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Can youth-engaged research facilitate equitable access to contraception in Canada?: A study protocol

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Can youth-engaged research facilitate equitable access to contraception in Canada?: A study protocol

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Abstract

Introduction

There is little to no evidence in Canada on the barriers that youth face when accessing contraception. We seek to identify the contraception access, experiences, beliefs, attitudes, knowledge, and needs of youth in Canada, from the perspectives of youth and youth service providers.

Methods and analysis

This prospective, mixed methods, integrated knowledge mobilization study will involve a national sample of youth, healthcare and social service providers, and policy makers recruited via a novel relational mapping and outreach approach led by youth. Phase One will centre the voices of youth and their service providers through in-depth one-on-one interviews. We will explore the factors influencing youth access to contraception, theoretically guided by Levesque's Access to Care framework. Phase Two will focus on the co-creation and evaluation of knowledge translation products (youth stories) with youth, service providers, and policy makers.

Ethics and dissemination

Ethical approval was received from the University of British Columbia's Research Ethics Board (H21- 01091). Full open-access publication of the work will be sought in an international peer-reviewed journal. Findings will be disseminated to youth and service providers through social media, newsletters, and communities of practice, and to policy makers through invited evidence briefs and face-to-face presentations.

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Strengths and limitations of this study

- Our theory-informed, qualitative approach will generate rich evidence on the factors that influence equitable access to contraception care for youth.
- Our integrated knowledge translation approach provides youth with the flexibility to determine the most meaningful methods of engagement, data collection, and knowledge mobilization.
- Youth stories about contraceptive access will be developed into end-of-project knowledge translation stories in partnership with youth, to accelerate the uptake of our study results into policy and practice.

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Can youth-engaged research facilitate equitable access to contraception in Canada?: Protocol for the Storytelling about Options and Reproductive access for Youth (STORY) Project

INTRODUCTION

The unmet need for contraception among youth remains high globally, particularly for those who face structural and systemic barriers to equitable health service access.(1,2) Recent data on youth contraception patterns in Canada indicate that youth face cost barriers due to lack of subsidized options and/or household income, and youth who require or desire confidential access have the most difficulty acquiring their preferred contraception methods.(3,4) Youth with the ability to become pregnant have the right to choose if and when to have children.(5) It is necessary to provide youth with health system supports that provide access to contraception that matches their needs, preferences, and attitudes.

In Canada, the most effective contraceptive options, Long-Acting Reversible Contraception (LARC), are used by less than 10% of people of all ages with a need for contraception, and uptake is even lower among youth,(6–9) young people in the period associated with the transition from adolescence to adulthood.(10) These methods are recommended as a first-line option for youth by the Canadian Paediatric Society (9) and Society of Obstetricians and Gynaecologists primarily because of their effectiveness in pregnancy prevention.(7,8) These methods include intrauterine devices (IUD) and the subdermal contraceptive implant. Low uptake of these options across populations is due to myriad individual, social, health system factors. For instance, lack of geographic access to LARC placement and removal options may make it impossible to translate a person’s desire to prevent pregnancy into health behaviours for identifying and using their chosen method.(11)

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There are limited Canadian data on the factors influencing contraception access among youth; however, cost is a clear contributor. Analysis of 2009-2014 Canadian Community Health Survey data showed that among females aged 15 to 24 at risk of unintended pregnancy, lower household income was associated with decreased use of oral contraceptives and increased reliance on injectable contraceptives or condoms alone.(4) In a survey of youth aged 14 to 21 in the province of Quebec, youth who reported being unable to access their preferred method of contraception most often cited cost as a barrier.(12) Canadian provincial and territorial healthcare plans cover the costs of specific drugs on their formularies for populations including those who are low-income, receive social benefits, or are Indigenous. Yet most do not cover all contraceptive methods, and coverage through work-subsidized extended health benefits is inconsistent, creating system-level barriers to the full range of contraceptive options.(13)

One related concern for youth is confidentiality. Confidential services increase youths' trust in their care, which in turn increases the chance that youth will provide a complete sexual history and discuss concerns and needs that they cannot share with a parent.(9,14) Youth who are sexually active and experience cultural or familial interdiction require confidential access to contraception.(15–17) When these youth receive extended health benefits through their parent or guardian, a report is available to that person. Thus, despite having insurance, youth often will need to pay directly for contraception, to preserve their confidentiality.(3) Confidentiality is also of concern for youth in remote or close-knit communities where healthcare workers may be

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known to them. Yet the existing evidence does not identify how confidentiality influences youth contraceptive choices in Canada.

The literature, albeit limited, about youth and their contraceptive preferences comes primarily from US (18–26) and UK studies.(27–29) Results of a survey involving contraceptive knowledge and attitudes of 897 female youth demonstrated that youth have lower awareness and knowledge about contraceptive options, particularly LARC methods, than people of other ages.(30) Among teens, 63% misbelieved that a person needed to undergo an operation to have an IUD, and 71% that negative effects from the contraceptive injection would last their lifetime.(30) Youth who hold mistaken beliefs about contraception are less likely to seek care when they become sexually active.(30) Given these data, there is pressing need to understand contraceptive choices of youth in Canada. In our study we seek to answer the question: *What are the contraception access experiences, beliefs, attitudes, knowledge, and needs of youth in Canada, from the perspectives of youth and youth service providers?*

METHODS

We will conduct this four-year study in two phases. Our aims are to:

Aim 1: Investigate the experiences, beliefs, attitudes, knowledge, and contraceptive access needs of youth (aged 15 to 25) in Canada from the perspectives of youth and service providers;

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Aim 2: Identify the attributes of contraceptive options that matter most when making decisions about methods to use, from the perspectives of youth and service providers; and

Aim 3: Create and test knowledge translation (KT) products of "youth stories," to communicate results to youth, healthcare professionals, and decision makers in Canadian contraception policy and practice.

Study Design

The primary mode of data collection will be one-on-one interviews. Youth stories about contraceptive access will be developed into end-of-project KT products in partnership with youth, using principles of narrative theory and user-centred design. These may consist of 2-minute whiteboard and/or live videos of patient stories or text-based infographics, as well as evidence briefs for policy makers. We will create and disseminate these youth stories to Canadian stakeholders (providers, policy makers, and patients) in real time.

Integrated knowledge translation

This study is part of the larger research program of our thriving national Contraception and Abortion Research Team (CART) and builds on our 10 years of family planning research collaborations. The CART research program is built on an integrated knowledge translation (iKT) approach whereby policy makers collaborate in all stages of the research process.(31,32) This approach resulted in rapid removal of federal restrictions on the abortion pill in Canada in 2017, its first year of availability, making it accessible in primary care settings.(33–38) However,

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disseminating research with policy makers is challenging when they perceive the data to be complex or political, as can occur with family planning evidence.(39–41) Our iKT collaborations – underpinned by an anti-oppressive, equity-based approach of partnering closely with youth throughout the research process – aim to improve the acceptability, usefulness, and relevance of knowledge by co-producing it with the people best positioned to make evidence-informed decisions. This approach aims to shorten the time it takes to move evidence into practice, and in turn make rapid impact on contraception access for youth in Canada.

Phase One: Qualitative Interview Study with Youth and Service Providers (Aims 1 & 2)

Theoretical framework

Our approach will be guided by social constructivist grounded theory.(42,43) Following feminist and standpoint theories, constructivist grounded theory emphasizes the importance of researcher flexibility and positionality. Feminist approaches start from the broad shared goal to challenge gender-based oppressions and inequities.(44,45) The hallmark of these approaches is reflexive interviewing. Throughout the study, our team will practice reflexivity by challenging our assumptions and staying attuned to power imbalances as well as our and participants' social positions.

We will use Levesque's Patient-centered Access to Care framework (46) as a theoretical guide (Figure 1). Levesque incorporates factors that impact access to care from two perspectives: supply (Approachability; Acceptability; Availability & Accommodation; Affordability; Appropriateness); and demand (Ability to Perceive; Seek; Reach; Pay; Engage). These factors are

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interdependent, contextual, and dynamic. We will conduct interviews with providers (supply) and youth (demand).

[Insert Figure 1. A conceptual framework of access to care, adapted from Levesque (46)]

Sex and Gender-Based Analysis+

We will collect and report data on self-identified sex and gender, following SAGER guideline reporting standards.(47) We will consider both gender and sex during recruitment and screening to ensure that a diverse array of youth participate in the study.(48,49) In qualitative analysis+, we will consider sex and gender as contextual factors to understand participants' lived experiences and the process of accessing contraception care. The + sign denotes that gender does not exist in isolation and intersects with age, income, immigrant status, cultural background, geographic location, and education to produce conditions of empowerment or marginalization which, in turn, effect health access.(50)

Setting and Participants

We will recruit participants from all Canadian provinces and territories. Participants will include A) *youth aged 15 to 25*, and B) *healthcare professionals who provide contraceptive care to youth*. For the purposes of this study, we define youth in both conceptual and temporal terms. Conceptually, we define youth as individuals in the developmental stage of emerging adulthood, a well-established definition used to identify the period associated with the transition from adolescence to adulthood. During this period, young people engage in identity exploration and

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development in order to transition into their personal and professional lives as adults.(10) While Statistics Canada defines youth as aged 15 to 29, we selected an upper limit of age 25 as it is typically used as an age cut-off in Canada for youth contraceptive subsidy programs,(51) pediatric contraception guidelines,(3,9) and survey-based analyses of youth contraception access.(4,52) We will invite youth to self-identify through a 3-item screening (*When were you born (year and month)? Do you currently reside in Canada? Have you ever used, wanted, or considered contraception?*). We will include people who use, want, or consider contraception for purposes in addition to preventing pregnancies. We will exclude people who self-report that they are younger than 15 or older than 25, or who answer 'No' to any of the above questions. We will work with our community partners to recruit a spectrum of youth across Canada, including from low-income, rural, newcomer, and racialized communities as well as trans and gender-diverse people. We will advertise the study materials in multiple languages and include Youth Research Associates (YRAs) on our team who speak English plus one or more of French, Mandarin, Cantonese, Punjabi, Hindi, or Spanish. We will hire a translator or community partner for participants who feel most comfortable conducting the interview in another language.

