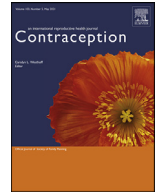




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Original Research Article

Family medicine provision of online medication abortion in three US states during COVID-19



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ABSTRACT

Objective: To examine provision of direct-to-patient medication abortion during COVID-19 by United States family physicians through a clinician-supported, asynchronous online service, Aid Access.

Study Design: We analyzed data from United States residents in New Jersey, New York, and Washington who requested medication abortion from 3 family physicians using the online service from Aid Access between April and November 2020. This study seeks to examine individual characteristics, motivations, and geographic locations of patients receiving abortion care through the Aid Access platform.

Results: Over 7 months, three family physicians using the Aid Access platform provided medication abortion care to 534 residents of New Jersey, New York, and Washington. There were no demographic differences between patients seeking care in these states. A high percentage (85%) were less than 7 weeks gestation at the time of their request for care. The reasons patients chose Aid Access for abortion services were similar regardless of state residence. The majority (71%) of Aid Access users lived in urban areas. Each family physician provided care to most counties in their respective states. Among those who received services in the three states, almost one-quarter (24%) lived in high Social Vulnerability Index (SVI) counties, with roughly one-third living in medium-high SVI counties (33%), followed by another quarter (26%) living in medium-low SVI counties.

Conclusions: Family physicians successfully provided medication abortion in three states using asynchronous online consultations and medications mailed directly to patients.

Implications: Primary care patients are requesting direct-to-patient first trimester abortion services online. By providing abortion care online, a single provider can serve the entire state, thus greatly increasing geographic access to medication abortion.

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1. Background

Family physicians are uniquely positioned to provide comprehensive sexual and reproductive health services to their patients who seek primary care services. With 140,000 practicing family physicians spread across the United States (US), only 6% of all counties, and 4% of rural counties lack family medicine services [1]. In fact, family physicians have the highest number of office visits of any US medical specialty, with more than 200 million annually [2]. During these visits, family physicians deliver a broad range of acute, chronic, and preventive medical services for patients across all ages and genders, including gynecological, obstetrical, and other reproductive health services. Despite family medicine's commit-

ment to continuity of care, less than 5% offer early abortion services in their primary care practices [3]. This low rate is, in part, due to onerous regulations imposed by the US Food and Drug Administration (FDA) through its mifepristone Risk Evaluation and Mitigation Strategy (REMS) program that requires special certification of medication abortion providers and physical dispensing of the medications from clinics, rather than from regular retail pharmacies [4]. Other barriers include state-specific laws and restrictions on federal funding, religious or other policies prohibiting abortion within particular health systems, lack of mentorship, stigma of being an abortion provider, geographic location, and lack of providers' prioritization of abortion provision [5].

Medication abortion services fit within the scope of primary care. However, with the recent introduction of new practice guidelines that no longer require ultrasound and blood tests, early abortion services can be even more feasibly provided in primary care settings [6]. Abortion care utilizes skills that family physi-

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cians already have, such as patient-centered counseling, early pregnancy evaluation, and miscarriage management. Medication abortions provided within family medicine clinics show success rates of about 96% [7,8]. The National Academies of Sciences, Engineering, and Medicine have issued evidence-based guidelines for the safety and quality of abortion care in the US, noting that family physicians routinely provide safe and effective medication and aspiration abortion care [9]. Additionally, evidence suggests that family medicine practices that provide abortion care are appreciated by patients because they offer privacy, convenience and continuity of care when offered in this setting [10–12].

