



Comparing telemedicine to in-clinic medication abortions induced with mifepristone and misoprostol

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ABSTRACT

Objective: The objective was to compare the practical aspects of providing medication abortions through telemedicine and in-person clinic visits so that clinics can use this information when planning to add this service.

Study design: We conducted a comparative retrospective chart review comparing telemedicine medication abortions to a control group matched for date seen. We extracted and compared demographics, use of dating ultrasound, outcomes and unscheduled visits or communications with staff and physicians.

Results: During the study period, we provided 4340 medication abortions, of which 182 (4.2%) were provided through by telemedicine; 199 patients met the criteria to be in the control group. The mean age was 28.7 years for telemedicine patients and 28.1 years for in-person patients ($p = .38$). The mean gestational ages were also similar, 48.2 days for telemedicine patients and 46.5 days for in-person patients ($p = .03$). Only 33 (18.1%) of telemedicine patients had dating ultrasounds compared to 199 (100%) of in-clinic patients ($p < .001$). The proportions of documented completed abortions (164/182, 90.1% and 179/199, 89.9%, $p = .76$) were similar, as were the proportions of aspirations for completion (6/182, 3.3% and 9/199, 4.5%, $p = .54$) and the proportions lost to follow-up (5.5% and 6.6%, $p = .66$). There were 10 complications in each group (5.5% of telemedicine patients and 5.0% of in-clinic patients) ($p > 0.5$). Unscheduled communications with office assistants were greater in the telemedicine patients than the in-person patients (84/182, 46.2% vs. 43/199, 21.6% in-person, $p < .001$).

Conclusion: We found that telemedicine patients required more unscheduled communications and received ultrasounds far less often compared to in-clinic patients.

Implications: We could provide telemedicine without the need for ultrasound to most women. Larger studies without routine ultrasound use are needed to validate our findings. Unscheduled communication with clinic staff was more frequent with telemedicine medication abortion patients. This information may help clinics when planning to add this service.

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1. Introduction

At Willow Clinic in Vancouver, British Columbia (BC), we have been offering medication abortions by telemedicine since 2012 [1]. Initially, we were using methotrexate 50 mg/m² and misoprostol 800 mcg repeated twice to induce abortions up to 7 weeks' gestation. In January 2017, mifepristone became available in Canada. At that point, Willow Women's Clinic started offering medication abortions with mifepristone and misoprostol by telemedicine up to 10 weeks' gestation, and there was a much greater uptake. We followed the Society of Obstetricians and Gynecologists of Canada (SOGC) Clinical Practice Guidelines

recommending that mifepristone 200 mg with misoprostol 800 mcg be used up to 10 weeks' gestation [2].

Previous literature demonstrates that telemedicine is safe, effective and feasible [3]. In response to the high mortality and morbidity from unsafe abortions (i.e., the termination of a pregnancy by individuals lacking the necessary skills, or in an environment lacking minimal medical standards, or both) worldwide, various providers have offered telemedicine abortions using different protocols and in different settings [4–9]. Routine care of medication abortion patients in North America involves ultrasound before the procedure to determine gestational age and exclude ectopic pregnancies, home use of misoprostol and ultrasound after the procedure to evaluate for completion of the abortion [10,11]. Alternatives to routine ultrasound have been investigated to increase accessibility, including human chorionic gonadotropin (hCG) testing or phone follow-up [12–16].

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We performed this study to evaluate our use of telemedicine for medication abortion in which women did not receive routine ultrasound for evaluation or follow-up. We wished to gain information that could help other clinics when planning to add this service.

2. Methods

We performed a retrospective chart review of all telemedicine abortions between January 31, 2017, and January 31, 2019, and a similar group of controls seen in the clinic during the same time frame (i.e., matched consecutively by date of initial appointment). We used a billing log to identify both the telemedicine and in-clinic patients. One or two in-clinic patients seen on the same day were selected for each telemedicine abortion patient so that the two groups were similar in regards to the staff that cared for them. We also compared the sample of women included in this study to all 4340 medication abortions done at our clinic during the same time period to check the representativeness of the sample.

