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First and Second Trimester Surgical Abortion Providers and Services in 2019: Results from the Canadian Abortion Provider Survey

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Enter the Research Ethics Board approval board name and approval number below or a statement of exemption, if REB approval was not required.

BC Children's and Women's Research Ethics Board approved this survey (H18-03313).

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ABSTRACT

Objective: Our objective was to explore the workforce and clinical care of first and second trimester surgical abortion (FTSA, STSA) providers following the publication of updated Society of Obstetricians and Gynaecologists of Canada (SOGC) surgical abortion guidelines.

Methods: We conducted a national, cross-sectional, online, self-administered survey of physicians who provided abortion care in 2019. This anonymized survey collected participant demographics, types of abortion services, and characteristics of FTSA and STSA clinical care. Through health care organizations using a modified Dillman technique, we recruited from July-December 2020. Descriptive statistics were generated by R Statistical Software.

Results: We present the data of 222 surgical abortion provider respondents, of whom 219 provided FTSA, 109 STSA, and 106 both. Respondents practiced in every Canadian province and territory. Most were obstetrician-gynaecologists (56.8%) and family physicians (36.0%). The majority of FTSA and STSA respondents were located in urban settings, 64.8% and 79.8% respectively, and more than 80% practiced in hospitals. More than 1 in 4 respondents reported <5 years' experience with surgical abortion care and 93.2% followed SOGC guidelines. Noted guideline deviations included that prophylactic antibiotic use was not universal, and more than half of respondents used sharp curettage in addition to suction. Fewer than 5% of STSA respondents used mifepristone for cervical preparation.

Conclusions: The surgical abortion workforce is multidisciplinary and rejuvenating. Education, training and practice supports, including SOGC guideline implementation, is required to optimize care and to ensure equitable FTSA and STSA access in both rural and urban regions.

Gestational Age Notation: weeks, weeks' gestation, gestational age (GA), e.g.,11+6 weeks

Keywords (MeSH only)

Surveys and Questionnaires; Abortion, Induced; pregnancy trimester, first; pregnancy trimester second; Delivery of health care; Surgical abortion

INTRODUCTION

Induced abortion is common in Canada with 83,576 surgical and medical abortions reported to the Canadian Institute of Health Information (CIHI) in 2019.[1] Our 2012 Canadian abortion provider survey (CAPS) found the proportion of surgical abortions was 96.2%.[2, 3] Fewer than 300 physicians responded indicating they were providers of abortion care in Canada, and they mostly practiced in high volume specialized clinics concentrated in the largest urban areas, while abortion access was limited in rural areas.[3]

Since then mifepristone, the gold standard drug for medical abortion, became available in Canada in 2017.[4] Combined with other regulatory changes in 2016[5] and updated evidence-based clinical practice guidelines for both medication and surgical abortion from the Society of Obstetricians and Gynaecologists of Canada (SOGC) in 2018[6], evidence of a shift from surgical to medical abortions and increasing provision of medical abortion in rural areas is emerging.[5, 7, 8, 9] Based on evidence from Ontario, the proportion of surgical abortions decreased from 97.8% before mifepristone to 68.6% after mifepristone had become available for medical abortion, and second trimester abortions after mifepristone implementation were 5.1% of all abortions.[7] SOGC guidelines included a series of updated recommendations, such as cervical preparation including mifepristone use as an adjunct in the late second trimester surgical abortion, optional feticide prior to second trimester surgical abortion and recommendation against routine use of sharp curettage during surgical abortion.[6] Data on the extent to which these regulatory and guideline changes have impacted surgical abortion care in Canada is limited.

We therefore aimed to conduct a national survey of the surgical abortion provider workforce, their characteristics and clinical care in 2019.

METHODS AND MATERIALS

We undertook a cross-Canadian survey of abortion providers in 2019, with recruitment from July to December of 2020.

Survey Instrument

We developed the 2019 Canadian Abortion Provider Survey (CAPS) by modifying our 2012 survey[3] to incorporate the latest evidence, guidelines and expert opinions and expand the first and second trimester surgical abortion (FTSA/ STSA) section.[10] Our 2019 CAPS was a national, cross-sectional, web-based and anonymized survey available in both English and French. A consent statement was followed by sections on demographics, clinical characteristics of each type of abortion provision, and stigma and harassment. This manuscript focuses on the results of the FTSA/STSA workforce, and the abortion care they provided.