Prior to the COVID-19 pandemic, the vast majority of the approximately 340,000 medication abortions provided annually were obtained in specialized and high-volume abortion clinics [13]. Stay-at-home and social distancing rules mandated by the COVID-19 Public Health and Medical Emergency Declaration increased demand for online direct-to-patient abortion care, including the shipment of mifepristone directly to patients, which reduced the need to travel to clinics [14]. A temporary COVID-19-related injunction on the FDA mifepristone REMS program in 2020 created a window of opportunity to incorporate abortion services into primary care settings using telehealth and direct shipment of mifepristone to patients. Family medicine was already moving towards providing other care via telemedicine, with remote care quickly accounting for more than 35% of all primary care visits nationally in early 2020 [15]. Decades of evidence from outside of the US has shown that early medication abortion can safely be offered via telemedicine and online with similar efficacy and no increased risk of significant adverse events [16–18]. The data show that when telemedicine is offered with clinician support, it is acceptable to both patients and providers [19]. In the US, the on-going TelAbortion Study, the only direct-to-patient medication abortion care model with published data before COVID-19, has shown similar results in safety, efficacy and acceptability [20]. However, the study is limited because it requires patients to synchronously meet with a clinician and get facility-base tests, such as an ultrasound for gestational dating [20].

In 2018, Aid Access, a uniquely different European-based clinician-supported asynchronous online direct-to-patient abortion service that does not require facility-based testing, unless indicated, started serving the US by prescribing mifepristone and misoprostol pills mailed from India. In its first 10 months of service, Aid Access responded to over 6,000 requests for medication abortion, with 76% of these requests coming from women who lived in states with restrictive abortion laws [21]. During the COVID-19 pandemic, as some states tightened access to abortion services [22] and international air distribution networks transporting mifepristone came to a halt, three family physicians in three separate US states stepped in to fulfill requests for remote clinician-supported medication abortion using the Aid Access platform. We describe the characteristics, motivations, and geographic locations of patients requesting medication abortion through this family physician-supported asynchronous, online, direct-to-patient abortion care model.

2. Methods

We analyzed data from US residents who requested medication abortion using the online service from Aid Access and were served by three family physicians in New Jersey (NJ), New York (NY) and Washington (WA) states between April 23, 2020 and November 30, 2020. Aid Access provides medication abortion up to 10 weeks gestation for those who make a request using an online consultation (aidaccess.org). The online consultation includes questions regarding age, number of children, gestational age at the time of consultation, whether gestational age had been determined by ul-

trasound, the circumstances of pregnancy, and reasons for choosing online services with Aid Access. Persons completing the consultation could decline to answer any of the questions unrelated to determining medical eligibility. The consultation was reviewed by a family physician within 24 hours. After establishing that remote medication abortion was appropriate, the family physician practicing in the state from which the request was made, shipped the medications or used a mail-order pharmacy, providing patients with a single pill of 200 mg mifepristone plus 8 to 12 tablets of 200 mcg misoprostol. Patients received a medication guide and instructions for completing care. The regimen used by Aid Access recommends swallowing the mifepristone pill by mouth, then after 24 to 48 hours, using 4 tablets of misoprostol sublingually, buccally or vaginally. An additional dose of 4 misoprostol pills was recommended if there was no bleeding within 3 to 4 hours. If patients had questions or concerns, they were able to contact the providing physician or the Aid Access helpline, which is staffed by trained personnel. The cost to receive an abortion through Aid Access is USD150, although a sliding scale fee based on financial need is available.

Although each participating family physician had been trained in prenatal care, miscarriage management, and early abortion provision during residency, none had incorporated abortion care into their regular clinical practices prior to the COVID-19 public health emergency. When the family physicians decided to work with Aid Access as international air distribution networks transporting mifepristone came to a halt and to limit in-person contact, each physician integrated newly added online medication abortion care into the other telemedicine services they were already offering in their existing primary care practices. Once enrolled in the REMS-mandated mifepristone certified prescriber program, they were able to purchase the mifepristone and misoprostol and ship the pills to patients residing in the states in which they held a medical license: NJ, NY, or WA. The Guttmacher Institute categorizes NJ as a “leans supportive” state and NY and WA as “supportive” states, meaning that these states predominantly have policies that protect access to abortion, including the use of asynchronous care (telemedicine provided via intake forms and email/text communication) [23].

