmation treatment."

8. Please describe YOUR OPINION of how the following content areas are covered in your PA training program. (Definitions to terms marked with an asterisk "\*" appear after the answer choices.)

	Coverage not needed	Too little coverage	Basic coverage	In depth coverage	Too much coverage	Don't know	Decline to answer
Alcohol tobacco, or other drug use among LGBT people							
Safer sex for LGBT people							
Sexually transmitted infections (not HIV) in LGBT people							
HIV in LGBT people							
Chronic disease risk for LGBT populations							
Sexual orientation*							
Coming out*							
Gender identity*							
Disorders of Sex Development (DSD)/Intersex*							
Transitioning*							
Sex reassignment surgery* (RS)							
LGBT adolescent health							
Mental health in LGBT people							
Body image in LGBT people							
Unhealthy relationships among LGBT people							

Comments: [free text box]

For the above questions, please use the following definitions:

Sexual Orientation: An individual’s self-identified state of physical and/or emotional attraction. “Heterosexual,” “bisexual,” and “homosexual” are all sexual orientations

Coming out: A process of disclosure of one’s sexual orientation or gender identity to oneself and/or others.

Gender identity: A person’s deeply felt psychological identification as male, female, transgender, no gender or another gender which may or may not correspond to the person’s body or designated sex at birth

Intersex: A general term used for a variety of conditions in which a person is born with reproductive or sexual anatomy that does not fit the typical definition of male or female. This is also known as “disorders of sex development” (DSD. Though these terms are used by many, some consider them offensive and prefer terms such as “anatomic variation.”

Transitioning: The process through which a person modifies physical characteristics and/or manner of gender expression to be consistent with gender identity. This process, also referred to as “gender affirmation,” may include hormone therapy, sex reassignment surgery and/or other components and is generally conducted under medical supervision based on a set of standards developed by medical professionals.

Sex reassignment surgery: The genital alteration surgery that transgender individuals sometimes undergo to change their physical bodies to match their gender identities. This was previously referred to as “sex change operation.” This process is also referred to as “sex affirmation treatment.”

9. The items in the previous questions may not comprise a complete list of LGBT health topics. Other topics may include LGBT geriatric care, reproductive health in LGBT people, and using LGBT people as research subjects

Please describe your opinion of the coverage of LGBT content on the WHOLE by your PA training program

	Very good
	Good
	Fair
	Poor
	Very poor
	Don’t know
	Decline to answer

Comments: [free text box]

10. Please list other LGBT-related topics you wish you would have received as part of your medical training

[Free text box]
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Comments: [free text box]

11. Please indicate all sources of LGBT-related content you received during your time enrolled in your PA training program (please select ALL that apply).

	Required pre-clinical instruction
	Required clinical training
	Elective courses offered by the University of Manitoba
	Elective clinical clerkships
	LGBT-focused community clinic experience
	Online modules offered by your institution
	Online modules offered by other institutions
	Interaction with LGBT-identified patients
	Interaction with LGBT-identified professors or physicians
	Interaction with LGBT student group
	Other students, not part of LGBT student group activities
	Conferences
	Panel discussions
	Personal reading
	Decline to answer
	Other [Free text box]

Comments: [free text box]

12. Please indicate how well PREPARED you feel to provide care to your patients with respect to the following content areas.

Prepared: you have the knowledge and training to effectively identify and address LGBT-specific health issues. (Definitions to terms marked with an asterisk "\*" appear after the answer choices.)

	Not at all prepared	Insufficiently prepared	Prepared	Well prepared	Extremely well prepared	Don't know	Decline to answer
Barriers to accessing medical care for LGBT people							
Alcohol tobacco, or other drug use among LGBT people							
Safer sex for LGBT people							
Sexually transmitted infections (not HIV) in LGBT people							
HIV in LGBT people							
Chronic disease risk for LGBT populations							
Sexual orientation*							
Coming out*							
Gender identity*							
Disorders of Sex Development (DSD)/Intersex*							
Transitioning*							
Sex reassignment surgery* (RS)							
LGBT adolescent health							
Mental health in LGBT people							
Body image in LGBT people							
Unhealthy relationships among LGBT people							

Comments: [free text box]

For the above questions, please use the following definitions:

Sexual Orientation: An individual’s self-identified state of physical and/or emotional attraction. “Heterosexual,” “bisexual,” and “homosexual” are all sexual orientations

Coming out: A process of disclosure of one’s sexual orientation or gender identity to oneself and/or others.