Respondents could request remuneration (CAD $50 gift certificate) upon survey completion. We collected data through the secure server of the xxx Research Institute's Research Electronic Data Capture platform.[11] xxx approved the conduct of this study (H18-03313).

Recruitment

Physicians who provided abortion services in 2019 were eligible to participate, as in Canada only physicians are authorized to perform surgical abortion. Canada does not comprehensively record the number of abortion providers. To reach as many potential participants as possible we disseminated a survey link through SOGC, the College of Family Physicians of Canada, and the Canadian Society for Maternal Fetal Medicine. Additionally, we recruited via publicly available sources such as hospital departments of obstetrics and gynaecology and family medicine,

abortion clinics, and our web-based community of abortion practice platform (xxx). To maximize response rate, we employed a modified Dillman technique, which included recruitment partners emailing survey reminders one, two, and four-six weeks after the initial invitation.[12]

Data Cleaning and Analysis

As this was an anonymized, web-based survey with a generic link invitation, and as we offered remuneration, we screened incoming responses for fraud using nonsensical answer combinations. Once we suspected fraudulent responses, we adapted and combined several validated fraud detection components into a complex fraud detection algorithm, described in detail elsewhere.[13] Using R Statistical Software, we generated descriptive statistics and report proportions or medians with interquartile ranges (IQR), where appropriate.[14]

RESULTS

Sample description and workforce

Figure 1 depicts the flow of respondents from recruitment to data analysis. Of 465 clinician respondents who reported providing medical and/or surgical abortions in 2019, we present the data of 222 surgical abortion providers. Among 222 respondents 219 provided FTSA, 109 STSA and 106 both. Seventy-seven percent started the subsequent FTSA survey section and 64.2% the STSA survey section which included specific clinical care related questions. The majority of respondents who exited the survey were general Obstetrician-Gynaecologists (Ob-Gyns) (FTSA 66.0% and STSA 55.0%) who provided multiple types of abortion care, and therefore had more

survey sections to complete. We found similar proportions of respondents exiting by geographic region, facility type and rural versus urban status.

Table 1 describes demographic characteristics of our respondents for each procedure type. Respondents participated from every province and territory in Canada. The majority of FTSA and STSA respondents were Ob-Gyns (57.1% and 57.8%), urban (66.0% and 80.6 %), provided procedures in hospital-based facilities (77.3% and 78.5%) and reported following SOGC guidelines (93.2%). More than 1 in 4 respondents reported fewer than 5 years' experience with surgical abortion care. Around two-thirds of respondents reported having received training during residency (70.5% and 61.0%).

Figure 2a shows that a higher proportion of primary care physicians (PCPs) provided abortion care outside of a hospital-based facility compared to Ob-Gyns and maternal-fetal-medicine subspecialists (MFMs). Distribution among specialties was similar for STSA, with a shift towards hospital-based care, and academic hospitals. Those based outside of hospital facilities usually provided abortion services in combination with other types of reproductive health care (Figure A1). PCPs more often worked in rural locations (FTSA 38.8% and STSA 25.7%) than Ob-Gyns (34.1% and 19.0%).

Respondents reported providing a total of 32,345 FTSAs and 2,181 STSAs in 2019. This represented 66.7% and 4.5% respectively of the 48,509 total surgical and medical abortions reported by our survey respondents. The majority of FTSAs and STSAs were reported by PCPs (73.6% and 48.6%). Urban respondents reported a higher median annual provision of FTSAs and STSAs (FTSA: 100.0, IQR 24.2-387.5; STSA: 20.0, IQR 5.0-50.0) than rural respondents (FTSA: 24.0, IQR 15.2-60.0; STSA: 5.5, IQR 3.8-10.0). Quebec respondents reported the highest proportion of FTSAs of all regions (82.3% versus 52.5% to 65.4%, Table A1). The

proportion of STSAs among all medical and surgical abortions reported was similar between provinces (2.7% to 6.4%). Eleven percent of FTSA and 11.5% STSA respondents traveled to provide abortion care and reported a median travel distance of 130km (IQR 80.0-250.0) and 80km (IQR 42.5-250.0). FTSA and STSA respondents both reported a median 7 day wait time between patients' first contact and procedure availability (IQR 7.0-21.0).