Recruitment

Our two-phase sampling strategy will begin with a purposeful sampling frame across provinces and territories, rural and urban settings, gender, age (15-17, 19-22, and 23-25), and ethnicity. As data collection progresses, we will engage in additional theoretical sampling to confirm/disconfirm results, fill in data gaps, and refine our evolving theory.

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- **Youth**: We will use a multifaceted, community-based strategy to recruit youth, including a study website, social marketing campaign (e.g. Instagram advertising and re-posting of study ads by youth- and health-oriented organizations), and snowball sampling. Youth researchers on our team will design and implement a youth outreach strategy using principles of 'relational' stakeholder mapping (53–56) to engage youth-serving organizations. These YRAs will then engage individuals from youth-serving organizations in knowledge brokering; e.g. they may provide social media content development training in exchange for a welcome platform to share information about our project.
- **Healthcare professionals:** We will recruit through listservs of health professional organizations (e.g. Society of Obstetricians and Gynaecologists of Canada, Canadian Pediatric Society, Canadian Pharmacists Association, Nurse Practitioner Association of Canada), youth sexual health clinics, sexual and reproductive health organizations (e.g. Action Canada for Sexual Health, Options for Sexual Health), and email listservs for family planning providers (e.g. Canadian Abortion Providers Support Platform). Interested participants will receive the online consent form.

Each participant will be offered an honorarium of $50 for their participation in an interview. We will collect data until we reach saturation by informational redundancy (new data repeats previous data) and have sufficient data to explain the phenomenon.(57) To ensure we have a diverse, information-rich sample, we will seek to saturate each sub-group in our purposeful sampling framework: rural and urban youth; those in each province and territory; immigrant,

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refugee, and newcomer youth; disabled youth; Black, Indigenous, and People of Colour (BIPOC); Two-Spirit, Lesbian, Gay, Bisexual, Transgender, Queer, Questioning, Asexual, Intersex (2SLGBTQQAI+) youth. Based on analogous studies (35,58) we will likely conduct interviews with 10-15 youth per group, acknowledging that participants will have intersecting identities. We predict our sample of youth will thus be upwards of 100 total participants.

Data collection

Our data collection methods seek to promote confidentiality and build trust, and have been co-designed with the team's YRAs. We will first invite youth participants to complete an online enrolment survey using REDCap electronic data capture tools (59,60) hosted at the BC Children's Hospital Research Institute. This survey will collect demographic data to provide context on identity characteristics that will assist in our qualitative interpretation, our sex- and gender+ analysis, and our purposeful sampling. Interested participants will also indicate their preference for either an in-depth, open-ended 60-minute audio interview by phone or Zoom software, or to complete a written interview on a confidential study website form. Youth perceive that asynchronous written interviews by email or website are acceptable, confidential methods for sharing sensitive reproductive experiences, particularly compared to face-to-face data collection (58,61) and in a COVID-19 context.(62) Nearly 100% of youth in Canada aged 15 to 30 use the internet daily, a trend observed across all provinces and household income groups.(63) These ethical and access considerations will be discussed on an ongoing basis with community groups who are partners in this work. Considerations may include shorter interviews, in-person interviews, and the inclusion of a third party or social worker to the

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interview space to better support youth. The youth consent form, demographic information, and (if applicable) written interview data will be linked automatically through a numeric participant identification (PID) generated by REDCap.

We will conduct in-depth interviews with healthcare professionals to investigate their perspectives on the accessibility and appropriateness of existing resources and supports for contraceptive decision-making for youth, and opportunities for improvement. We will collect and document basic demographic information (postal code, primary specialty, age, gender, experience prescribing contraception with youth) verbally before the start of healthcare professional interviews.

Each 60-90 minutes audio interview will be conducted by the lead author or an experienced trainee, with a translator or YRA present if the participant desires language support. Our topic guides will consist of open-ended questions about access to contraception and probes to explore the dimensions of Levesque's Access Framework (see Supplementary Files).(46) This also will include where and how youth would like to access services, including in pandemic and non-pandemic conditions. We will probe for knowledge and perceptions of feasibility and acceptability of LARC and youth-led health services. After each interview, we will provide youth with a list of resources in case they have follow-up questions or interest to access contraceptive care. Interviews with youth will begin before those with service providers, to ensure that our theory is grounded first in youth experiences.

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Data analysis

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Interview data will be transcribed and/or translated, if applicable, by professional transcription and translation services. Trainees who conducted the interviews will lead data analysis, with guidance from the lead author and the YRAs. Our analysis team will independently read and code a sub-set of transcripts. The coding process has 4 steps: (1) open and *in vivo* coding to identify properties of emerging concepts, (2) focused coding to identify and organize codes into batches of similar or related phenomena, (3) comparing data to data (constant comparison), and (4) theoretical coding to sort, synthesise, and organize the data into major conceptual categories.(42) We will compare our codebooks and engage in discussion to achieve conceptual and semantic congruency, and then code another two transcripts to test our merged codebook to ensure it makes implicit processes and structures visible. Next, using the finalized codebook, the analysis team will independently code a sub-section of transcripts (each transcript will have two coders). We will meet weekly to discuss our interpretations and revise the codebook as needed. Coding will be facilitated by use of NVivo analysis software (version 12).(64) All qualitative analyses will include consideration of how sex, gender, and other diversity characteristics influence experiences and attitudes at individual and system levels.(48) To assist interpretation, we will draw visual maps of those characteristics, relationships, and social worlds using grounded theory mapping techniques.(65)

Verification strategies

Throughout the research, we will pursue verification strategies to ensure reliability and validity, including constant comparison (comparing open-ended responses and interview data for each participant, among youth, among healthcare professionals, between samples, and over time),

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keeping a data trail, and sampling to theoretical sufficiency.(66,67) Our assessment of *sufficiency* will be guided by the question, "Given the theory, do we have sufficient data to illustrate it?" To establish *trustworthiness* of the data, each participant will be asked if they consent to being emailed a password-protected transcript of their interview for member-checking feedback (i.e., review what they said, edit as needed, and add more information). We also will write memos throughout to engage in self-reflection, identify gaps in data collection, and serve as a record of the analytic process.

Phase Two: Human-centred design, development, and evaluation of youth stories (Aim 3)

We will use the knowledge generated in Phase One to ideate, prototype, and test 'youth stories.' We anticipate that youth narratives on contraception access will help provider, policy maker, and patient audiences prioritize, understand, and recall information, and enhance interest in youth lived experiences.(68–71) Our evaluation will assess the impact of the stories on audience knowledge (primary outcome) and narrative immersion (e.g. interest, involvement, empathy), as well as unintended outcomes (persuasion).

Method

We will employ user-centered design to develop and evaluate youth stories, a well-established approach that involves ideation, rapid prototyping, and iterating upon the strengths and weaknesses of prototypes so that innovations may be designed quickly and with the direct input and preferences of actual "end-users" of a specific product or service.(72–74) It involves 5 steps: 1) empathize (understanding the way people do things and why), 2) define (expressing the

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specific problem the intervention will address), 3) ideate (generating solution concepts), 4) prototype (building models to elicit feedback from colleagues), and 5) test (soliciting feedback from users).(75) See Figure 2 for an illustration of these steps. We will continue to follow feminist and standpoint approaches in Phase Two, practicing reflexivity by challenging our assumptions about the knowledge generated in Phase One, and seeking to be attuned to end-users' comfort level, differences in power and status, and the effect of gender, race, and age on the user-centred design process.

[Insert Figure 2. User-centered design process to develop and evaluate youth stories]

Study Population and Recruitment

Our design process will engage the three key audiences for this program of research: youth and healthcare professionals (as in Phase One), as well as health system decision-makers responsible for the planning and delivery of contraceptive services. We will send email invitations to the youth and healthcare professional participants from Phase One, asking if they would be interested to contribute to a workshop to co-design youth stories. To recruit health system decision makers (e.g., public health officials, civil servants, and politicians), we will advertise the study by email invitation through the listservs of the Contraception and Abortion Research Team, as well as health professional and regulatory organizations in each province and territory, as in our pilot research.(76) We will conduct the workshops virtually by video conference to account for national diversity in populations, health service delivery, and access experiences, and to make it easy and accessible for participants in different regions and time zones.