Gender identity: A person’s deeply felt psychological identification as male, female, transgender, no gender or another gender which may or may not correspond to the person’s body or designated sex at birth

Intersex: A general term used for a variety of conditions in which a person is born with reproductive or sexual anatomy that does not fit the typical definition of male or female. This is also known as “disorders of sex development” (DSD). Though these terms are used by many, some consider them offensive and prefer terms such as “anatomic variation.”

Transitioning: The process through which a person modifies physical characteristics and/or manner of gender expression to be consistent with gender identity. This process, also referred to as “gender affirmation,” may include hormone therapy, sex reassignment surgery and/or other components and is generally conducted under medical supervision based on a set of standards developed by medical professionals.

Sex reassignment surgery: The genital alteration surgery that transgender individuals sometimes undergo to change their physical bodies to match their gender identities. This was previously referred to as “sex change operation.” This process is also referred to as “sex affirmation treatment.”

13. Please indicate how your level of preparedness in providing medical care for LGBT people has changed if at all, AS A RESULT of the training you received from the MPAS program.

Prepared: you have the knowledge and training to effectively identify and address LGBT-specific health issues.

	I am more prepared
	My level of preparedness has NOT CHANGED
	I am LESS prepared
	I don’t know whether my level of preparedness has changed
	Decline to answer

Comments: [free text box]



14. What strategies do you think are, or would be successful in increasing LGBT-specific content in your PA training program? (Please check all that apply).

	Lectures focusing on LGBT-related health/health disparities
	Case-based discussion of LGBT-related health/health disparities
	Faculty willing and able to teach LGBT-related curricular content
	Curricular material (eg books, web modules) focusing on LGBT-related health/health disparities
	Clinical experiences with LGBT patients
	Increased financial resources
	Logistical support for teaching LGBT-related curricular content
	More time in the curriculum to be able to teach LGBT-related content
	More evidence-based research regarding LGBT health/health disparities
	Curricular material coverage required by accreditation bodies
	Questions based on LGBT health/health disparities on national examinations
	Methods to evaluate LGBT curricular content
	LGBT-specific curricular coverage is already sufficient
	Decline to answer
	Other [free text box]

Comments: [free text box]

15. What is your sexual orientation? (As a reminder, all answers to this survey will be held in the strictest of confidence. If you do not wish to answer this question, please choose “decline to answer.”)

Sexual Orientation: An individual's self-identified state of physical and/or emotional attraction. "Heterosexual," "bisexual," and "homosexual" are all sexual orientations.

	Bisexual
	Gay
	Straight/heterosexual
	Lesbian
	Queer
	Questioning
	Decline to answer
	Another sexual orientation (please specify): [free text box]

Comments: [free text box]

16. What is your gender identity? (Please check ALL that apply)

(As a reminder, all answers to this survey will be held in the strictest of confidence. If you do not wish to answer this question, please choose “decline to answer.”)

Gender identity: A person’s deeply felt psychological identification as male, female, transgender, no gender, or another gender, which may not correspond to the person’s body or designated sex at birth. Please note that all answers are confidential.

<input type="checkbox"/>	Female
<input type="checkbox"/>	Transgender, male-to-female
<input type="checkbox"/>	Male
<input type="checkbox"/>	Transgender, female-to-male
<input type="checkbox"/>	Decline to answer
<input type="checkbox"/>	Another gender identity (please specify): [free text box]

Comments: [free text box]

**Thank you for participating!!**

The results of this study will be presented in June 2018 and published on the University of Manitoba libraries page: <https://libguides.lib.umanitoba.ca/c.php?g=298171&p=4949129>.

