Laboratory Considerations for Care of Gender Diverse Patients

PURPOSE

The introduction of "X" as an option for sex identification on government documents has prompted laboratories in BC to develop provincial guidelines for appropriately meeting the needs of our gender diverse patients. This document provides relevant background, literature recommendations, and current state analysis to inform provincially standardized recommendations.

SCOPE

This document will primarily address the laboratory registration of patients with the "X" sex identifier, provide a list of tests of interest when monitoring gender transitions, provide guidance for managing reference ranges for gender-transitioning patients, and other recommendations of significance to laboratories when caring for gender diverse patients.

OUT-OF-SCOPE

Guidance for serology and microbiology test ordering and collection of specimens with significance to gender reassignment can be found in Trans Care BC Primary Care Toolkit 2019 Sept Appendix E.

Billing discrepancies created when the patient's sex in the laboratory information system (LIS) differs from the sex in the Medical Services Plan (MSP) database will not be addressed.

Implications of blood donations from trans men who were previously pregnant falls under the domain of the Canadian Blood Services and will not be addressed here.

KEY OBJECTIVES

This document is meant to

- Provide sufficient information to base recommendations for registering patients presenting with the "X" sex identifier into the various electronic information systems
- Develop a list of laboratory tests which are used for monitoring patients undergoing medical and/or surgical gender reassignment therapies
- Discuss implications for interpreting reference ranges for those tests for patients undergoing gender-transitioning hormone therapy
- Provide suggestions for making both male and female reference ranges available to clinicians for those tests
- Begin a discussion of the appropriate reference ranges to attach to test results on patients who are registered as "U" in the sex field of electronic information systems
- Begin the discussion of training of laboratory health care workers to provide culturally safe care to gender-diverse patients.

BACKGROUND

Gender is a social construction based on the individual's chosen sense of self as it relates to cultural norms of male and female roles and behaviours.[1,2] Alignment of an individual's gender identity with their sex assigned at birth is termed "cis-gender."[1,3] The term transgender broadly refers to a person who psychologically identifies as a gender different from the sex assigned at birth.[1,2,3] This term is distinct from sexual orientation which applies to the gender to which the individual is sexually attracted.[1,3] Gender identity is a self-identification that ranges along a spectrum from gender-neutral, or androgynous, to gender-fluid where the individual expresses some degree of both male and female qualities and characteristics.[1,4,5] These individuals may identify themselves as "non-binary." The Indigenous community uses the term "two-spirit" for individuals with gender diverse qualities within specific cultural and spiritual connotations.[4,5]

A person's biological sex is based on the physical presence of sex organs (phenotype) and the sex chromosomes (genotype).[1] Typically a person's genetic sex (genotype) corresponds to the phenotype. The person's sex is assigned at birth on the basis of the anatomical presentation of the external sex organs.[1] However, there is a small cohort of individuals, colloquially referred to as "intersex" who present with a range of sex organ characteristics that do not fully conform to traditional male or female anatomy at birth.[6] There are several reasons for these anomalies. It could be due to variations of the sex chromosome karyotype.[1,6] Other times it is due to some other developmental anomaly such as a discrepancy between the sex chromosomes and the expression of those chromosomes.[6] In other cases, discrepancies do not become apparent until puberty due to hormone abnormalities or abnormal response to hormones.[6] These individuals are categorized collectively under "disorders of sex development" (DSD).[6] Often these individuals are assigned one of the binary genders at birth after discussions between a multi-disciplinary health care team and the parents.[7]

In November 2018, the BC government added the option of "X" as a sex identifier on government documents.[8] An individual may choose to legally change their sex identification to X to indicate they identify as non-binary or they may change to the opposite binary gender which conforms to their psychological identity.[1,3] When an individual formally changes legal sex designation from their sex assigned at birth, they might also choose to change their legal name. This is not the case for everyone as some may feel comfortable only informally changing their name.[9]

Some trans individuals may take steps to transition medically to their preferred sex identity through hormone therapy or surgical interventions. These interventions significantly impact laboratory testing and result interpretation of these patients. Importantly, health care personnel need to be aware that these medical interventions may precede any official change in legal sex designation.