2.1. Statistical methods

Aid Access provided data in a fully de-identified format. We report descriptive statistics from persons who completed an Aid Access consultation and received telemedicine abortion services, including shipment of mifepristone from their clinics or a mail-order pharmacy from a family physician in NJ, NY, or WA. We excluded records of those who took a misoprostol-only regimen ($n=2$) and those with zip codes listed outside of NJ, NY and WA ($n = 2$).

We categorized urban-rural classification of area of residence using the National Center for Health Statistics (NCHS) Urban-Rural Classification Scheme for Counties [24]. The NCHS scheme divides counties into six categories: large central metro (i.e., inner cities), large fringe metro (suburbs), medium metro (250,000–999,999 population), small metro (50,000–249,999 population), micropolitan (10,000–49,999 population) and noncore (< 10,000 population). For our purposes, we grouped these codes into three categories: large metropolitan area (1 million or more population), medium and/or small metropolitan area (50,000–999,999 population), and nonmetropolitan area (<50,000 population). Distance to the nearest hospital was based on self-report.

We conducted a spatial analysis of the number of Aid Access telemedicine consultations per 100,000 people by county to visually represent the location and geographic reach of patients served in each state. This study used the Housing and Urban Development United States Postal Service (HUD USPS) Zip code crosswalk file

(data downloaded 4th quarter, 2020) and a county name crosswalk file to match the zip code data provided in the Aid Access consultation questionnaire with specific counties using associated Federal Information Processing Standards codes [25, 26]. For zip codes that matched multiple Federal Information Processing Standards county codes, we used city data to determine the associated county.

We compared the rate of services to county-level social vulnerability. To determine county-level social vulnerability, we used the CDC Social Vulnerability Index (CDC SVI), which comprises 15 social factors including poverty, lack of access to transportation, and adequate housing [27]. Because our demographic information was limited to age only, we used county-level social vulnerability as a proxy for lower income or poor persons. We divided the number in receipt of care by the county population and multiplied by 100,000 to highlight less populous counties with proportionally high number of persons who requested and received abortion care.

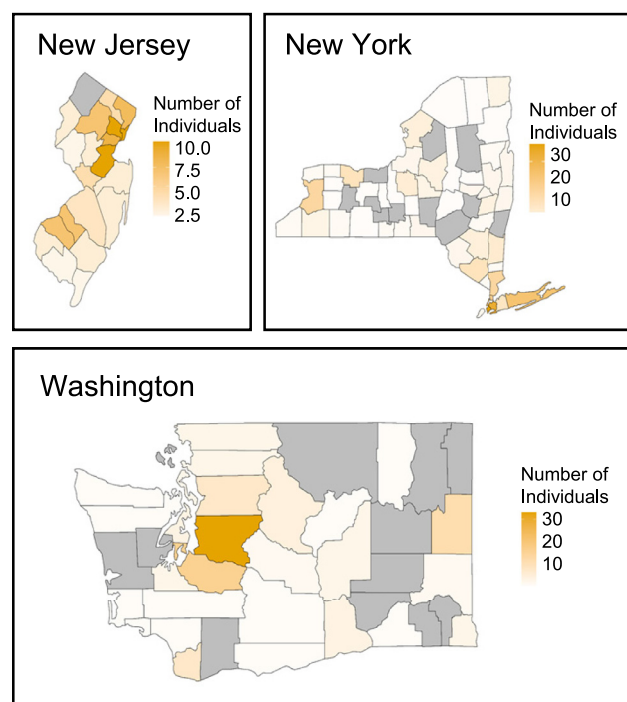
We used R statistical software version 3.6.1 for all data analysis. We calculated gestational age at time of consultation based on patient history and last menstrual period. We used the chi-squared test and Fisher's Exact test to compare our categorical data across states and between the four categories of county SVI. When testing medians between two or more groups, we used the Kruskal-Wallis test of medians. We used the "maps" and "ggplot2" R packages to provide geospatial information (including state and county geographic information) and to create the maps [28–30]. The University of Washington Human Subjects Review Board deemed this study as exempt.

