Miles and days until medical abortion via TelAbortion versus clinic in Oregon and Washington, USA

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ABSTRACT

Background Medical abortion provided via telemedicine is becoming more widely available, potentially decreasing travel time for in-person abortion evaluation.

Methods We conducted a retrospective chart review of all outpatient medical abortions from October 2016 through December 2019 at our academic medical centre in Portland, Oregon, USA. Using mifepristone administration logs, we identified patients who underwent abortion via direct-to-patient telemedicine or in clinic. Both groups had pre-abortion ultrasound examination. We extracted patient characteristics and geographic data to compare travel distance to clinic, ultrasound facility, and nearest advertised abortion clinic. We compared time from first contact until mifepristone ingestion and gestational age at mifepristone ingestion. Results Median distance from mailing address to clinic for 80 telemedicine and 124 clinic medical abortions was 95 (range 4-377) and 12 (range 0–184) miles (p<0.01). Distance travelled to ultrasound facility was shorter for telemedicine patients (median 7 miles, range 0–150 vs 12 miles, range 0–184; p<0.01) excluding outliers >200 miles. Distance to nearest advertised abortion clinic was equal between groups (median 7 miles, p=0.4). Time to mifepristone administration (ingestion) was longer (11 vs 6 days; p<0.01) and median gestational age was higher (49 vs 44 days; p=0.01) for telemedicine.

Conclusions Telemedicine increases the reach of abortion providers and provides care to more geographically distant patients. Patients chose telemedicine abortion even when they had an equidistant option, suggesting that patients value telemedicine for reasons other than geographic convenience. This telemedicine delivery model that included ultrasound testing prior to abortion resulted in up to a 5-day delay in abortion initiation, which was not clinically significant.

Key messages

- Telemedicine expands geographic access to abortion in Oregon and Washington and does not result in clinically significant delayed care even when requiring ultrasound examination.
- Patients may choose to undergo abortion via telemedicine, even when an abortion clinic is geographically convenient.

INTRODUCTION

Compared with other regions of the United States (US), abortion is relatively accessible in the Pacific Northwest: in Oregon and Washington combined, there are more than 50 abortion clinics with regularly available appointments.¹ Despite the abundance of providers, most abortion clinics are located in urban centres. with 10% of reproductive-aged women in Washington and 23% in Oregon living in a county without an abortion clinic.¹ The provision of medical abortion is also limited by the US Food and Drug Administration (FDA), including an explicit requirement for dispensing mifepristone in a medical office or hospital and prohibition of pharmacy dispensing.² This requirement limits the ability to provide medical abortion via telemedicine, even while use of telemedicine is a rapidly expanding mode of healthcare administration globally.

In 2016, the TelAbortion Study began offering medical abortion via direct-topatient telemedicine, dispensing mifepristone via mail under an Investigational New Drug application.³ Patients complete pre-screening tests at local facilities, meet with a provider via videoconference, and receive the medication via mail.³

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To cite: Beardsworth KM, Doshi U, Raymond E, et al. BMJ Sex Reprod Health 2022;48:e38–e43. Currently, the TelAbortion Study is the only legally recognised way patients in the US can access medical abortion without entering a physical abortion clinic.⁴ Telemedicine alleviates barriers to medical abortion such as the need to secure childcare or take time off work, and improves access for geographically remote patients by decreasing travel time and cost.^{5–9}

We sought to compare demographic and geographic characteristics between patients choosing TelAbortion (telemedicine) versus clinic medical abortion at our urban, academic Family Planning Clinic in the Pacific Northwest. We questioned whether distance from an abortion clinic was farther for those undergoing TelAbortion and whether those choosing TelAbortion experienced later care due to a multistep process when ultrasound is a pre-abortion requirement.

METHODS

Study design

We performed a retrospective chart review of all medical abortions initiated at the Family Planning Clinic at Oregon Health & Science University (OHSU) between 1 October 2016 and 31 December 2019 to compare patient and procedural characteristics by method of care delivery: telemedicine or clinic.