## Appendix 2: Curriculum Developer Interview Questions

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1. What type of LGBT-related content is included in the MPAS curriculum?
2. How is LGBT-related content presented to the students? (eg. Group discussions, lectures, online modules, etc.)
3. Is the MPAS curriculum committee aware of any national guidelines to develop the LGBT curriculum? If yes, are these guidelines used in curriculum development?
4. Do you think there are improvements that could be made to the LGBT-related curriculum in the MPAS program?
5. What barriers impact the incorporation of LGBT-related content into the MPAS program curriculum?
6. In your opinion, what would be an ideal curriculum (subject matter, presentation format, etc.) for students to learn LGBT-related topics?
7. In your experience, have you noticed a change in MPAS students' perceived preparedness to care for LGBT patients after having completed the MPAS program?

### Appendix 3: Curriculum Developer Transcript

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LG: What type of LGBT related content is included in the MPAS curriculum? Do you have specific objectives, and what would those be?

CD1: Under the CAN-MEDS PA, which is the national accreditation standards for the PA program and the Canadian Medical Association conjoint accreditation standards, which is how the program was established. There are sections on advocacy, which address the need to represent and teach students related to minority and underserved populations. I have interpreted that to mean three major population groups, including refugee health, first nations and the LGBTQ\* community. I also viewed that cultural safety was important.

LG: So using CAN-MEDS PA to guide your decisions with respect to the curriculum.

CD1: The reality is that LGBT is not directly addressed in the CAN-MEDS or in any other standards. It was based on my decision and my experience as well as consulting with various other contributors to the curriculum development.

LG: How is LGBT content presented to MPAS students? Has it changed throughout the years?

CD1: We've had several different approaches to doing it. From the beginning, before students go out to start their clinical year, we brought representatives in from rainbow alliance to present for 1-2 hours on LGBTQ issues. However, we discovered that they were not addressing the health issues that we needed addressed. We had graduates of the program who were active in the community and I asked if they felt comfortable teaching, and they did, so they actually took on bigger roles teaching, and now we have it as part of our professional studies program. Up until last year we were still bringing in the rainbow alliance but we stopped because they started asking for a lot of money.

LG: Oh, interesting.

CD1: Yes, I have a budget

LG: Okay, so prior to my year it was all the rainbow alliance doing presentations, and now it's PAs.

CD1: Yeah, we have one [PA] who was working in the Men's health and he started teaching in 2014.

LG: And it was always classroom-based presentations?

CD1: That's the formal part of the curriculum, but we've also had students do rotations at Klinik with a K based on availability, we've also had the Men's health clinic before it changed its name and relocated, and various community clinics, including youth and special transgender learning opportunities.

LG: Would those all be electives?

CD1: Yes, electives.

LG: Is the curriculum committee aware of any national guidelines for the LGBT curriculum?

CD1: There are no PA standards in Canada about anything we actually teach, other than CAN-MEDS.

LG: For Medical schools do they have standards?

CD1: The AAMC has certain standards, but the medical schools, I can't recall exactly what they have. I think they have something but I'm not 100% sure.

LG: Do you think there are any improvements that could be made to the current curriculum.

CD: Yes, there can always be improvements that can be made to the curriculum, in particular related to addressing the health needs of underserved and minority communities, yes definitely. However, the expenses, the time and what else do we cut and sacrifice. The other issue is the sheer economics of it. As much as I believe in supporting various community groups and I make personal donations, the program does not have the funds to make the cash outlays that have been requested at times. Donations are one thing, an hourly rate is a little hard to manage.

LG: That takes me to my next question, which is what are the barriers?

CD1: Time and finances are always the two biggest ones. It's not so much the interest and the desire, which I'm a huge advocate, so.

LG: When you say time, are you referring to the fact that the program is so condensed already?