3. Results

Between April and November 2020, a total of 534 patients in NJ, NY and WA received services from Aid Access. Table 1 shows the patient demographic and clinical characteristics. Persons receiving these services ranged in age from 14 to 50 years of age. About 9% of consultations represented teenagers. Just over half (55%) of all patients were nulliparous. At the time of consultation, the majority were less than 7 weeks gestation (85%). About 90% of these patients received "no-test" abortion care, with only 10% reporting having had an ultrasound for gestational dating. Just over half (55%) reported having an unintended pregnancy because of contraceptive failure and 43% had not been using contraception. There were no significant differences in demographic or clinical characteristics between the patients in each of the three states. The most common reason given for seeking medication abortion through Aid Access was the COVID-19 pandemic (53%), followed by cost (42%) and the need to keep the abortion a secret (36%). A significantly higher proportion of WA state patients reported using Aid Access because of stigma (33%) compared to patients in NJ (20%) and NY (22%) ($p = 0.041$).

Table 2 shows the distribution of those receiving Aid Access abortion services based on urban versus non-urban residence and distance from the closest hospital. The majority (71%) lived in large metropolitan areas. WA was significantly different from NJ and NY, with the largest proportion of patients residing in non-metropolitan areas (14%) ($p = 0.0005$). Only about 10% of patients in NY and no one from NJ lived in nonmetropolitan areas. Most Aid Access users lived within 60 minutes of a hospital (94%). NY had the largest proportion of patients (8%) living more than 60 minutes away from a hospital, compared to NJ (2%) or WA (4%) ($p = 0.046$).

The three participating family physicians provided care for Aid Access patients who resided in 20 of 21 counties in NJ, 51 of 62 counties in NY, and 27 of 39 counties in WA (Fig. 1). Almost one-quarter of Aid Access patients (24%) lived in high Social Vulnerability Index (SVI) counties, with roughly one-third in medium-high SVI counties (33%), followed by another quarter (26%) in medium-low SVI counties (Table 3). More than 60% of NJ and NY patients



Note: grey indicates no data is available for that county

Fig. 1. Number of individuals who received Aid Access services in Washington, New York, and New Jersey by county.

lived in counties with high or medium-high SVI. The inverse was true for patients in WA state, who mostly lived in counties with medium-low (60%) or low SVI (18%) (Table 3) ($p < 0.05$). We evaluated the median number of individuals who used Aid Access per 100,000 population by county-level SVI and found no difference by SVI category, suggesting that online medication abortion care by family physicians was distributed across counties in their states regardless of SVI (Fig. 2).

4. Discussion

This study offers the first insight into characteristics of patients who received medication abortion care with shipment of mifepristone directly to patients through a novel family physician-supported online model in NJ, NY, and WA. Regardless of state, family physicians successfully provided online medication abortion care to a range of early pregnant persons, most of whom were less than 7 weeks gestation at the time they requested care. The reasons patients chose Aid Access for abortion services were similar regardless of state residence. The exception was for WA state residents, with about 1 in 6 living in nonmetropolitan areas, who were more likely to seek telehealth abortion services due to stigma. This finding may be explained by evidence suggesting that telemedicine is preferred by those living in rural areas [31]. We were surprised to find that the majority of patients requesting direct-to-patient online medication abortion services resided in urban areas where clinic-based abortion services already exist. Because the pandemic was the top reason patients in this study sought care with Aid Access, it is likely that the pandemic explains these findings. Nonetheless, emerging evidence suggests that the majority of patients feel favorably about telehealth models for medication abortion care [32]. This study also shows that the online model successfully allowed each family physician to serve patients throughout their respective states. These findings are potentially applicable to mid-level primary care clinicians who prac-