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Workshop activities

The empathize and define stages will be completed through Phase One interviews. In Phase Two, design thinking workshops will allow us to ideate, prototype, and test and will be co-facilitated by the first author, a trainee, and at least one YRA. The YRAs will have been involved in the Phase One data analysis and will collaborate with the trainees to review the de-identified transcripts and extract stories that best illustrate key themes from Phase One. Each draft prototype will take the format of a 'wireframe' or storyboard to facilitate in-depth feedback. This preliminary work to develop the storyboards will be conducted through an end-of-project team workshop. We will build stories according to the Narrative Immersion Model (NIM)(71,77) using experience and process narratives and evaluating them with end-users prior to dissemination. The NIM model indicates that when the target effect of a narrative is to inform, then *experience narratives* (e.g. what it is like to access contraception) and *process narratives* (e.g. how youth made a contraceptive choice) are appropriate and can mitigate unintended changes in audience attitudes and behaviours.

Then, we will conduct human-centred design workshops to refine prototypes. Workshops will be conducted via Zoom and consist of 1) a short presentation on Phase 1 and the prototype 'storyboards', followed by 2) a moderated discussion to brainstorm and generate ideas, first in breakout rooms and then as a group. The aim is to focus participant ideas towards creation of a series of refined testable prototypes for the youth stories. These decisions will be emergent and co-determined with youth participants. The stories will be composite or aggregate, rather than

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individual. Combining the stories from a large number of people can assist to both protect participant anonymity and convey a systemic story, as opposed to a single event or individual experience.(68) The workshops will be audio-recorded and transcribed by Zoom software to facilitate iterative revision of the prototypes. After feedback from each session, we will revise the prototype storyboards.

Based on best practices,(78,79) we anticipate to conduct three or more cycles of ideation and prototyping to generate prototypes that address our KT aims and are satisfactory to all workshop participants. We plan to hold a total of 10 workshops, including: (i) *at least three workshops each with youth, healthcare professionals, and policy makers involving five participants each*, which our experience has identified is an optimal number for generating ideation and discussion; and (ii) one synthesis workshop involving all three stakeholder groups and led by the YRAs to generate shared meaning and ensure the final prototypes are inclusive and reflect youth voices.

Evaluation

Using the same recruitment strategies as in Phase One, we will recruit health system decision makers, healthcare professionals, and youth who are naïve to the study design. The evaluation will be completed via online survey (RedCap). We will ask participants to complete a demographic questionnaire and a knowledge pre-test involving 5 statements about contraception access, each scored on a 5-item Likert scale ranging from strongly agree to strongly disagree. Participants will be presented with the suite of stories to review and will

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complete a post-test. The post-test will include the same 5-item knowledge test used in the pre-test and a single-item question with a yes/no response: “Did reading the stories give you information about contraception access that you did not have before?”

After completing these tasks, participants will complete a qualitative survey investigating perceptions of other elements of the Narrative Immersion Model (e.g. interest, involvement, immersion) and unintended outcomes (e.g. persuasion).(71) We will measure change in knowledge by comparing pre- and post-test scores from the 5-item knowledge test (non-parameteric Wilcoxon signed rank test).(80) Statistical significance will be denoted as $p \leq 0.05$. We will report qualitative responses using reflexive thematic analysis, stratified by audience type.(81–83) We will evaluate the reach of youth stories and study website performance through Google analytics, unique website visitors, view count, engagement (watch time per view), video shares and (dis)likes, and hashtag tracking. We will report data descriptively.

Following evaluation, we will produce final versions of the youth stories. Based on best practices,(84) these may consist of 2-minute whiteboard and/or live videos of patient stories or text-based infographics, as well as evidence briefs for policy makers. The methods will be determined through the design workshops we complete in Phase Two.

Patient and Public Involvement

The research question and study design were co-developed with patient partners from the UBC Youth Research Advisory Panel (Y-RAP) through a series of workshop meetings. As described

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above, Youth Research Associates (patient partners) are full members of the research team, guiding all study decisions and engaging in recruitment, data collection, and analysis and dissemination of youth stories.

Discussion

Our research will generate evidence on the contraception access needs of youth in Canada. Our project has the potential to inform Canadian contraceptive policy and practice to mitigate youth access barriers; improve contraception access for youth; and ultimately, reduce rates of unintended pregnancy and need for abortion among youth. To accelerate the impact of our research, we will translate the knoweldge generated through this project into tangible KT tools in partnership with knowledge users through an inclusive design process.

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Thank you to members of the Contraception and Abortion Research Team (CART-GRAC) for providing their expert feedback in preparing this study. Thank you to the youth advisors who collaborated to generate the questions and approaches for this study.

Authors' contributions

SM and GDM developed the study concept and approach with input from all coauthors. SM and AW wrote the first draft of the manuscript. KJ, ZK, HS, and WVN significantly contributed to the design. All authors contributed to manuscript revisions and reviewed and approved the final manuscript.

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Competing Interests

GDM is a member of the Adolescent Health Committee, Canadian Paediatric Society, and lead author of the policy statement advocating for universal no-cost access to contraception published by the Canadian Paediatric Society. AB has received Advisory Board consulting fees from Organon, Bayer, Mithra, as well as honoraria for lectures and presentations from Bayer, Organon, and Searchlight. AB is also President-Elect and Director of the Board for the Society of Obstetricians and Gynecologists of Canada. ZK is a Board Member with Options for Sexual Health. MF is employed by Options for Sexual Health.

Ethics and dissemination

Ethical approval for this study has been provided by the UBC Behavioural Research Ethics Board (H21-01091). Results will be published in peer-reviewed journal publications. Due to the sensitive nature of the research and ethical restrictions to protect the privacy of research participants, the qualitative dataset will not be publicly available. The participants of this study will not provide written consent for their transcript data to be shared publicly.

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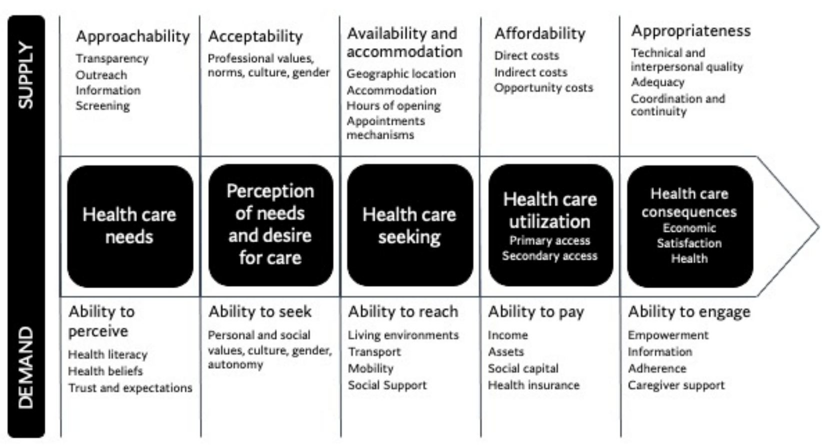

25 A conceptual framework of access to care, adapted from Levesque
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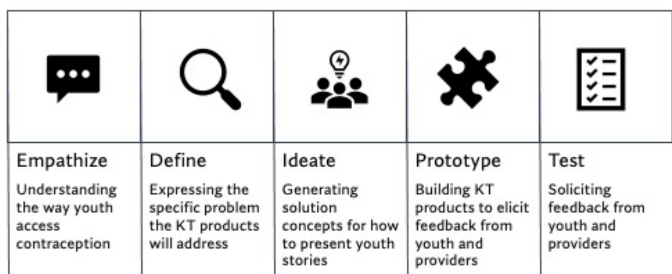

User-centered design process to develop and evaluate youth stories

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Youth Access to Contraception

Interview Guide for Youth

[Interviewers may begin by identifying themselves: who they are and their role in the study. The questions below are a guide and will be adapted in real-time for an organic conversation. The recording will begin after introductions]

Introduction to participant

Thank you so much for agreeing to participate in the project. Our conversation today is part of this 4-year grant-funded study. Our goal is to understand youth experiences of access to contraception in Canada. Through this project our aim is to listen to stories and make recommendations for models of contraception care that are youth-appropriate, empowering, and accessible. Before we review your consent form, do you have any questions for me?

Before we begin the interview, I would like to review the consent form with you and answer any questions about the form or the study itself that you may have. If you don't mind, please pull up the consent form that our research coordinator shared with you by email and read through once more. Once you've done that, you can let me know if you consent to participate in today's interview, then we'll begin.

Instructions for interviewers

- *Provide a summary of the consent form.*
- *Participant reviews the consent form then provides their verbal consent to participate before continuing.*
- *Confirm that participants have had a chance to review the interview guide (table).*
- *Interviewers may begin by identifying themselves: who they are, where they are from, and their social position in relation to the study.*
- *The recording will begin after introductions.* ***Start recording.***

	Question	Optional follow-up questions
	Experiences of providing care	
1	Can you tell me a little bit about your experiences of accessing contraception care?	I'd like to learn more about [*the experiences the participant described*]. Can you tell me step by step what that looked like? Paint me a picture, if you can. [*Repeat the question to learn about other experiences, if relevant*]
2	What (other) methods have you used? What do you like most/least about those methods?	Do you use these methods for any reason other than birth control? If yes, what do you like about those methods?