Clinical care characteristics of FTSA/STSA

Most FTSA providers (98.7%) provided up to a gestational age (GA) of 11 weeks and 6 days (11+6 weeks). Starting at 20+0 weeks, only 46.2% STSA providers indicated they still provided STSA (Figure 2b). The most common reason for the provision of STSA at a maximum GA was personal competency (66.7%), followed by personal preference (36.5%) and clinic/facility regulations (34.9%). More than 90% and almost 80% provided FTSA and STSA, respectively, based on patient request; minimally more respondents provided both FTSA and STSA for maternal medical indications. More respondents provided STSA for fetal or maternal indications with "anomalies not compatible with life" being the most frequently reported indication (Figure A2).

Tables 2 and A2 details pre-procedural practices. All STSA and 93.1% FTSA respondents obtained a dating ultrasound for all their patients, which respondents most commonly accessed via a diagnostic imaging department (FTSA 55.8% and STSA 60.3%). Fifty-six percent of FTSA respondents did not provide a surgical abortion in the setting of a pregnancy of unknown location (PUL), which we defined as the absence of a yolk sac or embryonic pole on ultrasound. Thirty-eight percent of STSA respondents had ever performed a feticidal injection. The median GA at

which respondents started performing a feticidal injection was 20+0 weeks' (IQR 18+0 to 21+2). Ob-Gyns most commonly used digoxin while MFMs used KCl.

Many respondents considered multiple factors such as parity in addition to GA in choosing the cervical preparation (Table 2). By 12 weeks, almost everyone reported preparing the cervix. Up to 13+6 weeks misoprostol alone was the most common approach. By 14+0 weeks, osmotic dilators alone or in combination with misoprostol were the most frequently reported cervical preparation. Few respondents reported mifepristone use. Beyond 20 weeks, its use doubled but was still less than 10% (Figures A3, A4 and A5). More respondents prepared the cervix at an earlier GA in nulliparous compared to multiparous patients.

Procedural practices

Tables 3 and A2 show procedural practices. Forty-five percent of FTSA respondents reported ever using a manual uterine aspiration, up to a median GA of 8+6 weeks (IQR 7+6 to 9+6). Over half of both FTSA and STSA respondents always or often used sharp curette in addition to suction. The majority of STSA respondents used intraoperative ultrasound routinely (66.7%). Eleven percent only used antibiotic prophylaxis for FTSA based on risk factors.

The majority of respondents reported usually using local cervical anaesthesia with dilator placement (FTSA 65.0% and STSA 83.3%). During the surgical abortion, local cervical anaesthesia was usually used by 84.1% FTSA and 66.7% STSA respondents and perioperative non-steroidal anti-inflammatory drugs by 62.3% and 54.0% respectively. Intravenous moderate sedation was used by 85.4% FTSA and 68.3% STSA respondents, and usually included fentanyl and midazolam. Less than a quarter of FTSA respondents reported usually using deep sedation and general anaesthesia (23.2% and 18.5% respectively) while more STSA respondents used

them (28.6% and 38.1% respectively; Table A3). FTSA respondents used moderate sedation in a median of 95.0% (IQR 50.0-100.0%) of their patients. STSA respondents also reported moderate sedation for over 90% of their patients, however, the percentage of patients in whom they used deep sedation or general anaesthesia increased as GA increased, and between 18+0 and 19+6 weeks general anaesthesia was used as often as moderate sedation. By 20+0 weeks general anaesthesia was used more often than moderate sedation (Figure A6).

Post-procedural practices

Most FTSA respondents routinely examined products of conception (65.5%) and sent it for pathology examination (72.3%). The majority of respondents who provided FTSA in the setting of a PUL examined the tissue immediately (78%), obtained serial quantitative serum human chorionic gonadotropin (78.6%), and sent the products for pathology (44%). Most STSA respondents used immediate postoperative ultrasound, either routinely (45.8%) or as clinically indicated (49.2%). Less than a third of respondents did not offer routine follow-up for all patients including patients who had an intrauterine device placed intraoperatively. Follow-up was via telephone in less than 10% of cases (Table A4).

DISCUSSION

In our survey, 222 physicians across Canada reported providing surgical abortion care in 2019, mostly Ob-Gyns. In 2012, the majority of procedures were reported by PCPs, followed by Ob-Gyns.[15] More than a quarter of respondents reported fewer than 5 years of abortion experience and two-thirds received abortion training in residency, indicating ongoing workforce rejuvenation. Half as many respondents provided second trimester compared to first trimester