Table 1
Characteristics of individuals who used Aid Access services by state (N = 534)

	Total (N = 534)N (%)	New Jersey(n = 97)N (%)	New York(n = 314)N (%)	Washington(n = 123)N (%)	p
Age					0.80
< 20	46 (8.6)	5 (5.2)	30 (9.6)	11 (8.9)	
20-24	107 (20.0)	16 (16.5)	63 (20.1)	28 (22.8)	
25-29	148 (27.7)	32 (33.0)	88 (28.0)	28 (22.8)	
30-34	112 (21.0)	21 (21.6)	68 (21.7)	23 (18.7)	
35-39	83 (15.5)	15 (15.5)	43 (13.7)	25 (20.3)	
40-44	33 (6.2)	7 (7.2)	19 (6.1)	7 (5.7)	
≥ 45	5 (0.9)	1 (1.0)	3 (1.0)	1 (0.8)	
Number of children					0.26
0	293 (54.9)	47 (48.5)	181 (57.6)	65 (52.8)	
1	92 (17.2)	15 (15.5)	56 (17.8)	21 (17.1)	
≥ 2	149 (27.9)	35 (36.1)	77 (24.5)	37 (30.1)	
Gestational Age, wk					0.94
< 7	455 (85.2)	82 (84.5)	267 (85.0)	106 (86.2)	
7-11	79 (14.8)	15 (15.5)	47 (15.0)	17 (13.8)	
Ultrasound					0.095
Yes	55 (10.3)	14 (14.4)	34 (10.8)	7 (5.7)	
No	479 (89.7)	83 (85.6)	280 (89.2)	116 (94.3)	
Circumstances					0.23
Contraception failed	296 (55.4)	50 (51.5)	167 (53.2)	79 (64.2)	
Did not use contraceptives	228 (42.7)	46 (47.4)	140 (44.6)	42 (34.1)	
Rape	10 (1.9)	1 (1.0)	7 (2.2)	2 (1.6)	
Reasons for using Aid Access					
Coronavirus	283 (53.0)	46 (47.4)	179 (57.0)	58 (47.2)	0.085
Legal restrictions	17 (3.2)	1 (1.0)	13 (4.1)	3 (2.4)	0.26
Stigma	129 (24.2)	19 (19.6)	70 (22.3)	40 (32.5)	0.041*
Cost	223 (41.8)	38 (39.2)	128 (40.8)	57 (46.3)	0.48
Distance	96 (18.0)	12 (12.4)	63 (20.1)	21 (17.1)	0.22
Childcare	90 (16.9)	17 (17.5)	46 (14.6)	27 (22.0)	0.18
Work or school commitments	140 (26.2)	23 (23.7)	78 (24.8)	39 (31.7)	0.28
Need to keep treatment a secret from my partner or family	193 (36.1)	34 (35.1)	122 (38.9)	37 (30.1)	0.22
Risk of abuse from my partner	18 (3.4)	1 (1.0)	15 (4.8)	2 (1.6)	0.10
Having to deal with protestors	100 (18.7)	19 (19.6)	58 (18.5)	23 (18.7)	0.97

^Other reasons for seeking abortion: cannot afford a (or another) baby, abusive or unsupportive partner/ex, coronavirus, safety, no place to live, not planned, want to wait, desire separation from partner, not physically or emotionally ready for a (or another) baby, traumatic previous pregnancy, rape, ill, disabled.

* p < 0.05.

Table 2
Area of residence and distance from nearest hospital of individuals who Aid Access services

	Total (N = 534)N (%)	New Jersey(n = 97)N (%)	New York(n = 314)N (%)	Washington(n = 123)N (%)	p
Area of Residence					0.0005*
Large metropolitan area	377 (70.6)	87 (89.7)	225 (71.7)	65 (52.8)	
Medium to small metropolitan area	109 (20.4)	10 (10.3)	58 (18.5)	41 (33.3)	
Nonmetropolitan area	48 (9.0)	0 (0.0)	31 (9.9)	17 (13.8)	
Proximity to a hospital					0.046*
Within 60 min	501 (93.8)	95 (97.2)	288 (91.7)	118 (95.9)	
> 60 min away	33 (6.2)	2 (2.1)	26 (8.3)	5 (4.1)	

* p < 0.05.