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	Availability and accommodation	
3	Did you feel that all contraception methods were options for you? If not, why not? How did this impact your decision?	
4	What is easy/hard about accessing your preferred method? What is easy/hard about accessing other methods?	
5	What contraception services are available in your community that you are aware of?	Do people have to leave the community to access care? If so, where to and how do they get there?
6	In your view, how welcoming are the spaces to youth? What are some of the things that make the spaces more or less welcoming?	
7	If you or a relative needed information about options for preventing a pregnancy, is there a safe, knowledgeable person or place in your community to go to? Who or where would this be?	[*Probe about a person, an organization, a resource*] Do you feel as knowledgeable as you'd like to be about options for birth control? What are some strategies that you think would work well for increasing awareness about options for birth control among youth?
	Approachability and affordability	
8	Do you feel that all contraception methods are options for you?	If no, why not? If yes, what would make it possible?
9	Thinking about the contraception experiences you have mentioned so far, what are the costs that you have experienced?	*Probe for costs that were covered by a benefits plan, out of pocket for prescriptions, out of pocket for travel, and any indirect financial impact on loss of work, childcare expenses, etc*
10	Was there ever a situation where you needed to access contraception care and challenges related to costs, health benefits, or provider availability impacted or delayed you from getting services when you needed them?	If yes ->, Can you tell us about that?
11	In general, how do you see these barriers impacting youth's access to care?	What would make it easier for you to reach contraception care?
	Acceptability (i.e. Culturally safe care)	

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12	What does "culturally appropriate" or "culturally safe" care mean to you in the case of contraception?	Have you ever had an experience of accessing contraception care that you would characterize as culturally safe? What made it so? Have you ever had an experience of accessing contraception care that you would characterize as culturally **un**safe? What made it so?
13	Have you ever avoided getting contraception care because you felt it wouldn't be culturally safe? Please tell me more about that experience.	If bringing culture into your contraception care experience is important to you, what would you need from the health care system to be able to do it safely and accessibly?
14	What are the things that give you a feeling of trust with your health care provider when talking about contraception?	
	Shared decision making	
14	Tell me how you made the decision to use your current method. What were the factors that went into your decision?	• Tell me how you made the decision to use your current method. What were the factors that went into your decision? • What information did you use to help make your decision? • What was most helpful to you in making your decision? *[Probe about a person, an organization, a resource and healthcare providers]* • How did you feel about your decision when you made it? Did you feel certain? How do you feel about your decision now?
15	Tell us how family members are involved when you're making choices about contraception. How are your partner/s involved in those choices? How is your broader community involved in those choices?	• We are curious to know about any resistance to contraception care in the community, for religious or cultural reasons. How do people around you feel about family planning services? • Tell me about other people and their role in your contraception choices. Who else, if anyone, influences your choice about method? Tell me about how he/she/they influenced you.
	Appropriateness (of health services and system)	
16	What community-run, youth health services are available to you in general, for any health services? What about contraception/family planning care?	

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17	Ideally, where would you like to receive family planning care?	*Supplementary question if clarification needed:* What existing clinic feels like the place you would be most comfortable to access contraception care? Why?
18	Ideally, who or which health care provider would be the most comfortable person for you to access contraception care?	*Probe also for midwives, allied health professionals, community health workers, patient navigators, doulas*
	Ending questions	
19	If you could wave a magic wand and change the health system, what would it look like for youth trying to access contraception?	
20	Is there anything that you might not have thought about before that occurred to you during this interview?	What do you like about them?
21	Is there anything else you think I should know to better understand how contraception access could be improved?	
22	Finally, what motivated you to participate in the study?	

That concludes the interview. I encourage you to check out the resources listed on your consent form, if you're keen to learn about the confidential and free sexual and reproductive health and mental health supports available to you.

Do you have any questions for me?

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Youth Access to Contraception

Interview Guide for Health Care Providers

[Interviewers may begin by identifying themselves: who they are and their role in the study. The questions below are a guide and will be adapted in real-time for an organic conversation. The recording will begin after introductions]

Introduction to participant

Thank you so much for agreeing to participate in the project. Our conversation today is part of this 4-year grant-funded study. Our goal is to understand youth experiences of access to contraception in Canada. Through this project our aim is to listen to stories and make recommendations for models of contraception care that are youth-appropriate, empowering, and accessible. Before we review your consent form, do you have any questions for me?

Before we begin the interview, I would like to review the consent form with you and answer any questions about the form or the study itself that you may have. If you don't mind, please pull up the consent form that our research coordinator shared with you by email and read through once more. Once you've done that, you can let me know if you consent to participate in today's interview, then we'll begin.

Instructions for interviewers

- *Provide a summary of the consent form.*
- *Participant reviews the consent form then provides their verbal consent to participate before continuing.*
- *Confirm that participants have had a chance to review the interview guide (table).*
- *Interviewers may begin by identifying themselves: who they are, where they are from, and their social position in relation to the study.*
- *The recording will begin after introductions.* ***Start recording.***

	Question	Optional follow-up questions
	Demographics	
0	Before we start our conversation, I have a few demographic questions. If you don't want to answer a particular question, we can skip it. 1. What are the first three digits of your postal code? 2. What is your primary speciality? 3. What is your age? 4. What is your gender? 5. Do you have past experience providing contraceptive services to youth (up to 25 years old)?	
	Experiences of providing care	

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1	Can you tell me a little bit about who you are, where you are from, and the communities where you practice?	
2	Tell me about your experience providing contraception to youth.	I'd like to learn more about [*the experiences the participant described*]. Can you tell me step by step what that looked like? Paint me a picture, if you can. [*Repeat the question to learn about other experiences, if relevant*]
3	How did you become involved in contraception care?	
	Availability and accommodation	
4	Can you paint me a picture of what it might look like for a youth client who accesses contraception services in your community?	• What other contraception services are available in your community? • Where do clients come from to access services? • Do people need to leave the community to access services, if so where to? • How easy/hard would you say it is for youth to access these services when they need them? Why? • Are there any youth-specific programs or services? Can you describe them? *Probe for both prescribing and dispensing*
5	What methods of contraception do you offer?	Are there any methods you wish you could offer?
6	Tell me about your practice environment where you currently provide contraception	
7	Tell me about the youth who seek contraception in your setting.	Do newcomer or immigrant youth access your services? If yes: In your view, how welcoming are the spaces to youth/newcomer youth? What are some of the things that make spaces welcoming?
	Approachability	
8	Do you feel that all contraception methods are options for you to provide?	If no, why not? If yes, what makes it possible? *(Probe for education, funding, infrastructure)*

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9	How does travel or transportation impact accessibility to contraception services for youth in your community?	• Are you aware of how seasonal weather, road conditions, or climate events impact youth ability to access services? • What is your perception of how youth are with local or far away contraception services?
	Affordability	
10	What are the costs of accessing contraception care?	• Are there hidden costs you are aware of, such as for travel? • Are you aware of what health benefits and subsidies exist for youth to help cover these hidden costs? • Have there been policy or funding structure changes over the last 10 years that impacted your ability to serve youth clients for the better?
11	Was there ever a situation where your patient was not able to access contraception care due to costs?	
	Acceptability	
12	What are the ways that you establish trust with youth when talking about contraception?	• How about building trust with trans or Two Spirit youth seeking contraception care? • Do you have any best practices to share around protecting youth privacy and confidentiality? Please tell me about them.
13	What does “culturally appropriate” or “culturally safe” care mean to you in the case of contraception?	• How do you create space for diverse identities, knowledges, and cultural practices in your care? • Would you characterize your practice environment to be culturally safe? What made it so? [*Probe about a person, an organization, a policy, a resource or educational pathway, training*] What or whom has been most limiting?
	Shared decision making	
14	When you discuss contraceptive options with youth, what does it look like? Can you describe it for me?	• Is there anything you would do differently if you were to provide contraception care to a newcomer or immigrant youth?

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15	We are curious to know about consent for contraception care. One of the concepts we are exploring in this project is reproductive coercion. This is when a person feels pressure or control from others when making a reproductive choice. How does this concept appear in your care?	• What are the barriers, if any, to achieving consent for contraception care? • What is your perception around resistance to contraception care in the community, for family, religious or cultural reasons? How does the community feel about family planning services?
	Appropriateness (of health services and system)	
16	What would you say are the characteristics of good contraceptive care for youth?	• Are there any characteristics that are unique to newcomer or immigrant youth? • Is this type of care available in your community? In your practice setting?
17	Where is there opportunity to improve services? What would need to happen to facilitate this change?	
18	What resources would support the sustainability of contraception care for providers?	*Probe for compensation models, benefits, scope of practice, operating and start-up costs, administrative burden, time to counsel and support patients, time to build trust, building communities of practice and relationships*
	Ending questions	
19	If you could wave a magic wand and change the health system, what would it look like for youth trying to access contraception?	
20	Is there anything that you might not have thought about before that occurred to you during this interview?	
21	Is there anything else you think I should know to better understand how providers make choices to support their youth patients in contraceptive care and how services could be improved?	
22	Finally, what motivated you to participate in the study?	