surgical abortion care, similar to our findings in our 2012 Canadian abortion provider survey[3] (unpublished data). More than two-thirds of all respondents worked in urban centres. While less than a third of reproductive age female Canadians lived in rural locations,[16] rural communities are geographically widely distributed and the limited number of rural respondents possibly indicates a lack of rural access in some communities, especially for STSA. This might result in patients having to travel far to access abortion care; even more so as their GA increases. Quebec was the region that reported the highest proportion of FTSAs (over 80%) and the lowest proportion of first trimester medical abortion (12.5% of all their abortions compared to 27.8% to 40.7% in other regions). This indicates limited implementation of mifepristone medical abortion due to provincial restrictive regulations.[5, 8] Likely due to STSA requiring more complex care, STSA respondents were more commonly hospital-based than FTSA respondents. Most of our 112 survey respondents who indicated they provided second trimester medical abortion reported that FTSA was also provided in their facility (87.3%), while STSA was provided less frequently (61.3%).[17] Other data confirm that STSA training and services are not available in all hospitals, limiting patients' reproductive options.[18]

While Canada does not have a law restricting the indications for which a person may access an abortion, not all respondents offered FTSA and fewer offered STSA for patient request in the absence of other fetal or maternal indications. The proportion of our STSA respondents who offered abortion for patient request was much higher than the 17.9% of our second trimester medical abortion respondents who offered a medical abortion for patient request.[17] These restrictions on indications are consistent with other reports including an estimate of at least 150 people per year traveling from Canada to the United States to access abortion at greater than or equal to 21 weeks' gestation.[19, 20] Respondents reported personal competency as the most

common reason for their GA limits, further highlighting the need for training opportunities to build capacity. Values clarification training might help shift maximum GA limits of respondents who based their GA limit on personal preference.

Respondents reported clinical care that mostly followed SOGC guidelines.[6] However, contrary to SOGC guidelines recommending not to delay FTSA until beyond 7 weeks or in the setting of a PUL, less than half of FTSA respondents offered a procedure in the setting of a PUL.[6] Almost 40% of our FTSA respondents reported preparing the cervix as early as 7+6 weeks including some who used osmotic dilators which is not in line with national and international guidelines that recommend against routine first trimester cervical priming. The 2022 World Health Organization guideline further recommend against osmotic dilator use prior to 12 weeks and to rather use misoprostol or mifepristone.[6, 21, 22] Mifepristone implementation for cervical preparation in the late second trimester was very limited despite guideline recommendation to consider its use overnight in combination with osmotic dilators and/or buccal/sublingual/vaginal misoprostol before STSA.[6, 23] Our data as well as prior publications indicate heterogeneous use of feticidal injection.[6, 24, 25] Similarly to other studies, feticide was usually performed at 20 weeks and above.[24, 25] Evidence supports efficacy, safety and acceptability of feticidal injections provided by multiple physician specialties, including those in training and using digoxin.[26, 27] The SOGC guideline states that feticide prior to second trimester surgical abortion is associated with more side effects and a higher complication rate without reduction in operating time. It states that it may be performed following discussion of both medical and psychosocial considerations.[6] Additionally, reports of antibiotic prophylaxis at the time of osmotic dilator placement was similar to our 2012 Canadian survey;[15] some respondents did not report following guidelines as they did not routinely administer antibiotic prophylaxis or did not at start

prophylaxis at the time of osmotic dilator placement.[6, 22] Practices of analgesia/anaesthesia in 2019 were similar to our 2012 Canadian survey[15] (unpublished data). The majority of respondents used sharp curettage following vacuum aspiration, a practice that guidelines recommend against, as it is associated with serious consequences on fertility.[6, 22, 28] Oxytocin use for bleeding prophylaxis or management, reported by almost 60% of our FTSA respondents, is not recommended for FTSA as it is not effective in this GA range.[6] Contrary to the majority of respondents' practice of routinely sending products of conception for pathology examination, SOGC states that gross tissue examination of products costs less and can identify tissue even in very early abortions.[6]

Limitations

Our study is limited by our inability to determine the representativeness of our exploratory sample. The true number of abortion providers in Canada is unknown, due to the sensitive nature of this work and lack of systematic recording. Therefore, we do not know the denominator of eligible respondents from which to calculate a response rate. We mitigated this with our broad recruitment strategy, and by interpreting our data focusing on internal consistency of the responses. The clinical data is based on only the 77.2% and 64.2% of respondents who indicated they provided FTSA and STSA and started the subsequent clinical survey section, with an overrepresentation of MFMs. Of these respondents, 89.8% and 87.2% completed the FTSA or STSA sections. The attrition was likely due to survey fatigue as more respondents who completed sections regarding multiple types of services did not start this additional section. Twenty eight percent of FTSA and 41.3% of STSA respondents did not disclose the number of procedures they provided in 2019, which contributes to our underestimation of the total number

of surgical abortions provided nationally. Respondents might be more motivated abortion providers compared to non-respondents, which might have been associated with providing care closer aligned to the guidelines compared to the average abortion provider. We detected fraudulent survey respondents and applied a rigorous fraud detection algorithm.[13] We are confident that our final sample includes valid respondents.