Comparison groups

During the study period, our site provided medical abortion both via TelAbortion (telemedicine) and in clinic, self-selected by the patient.³ Patients interested in telemedicine accessed a TelAbortion website and hotline to begin the study screening process, which included a requirement to be in Oregon or Washington for the videoconference and to receive medications via mail. They completed a gestational dating ultrasound at the facility of their choice. We accepted both formal and informal reports, given there was documentation of the ultrasound date, finding of intrauterine pregnancy, and gestational size. Unless Rhesus (Rh)-type was known, patients completed Rh-testing at the location of their choice. Patients visited with a provider through videoconference and received standard preabortion counselling and consent. After confirming eligibility and enrollment, we mailed abortion medications directly to the patient. Patients who called the main Family Planning Clinic phone number requesting medical abortion were scheduled in clinic. The clinic scheduler did not routinely offer TelAbortion, but referred patients to the study as requested. Patients presenting in clinic for medical abortion received ultrasound, Rh-typing, and mifepristone while on site. We sent additional prescriptions, including misoprostol, to the patient's chosen pharmacy.

During the study period, TelAbortion operated under two different billing models. From October 2016 to June 2018, TelAbortion patients underwent a video evaluation visit and obtained all medications at no cost, and received US\$50 for study completion. Patients who called the main clinic telephone number were not informed that TelAbortion was available for no cost. After July 2018, the TelAbortion study transitioned to routinely billed care where patients or their insurance were responsible for all costs associated with medical abortion: ultrasound, Rh-typing and follow-up tests, as well as the video evaluation visit and medications. This change aligned the TelAbortion payment model with the clinic payment model.

For inclusion in this chart review, we used research and clinic mifepristone dispensing logs to identify eligible cases of induced medical abortion at <10 weeks' gestation, excluding patients aged <18 years, or without confirmed intrauterine pregnancy or non-viable pregnancies. These criteria matched the inclusion criteria of the TelAbortion study. We then compared patient characteristics and distance to care between those who initiated medical abortion via telemedicine versus in clinic. The Institutional Review Board at OHSU approved a waiver of consent.

Data collection

We collected variables from the electronic health record and entered data directly into REDCap (Research Electronic Data Capture).¹⁰ Variables included age, race, ethnicity, mailing address, ultrasound facility address, gravidity/parity and gestational age based on ultrasound. We also collected time variables such as: date of first contact, defined as the first time the patient specifically requested abortion services, date of mifepristone delivery as determined from postal tracking, and selfreported date of mifepristone administration (ingestion). Gestational age was calculated by ultrasound or by last menstrual period if gestational age on ultrasound was non-specifically documented. We did not collect insurance data since many TelAbortion patients did not provide their primary insurance information when choosing to self-pay. For repeat abortions, we only included the first abortion. We included patients who were lost to follow-up in all analyses except those related to unknown mifepristone ingestion date.

For distance calculations, we used the patient mailing address listed in the electronic health record at the time of chart review. We marked addresses as 'confirmed' for the abortion date if the patient did not have a repeat visit in our healthcare system after their abortion, as addresses are confirmed or updated as necessary at every visit. Address data for patients without repeat visits are more reliable, as their documented address could not have been updated since the time of abortion. We categorised mailing addresses by county and as urban or rural as defined by 2010 Census Urbanized Areas or 2010 Census Urban Clusters.¹¹

We identified abortion clinics by searching Google Maps for 'abortion clinic'. Abortion providers at our institution reviewed this list carefully for known clinics and we excluded clinics that did not advertise abortion on their website.



Figure 1 Mifepristone prescriptions written per quarter from October 2016 through December 2019 by method of delivery: TelAbortion (n=80) or clinic (n=124). This figure includes 21 TelAbortion patients with unknown dates of mifepristone ingestion (21/80, 26.3%). All clinic patients had known dates of mifepristone ingestion. There was not a significant difference in trend between either delivery method over time.