CD1: The program is very condensed, and by adding in a day workshop, well do I take time from the emergency medicine, or the geriatrics, or indigenous health, or the efforts I'm putting into getting more talks about refugees and new immigrant health? Do I start cutting patient assessment or procedural skills?

LG: Are there any barriers to getting instructors to teach the material?

CD1: We have one gentleman who is very good and very comfortable, but there are others in the community that I am aware of. Some people are much more comfortable talking about the health needs and have more knowledge from a primary care perspective, versus, we don't necessarily want to have the specialist focusing on, say, bottom/top surgery, or special and unique hormonal replacement, which is a little bit outside the generalist role. The general health issues are the priority and also being comfortable with even opening up and talking, and realizing the first few words can make a huge difference.

LG: If you could have an ideal LGBT health curriculum, what would it be?

CD1: I don't think I could truly answer that, because I am not an expert.

LG: Okay, would there be a more ideal presentation format that you've thought of?

CD1: I believe that the format we have now works. It's done early enough that people become aware of some of the issues. It ties well into patient assessment, which brings up sexual history and addresses some of the conversation that you need to be engaged in, but also professional studies we start talking about that, cultural safety and realizing that you don't have to know

about everything in order to engage in conversation and hear about concerns. Just make it that it is part of our curriculum and normal, and not as a special event.

LG: Do you book the person that comes to talk to the class and give them any specific objectives?

CD1: We have generalized objectives. The specific content of the lecture is left up to the content experts.

LG: I remember our class had a more informal presentation with talking points, but it was more of a discussion.

CD1: You need something to fall back on if students are not interactive, but yes the best classes are discussions

LG: In your experience, have you noticed a change in students perceived preparedness in caring for the LGBT population?

CD1: In surveys we have done of our student population, 10-15% of any particular class identifies as part of the LGBTQ community. In the last 25, 30, 40, 50 years of my career, I can tell you that there is a much greater openness to discuss health issues. The knowledge level has dramatically improved. I can remember being a paramedic and hearing about the first HIV/AIDS cases and being terrified because we had no idea what was going on. It was a population that was stigmatized and isolated, and very few healthcare providers were even willing to discuss it. Thankfully things have changed.

LG: So you think it's a general cultural movement?

CD1: You will still have any members of any particular class who have an influence that has shaped, and they have a bit of a bigotry that has clouded their awareness of issues, but we do a pretty good job of breaking that down. They don't realize in a couple of years how much they change. As time goes on you become less and less surprised with certain health issues and instead become more interested and say this is really interesting, how can I help?

#### **Appendix 4: Current learning objectives for the Master of Physician Assistant Studies LGBT+-related health curriculum at the University of Manitoba**

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In preparation for the Physician Assistants practice PA-students will incorporate into their practice:

1. Appropriated terminology and concepts for the LGBT2SQ\* community related to medical concerns and health care delivery issues specific to individuals.
2. The impacts of homophobia, heterosexism, and prejudice in health care and providing medical care including recognizing one's own biases
3. Steps and practices required as an inclusive care provider in approaching individuals with respect and non-judgmental for underserved and minority populations.
4. Knowledge of community and resources available to support underserved and minority populations

## **Appendix 5: Proposed curriculum**

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### **Course description**

This course serves to teach LGBT2SQ\*-related health topics to the students of the Master of Physician Assistant Program (MPAS) at the University of Manitoba. This course was developed based on a needs assessment as well as guidelines recommended by the American Association of Medical Colleges (AAMC) and the American Academy of Family Physicians (1,2). The majority of the curriculum is meant to be taught during a focused 2-hour session during the first year of the MPAS program. Other components of the curriculum are meant to be taught interspersed throughout the year into other courses.