Strengths

The strength of our study is the national sample representing all provinces and territories. We engaged key professional physician organizations in Canada, many of which collaborated on design and interpretation of this research. Despite the unanticipated impact of COVID-19, we recruited more providers than in our 2012 survey.[3]

CONCLUSION

The surgical abortion workforce in Canada is rejuvenating. The majority of surgical abortions are provided by primary care physicians, which highlights the importance to ensure training opportunities for this discipline in addition to training Ob-Gyns. The availability of STSA training is critical to ensure equitable access to a full range of reproductive options. National provider data is critical to inform workforce development. Education and support to implement SOGC guideline recommendations is required to optimize care.

Data-sharing statement

Our ethics approval has specified the primary data is not available.

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TABLES

Table 1. Demographics of First and Second Trimester Surgical Abortion CAPS Respondents

	FTSA, n (%) N=219 (98.6%)	STSA, n (%) N=109 (49.1%)	Any surgical, n (%) N=222 (100%)
Region[a]			
British Columbia	37 (16.9)	10 (9.2)	37 (16.7)
Prairies[b]	24 (11.0)	16 (14.7)	25 (11.3)
Ontario	50 (22.8)	26 (23.9)	50 (22.5)
Quebec	84 (38.4)	42 (38.5)	85 (38.3)
Atlantic Provinces[c]	17 (7.8)	9 (8.3)	17 (7.7)
Territories[d]	7 (3.2)	6 (5.5)	8 (3.6)
Specialty			
Primary care providers[e]	82 (37.4)	36 (33.0)	82 (36.9)
Ob-Gyn	125 (57.1)	63 (57.8)	126 (56.8)
MFM	12 (5.5)	10 (9.2)	14 (6.3)
Urban vs Rural[f]			
Urban	142 (66.0)	87 (80.6)	144 (66.1)
Rural	73 (34.0)	21 (19.4)	74 (33.9)
Type of facility[g]			
Non-hospital-based	37 (22.7)	14 (21.5)	N/A
Hospital-based	126 (77.3)	51 (78.5)	N/A
Academic hospital-based	49 (30.1)	27 (41.5)	N/A
Community hospital-based	77 (47.2)	24 (36.9)	N/A
Age			
< 40	82 (40.0)	33 (32.0)	82 (39.4)
40-49	64 (31.2)	37 (35.9)	65 (31.2)
50 and over	59 (28.8)	33 (32.0)	61 (29.3)
Gender			
Women	188 (85.8)	88 (80.7)	189 (85.1)
Men	31 (14.2)	21 (19.3)	33 (14.9)
Types of abortion care combinations[h]			
Also provides FTMA	172 (78.5)	78 (71.6)	172 (77.5)
Also provides STMA/TTMA	76 (34.7)	54 (49.5)	79 (35.6)
Percent focus of practice on contraception and abortion care, median (IQR)	15.0 (5.3-28.8)	20.0 (10.0-40.0)	15.0 (5.0-25.0)
Number of facilities			
One	137 (84.0)	53 (81.5)	N/A
Two	21 (12.9)	11 (16.9)	N/A
Three	3 (1.8)	1 (1.5)	N/A
Years of abortion experience[i]			
< 5	44 (27.7)	19 (30.2)	N/A
5-10	27 (17.0)	10 (15.9)	N/A

11-15	32 (20.1)	9 (14.3)	N/A
16-20	17 (10.7)	8 (12.7)	N/A
>20	39 (24.5)	17 (27.0)	N/A
Guidelines[h]			
SOGC	190 (93.6)	93 (92.1)	192 (93.2)
NAF	107 (52.7)	61 (60.4)	108 (52.4)