Statistical analysis

The primary outcome was the proportion of patients traveling ≥ 25 miles for abortion care based on method of care delivery: TelAbortion versus clinic. We selected this cut-off because a 25-mile radius from our clinic covers the Portland metro area. Based on case numbers over time at our Family Planning Clinic, in this convenience sample we estimated needing approximately 50% TelAbortion patients compared with clinic patients (60 vs 120) to be able to see at least a 15% difference between groups for the proportion travelling more than 25 miles for their abortion care.

We exported collected data to STATA Version 16.1 for analysis (StataCorp LP, College Station, TX, USA). We compared TelAbortion versus clinic groups using t-tests for continuous variables, chi square for categorical variables, and Wilcoxon rank sum tests to compare medians for non-parametric distributions. We considered a value of p<0.05 a significant result.

Distances were calculated using the 'georoute' programme in STATA which uses the HERE application programming interface to calculate the driving distance between two locations.¹² We compared median distances using the Wilcoxon rank sum test. We defined distance to care differently for the two groups. For TelAbortion patients, we measured distance to care as distance from mailing address to their respective ultrasound facility. We did not include distance to a laboratory since not all TelAbortion patients required testing and many were able to obtain this at a similar location to the ultrasound. For clinic patients, we measured distance to care as distance from mailing address to our Family Planning Clinic. We planned to exclude patients from this distance analysis if they did not have a mailing address listed or if they travelled more than 200 miles for care. We recognised that significantly large distances occurred in unique situations, such as obtaining an ultrasound while travelling out of state.

We also compared median distance from the patient's mailing address to the nearest advertised abortion

clinic. We further used this list of advertised abortion clinics to determine the proportion of patients with a mailing address in a county without an abortion clinic.

Secondary outcomes included patient and procedure characteristics, including time from first clinic contact to mifepristone ingestion date.

RESULTS

From October 2016 through December 2019, 204 medical abortions were performed at OHSU through the Family Planning Clinic: 80 via TelAbortion (38.9%) and 124 in clinic (61.1%). There was a gap in service delivery of TelAbortion at the time of transition from free to billed visits in the third quarter of 2018, but otherwise there was not a significant difference in trend between either delivery method over time (figure 1).

Demographic outcomes

On average, patients in both groups were 30 years old and had a mailing address in an urban area. While overall demographic characteristics between the two groups were similar, there were some notable differences in race. The TelAbortion group had a higher proportion of White/Caucasian patients and the clinic group had a higher proportion of Asian patients (table 1). Patients undergoing TelAbortion were more likely to have a prior induced abortion (table 1). Mean time from first contact for scheduling to mifepristone administration was longer for TelAbortion (11 vs 6 days; p<0.01). Over three-quarters of TelAbortion patients received mifepristone via mail within 2 days of prescription signature (61/80, 76.3%, range 1-8). Median time from mifepristone delivery to mifepristone ingestion for TelAbortion patients was 2 (range 1-8) days. Date of mifepristone ingestion was not reported by 21 TelAbortion patients (26.3%). All clinic patients ingested mifepristone on the date of prescription signature. Median gestational age was clinically similar at mifepristone ingestion (49 vs 44 days; p=0.01). A similar proportion of TelAbortion and clinic patients initiated abortion after 63 days' gestation.