The Willow Clinic provides telemedicine medical abortion to individuals who live >2 h from the clinic, have access to video chat programs on a computer or smart phone, have access to a laboratory, can get an ultrasound if necessary and are able to travel to Willow Clinic or to another community for surgical completion if necessary. The physician sees the patient by telemedicine and uses the patient's history (last normal menstrual period, regularity of menses, onset of pregnancy symptoms) to decide whether an ultrasound is necessary to assess if the gestational age was greater than 70 days. The patient has the tests done, including a hemoglobin, Rh status and ultrasound if necessary. At a second telemedicine visit, the physician reviews the results and signs the prescription for the mifepristone and misoprostol. There is not a specific hCG level cutoff, and each physician uses clinical judgment to determine that the patient is less than 10 weeks' gestation and therefore eligible for the medication abortion. The patient and a counselor then have a telemedicine visit to discuss the details of taking the medications. The patient reads the consent form and gives verbal consent witnessed by the counselor. The medications are couriered to her, or a prescription is faxed to her pharmacy. Depending on the clinic scheduling, there are usually three hCG levels done: the initial one, one within 2 days of mifepristone ingestion and one a week later. The physicians at Willow Clinic have a follow-up by telemedicine to discuss the woman's reaction to the medications and her blood test results. If the quantitative hCG has fallen by 80% in 1 week, the physician tells her that the abortion is completed and that she needs no further follow-up [17]. If she needs more misoprostol, surgery or further blood tests, the physician and office assistant will arrange these. Using the SOGC and National Abortion Federation (NAF) guidelines, we tested for Rh status in pregnancies over 8 weeks' gestation in the clinic [2,18]. Since we often did not have confirmation of the exact gestational age, we were very conservative and obtained Rh status in most telemedicine patients. We accepted an HCG of under 2000 to indicate that they were <8 weeks' gestation.

In-clinic abortion patients see the physician and counselor in the clinic and receive the medication at the pharmacy to use at home. They are assessed before and after the abortion by endovaginal ultrasound. If the pregnancy is not seen by ultrasound prior to medication, the women are monitored by measuring serum quantitative hCG. Some in-clinic patients choose to have telemedicine follow-up with serial hCGs, but these were not eligible to be in the control group.

We extracted patient demographics, including age and gestational age, distance from our clinic, use of dating ultrasound, outcome, complications and unscheduled communication with clinic staff and physicians, from the charts of all evaluated patients. Our primary outcomes were the differences that matter to a clinic planning to add telemedicine care. We coded communications about appointments or lab tests as nonclinical and all other communications as clinical. Phone calls to assistants about clinical issues would have been passed to physicians, so one patient could have had unscheduled communication with both

the assistant and physician for the same issue. To assess complications, we used the data required by the NAF for quality assurance [18]. We entered the data into a Statistical Package for the Social Sciences database. We compared the two groups using *t* tests for continuous variables and χ^2 for discontinuous variables.

3. Results

During the 2 years, we saw 4340 individuals requesting medication abortion, of whom 182 (4.2%) were seen only by telemedicine. We reviewed all their charts and a group of 199 in-clinic patients. Table 1 shows the patient characteristics. The in-clinic patients lived an average of 0.66 h (range 0–15 h) and the telemedicine patients lived an average of 5.5 h (range 1.4–21.4 h) away from the clinic ($p < .001$). We did not record the proportion of the entire population that lived >2 h from the clinic. There were 33 (18.1%) individuals who had dating ultrasounds in the telemedicine group compared to 100% of the in-clinic group.

Table 2 shows that the proportions of documented completed abortions (164/182, 90.1% and 179/199, 89.9%, $p = .76$) were similar, as were the proportions of aspirations for completion (6/182, 3.3% and 9/199, 4.5%, $p = .54$) and the proportions lost to follow-up (5.5% and 6.6%, $p = .66$). Table 2 also shows complications. Unscheduled communication with physicians or office assistants includes all phone calls patients made to the clinic after registering. These were handled by office assistants who might pass them on to physicians during clinic hours or by the after-hours emergency service that passed all calls to the physicians. There were no significant differences in the unscheduled communication with physicians (13/182, 7.3% telemedicine and 22/199, 11.1% in clinic, $p = .12$), but fewer telemedicine patients were seen by physicians for unscheduled in-person follow-up visits (10/182, 5.6% and 21/199, 10.6%). Unscheduled communications with office assistants were greater in the telemedicine patients than the in-person patients (84/182, 46.2% vs. 43/199, 21.6% in-person, $p < .001$), with much of this being nonclinical (27/182, 14.6% clinical vs. 57/182, 31.3% unclinical) ($p < .001$). For the in-clinic patients, 107 (53.8%) were not tested for Rh status because they were under 8 weeks' gestation by ultrasound and the five who were Rh negative were given anti-D immunoglobulin in the clinic. Only 17 (9.4%) of telemedicine patients were not tested, and there were 31 (17.0%) who were Rh negative. Eight declined anti-D because they planned no further pregnancies, four were told that they did not need anti-D on the basis of a low hCG, and 18 received anti-D at the closest hospital or clinic (one was unknown).