[a]In order to maintain respondent anonymity, we reported geographic results by regions (British Columbia, the Prairies, Ontario, Quebec, the Atlantic Provinces, and the Territories), combining some low respondent number provinces. For the same reason, we grouped family physicians, emergency medicine physicians, and NPs into a "primary care provider" category when reporting results by specialty.
[b]Prairies include Alberta, Manitoba, and Saskatchewan
[c]Atlantic Provinces includes New Brunswick, Nova Scotia, Newfoundland & Labrador, and Prince Edward Island
[d]Territories includes North West Territories, Yukon, and Nunavut
[e]Primary care providers include family physicians, emergency medicine physicians
[f]We defined urban providers and facilities as those located within Statistics Canada's defined census metropolitan areas (CMA). All other providers and facilities were classified as rural. In order to maintain respondent anonymity, we reported geographic results by regions (British Columbia, the Prairies, Ontario, Quebec, the Atlantic Provinces, and the Territories), combining some low respondent number provinces. For the same reason, we grouped family physicians (FPs), emergency medicine physicians (EMs) into a "primary care physician" category when reporting results by specialty in this table.
[g]Respondents reported type of facility per individual type of abortion care.
[h]Respondents could select more than 1 answer option.
[i]Respondents reported years of abortion experience per individual type of abortion care.
Percentages were calculated based on the total number of respondents for the individual variable (based on skip pattern logic and non-mandatory questions).
CAPS: Canadian Abortion Provider Survey; FTMA: First Trimester Medical Abortion; IQR: Interquartile Range; MA: Medical Abortion; MFM: Maternal Fetal Medicine Subspecialist; NAF: National Abortion Federation; Ob-Gyn: Obstetrician-Gynaecologist; SOGC: Society of Obstetricians And Gynaecologists Of Canada; STMA: Second Trimester Medical Abortion

Table 2. Pre-procedural clinical care characteristics of FTSA and STSA reported by CAPS respondents.

	FTSA, n (%) N=219 (98.6%)	**STSA, n (%) N=109 (49.1%)**
Ultrasound indications[a]		
All patients	148 (93.1)	63 (100.0)
Unsure of LMP	7 (4.4)	0
Discrepancy between physical exam and LMP	8 (5.0)	0
Risk factors/symptoms of ectopic pregnancy	6 (3.8)	N/A

Pregnancy by LMP/exam is believed to be ≤ 7+0 weeks' gestation	2 (1.3)	N/A
Pregnancy by LMP/exam is believed to be ≥ 12+0 weeks' gestation	7 (4.4)	N/A
Never	0 (0.0)	0 (0.0)
Indications for ultrasound assessment of placenta location[a]		
All patients	N/A	40 (64.5)
Suspected placenta previa	N/A	49 (79.0)
History of uterine scar	N/A	54 (87.1)
Never	N/A	5 (8.1)
When are you concerned about invasive placentation[a]		
Ultrasound showing placenta previa in setting of uterine scar	N/A	57 (90.5)
Ultrasound showing low anterior placenta in setting of uterine scar	N/A	51 (81.0)
Location of ultrasound access[a]		
In clinic	84 (53.8)	28 (44.4)
Diagnostic imaging/radiology in hospital/health region	87 (55.8)	38 (60.3)
MFM/perinatology in hospital/health region	16 (10.3)	13 (20.6)
Ultrasound barriers		
Experienced barriers	7 (4.5)	2 (3.2)
Minimum GA criteria to provide FTSA		
Positive pregnancy test	26 (16.7)	N/A
Starting at a median of 6.1 (6.0-7.0) week'	41 (26.3)	N/A
Ultrasound confirmed intrauterine yolk sac	72 (46.2)	N/A
Other (intrauterine gestational sac, upon fetal anomaly diagnosis)	17 (10.9)	N/A
Rh assessment indications		
All patients	135 (87.7)	N/A
≥ 8 weeks	14 (9.1)	N/A
> 7 weeks	3 (1.9)	N/A
Other (if not done for prior pregnancy)	2 (1.3)	N/A
Anti-D (Rho) immunoglobulin administration indications		
All Rh negative patients	123 (79.9)	N/A
≥ 8 weeks	18 (11.7)	N/A
> 7 weeks	8 (5.2)	N/A
Other (if not done for prior pregnancy)	5 (3.2)	N/A
Feticidal injection		
Never perform feticidal injection	N/A	39 (61.9)
Ever perform feticidal injection	N/A	24 (38.1)
GA at which feticide is usually performed; median (IQR)	N/A	20.0 (18.0-21.25)
Factors considered for cervical preparation[a]		
GA	112 (73.2)	60 (98.4)
Parity	67 (43.8)	38 (62.3)
Prior C-section	32 (20.9)	31 (50.8)
Prior vaginal delivery	58 (37.9)	35 (57.4)
Patient age	36 (23.5)	23 (37.7)
Prior cervical procedure	43 (28.1)	29 (47.5)
Fibroid uterus	22 (14.4)	20 (32.8)
I do not prepare the cervix for any patients	26 (17.0)	0 (0.0)