That concludes the interview. I encourage you to check out the resources listed on your consent form, if you're keen to learn about the confidential and free sexual and reproductive health and mental health supports available to you and your patients.

Do you have any questions for me?

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Can youth-engaged research facilitate equitable access to contraception in Canada? A qualitative study protocol

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Can youth-engaged research facilitate equitable access to contraception in Canada? A qualitative study protocol

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Abstract

Introduction

There is little to no evidence in Canada on the barriers that youth face when accessing contraception. We seek to identify the contraception access, experiences, beliefs, attitudes, knowledge, and needs of youth in Canada, from the perspectives of youth and youth service providers.

Methods and analysis

This prospective, mixed methods, integrated knowledge mobilization study will involve a national sample of youth, healthcare and social service providers, and policy makers recruited via a novel relational mapping and outreach approach led by youth. Phase One will centre the voices of youth and their service providers through in-depth one-on-one interviews. We will explore the factors influencing youth access to contraception, theoretically guided by Levesque's Access to Care framework. Phase Two will focus on the co-creation and evaluation of knowledge translation products (youth stories) with youth, service providers, and policy makers.

Ethics and dissemination

Ethical approval was received from the University of British Columbia's Research Ethics Board (H21- 01091). Full open-access publication of the work will be sought in an international peer-reviewed journal. Findings will be disseminated to youth and service providers through social media, newsletters, and communities of practice, and to policy makers through invited evidence briefs and face-to-face presentations.

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Strengths and limitations of this study

- Our theory-informed, qualitative approach will generate rich evidence on the factors that influence equitable access to contraception care for youth.
- Our integrated knowledge translation approach provides youth with the flexibility to determine the most meaningful methods of engagement, data collection, and knowledge mobilization.
- Youth stories about contraceptive access will be developed into end-of-project knowledge translation stories in partnership with youth, to accelerate the uptake of our study results into policy and practice.

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Can youth-engaged research facilitate equitable access to contraception in Canada? A qualitative study protocol

INTRODUCTION

The unmet need for contraception among youth remains high globally, particularly for those who face structural and systemic barriers to equitable health service access.(1,2) Recent data on youth contraception patterns in Canada indicate that youth face cost barriers due to lack of subsidized options and/or household income, and youth who require or desire confidential access have the most difficulty acquiring their preferred contraception methods.(3,4) Youth with the ability to become pregnant have the right to choose if and when to have children.(5) It is necessary to provide youth with health system supports that provide access to contraception that matches their needs, preferences, and attitudes.

In Canada, the most effective contraceptive options, Long-Acting Reversible Contraception (LARC), are used by less than 10% of people of all ages with a need for contraception, and uptake is even lower among youth,(6–9) young people in the period associated with the transition from adolescence to adulthood.(10) These methods are recommended as a first-line option for youth by the Canadian Paediatric Society (9) and Society of Obstetricians and Gynaecologists primarily because of their effectiveness in pregnancy prevention.(7,8) These methods include intrauterine devices (IUD) and the subdermal contraceptive implant. Low uptake of these options across populations is due to myriad individual, social, health system factors. For instance, lack of geographic access to LARC placement and removal options may make it impossible to translate a person's desire to prevent pregnancy into health behaviours for identifying and using their chosen method.(11)

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There are limited Canadian data on the factors influencing contraception access among youth; however, cost is a clear contributor. Analysis of 2009-2014 Canadian Community Health Survey data showed that among females aged 15 to 24 at risk of unintended pregnancy, lower household income was associated with decreased use of oral contraceptives and increased reliance on injectable contraceptives or condoms alone.(4) In a survey of youth aged 14 to 21 in the province of Quebec, youth who reported being unable to access their preferred method of contraception most often cited cost as a barrier.(12) Canadian provincial and territorial healthcare plans cover the costs of specific drugs on their formularies for populations including those who are low-income, receive social benefits, or are Indigenous. Yet most do not cover all contraceptive methods, and coverage through work-subsidized extended health benefits is inconsistent, creating system-level barriers to the full range of contraceptive options.(13)

One related concern for youth is confidentiality. Confidential services increase youths' trust in their care, which in turn increases the chance that youth will provide a complete sexual history and discuss concerns and needs that they cannot share with a parent.(9,14) Youth who are sexually active and experience cultural or familial interdiction require confidential access to contraception.(15–17) When these youth receive extended health benefits through their parent or guardian, a report is available to that person. Thus, despite having insurance, youth often will need to pay directly for contraception, to preserve their confidentiality.(3) Confidentiality is also of concern for youth in remote or close-knit communities where healthcare workers may be

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known to them. Yet the existing evidence does not identify how confidentiality influences youth contraceptive choices in Canada.

The literature, albeit limited, about youth and their contraceptive preferences comes primarily from US (18–26) and UK studies.(27–29) Results of a survey involving contraceptive knowledge and attitudes of 897 female youth demonstrated that youth have lower awareness and knowledge about contraceptive options, particularly LARC methods, than people of other ages.(30) Among teens, 63% misbelieved that a person needed to undergo an operation to have an IUD, and 71% that negative effects from the contraceptive injection would last their lifetime.(30) Youth who hold mistaken beliefs about contraception are less likely to seek care when they become sexually active.(30) Given these data, there is pressing need to understand contraceptive choices of youth in Canada. In our study we seek to answer the question: *What are the contraception access experiences, beliefs, attitudes, knowledge, and needs of youth in Canada, from the perspectives of youth and youth service providers?*

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METHODS AND ANALYSIS

We will conduct this four-year study in two phases. Our aims are to:

Aim 1: Investigate the experiences, beliefs, attitudes, knowledge, and contraceptive access needs of youth (aged 15 to 25) in Canada from the perspectives of youth and service providers;

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Aim 2: Identify the attributes of contraceptive options that matter most when making decisions about methods to use, from the perspectives of youth and service providers; and

Aim 3: Create and test knowledge translation (KT) products of "youth stories," to communicate results to youth, healthcare professionals, and decision makers in Canadian contraception policy and practice.

Study Design

The primary mode of data collection will be one-on-one interviews. Youth stories about contraceptive access will be developed into end-of-project KT products in partnership with youth, using principles of narrative theory and user-centred design. These may consist of 2-minute whiteboard and/or live videos of patient stories or text-based infographics, as well as evidence briefs for policy makers. We will create and disseminate these youth stories to Canadian stakeholders (providers, policy makers, and patients) in real time.

Integrated knowledge translation

This study is part of the larger research program of our thriving national Contraception and Abortion Research Team (CART) and builds on our 10 years of family planning research collaborations. The CART research program is built on an integrated knowledge translation (iKT) approach whereby policy makers collaborate in all stages of the research process.(31,32) This approach resulted in rapid removal of federal restrictions on the abortion pill in Canada in 2017, its first year of availability, making it accessible in primary care settings.(33–38) However,

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disseminating research with policy makers is challenging when they perceive the data to be complex or political, as can occur with family planning evidence.(39–41) Our iKT collaborations – underpinned by an anti-oppressive, equity-based approach of partnering closely with youth throughout the research process – aim to improve the acceptability, usefulness, and relevance of knowledge by co-producing it with the people best positioned to make evidence-informed decisions. This approach aims to shorten the time it takes to move evidence into practice, and in turn make rapid impact on contraception access for youth in Canada.

Phase One: Qualitative Interview Study with Youth and Service Providers (Aims 1 & 2)

Theoretical framework

Our approach will be guided by social constructivist grounded theory.(42,43) Following feminist and standpoint theories, constructivist grounded theory emphasizes the importance of researcher flexibility and positionality. Feminist approaches start from the broad shared goal to challenge gender-based oppressions and inequities.(44,45) The hallmark of these approaches is reflexive interviewing. Throughout the study, our team will practice reflexivity by challenging our assumptions and staying attuned to power imbalances as well as our and participants' social positions.

We will use Levesque's Patient-centered Access to Care framework (46) as a theoretical guide (Figure 1). Levesque incorporates factors that impact access to care from two perspectives: supply (Approachability; Acceptability; Availability & Accommodation; Affordability; Appropriateness); and demand (Ability to Perceive; Seek; Reach; Pay; Engage). These factors are

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interdependent, contextual, and dynamic. We will conduct interviews with providers (supply) and youth (demand).