### **General learning objectives**

1. Develop knowledge, skills and attitudes to better serve LGBT2SQ\* communities in healthcare settings
2. Develop the ability to communicate effectively and respectfully with patients who may identify as LGBT2SQ\*

### **Curriculum outline:**

#### **Focused lecture and case-based discussion session**

Timeline: 2 hours

Materials: PowerPoint presentation, case-based questions

Delivery method: didactic lecture, case-based discussion

#### **Learning objectives:**

1. Develop respectful and appropriate vocabulary by learning appropriate terminology and symbols used.
2. Understand and learn how to overcome the patient-specific and provider-specific barriers that may compromise the quality of care provided.
3. Briefly review the principles of comprehensive sexual history-taking, including how to acquire information on sexual orientation and gender identity. These concepts should be addressed in more detail in the Patient Assessment course.
4. Briefly review the components of a thorough physical exam, while also being appropriate for the organs that are present. These concepts should be addressed in more detail in the Patient Assessment course.
5. Identify key health issues in the LGBT2SQ\* community, including homophobia, transphobia, heterosexism, as well as health disparities including body image, sexually transmitted diseases, cancers, mental illness, substance use and inter-partner violence.
6. Review the issues specific to people who identify as transgender, including a definition of “transitioning” and a basic understanding of the modalities available to do so.
7. Be aware of how transgender individuals can access care in Manitoba
8. Develop the ability to apply and interpret findings of a sexual health history in order to develop a sexual health plan with patients



9. Provide a list of resources that may serve practitioners in their future practice, as well as community resources available that may be provided to patients who identify as LGBT2SQ\*.

#### **Patient assessment - recommendations**

Timeline: Didactic – 15 minutes. OSCE – 15 minutes.

Materials: Comprehensive sexual history framework

Delivery method: didactic lecture, OSCE

#### **Learning objectives:**

1. Communicate effectively and respectfully with the patient who may identify as LGBT2SQ\*
2. Take a comprehensive health history of the LGBT patient, including a detailed sexual history, which includes questions on gender identity and sexual orientation
3. Develop a sexual health plan with the patient in a respectful and safe manner

#### **Other modes of integrating content**

We recommend that the LGBT health curriculum include the focused curricular material, as detailed above as well as longitudinal curricular content interspersed and interwoven throughout the MPAS program.

#### **References**

1. Hollenbach AD, Eckstrand KL, Dreger A, editors. Implementing Curricular and Institutional Climate Changes to Improve Health Care for Individuals Who are LGBT, Gender Nonconforming, or Born with DSD. Washington: Association of American Medical Colleges; 2014.
2. American Academy of Family Physicians. Lesbian, Gay, Bisexual and Transgender Health. 2017 May 10;:1–19.

## Appendix 6: Flowchart for comprehensive sexual history-taking

### PART 1: PUT PATIENT AT EASE

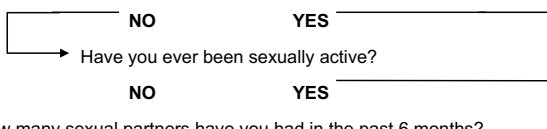
"I am going to ask you a few questions about your sexual health and sexual practices. I understand that these questions are very personal, but they are important for your overall health."

"I ask these questions to all of my adult patients, regardless of age, gender, or marital status. Like the rest of our visits, this information is kept in strict confidence"

### PART 2: SEXUAL PARTNERS AND SEXUAL ORIENTATION

Do you have a significant other [or partner]?"

Are you currently sexually active?



How many sexual partners have you had in the past 6 months?

When you have sex, do you do so with men, women or both?

### PART 3: GENDER IDENTITY

How would you like to be referred to (i.e. he, she, they, etc.)?

Are there any concerns you would like to discuss related to your sexuality, sexual orientation, or gender?

### PART 4: SEXUAL PRACTICES

When having sex, do you have vaginal, anal and/or oral sex?

Do you use any recreational drugs when you have sex? Crystal meth? Cocaine? Alcohol? Others?

### PART 5: SEXUALLY TRANSMITTED INFECTIONS

How do you protect yourself from STIs?

Have you ever been diagnosed with an STI?

NO

YES

When were you diagnosed?

How were you treated?

Have you ever been tested for HIV, gonorrhea, chlamydia, syphilis, trichomonas, hepatitis or any other STI?

Would you like to be tested?