Other (BMI, perceived difficulty of vaginal/bimanual exam, past difficult IUD insertion, always prepare the cervix)	20 (13.1)	5 (8.2)

[a]Respondents could select more than one answer option.
FTSA: First Trimester Surgical Abortion; GA: Gestational Age; IQR: Interquartile Range; LMP: Last Menstrual Period; MFM: Maternal Fetal Medicine Subspecialist; Rh: Rhesus Factor; STSA: Second Trimester Surgical Abortion; IUD: Intrauterine device; BMI: Body mass index

Table 3. Procedural practices of FTSA and STSA reported by CAPS respondents.

	FTSA, n (%) N=219 (98.6%)	**STSA, n (%) N=109 (49.1%)**
Manual uterine aspirator use		
Yes	65 (44.5)	N/A
No	81 (55.5)	N/A
Upper GA limit for manual uterine aspirator, median (IQR)	8.86 (7.86 - 9.86)	N/A
Use of a sharp curette in addition to suction		
Always	54 (37.0)	27 (44.3)
Often	20 (13.7)	9 (14.8)
Sometimes	20 (13.7)	14 (23.0)
Rarely	41 (28.1)	9 (14.8)
Never	11 (7.5)	2 (3.3)
Intraoperative ultrasound use		
Routinely	16 (11.3)	40 (66.7)
As clinically indicated	88 (62.4)	19 (31.7)
Never	37 (26.2)	1 (1.7)
Antibiotic prophylaxis		
Always	126 (86.9)	54 (88.5)
Based on risk factors	16 (11.0)	7 (11.5)
Never	3 (2.1)	0
Timing of antibiotic prophylaxis in setting of osmotic dilator use		
Immediately pre-operatively	35 (24.8)	23 (37.7)
Evening before procedure	4 (2.8)	4 (6.6)
Immediately post-operatively	3 (2.1)	4 (6.6)
No osmotic dilators used	86 (61.0)	10 (16.4)
At time of osmotic dilator placement	10 (7.1)	20 (32.8)
Other (if high risk for STD or apparent BV or with first meal post-operatively)	3 (2.1)	0 (0.0)
Timing of antibiotic prophylaxis in setting of no osmotic dilator use		
Immediately pre-operatively	119 (84.4)	43 (70.5)
Evening before procedure	11 (7.8)	4 (6.6)

I always use dilators	4 (2.8)	14 (23.0)
Other (if high risk for STD or apparent BV or with first meal post-operatively)	7 (5.0)	0 (0.0)
Antibiotic regimen in setting of osmotic dilators[a]		
I do not use dilators	87 (62.6)	11 (18.0)
Doxycycline single dose	12 (8.6)	9 (14.8)
Doxycycline multiple doses	20 (14.4)	12 (19.7)
Metronidazole single dose	5 (3.6)	3 (4.9)
Metronidazole multiple doses	2 (1.4)	7 (11.5)
Azithromycin	12 (8.6)	15 (24.6)
Other	4 (2.9)	9 (14.8)
Antibiotic regimen without osmotic dilators[a]		
Doxycycline single dose	29 (22.5)	3 (5.9)
Doxycycline multiple doses	40 (31.0)	10 (19.6)
Metronidazole single dose	27 (20.9)	6 (11.8)
Metronidazole multiple doses	4 (3.1)	0 (0.0)
Azithromycin	41 (31.8)	12 (23.5)
I always use osmotic dilators	4 (3.1)	13 (25.5)
Other (Cefazolin)	4 (3.1)	9 (17.6)
Bleeding prophylaxis during procedure[a]		
Carboprost	1 (0.7)	1 (1.6)
Foley bulb	3 (2.1)	1 (1.6)
Misoprostol	22 (15.3)	22 (36.1)
Oxytocin	12 (8.3)	28 (45.9)
Tranexamic acid	4 (2.8)	4 (6.6)
Vasopressin	37 (25.7)	31 (50.8)
Methylergonovine	0	2 (3.3)
None	81 (56.2)	8 (13.1)
Treatment of excessive bleeding during procedure[a,b]		
Carboprost	60 (41.4)	39 (63.9)
Methylergonovine	47 (32.4)	34 (55.7)
Foley bulb	53 (36.6)	28 (45.9)
Misoprostol	128 (88.3)	54 (88.5)
Oxytocin	84 (57.9)	50 (82.0)
Tranexamic acid	95 (65.5)	45 (73.8)
Vasopressin	47 (32.4)	24 (39.3)
All of the above	12 (8.3)	9 (14.8)