[Insert Figure 1. A conceptual framework of access to care, adapted from Levesque (46)]

Sex and Gender-Based Analysis+

We will collect and report data on self-identified sex and gender, following SAGER guideline reporting standards.(47) We will consider both gender and sex during recruitment and screening to ensure that a diverse array of youth participate in the study.(48,49) In qualitative analysis+, we will consider sex and gender as contextual factors to understand participants' lived experiences and the process of accessing contraception care. The + sign denotes that gender does not exist in isolation and intersects with age, income, immigrant status, cultural background, geographic location, and education to produce conditions of empowerment or marginalization which, in turn, effect health access.(50)

Setting and Participants

We will recruit participants from all Canadian provinces and territories. Participants will include A) *youth aged 15 to 25*, and B) *healthcare professionals who provide contraceptive care to youth*. For the purposes of this study, we define youth in both conceptual and temporal terms. Conceptually, we define youth as individuals in the developmental stage of emerging adulthood, a well-established definition used to identify the period associated with the transition from adolescence to adulthood. During this period, young people engage in identity exploration and

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development in order to transition into their personal and professional lives as adults.(10) While Statistics Canada defines youth as aged 15 to 29, we selected an upper limit of age 25 as it is typically used as an age cut-off in Canada for youth contraceptive subsidy programs,(51) pediatric contraception guidelines,(3,9) and survey-based analyses of youth contraception access.(4,52) We will invite youth to self-identify through a 3-item screening (*When were you born (year and month)? Do you currently reside in Canada? Have you ever used, wanted, or considered contraception?*). We will include people who use, want, or consider contraception for purposes in addition to preventing pregnancies. We will exclude people who self-report that they are younger than 15 or older than 25, or who answer 'No' to any of the above questions. We will work with our community partners to recruit a spectrum of youth across Canada, including from low-income, rural, newcomer, and racialized communities as well as trans and gender-diverse people. We will advertise the study materials in multiple languages and include Youth Research Associates (YRAs) on our team who speak English plus one or more of French, Mandarin, Cantonese, Punjabi, Hindi, or Spanish. We will hire a translator or community partner for participants who feel most comfortable conducting the interview in another language.

Recruitment

Our two-phase sampling strategy will begin with a purposeful sampling frame across provinces and territories, rural and urban settings, gender, age (15-17, 19-22, and 23-25), and ethnicity. As data collection progresses, we will engage in additional theoretical sampling to confirm/disconfirm results, fill in data gaps, and refine our evolving theory.

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- **Youth**: We will use a multifaceted, community-based strategy to recruit youth, including a study website, social marketing campaign (e.g. Instagram advertising and re-posting of study ads by youth- and health-oriented organizations), and snowball sampling. Youth researchers on our team will design and implement a youth outreach strategy using principles of 'relational' stakeholder mapping (53–56) to engage youth-serving organizations. These YRAs will then engage individuals from youth-serving organizations in knowledge brokering; e.g. they may provide social media content development training in exchange for a welcome platform to share information about our project.
- **Healthcare professionals:** We will recruit through listservs of health professional organizations (e.g. Society of Obstetricians and Gynaecologists of Canada, Canadian Pediatric Society, Canadian Pharmacists Association, Nurse Practitioner Association of Canada), youth sexual health clinics, sexual and reproductive health organizations (e.g. Action Canada for Sexual Health, Options for Sexual Health), and email listservs for family planning providers (e.g. Canadian Abortion Providers Support Platform). Interested participants will receive the online consent form.

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Each participant will be offered an honorarium of $50 for their participation in an interview. We will collect data until we reach saturation by informational redundancy (new data repeats previous data) and have sufficient data to explain the phenomenon.(57) To ensure we have a diverse, information-rich sample, we will seek to saturate each sub-group in our purposeful sampling framework: rural and urban youth; those in each province and territory; immigrant,

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refugee, and newcomer youth; disabled youth; Black, Indigenous, and People of Colour (BIPOC); Two-Spirit, Lesbian, Gay, Bisexual, Transgender, Queer, Questioning, Asexual, Intersex (2SLGBTQQAI+) youth. Based on analogous studies (35,58) we will likely conduct interviews with 10-15 youth per group, acknowledging that participants will have intersecting identities. We predict our sample of youth will thus be upwards of 100 total participants.

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Data collection

Our data collection methods seek to promote confidentiality and build trust, and have been co-designed with the team's YRAs. We will first invite youth participants to complete an online enrolment survey using REDCap electronic data capture tools (59,60) hosted at the BC Children's Hospital Research Institute. This survey will collect demographic data to provide context on identity characteristics that will assist in our qualitative interpretation, our sex- and gender+ analysis, and our purposeful sampling. Interested participants will also indicate their preference for either an in-depth, open-ended 60-minute audio interview by phone or Zoom software, or to complete a written interview on a confidential study website form. Youth perceive that asynchronous written interviews by email or website are acceptable, confidential methods for sharing sensitive reproductive experiences, particularly compared to face-to-face data collection (58,61) and in a COVID-19 context.(62) Nearly 100% of youth in Canada aged 15 to 30 use the internet daily, a trend observed across all provinces and household income groups.(63) These ethical and access considerations will be discussed on an ongoing basis with community groups who are partners in this work. Considerations may include shorter interviews, in-person interviews, and the inclusion of a third party or social worker to the

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interview space to better support youth. The youth consent form, demographic information, and (if applicable) written interview data will be linked automatically through a numeric participant identification (PID) generated by REDCap.

We will conduct in-depth interviews with healthcare professionals to investigate their perspectives on the accessibility and appropriateness of existing resources and supports for contraceptive decision-making for youth, and opportunities for improvement. We will collect and document basic demographic information (postal code, primary specialty, age, gender, experience prescribing contraception with youth) verbally before the start of healthcare professional interviews.

Each 60-90 minutes audio interview will be conducted by the lead author or an experienced trainee, with a translator or YRA present if the participant desires language support. Our topic guides will consist of open-ended questions about access to contraception and probes to explore the dimensions of Levesque's Access Framework (see Supplementary File 1 and Supplementary File 2).(46) This also will include where and how youth would like to access services, including in pandemic and non-pandemic conditions. We will probe for knowledge and perceptions of feasibility and acceptability of LARC and youth-led health services. After each interview, we will provide youth with a list of resources in case they have follow-up questions or interest to access contraceptive care. Interviews with youth will begin before those with service providers, to ensure that our theory is grounded first in youth experiences.

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Data analysis

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Interview data will be transcribed and/or translated, if applicable, by professional transcription and translation services. Trainees who conducted the interviews will lead data analysis, with guidance from the lead author and the YRAs. Our analysis team will independently read and code a sub-set of transcripts. The coding process has 4 steps: (1) open and *in vivo* coding to identify properties of emerging concepts, (2) focused coding to identify and organize codes into batches of similar or related phenomena, (3) comparing data to data (constant comparison), and (4) theoretical coding to sort, synthesise, and organize the data into major conceptual categories.(42) We will compare our codebooks and engage in discussion to achieve conceptual and semantic congruency, and then code another two transcripts to test our merged codebook to ensure it makes implicit processes and structures visible. Next, using the finalized codebook, the analysis team will independently code a sub-section of transcripts (each transcript will have two coders). We will meet weekly to discuss our interpretations and revise the codebook as needed. Coding will be facilitated by use of NVivo analysis software (version 12).(64) All qualitative analyses will include consideration of how sex, gender, and other diversity characteristics influence experiences and attitudes at individual and system levels.(48) To assist interpretation, we will draw visual maps of those characteristics, relationships, and social worlds using grounded theory mapping techniques.(65)

Verification strategies

Throughout the research, we will pursue verification strategies to ensure reliability and validity, including constant comparison (comparing open-ended responses and interview data for each participant, among youth, among healthcare professionals, between samples, and over time),

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keeping a data trail, and sampling to theoretical sufficiency.(66,67) Our assessment of *sufficiency* will be guided by the question, "Given the theory, do we have sufficient data to illustrate it?" To establish *trustworthiness* of the data, each participant will be asked if they consent to being emailed a password-protected transcript of their interview for member-checking feedback (i.e., review what they said, edit as needed, and add more information). We also will write memos throughout to engage in self-reflection, identify gaps in data collection, and serve as a record of the analytic process.

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Phase Two: Human-centred design, development, and evaluation of youth stories (Aim 3)

We will use the knowledge generated in Phase One to ideate, prototype, and test 'youth stories.' We anticipate that youth narratives on contraception access will help provider, policy maker, and patient audiences prioritize, understand, and recall information, and enhance interest in youth lived experiences.(68–71) Our evaluation will assess the impact of the stories on audience knowledge (primary outcome) and narrative immersion (e.g. interest, involvement, empathy), as well as unintended outcomes (persuasion).

Method

We will employ user-centered design to develop and evaluate youth stories, a well-established approach that involves ideation, rapid prototyping, and iterating upon the strengths and weaknesses of prototypes so that innovations may be designed quickly and with the direct input and preferences of actual "end-users" of a specific product or service.(72–74) It involves 5 steps: 1) empathize (understanding the way people do things and why), 2) define (expressing the

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specific problem the intervention will address), 3) ideate (generating solution concepts), 4) prototype (building models to elicit feedback from colleagues), and 5) test (soliciting feedback from users).(75) See Figure 2 for an illustration of these steps. We will continue to follow feminist and standpoint approaches in Phase Two, practicing reflexivity by challenging our assumptions about the knowledge generated in Phase One, and seeking to be attuned to end-users' comfort level, differences in power and status, and the effect of gender, race, and age on the user-centred design process.