4. Discussion

The most important addition this study provides to the literature is the difference in the practical aspects of clinic care between telemedicine and in-clinic medication abortions; specifically, telemedicine patients required more unscheduled communications and received ultrasounds far less often compared to in-clinic patients. This information may help providers plan services. The results from this study

Table 1
Demographics of in-clinic and telemedicine patients requesting abortion at one clinic in BC in 2017–2018

	In-clinic (n = 199)	Telemedicine (n = 182)	p value
Age (years)	28.1 ± 6.0	28.7 ± 6.3	.38 ^a
Gestational age by LMP ^b (days)	46.5 ± 8.8	48.2 ± 9.6	.03 ^a
Distance to clinic (hours) ^c	0.7 ± 1.2	5.1 ± 3.0	<.001 ^a
Received dating ultrasound	199 (100%)	33 (18.1%)	<.001 ^d

^a *t* test.

^b Last menstrual period.

^c Driving distance calculated using Google Maps.

^d χ^2 test.

Table 2
Outcome and complications of in-clinic and telemedicine abortions at one clinic in BC in 2017–2018

		In-clinic (n = 199)	Telemedicine (n = 182)	p value ^a
Outcome	Documented complete medication abortion	179 (89.9%)	164 (90.1%)	.76
	Continuing pregnancy	0	0	
	Aspiration for completion	9 (4.5%)	6 (3.3%)	
	Lost to follow-up	11 (5.5%)	12 (6.6%)	.54
Complications ^b	Infection requiring intravenous antibiotics	0	1 (0.5%)	.66
	Extra misoprostol for incomplete expulsion	7 (3.5%)	2 (1.1%)	.30
	Hemorrhage	0	1 (0.5%)	.18
	Emergency room visit	3 (1.5%)	6 (3.3%)	.30
				.25

^a χ^2 .

^b One person could have multiple complications.

show that it is feasible to provide medication abortions using telemedicine. These results are similar to the results of the studies with other models of telemedicine abortion care using clinic-to-clinic video or email consultations [9,14–17]. One strength of our study was the low loss-to-follow-up rates for all our patients.

This study did not have a large enough sample size to provide evidence of the safety of telemedicine abortions because the complications rates are so low [21]. It does add to the literature about safety in a variety of settings. Women on Web set up a telemedicine medication abortion service in 2006 and uses an online questionnaire and email support to provide abortions with mifepristone and misoprostol to women in situations where safe abortions are not available [4–7]. Using a different model, Planned Parenthood clinics in Iowa offer abortions in which the patients see a counselor and nurse in the clinic but then see a doctor by videoconferencing [8]. The study showed no difference in outcomes or patient satisfaction when comparing women obtaining medication abortion by telemedicine or face-to-face with a physician. More recently, there is a report of direct-to-patient abortions with 248 women receiving medication by mail, and the authors found the service “safe, effective, efficient, and satisfactory” [9].

Canadians often need to travel long distances for abortion care because there are few providers outside of major cities. Many individuals prefer medication abortions to surgical abortions and cannot access these in their communities. Telemedicine is less expensive and more convenient for those who would need to travel long distances to an abortion clinic. The government insurance in BC pays physicians to see their patients by video-conferencing similar amounts to in-office visits. The regulators permit the use of various video platforms that are easy to access on smart phones with appropriate consents [19,20]. These factors help improve access to medication abortions in BC. Some other jurisdictions in Canada do not have billing codes for telemedicine visits between doctors and patients (only medical professionals for consults), some restrict the platforms allowed, and some jurisdictions in the United States prohibit telemedicine abortions completely.

This study highlights the differences for a clinic providing both in-clinic and telemedicine abortions. Standard in-clinic medication abortions would include one booking telephone call and two in-person visits to the clinic, while the standard telemedicine abortion includes at least two telephone calls and three video visits. In clinic, the necessary blood tests are done in the same building, and those patients getting serial hCGs receive paper requisitions with the address of the lab close to their homes. The pharmacy dispensing the mifepristone is also in the building. For telemedicine abortions, the addresses and fax numbers of the labs and pharmacies in the many different communities must be found. Not all pharmacies will dispense mifepristone; when this occurs, another pharmacy must be found or the medications must be couriered. Finding anti-D for Rh negative women was sometimes a challenge. These logistics increased the number of nonclinical

communications between patients and office assistants, both scheduled and unscheduled. The unscheduled communications with physicians were not different between the two groups. This would indicate that the information provided by the clinic counselors about what to expect was adequate for telemedicine patients. One of the trade-offs in not having ultrasound dating was that we tested more individuals for Rh status.

One limitation of our study was that we gathered only the limited demographic data required for clinical care and so could not do a detailed comparison between the two groups. Our rate of emergency room (ER) visits (3.3%) was lower than that of Raymond et al. (7%) [9]. We speculate that when counselors prepare individuals to cope with the pain and side effects of medication abortions, they are less likely to go to an ER for pain and bleeding. Our loss-to-follow-up rate of 6.6% was lower than the 23.0% rate in Raymond et al., and this may have been due to the effort by staff to contact them [9]. More research is needed on using different protocols and in different settings.

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