[a]Respondents could select more than 1 answer option.
[b]We added the number of respondents who stated "all of the above" to the other answer options.
BV: Bacterial Vaginosis; FTSA: First Trimester Surgical Abortion; IQR: Interquartile Range; STD: Sexially Transmitted Disease; STSA: Second Trimester Surgical Abortion; for example 14+0 weeks' gestation: number of weeks + number of days gestation

FIGURES

(Figure 1) Respondent flow chart for first/second trimester surgical abortion providers who participated in CAPS 2019[1]

[a]This flow chart is informed by the Checklist for Reporting Results of Internet E-Surveys (CHERRIES).[29]
[b]Consent statement view recorded on Research Electronic Data Capture (REDCap) platform.[11]
[c]The participation rate was 95.1%
[d]The initial mandatory survey questions verified respondents' eligibility. If responses did not match the eligibility criteria, respondents were automatically exited from the survey. This included a question confirming that they had not taken the survey before.
[e]Manual removal of respondents who exited the survey prior to completing mandatory eligibility questions
[f]Duplicate analysis was conducted using R Statistical software, flagging matching demographics, followed by manual review of all flagged respondents. We did not collect IP addresses or use cookies, as per our research ethics board (REB) request, to maintain respondents' anonymity.
[g]Completed the survey, defined as completing the last survey section. Completing the survey took between 30 and 80 minutes depending on the range of abortion services respondents provided, programmed using skip pattern logic based mostly on mandatory questions. Respondents could change answers on their current screen, but not go back to prior screens. The majority of first and second trimester surgical abortion respondents started their respective sections (77.2% and 64.2%, respectively). The completion rate was 64.8% and 56.0% for first and second trimester surgical abortion providers, respectively. The survey contained mandatory and non-mandatory questions (in order to increase survey completion rate). We included questions with missing responses in the analysis.
CAPS: Canadian Abortion Provider Survey

(Figure 2a) Provider specialty by location of surgical practice in first and second trimester surgical abortion of CAPS respondents.

Primary care: family doctors, general practitioners and emergency physicians
* indicates n < 5 for academic hospital.
FTSA: First Trimester Surgical Abortion; MFM: Maternal Fetal Medicine Subspecialist; Ob-Gyn: General Obstetrician-Gynaecologist; STSA: Second Trimester Surgical Abortion.

(Figure 2b) CAPS respondents' reports of providing surgical care by gestational age (based on maximum gestational age)

FTSA: First trimester surgical abortion; STSA: Second Trimester Surgical Abortion.

LIST OF SUBMITTED FILES

Cover letter
COVER_LETTER_Renner_07072023

Manuscript
MANUSCRIPT_Renner_FTSA_07072023
MANUSCRIPT_Renner_FTSA_07072023_clean

Cover Page
COVER_PAGE_Renner

Disclosure form
DISCL_Renner

Appendices
Appendix A_Tables

CHERRIES_CHECK

(Figure A1) Location by type of health care in surgical abortion reported by CAPS respondents.

(Figure A2) CAPS respondents' reported indications for providing first and second trimester surgical abortion care.
Anomaly refers to both genetic and congenital fetal anomalies.
FTSA: First Trimester Surgical Abortion; PPROM: Preterm Premature Rupture of Membranes; STSA: Second Trimester Surgical Abortion.

(Figure A3) Method of cervical preparation by gestational age reported by CAPS respondents.
FTSA: First Trimester Surgical Abortion; STSA: Second Trimester Surgical Abortion.

(Figure A4) Method of cervical preparation in nulliparous patients reported by CAPS respondents.

(Figure A5) Method of cervical preparation in multiparous patients reported by CAPS respondents.

(Figure A6) Type of anaesthesia by gestational age reported by CAPS respondents.
No respondent selected "local cervical anaesthesia only" or "local cervical anaesthesia + oral medications".

IV: Intravenous

Survey definitions of sedation based on American Society of Anesthesiologists:[30]

i. Intravenous moderate (conscious) sedation
ii. Deep sedation (purposeful response following repeated or painful stimulation, and protective airway reflexes intact)
iii. General anaesthesia (no purposeful response following repeated or painful stimulation with complete loss of protective airway reflexes)