GENDER DIVERSE PATIENTS AND CULTURAL SAFETY

Transgender individuals are faced with navigating a challenging, confusing, and complex system of medical and surgical options and associated legal protocols.[1] At the same time, they must manage social stigmatization and maintain mental wellness before, during, and after their transition.[3,5] These individuals may be particularly sensitive to questions asked about gender identity during registration processes and may perceive it as intrusive or discriminatory.[4] The experience they have with health care workers can impact their future interactions or desire to interact at all with the healthcare community.[3,10]

As part of the broader picture of care for LGBTQ2S and intersex patients, the clinician needs to be able to appropriately manage the individual's health and well-being from a whole person perspective throughout their lifetime. The challenge for laboratories is to provide person-centered care while still

providing the most medically-relevant laboratory information. Health care personnel should be specifically trained to provide compassionate, gender-affirming care for these individuals.[3]

CURRENT STATE

In order to clearly understand the issues and perspectives involved in gender-affirming care, data on the current state in BC, particularly from the laboratory medicine perspective, was gathered. Data sources include a literature review, a survey of each BC laboratory service provider (LSP) organization, Health Information Management (HIM) policies and procedures in BC, and input from clinicians familiar with treating gender diverse patients, as well as individual subject matter experts.

NOTE: *At this time, the only place to indicate gender preference on government documents and in many, if not all, of the electronic health information systems in use in BC is in the "sex" field. Recognizing that gender and sex are not interchangeable, any reference in this document to documentation of gender is referring to the sex identifier field on a paper document and in the electronic health information registration systems in order to be consistent with the reference documents.*

Laboratory medicine issues that impact transgender patient health care include:

a) Variable practices and information system capabilities for registering patients with X sex identifier in the Laboratory Information System (LIS) and/or Client Information System (CIS)/Health Information System (HIS)
b) The Standard Outpatient Laboratory Requisition form (SOPLR) which currently has options only for male or female designation
c) Risks of variation in quality of care or confidentiality for gender diverse patients, including querying gender identity during registration processes and use of pronouns
d) Rejection of specimens or misreporting of results from gender diverse patients where specimen type conflicts with the sex on record[3]
e) Lack of definitive reference ranges or critical values for patients on gender-affirming hormone therapy or who have had gender-affirming surgeries
f) Billing payment rejection due to gender discrepancy between the LIS and government records. The BC Ministry of Health is aware of this issue and is in the process of determining next steps. This issue will not be addressed here.

SEX IDENTIFIER X

There are multiple sources of government documents indicating a person's legal sex designation including Canadian passport,[11] birth certificate, BC Services Card, BC Driver's Licence, Enhanced Driver's Licence (EDL), BC Identification Card (BCID), and Enhanced Identification Card (EIC). There is a separate process for changing the sex identifier (still referred to as "gender" in some instances) according to the document which is being changed. Only the birth certificate, the BC Services Card, the BCID, the BCDL, the Canadian Passport, and citizenship records are capable of showing X in the sex field.

The EDL and EIC are not able to display X at this time.

Prior to the addition of the X option on Canadian passports and visas, an individual may have had an X observation sticker placed over the sex field.[12] These documents continue to be valid until the expiration date.

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An individual can update their birth certificate to the sex identifier X by formally applying to the BC Ministry of Vital Statistics. The BC Services Card can be updated by applying through Health Insurance BC (HIBC) or Insurance Corporation of BC (ICBC).[8] Those changes will automatically update the individual's personal information in the provincial Enterprise Master Patient Index (EMPI) operated through the Ministry of Health Client Registry System (HealthNet). EMPI will show U in the sex field in the updated records as it does not yet have the capability to display X. If the individual presents for health care services after having only changed the birth certificate, the EMPI will remain unchanged from the sex on record. The Personal Health Number (PHN) should remain the same throughout the patient's lifetime, serving as the permanent link to the medical history when demographic changes alter name and/or sex.