Geographic outcomes

We excluded four TelAbortion patients and three clinic patients from distance analyses, as their distance to care was greater than 200 miles. We excluded one additional clinic patient from these analyses due to missing address (total excluded: 5.0% vs 3.2%). Excluding these patients, median distance from address to our Family Planning Clinic was 95 (range 4–377) miles for TelAbortion and 12 (range 0–184) miles for clinic patients (p<0.01). However, median distance travelled for care was only 7 (range 0–150) miles for TelAbortion versus 12 (range 0–184) for clinic patients (p<0.01). Fewer TelAbortion patients had to travel ≥25 miles for their abortion care (5/76, 6.6% vs 26/120, 21.7%;

Table 1 Demographic characteristics of p	atients undergoing
medical abortion via TelAbortion or in clinic	in our retrospective
study of care delivery method (n=204)	

Demographic	TelAbortion patients (n=80)	Clinic patients (n=124)	P value
Age at consent (years)	30.9±6.1	30.3±7.1	0.54
Location of patient mailing address			
Oregon	44 (55.0)	115 (92.7)	<0.01
Washington	36 (45.0)	7 (5.7)	
Other	0	2 (1.6)	
Address classification*			
Urban	67 (83.8)	104 (83.9)	0.63
Rural	67 (83.8)	15 (12.1)	
Not classified	1 (1.3)	4 (3.2)	
No address listed	0	1 (0.8)	
Race			
White/Caucasian	67 (83.8)	84 (67.7)	0.01
African American/Black	4 (5.0)	5 (4.0)	
Asian	1 (1.3)	18 (14.5)	
Native Hawaiian/Pacific Islander	0	3 (2.4)	
Native American/Alaska Native	1 (1.3)	0	
Multiracial	2 (2.5)	8 (6.5)	
Unknown	5 (6.3)	6 (4.8)	
Ethnicity			
Hispanic/Latina	12 (15.0)	8 (6.45)	0.12
Not Hispanic/Latina	66 (82.5)	111 (89.5)	
Unknown	2 (2.5)	5 (4.1)	
New patient			
Yes	76 (95.0)	107 (86.3)	0.05
No	4 (5.0)	20 (13.7)	
Address confirmedt	62 (81.6)	68 (56.7)	<0.01
Gravidity			
First pregnancy	22 (27.5)	47 (37.9)	0.13
Prior pregnancies	58 (72.5)	77 (62.1)	
Prior induced abortion	31 (53.5)	20 (26.0)	0.01
Rhesus (Rh)- type			
Positive	72 (90.0)	106 (85.5)	0.26
Negative	6 (7.5)	17 (13.7)	
Unknown	2 (2.5)	1 (0.8)	
Gestational size on date of mifepristone administration (days)‡§	49(42–58)	44(41–52)	0.01
≤42	15 (25.4)	54 (43.6)	0.08
43–49	16 (27.1)	28 (22.6)	
50–56	10 (17.0)	23 (18.6)	
57–63	12 (20.3)	13 (10.5)	
64-70	6 (10.2)	6 (4.8)	

Data are mean±SD, n (%) or median (IQR).

*As defined by 2010 Census Urbanized Areas or 2010 Census Urban Clusters. †Address marked 'confirmed' if patient did not have a repeat visit in our healthcare system after abortion, as addresses are confirmed or updated as necessary at every visit.

‡Excludes 21 participants with unknown mifepristone administration dates. §Gestational size based on ultrasound measurements or last menstrual period if unmeasured.



Figure 2 Distance to care versus distance to nearest abortion clinic, excluding four TelAbortion patients and three clinic patients who traveled >200 miles for care, and one clinic patient with unknown address. TelAbortion (n=76) and clinic patients (n=120) live similar distances to the nearest abortion clinic, but TelAbortion patients travelled a shorter distance to receive abortion care. The dashed line provides a reference for where abortion care chosen and nearest abortion clinic are equidistant. Points above the reference line represent individuals who are located farther away from an abortion clinic than the distance they travelled for abortion care. Points below the reference line represent individuals whose nearest abortion clinic is farther away than the distance they travelled for abortion care.

p=0.01). Median distance from mailing address to the nearest advertised abortion clinic was 7 (range 0–127) miles for TelAbortion and 7 (range 0–91) miles for clinic patients (p=0.4) (figure 2). Figure 2 depicts the relative distance to care versus distance to nearest abortion clinic for each individual.