[Insert Figure 2. User-centered design process to develop and evaluate youth stories]

Study Population and Recruitment

Our design process will engage the three key audiences for this program of research: youth and healthcare professionals (as in Phase One), as well as health system decision-makers responsible for the planning and delivery of contraceptive services. We will send email invitations to the youth and healthcare professional participants from Phase One, asking if they would be interested to contribute to a workshop to co-design youth stories. To recruit health system decision makers (e.g., public health officials, civil servants, and politicians), we will advertise the study by email invitation through the listservs of the Contraception and Abortion Research Team, as well as health professional and regulatory organizations in each province and territory, as in our pilot research.(76) We will conduct the workshops virtually by video conference to account for national diversity in populations, health service delivery, and access experiences, and to make it easy and accessible for participants in different regions and time zones.

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Workshop activities

The empathize and define stages will be completed through Phase One interviews. In Phase Two, design thinking workshops will allow us to ideate, prototype, and test and will be co-facilitated by the first author, a trainee, and at least one YRA. The YRAs will have been involved in the Phase One data analysis and will collaborate with the trainees to review the de-identified transcripts and extract stories that best illustrate key themes from Phase One. Each draft prototype will take the format of a 'wireframe' or storyboard to facilitate in-depth feedback. This preliminary work to develop the storyboards will be conducted through an end-of-project team workshop. We will build stories according to the Narrative Immersion Model (NIM)(71,77) using experience and process narratives and evaluating them with end-users prior to dissemination. The NIM model indicates that when the target effect of a narrative is to inform, then *experience narratives* (e.g. what it is like to access contraception) and *process narratives* (e.g. how youth made a contraceptive choice) are appropriate and can mitigate unintended changes in audience attitudes and behaviours.

Then, we will conduct human-centred design workshops to refine prototypes. Workshops will be conducted via Zoom and consist of 1) a short presentation on Phase 1 and the prototype 'storyboards', followed by 2) a moderated discussion to brainstorm and generate ideas, first in breakout rooms and then as a group. The aim is to focus participant ideas towards creation of a series of refined testable prototypes for the youth stories. These decisions will be emergent and co-determined with youth participants. The stories will be composite or aggregate, rather than

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individual. Combining the stories from a large number of people can assist to both protect participant anonymity and convey a systemic story, as opposed to a single event or individual experience.(68) The workshops will be audio-recorded and transcribed by Zoom software to facilitate iterative revision of the prototypes. After feedback from each session, we will revise the prototype storyboards.

Based on best practices,(78,79) we anticipate to conduct three or more cycles of ideation and prototyping to generate prototypes that address our KT aims and are satisfactory to all workshop participants. We plan to hold a total of 10 workshops, including: (i) *at least three workshops each with youth, healthcare professionals, and policy makers involving five participants each*, which our experience has identified is an optimal number for generating ideation and discussion; and (ii) one synthesis workshop involving all three stakeholder groups and led by the YRAs to generate shared meaning and ensure the final prototypes are inclusive and reflect youth voices.

Evaluation

Using the same recruitment strategies as in Phase One, we will recruit health system decision makers, healthcare professionals, and youth who are naïve to the study design. The evaluation will be completed via online survey (RedCap). We will ask participants to complete a demographic questionnaire and a knowledge pre-test involving 5 statements about contraception access, each scored on a 5-item Likert scale ranging from strongly agree to strongly disagree. Participants will be presented with the suite of stories to review and will

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complete a post-test. The post-test will include the same 5-item knowledge test used in the pre-test and a single-item question with a yes/no response: "Did reading the stories give you information about contraception access that you did not have before?"

After completing these tasks, participants will complete a qualitative survey investigating perceptions of other elements of the Narrative Immersion Model (e.g. interest, involvement, immersion) and unintended outcomes (e.g. persuasion).(71) We will measure change in knowledge by comparing pre- and post-test scores from the 5-item knowledge test (non-parameteric Wilcoxon signed rank test).(80) Statistical significance will be denoted as $p \leq 0.05$. We will report qualitative responses using reflexive thematic analysis, stratified by audience type.(81–83) We will evaluate the reach of youth stories and study website performance through Google analytics, unique website visitors, view count, engagement (watch time per view), video shares and (dis)likes, and hashtag tracking. We will report data descriptively.

Following evaluation, we will produce final versions of the youth stories. Based on best practices,(84) these may consist of 2-minute whiteboard and/or live videos of patient stories or text-based infographics, as well as evidence briefs for policy makers. The methods will be determined through the design workshops we complete in Phase Two.

Patient and Public Involvement

The research question and study design were co-developed with patient partners from the UBC Youth Research Advisory Panel (Y-RAP) through a series of workshop meetings. As described

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above, Youth Research Associates (patient partners) are full members of the research team, guiding all study decisions and engaging in recruitment, data collection, and analysis and dissemination of youth stories.

ETHICS AND DISSEMINATION

Ethical approval for this study has been provided by the UBC Behavioural Research Ethics Board (H21-01091). Results will be published in peer-reviewed journal publications. Due to the sensitive nature of the research and ethical restrictions to protect the privacy of research participants, the qualitative dataset will not be publicly available. The participants of this study will not provide written consent for their transcript data to be shared publicly.

DISCUSSION

Our research will generate evidence on the contraception access needs of youth in Canada. Our project has the potential to inform Canadian contraceptive policy and practice to mitigate youth access barriers; improve contraception access for youth; and ultimately, reduce rates of unintended pregnancy and need for abortion among youth. To accelerate the impact of our research, we will translate the knoweldge generated through this project into tangible KT tools in partnership with knowledge users through an inclusive design process.

Acknowledgements

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Authors' contributions

SM and GDM developed the study concept and approach with input from all coauthors. SM and AW wrote the first draft of the manuscript. KJ, ZK, HS, and WVN significantly contributed to the design. SM, GDM, AW, SB, SB, AB, AC, MF, KJ, ZK, RMM, SM, VP, HS, CAV, KW, WVN contributed to writing the manuscript and all revisions and reviewed and approved the final manuscript.

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Competing Interests

GDM is a member of the Adolescent Health Committee, Canadian Paediatric Society, and lead author of the policy statement advocating for universal no-cost access to contraception published by the Canadian Paediatric Society. AB has received Advisory Board consulting fees from Organon, Bayer, Mithra, as well as honoraria for lectures and presentations from Bayer, Organon, and Searchlight. AB is also President-

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Elect and Director of the Board for the Society of Obstetricians and Gynecologists of Canada. ZK is a Board Member with Options for Sexual Health. MF is employed by Options for Sexual Health.

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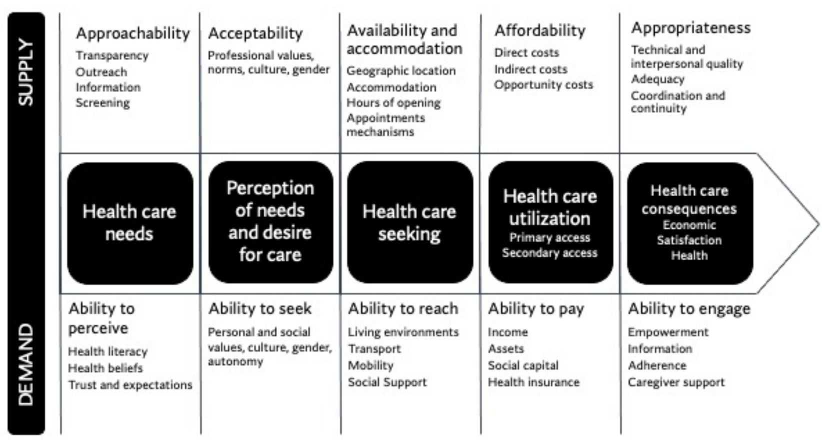

A conceptual framework of access to care, adapted from Levesque

338x190mm (54 x 54 DPI)

Interview Guide for Youth

[Interviewers may begin by identifying themselves: who they are and their role in the study. The questions below are a guide and will be adapted in real-time for an organic conversation. The recording will begin after introductions]

Introduction to participant

Thank you so much for agreeing to participate in the project. Our conversation today is part of this 4-year grant-funded study. Our goal is to understand youth experiences of access to contraception in Canada. Through this project our aim is to listen to stories and make recommendations for models of contraception care that are youth-appropriate, empowering, and accessible. Before we review your consent form, do you have any questions for me?

Before we begin the interview, I would like to review the consent form with you and answer any questions about the form or the study itself that you may have. If you don't mind, please pull up the consent form that our research coordinator shared with you by email and read through once more. Once you've done that, you can let me know if you consent to participate in today's interview, then we'll begin.

Instructions for interviewers

- *Provide a summary of the consent form.*
- *Participant reviews the consent form then provides their verbal consent to participate before continuing.*
- *Confirm that participants have had a chance to review the interview guide (table).*
- *Interviewers may begin by identifying themselves: who they are, where they are from, and their social position in relation to the study.*
- *The recording will begin after introductions.* ***Start recording.***

	Question	Optional follow-up questions
	Experiences of providing care	
1	Can you tell me a little bit about your experiences of accessing contraception care?	I'd like to learn more about [*the experiences the participant described*]. Can you tell me step by step what that looked like? Paint me a picture, if you can. [*Repeat the question to learn about other experiences, if relevant*]
2	What (other) methods have you used? What do you like most/least about those methods?	Do you use these methods for any reason other than birth control? If yes, what do you like about those methods?