CIS/HIS CAPABILITIES

The health care information systems currently in use in BC only have the demographic options of male (M), female (F), and U (Unknown) for patient sex. The U is widely used as a temporary designation when a patient needs emergency care before demographic information is available. However, U can be used for the DSD patient and now also for the patient with sex identifier X.

All BC health authority organizations access the most current patient demographic data from the EMPI when registering a patient into the CIS or HIS. X is not currently an option in the sex field of any of the CIS/HIS systems. Some systems are developing the capability of entering an administrative gender but that option is not yet available for use.

Recording gender diversity information such as preferred name or pronoun would be helpful for providing appropriate care. At this time there are no standard accommodations in the CIS/HISs. However, some US-based vendors are responding with solutions due to pressure from healthcare organizations needing to meet the US Centers for Medicare & Medicaid Services – Meaningful Use requirements.[13,14]

PATIENT REGISTRATION PROCEDURES

The BC health authorities have each provided instructions for staff when registering gender X patients in their information systems. When sex identifier change is accompanied by a name change, a record of the previous legal name should continue to be linked within the electronic record.

HIM Information bulletins, dated November 2018, carried the same message. In the event that the EMPI has not already been updated through the HIBC or ICBC processes, staff must register patients with gender X on government ID documents as U since there is no X value in the sex field of EMPI or the CIS/HIS registration systems.

Internal health authority documents throughout the lower mainland indicated the BC Services Card is the most-preferred choice of trusted governmental IDs.

LIS REGISTRATION

All BC LISs have the available options of M, F, and U as a sex identifier, with one exception which does not have the U option. Most LSP LISs do not have the option of X at this time.

In the lower mainland, some LISs have custom sex field options of X to indicate a person transitioning from female to male (a trans masculine person) and Y to indicate a person transitioning from male to female (a trans feminine person). The option "O" for "other," used to indicate hermaphrodite, is an option for BC Children's Hospital only.[15] Clear guidance for the appropriate use of X, Y, or O is particularly important since X usage in these systems conflicts with the X usage on government documentation.

All LIS registration procedures should be updated to provide instruction for registering patients with X sex identifier. Revised procedures should also include instruction for how to conduct discussions of gender identity in a private, non-intrusive manner.[4] Any health care worker engaging in discussions with the patient regarding their gender identity should have specific training to make certain the interaction is culturally safe and gender-affirming.[4]

REFERENCE RANGES

Sex-specific reference ranges for tests on cis-male and cis-female populations are widely established. The gender diverse community is a very small subset of the general population. Locating a large enough cohort of trans women and trans men to establish appropriate reference ranges is challenged by the significant psychosocial factors associated with accessing healthcare.[16] While the need for reference ranges for these populations is widely recognized as necessary, healthcare research globally to date has not adequately responded to this need.[1,3,16,17,18]

Trans Care BC's Primary Care Toolkit 2019 recommends clinicians use the target sex reference range as a guide while a patient is on gender-modifying therapy.[5] Making both male and female reference ranges available for clinicians enables them to interpret the patient's results according to the progression of transition.[10] Results for each analyte should be interpreted cautiously as patient results do not always follow the target sex's expected changes in response to therapy. Recent research showed that test results for these patients did not automatically fall within the target sex reference range as might be expected but varied by analyte between matching the target sex, remaining close to the originating sex, or falling outside either reference range.[10,16,18] Clinicians are advised to focus on the desired result of alignment of gender identity with gender expression and not on the specific laboratory value when monitoring hormone therapy for transitioning patients.[1,19]

The LIS attaches reference ranges to test results based on the patient's registered sex. For U patients, generic reference ranges cannot be developed as laboratory tests, particularly endocrine tests, have cis-male and cis-female reference ranges that are dependent upon the methodology used. Some LISs attach a default reference range of a 20-year-old cis-male to the U designation.

Attaching a reference range for patients registered as U should consider the down-stream impacts to emergency, intersex, or X sex identifying patients. Of concern are the appropriate critical values to apply that are necessarily broad enough to cover all U individuals but are also medically safe to ensure life-threatening results are acted on appropriately. Until a decision is made on which reference range to apply to patients registered as U, the issue of establishing and flagging critical values remains undecided. The LSP representatives favoured attaching a comment to U patient test results with gender-specific differences which directs the clinician to a webpage with the current M and F reference range lists from each LSP.