Has your current or any former partners been diagnosed or treated for an STI?

NO

YES

Were you tested for the same STI?

### PART 6: PREGNANCY

Are you currently trying to have children?

NO

YES

How do you protect yourself from pregnancy?

Do you need any information on contraception?

### PART 7: COMPLETING HISTORY

Are there any other concerns or questions regarding your sexual health or sexual practices you would like to discuss?

## Appendix 7: Resources for health care providers and patients

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### **Providers**

1. <http://glma.org>  
**Health Professionals Advancing LGBTQ Equality - General Resource health**
2. <https://www.cdc.gov/lgbthealth/index.htm>  
**CDC website on LGBT health - General Resource**
3. <https://libguides.lib.umanitoba.ca/lgbtq2health>  
**University of Manitoba Libraries page on LGBT2SQ health - General Resource**
4. <http://klinik.mb.ca/health-care/transgender-health-klinik/health-care-providers/>  
**Klinik - Transgender health for care providers**
5. <http://klinik.mb.ca/health-care/transgender-health-klinik/health-care-providers/making-your-practice-welcoming-to-trans-people/>  
**Klinik - Making your practice welcoming to trans people**
6. <http://klinik.mb.ca/health-care/transgender-health-klinik/health-care-providers/assessing-for-gender-dysphoria/>  
**Klinik - Assessing for gender dysphoria**
7. <http://klinik.mb.ca/health-care/transgender-health-klinik/health-care-providers/hormones-information-for-providers/>  
**Klinik - Hormone therapy**
8. <http://klinik.mb.ca/wp-content/uploads/2017/05/Klinik-TransHealth-SurgeriesForProviders.pdf>  
**Klinik - Review of gender affirming surgeries and how to access them in Manitoba**
9. <https://www.lgbthealtheducation.org/>  
**Learning modules online**
10. <https://www.rainbowhealthontario.ca/resources/?orderby=date>  
**Rainbow Health Ontario - Several resources for providers**
11. <http://genmed.libsyn.com/gem-45-lgbt2sq-health-ft-dr-justin-bell>  
**Generalist Medicine podcast - A podcast providing a brief overview of LGBT health in primary care.**
12. <http://www.the519.org/education-training/training-resources/our-resources/creating-authentic-spaces>  
**Creating Authentic Spaces: A gender Identity and Gender Expression Toolkit**

13. <https://familyproject.sfsu.edu>  
**Assessment tools and associated research base for supporting families with LGBT2SQ+ children.**
14. [http://www.transstudent.org/gender/?gclid=Cj0KCQjwybvPBRDBARIsAA7T2kivF8ch9DEFk-046qBAXKS5EjjzkQvisaS\\_04CkwR39YXFUm4G9VJsaAvqgEALw\\_wcB](http://www.transstudent.org/gender/?gclid=Cj0KCQjwybvPBRDBARIsAA7T2kivF8ch9DEFk-046qBAXKS5EjjzkQvisaS_04CkwR39YXFUm4G9VJsaAvqgEALw_wcB)  
**Infographics and information related to sexual and gender minority experiences (the gender unicorn).**

## **Patients**

1. <https://rainbowresourcecentre.org/files/Rainbow-Directory-V04.pdf>  
**Comprehensive directory of organizations, businesses, services and individuals in Manitoba**
2. <https://rainbowresourcecentre.org/support/groups>  
**Rainbow Resource Centre - Support groups**
3. <http://klinik.mb.ca/health-care/transgender-health-klinik/>  
**Transgender health Klinik**
4. <http://klinik.mb.ca/crisis-support/>  
**Klinik Community health, Crisis support**
5. <https://ninecircles.ca>  
**Nine Circles Community Health Centre, comprehensive primary care, social support, education and prevention services**
6. <http://www.ourownhealth.ca/home>  
**Our Own Health Centre delivers both Family Medicine, and judgement-free care for all the things unique to Gay, Bisexual and other MSM**
7. <https://serc.mb.ca/about/>  
**Sexual Health Resource Centre**