TelAbortion patients were more likely than clinic patients to live in a county without an advertised abortion clinic (19/76, 25.0% vs 19/120, 15.8%; p=0.11). Similarly, more TelAbortion patients than clinic patients had a mailing address ≥ 25 miles from an abortion clinic (19/76, 25.0% vs 20/120, 16.7%; p=0.15).

Of the 76 TelAbortion patients included in distance analyses, 49 (64.5%) had free telemedicine visits and recived US\$50 TelAbortion study compensation and 27 (35.5%) underwent routinely billed care or self-pay with no compensation. These two groups had similar distances to care. We also found similar distance results when analysing data only from patients with confirmed addresses.

DISCUSSION

In our cross-sectional study comparing characteristics and geographic location of medical abortion patients in Oregon and Washington, we found that patients who underwent TelAbortion had mailing addresses farther away from our Family Planning Clinic than patients who underwent medical abortion in person. This finding supports previous hypotheses that telemedicine may increase the reach of abortion providers and provide care to more geographically distant patients.³ Interestingly, TelAbortion patients and clinic patients were located similar distances from their nearest advertised abortion clinic, suggesting that distance from an abortion clinic may not be the primary reason patients opt for care via telemedicine, at least in this region. More than 90% of TelAbortion patients did not have to travel more than 25 miles for an ultrasound, demonstrating that ultrasound is a geographic option for most patients.

Telemedicine patients lived similar distances to an abortion clinic as their clinic counterparts, yet they still chose telemedicine. Although our results come from a single site, our findings demonstrate that TelAbortion offers something appealing to patients beyond simple geographic convenience, such as confidentiality, anonymity or facility hours that are more convenient.

We hypothesise that direct-to-patient care may reduce the need for childcare and lower additional abortion-related expenses, thus removing significant barriers for some patients. Patients may prefer flexible timing for mifepristone administration or ultrasound examination. Patients may also feel an increased sense of privacy meeting with their provider from their home, avoiding protestors and limiting exposure to COVID-19. Cost may be a further deciding factor for many patients. Telemedicine creates new financial options by allowing women without abortion coverage to use their insurance for ultrasound and laboratory tests. Alternately, patients may not decide where to undergo abortion based on full knowledge of the process specifics, such as appointment length, ultrasound requirements or cost. Full transparency about these details can help patients make an informed choice.

A limitation of this study is our inability to confirm that the mailing address listed in the electronic health record was the patient's physical address at the time of the abortion. However, repeat analyses including only patients whose addresses could be confirmed yielded similar results. It is also possible that we underestimated distance, as we did not include distance to a laboratory in our analyses and excluded those >200 miles from care. Due to limitations of a chart review, we were unable to collect further socioeconomic data to determine if TelAbortion improves abortion access for specific groups. We could not determine if patients choosing TelAbortion could have accessed in person care if telemedicine was not available, and we did not assess reasons for choosing a particular method.

Our TelAbortion study site followed the same workflow for both telemedicine and clinic patients. Appointments were available after a similar intake process, with the same providers, during the same hours, and with the same after-hours resources. Despite needing to coordinate multiple steps and wait for mifepristone to arrive via mail, TelAbortion patients only had a 5-day delay in abortion initiation. We could not determine if patients would have experienced further delays without this option. We do not think this 5-day difference is clinically significant, but assessment of timeliness of access is important in future studies. While ultrasound may be geographically feasible for women in our region, requiring an ultrasound may contribute to the delay and create a medically unnecessary emotional, social or financial burden for patients. Programmes should not require ultrasound examination for documentation of gestational age for most patients, as medical abortion can be performed safely without ultrasonography.^{13–15}

TelAbortion increases abortion availability by creating another option that may be more acceptable and satisfactory to some patients than physically presenting to a nearby clinic. Despite close proximity to an abortion clinic, patients still chose TelAbortion, even when it meant travelling farther for care and experiencing a 5-day delay in abortion initiation. Further research should investigate reasons for choosing telemedicine and barriers to choosing telemedicine, as these factors may help shape policy and provide guidance for increasing equitable access to abortion.