TEST LIST FOR MONITORING GENDER-MODIFYING THERAPY

The following list of tests, compiled based on input from medical specialists with experience in providing gender-transitioning care, are most often used when monitoring patients during and after gender-modifying endocrine therapy. Not all laboratory tests have sex-specific reference ranges. In those cases, a single reference range can be applied to the three sex options. For those tests which do have sex-specific reference ranges, clinicians will need access to both male and female reference ranges.

Table 1: Tests used for monitoring patients during and after gender-modifying endocrine therapy (Developed in conjunction with Trans Care BC and laboratory physician experts)

Tests with sex-specific reference ranges	Tests without sex-specific reference ranges
CBC	Sodium
Creatinine	Potassium
eGFR	Fasting Blood Glucose
Hemoglobin	Cholesterol
Hematocrit	LDL-C
ALT	HDL-C
Estradiol	Non-HDL
Total Testosterone	Triglycerides
Progesterone	ALP
PSA	GGT
hCG	AST
FSH	TBIL
LH	HA1c
SHBG	Prolactin

RECOMMENDATIONS

Taking into account the above discussions, these are the recommendations for managing the laboratory issues encountered with gender diverse patients.

FACILITIES

Recommendation 1: Laboratory collection facilities should be safe and inclusive environments. LSPs should take steps to make their spaces welcoming by providing gender-inclusive signage and gender-neutral washrooms.[3]

STAFF TRAINING

Recommendation 2: All laboratory staff members are encouraged to take gender-diversity training to build awareness of their own personal judgments based on cis-gender assumptions.

Any healthcare personnel who interacts directly with patients (both inpatient and outpatient) should take training in cultural awareness and sensitivity to learn how to provide culturally safe and gender-affirming care.

Trans Care BC offers a one-hour course called "Exploring Gender Diversity" which is available directly from its website and also to all BC health authority care providers, staff, and students through the LearningHub: https://learninghub.phsa.ca/Courses/8141/exploring-gender-diversity

Information provided includes:

- Key terms and concepts related to gender diversity
- Barriers to care that gender diverse people commonly face
- Simple strategies for creating accessible and affirming services, including how to sensitively discuss gender with LGBTQI2S individuals who may be uncomfortable discussing their gender with anyone, including health care workers.[4]

All LSPs should maintain a record of each staff member's completion of training.

LIS REGISTRATION

Recommendation 3: Health care organizations should define their policies and procedures for updating the EMPI including:

- How to register a patient with a name and/or sex identifier discrepancy between the EMPI and a birth certificate, BC Services Card, EDL, EIC, or passport
- How to communicate to the X-identifying patient the inability of the electronic system to accurately document their sex identity (using U instead of X) (HIM Information Bulletins, dated November 2018).

Recommendation 4: Because each health authority LSP registers patients through the organization's CIS/HIS registration module, policies and procedures for registering a patient with X sex identifier must be in alignment with those of the parent organization's HIM department. Separate LIS procedures for each of the health authority LSPs are only necessary if there is additional information beyond the HIM policies and procedures.

LIS procedures for those systems capable of options for X, Y, and O will need to provide clear instruction for use of those options. Specific instructions should differentiate the X on government documents from the LIS option for X that indicates a patient transitioning from female to male. Staff should have appropriate training in these procedures.