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	Availability and accommodation	
3	Did you feel that all contraception methods were options for you? If not, why not? How did this impact your decision?	
4	What is easy/hard about accessing your preferred method? What is easy/hard about accessing other methods?	
5	What contraception services are available in your community that you are aware of?	Do people have to leave the community to access care? If so, where to and how do they get there?
6	In your view, how welcoming are the spaces to youth? What are some of the things that make the spaces more or less welcoming?	
7	If you or a relative needed information about options for preventing a pregnancy, is there a safe, knowledgeable person or place in your community to go to? Who or where would this be?	[*Probe about a person, an organization, a resource*] Do you feel as knowledgeable as you'd like to be about options for birth control? What are some strategies that you think would work well for increasing awareness about options for birth control among youth?
	Approachability and affordability	
8	Do you feel that all contraception methods are options for you?	If no, why not? If yes, what would make it possible?
9	Thinking about the contraception experiences you have mentioned so far, what are the costs that you have experienced?	*Probe for costs that were covered by a benefits plan, out of pocket for prescriptions, out of pocket for travel, and any indirect financial impact on loss of work, childcare expenses, etc*
10	Was there ever a situation where you needed to access contraception care and challenges related to costs, health benefits, or provider availability impacted or delayed you from getting services when you needed them?	If yes ->, Can you tell us about that?
11	In general, how do you see these barriers impacting youth's access to care?	What would make it easier for you to reach contraception care?
	Acceptability (i.e. Culturally safe care)	

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12	What does "culturally appropriate" or "culturally safe" care mean to you in the case of contraception?	Have you ever had an experience of accessing contraception care that you would characterize as culturally safe? What made it so? Have you ever had an experience of accessing contraception care that you would characterize as culturally **un**safe? What made it so?
13	Have you ever avoided getting contraception care because you felt it wouldn't be culturally safe? Please tell me more about that experience.	If bringing culture into your contraception care experience is important to you, what would you need from the health care system to be able to do it safely and accessibly?
14	What are the things that give you a feeling of trust with your health care provider when talking about contraception?	
	Shared decision making	
14	Tell me how you made the decision to use your current method. What were the factors that went into your decision?	• Tell me how you made the decision to use your current method. What were the factors that went into your decision? • What information did you use to help make your decision? • What was most helpful to you in making your decision? *[Probe about a person, an organization, a resource and healthcare providers]* • How did you feel about your decision when you made it? Did you feel certain? How do you feel about your decision now?
15	Tell us how family members are involved when you're making choices about contraception. How are your partner/s involved in those choices? How is your broader community involved in those choices?	• We are curious to know about any resistance to contraception care in the community, for religious or cultural reasons. How do people around you feel about family planning services? • Tell me about other people and their role in your contraception choices. Who else, if anyone, influences your choice about method? Tell me about how he/she/they influenced you.
	Appropriateness (of health services and system)	
16	What community-run, youth health services are available to you in general, for any health services? What about contraception/family planning care?	

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17	Ideally, where would you like to receive family planning care?	*Supplementary question if clarification needed:* What existing clinic feels like the place you would be most comfortable to access contraception care? Why?
18	Ideally, who or which health care provider would be the most comfortable person for you to access contraception care?	*Probe also for midwives, allied health professionals, community health workers, patient navigators, doulas*
	Ending questions	
19	If you could wave a magic wand and change the health system, what would it look like for youth trying to access contraception?	
20	Is there anything that you might not have thought about before that occurred to you during this interview?	What do you like about them?
21	Is there anything else you think I should know to better understand how contraception access could be improved?	
22	Finally, what motivated you to participate in the study?	

That concludes the interview. I encourage you to check out the resources listed on your consent form, if you're keen to learn about the confidential and free sexual and reproductive health and mental health supports available to you.

Do you have any questions for me?

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Interview Guide for Health Care Providers

[Interviewers may begin by identifying themselves: who they are and their role in the study. The questions below are a guide and will be adapted in real-time for an organic conversation. The recording will begin after introductions]

Introduction to participant

Thank you so much for agreeing to participate in the project. Our conversation today is part of this 4-year grant-funded study. Our goal is to understand youth experiences of access to contraception in Canada. Through this project our aim is to listen to stories and make recommendations for models of contraception care that are youth-appropriate, empowering, and accessible. Before we review your consent form, do you have any questions for me?

Before we begin the interview, I would like to review the consent form with you and answer any questions about the form or the study itself that you may have. If you don't mind, please pull up the consent form that our research coordinator shared with you by email and read through once more. Once you've done that, you can let me know if you consent to participate in today's interview, then we'll begin.

Instructions for interviewers

- *Provide a summary of the consent form.*
- *Participant reviews the consent form then provides their verbal consent to participate before continuing.*
- *Confirm that participants have had a chance to review the interview guide (table).*
- *Interviewers may begin by identifying themselves: who they are, where they are from, and their social position in relation to the study.*
- *The recording will begin after introductions.* ***Start recording.***

	Question	Optional follow-up questions
	Demographics	
0	Before we start our conversation, I have a few demographic questions. If you don't want to answer a particular question, we can skip it. 1. What are the first three digits of your postal code? 2. What is your primary speciality? 3. What is your age? 4. What is your gender? 5. Do you have past experience providing contraceptive services to youth (up to 25 years old)?	
	Experiences of providing care	

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1	Can you tell me a little bit about who you are, where you are from, and the communities where you practice?	
2	Tell me about your experience providing contraception to youth.	I'd like to learn more about [*the experiences the participant described*]. Can you tell me step by step what that looked like? Paint me a picture, if you can. [*Repeat the question to learn about other experiences, if relevant*]
3	How did you become involved in contraception care?	
	Availability and accommodation	
4	Can you paint me a picture of what it might look like for a youth client who accesses contraception services in your community?	• What other contraception services are available in your community? • Where do clients come from to access services? • Do people need to leave the community to access services, if so where to? • How easy/hard would you say it is for youth to access these services when they need them? Why? • Are there any youth-specific programs or services? Can you describe them? *Probe for both prescribing and dispensing*
5	What methods of contraception do you offer?	Are there any methods you wish you could offer?
6	Tell me about your practice environment where you currently provide contraception	
7	Tell me about the youth who seek contraception in your setting.	Do newcomer or immigrant youth access your services? If yes: In your view, how welcoming are the spaces to youth/newcomer youth? What are some of the things that make spaces welcoming?
	Approachability	
8	Do you feel that all contraception methods are options for you to provide?	If no, why not? If yes, what makes it possible? *(Probe for education, funding, infrastructure)*

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9	How does travel or transportation impact accessibility to contraception services for youth in your community?	• Are you aware of how seasonal weather, road conditions, or climate events impact youth ability to access services? • What is your perception of how youth are with local or far away contraception services?
	Affordability	
10	What are the costs of accessing contraception care?	• Are there hidden costs you are aware of, such as for travel? • Are you aware of what health benefits and subsidies exist for youth to help cover these hidden costs? • Have there been policy or funding structure changes over the last 10 years that impacted your ability to serve youth clients for the better?
11	Was there ever a situation where your patient was not able to access contraception care due to costs?	
	Acceptability	
12	What are the ways that you establish trust with youth when talking about contraception?	• How about building trust with trans or Two Spirit youth seeking contraception care? • Do you have any best practices to share around protecting youth privacy and confidentiality? Please tell me about them.
13	What does "culturally appropriate" or "culturally safe" care mean to you in the case of contraception?	• How do you create space for diverse identities, knowledges, and cultural practices in your care? • Would you characterize your practice environment to be culturally safe? What made it so? [*Probe about a person, an organization, a policy, a resource or educational pathway, training*] What or whom has been most limiting?
	Shared decision making	
14	When you discuss contraceptive options with youth, what does it look like? Can you describe it for me?	• Is there anything you would do differently if you were to provide contraception care to a newcomer or immigrant youth?

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15	We are curious to know about consent for contraception care. One of the concepts we are exploring in this project is reproductive coercion. This is when a person feels pressure or control from others when making a reproductive choice. How does this concept appear in your care?	• What are the barriers, if any, to achieving consent for contraception care? • What is your perception around resistance to contraception care in the community, for family, religious or cultural reasons? How does the community feel about family planning services?
	Appropriateness (of health services and system)	
16	What would you say are the characteristics of good contraceptive care for youth?	• Are there any characteristics that are unique to newcomer or immigrant youth? • Is this type of care available in your community? In your practice setting?
17	Where is there opportunity to improve services? What would need to happen to facilitate this change?	
18	What resources would support the sustainability of contraception care for providers?	*Probe for compensation models, benefits, scope of practice, operating and start-up costs, administrative burden, time to counsel and support patients, time to build trust, building communities of practice and relationships*
	Ending questions	
19	If you could wave a magic wand and change the health system, what would it look like for youth trying to access contraception?	
20	Is there anything that you might not have thought about before that occurred to you during this interview?	
21	Is there anything else you think I should know to better understand how providers make choices to support their youth patients in contraceptive care and how services could be improved?	
22	Finally, what motivated you to participate in the study?	

That concludes the interview. I encourage you to check out the resources listed on your consent form, if you're keen to learn about the confidential and free sexual and reproductive health and mental health supports available to you and your patients.

Do you have any questions for me?

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