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Contributors KMB conceived the study idea, drafted the protocol, collected data, analysed data and drafted the majority of the manuscript. UD participated in data collection and manuscript editing. ER participated in protocol design and manuscript preparation. MKB participated in protocol development, data collection, data analysis and manuscript preparation.

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Competing interests ER is employed by Gynuity Health Projects, the TelAbortion Study sponsor. MKB is the principal investigator of the TelAbortion Study at Oregon Health & Science University.

Patient and public involvement Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

Patient consent for publication Not required.

Ethics approval This study was approved by the Oregon Health & Sciences University Institutional Review Board (IRB #21069).

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REFERENCES

1 Jones RK WE, Jerman J. Abortion incidence and service availability in the United States, 2017 2019.

Beardsworth KM, et al. BMJ Sex Reprod Health 2022;48:e38-e43. doi:10.1136/bmjsrh-2020-200972

- 2 U.S. Food and Drug Administration (FDA). *Approved risk evaluation and mitigation strategies (REMS): Mifeprex (mifepristone)*. U.S. FDA: Silver Spring, MD, 2016.
- 3 Raymond E, Chong E, Winikoff B, *et al.* TelAbortion: evaluation of a direct to patient telemedicine abortion service in the United States. *Contraception* 2019;100:173–7.
- 4 Brown BL, Wood SF, Sarpatwari A. Ensuring safe access to mifepristone during the pandemic and beyond. *Ann Intern Med* 2021;174:105-106.
- 5 Grossman DA, Grindlay K, Buchacker T, *et al.* Changes in service delivery patterns after introduction of telemedicine provision of medical abortion in Iowa. *Am J Public Health* 2013;103:73–8.
- 6 Raymond EG, Chong E, Hyland P. Increasing access to abortion with telemedicine. *JAMA Intern Med* 2016;176:585–6.
- 7 Wiebe ER, Campbell M, Ramasamy H, *et al.* Comparing telemedicine to in-clinic medication abortions induced with mifepristone and misoprostol. *Contracept X* 2020;2:100023.
- 8 Daniel S, Raifman S, Kaller S, *et al.* Characteristics of patients having telemedicine versus in-person informed consent visits before abortion in Utah. *Contraception* 2020;101:56–61.
- 9 Jerman J, Frohwirth L, Kavanaugh ML, *et al.* Barriers to abortion care and their consequences for patients traveling

for services: qualitative findings from two states. *Perspect Sex Reprod Health* 2017;49:95–102.

- 10 Harris PA, Taylor R, Thielke R, *et al.* Research electronic data capture (REDCap)--a metadata-driven methodology and workflow process for providing translational research informatics support. *J Biomed Inform* 2009;42:377–81.
- 11 United States Census Bureau. 2010 Census urban and rural classification and urban area criteria: United States Census Bureau, 2019. Available: https://www.census.gov/programssurveys/geography/guidance/geo-areas/urban-rural/2010-urbanrural.html [Accessed 12 Jun 2020].
- 12 Weber S, Péclat M. A simple command to calculate travel distance and travel time. *Stata J* 2017;17:962–71.
- 13 Ellertson C, Elul B, Ambardekar S, *et al*. Accuracy of assessment of pregnancy duration by women seeking early abortions. *Lancet* 2000;355:877–81.
- 14 Raymond EG, Tan Y-L, Comendant R, et al. Simplified medical abortion screening: a demonstration project. Contraception 2018;97:292–6.
- 15 Raymond EG, Grossman D, Mark A, et al. Commentary: No-test medication abortion: a sample protocol for increasing access during a pandemic and beyond. Contraception 2020;101:361–6.