Recommendation 5: HIM/IMIT departments across the province are encouraged to lobby the individual information system vendors to provide solutions to this identified need faced by all health care organizations.[13] A recommended solution documents the sex assigned at birth (biological sex), legal sex, and gender identity[13,14] as separate fields in the CIS/HIS/LIS. There should also be a mechanism to document other markers necessary to provide culturally safe, gender-affirming care, such as one's pronoun.[17]

SPECIMEN HANDLING

Recommendation 6: Each LSP should have documented LIS procedures for appropriate accessioning of patient specimens with the sex designation of M or F to ensure sample types which conflict with a binary-gender-associated specimen type (e.g. vaginal culture on an individual designated as a male, prostate biopsy in a patient registered as female) are handled appropriately. These procedures must specifically ensure that specimens with specimen/gender discrepancies or appearance of name/sex discordance are not automatically cancelled.[10] Laboratory staff should consider a non-binary explanation for the incongruence.[10] Refer to the Trans Care BC Primary Care Toolkit 2019 Appendix E for guidance on the test ordering and collection of microbiological or serological specimens from trans patients for sexual health screening.[5]

Those organizations with additional sex identifier LIS options should include instructions for handling specimens from patients registered as sex X, Y, or O.

REVISIONS TO THE SOPLR

Recommendation 7: The SOPLR should at least be revised to include the X (non-binary) sex field option. Consideration should be given to separately record assigned sex at birth, legal sex, and gender identity to provide the laboratory and the clinician with the relevant information necessary for clinical interpretation.[10] In the absence of a designated space, the clinician should indicate this information in the Clinical Indications/Diagnosis area.

A further modification could include a field to designate which reference range (M, F, or both) the clinician would find most helpful for interpretation of the results.[10]

Recommendation 8: Laboratory staffs should ensure that any free text information, such as trans male, trans female, or pronoun preference, found on the SOPLR is added into the LIS record for those specimens.

REFERENCE RANGES

Recommendation 9: Clinicians are encouraged to follow Trans Care BC's guidelines to request from the reporting laboratory the target gender reference range desired for patients who are or have been on gender-modifying endocrine therapy.[5] A current mechanism to do this would be to indicate the desired reference range in the Clinical Indications/Diagnosis free text box on the SOPLR.

Recommendation 10: At this time, there is no consensus on the sex-specific reference range that should be available for the patient registered as U in the LIS. Each LSP should be ready to provide both male and female reference ranges for each sex-specific test (Table 1) upon request from a clinician.[10] Alternatively a current list of reference ranges by each LSP should be made available to clinicians on a suitable public website.

Recommendation 11: Results for U patients should include the comment: "Reported reference range may not be appropriate for this patient. Male and female reference ranges are available at (*website*) or by contacting the Laboratory."

DISCIPLINE-SPECIFIC CONSIDERATIONS

Recommendation 12: Health care organizations should develop a mechanism to document an anatomical history of sex organs in the medical record.[17,20] This is important as patients opting for surgical removal of sex organs should continue to be monitored for health impacts related to these organs even after removal (e.g. need to monitor trans male patients for breast cancer).[10] As well, reconstructed organs need to be added into the patient's history so that the individual receives the appropriate current and future care related to these organs.[17]

Recommendation 13: Transfusion medicine protocols should be developed for managing trans male patients who retain their reproductive organs and are of child-bearing age.[21]

FUTURE CONSIDERATIONS

Further guidance should be provided for the handling, testing, and reporting of microbiology specimens from patients who are in the process of or have had medical or surgical gender-affirming interventions.

Further discussions are needed to establish critical value limits set for U patients in the LISs to trigger the appropriate notification processes by the laboratory technologists to the clinician.

More guidance is needed from anatomical pathology experts for the collection, handling, testing, and reporting on specimens from surgically removed or reconstructed organs, or other samples which have gender-specific implications.

Other clinical service programs, such as cancer screening programs, are encouraged to include mechanisms to monitor trans patients for health risks associated with their genetic sex which remain throughout their lifetime.

Subject matter experts in genetics and genomics should be consulted to address any implications related to genetic testing of these individuals.

SUMMARY

While the gender diverse community may be small relative to the whole population of BC, it warrants development of specific guidelines to ensure these patients receive care that is appropriate and delivered to a consistent level of quality across the province. Providing inclusive laboratory service helps to combat the invisibility and lack of attention that often compromises the unique healthcare needs of gender diverse patients. This document is only the beginning of many more conversations within laboratory medicine and the broader healthcare community to establish standards of care that are gender-affirming and culturally safe for this marginalized population. Our work is not complete until the experience of gender diverse patients rises to the level offered to all the people of BC.[3]

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