Table 3
Number of individuals who used Aid Access services by county-level Social Vulnerability Index (SVI) and state, between April and November 2020 (1 = highest vulnerability, 0 = lowest vulnerability)

	N	County social vulnerability index (SVI)				P
		High(1.0-0.75)N (%)	Medium high (0.749-0.50)N (%)	Medium low (0.499-0.25)N (%)	Low(0.249-0)N (%)	
Total	534	128 (24.0)	174 (32.6)	136 (25.5)	96 (18.0)	
State						*
New Jersey	97	27 (27.8)	36 (37.1)	22 (22.7)	12 (12.4)	
New York	314	93 (29.6)	120 (38.2)	40 (12.7)	61 (19.4)	
Washington	123	8 (6.5)	18 (14.6)	74 (60.2)	23 (18.7)	

* p < 0.05.

tice in states that do not limit provision of abortion services to physicians only. The ability to serve patients over a wide geography is important, especially since abortion access in the US has historically been limited, in part, by the scarcity of abortion providers and their geographic distribution [33–35]. The farther patients need to

travel, the more care is delayed; the more abortion care is delayed, the higher the likelihood of complications [36].

Compared to national statistics, Aid Access patients seeking clinician-supported online medication abortion were likely to be slightly older (25–29 years, as opposed to 20–24 years), and likely

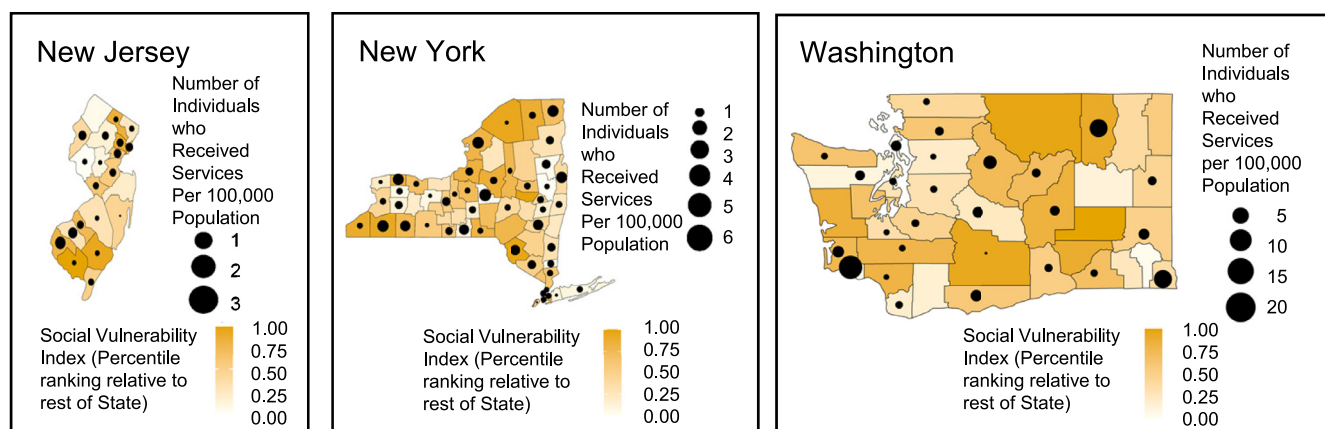


Fig. 2. Social Vulnerability Index (SVI) and number of individuals who received Aid Access services per 100,000 population by county in Washington, New Jersey, and New York.

to seek care at earlier gestational ages (85% < 7 weeks, as opposed to 50% nationally) [37]. The ability of clinician-supported online medication abortion services to provide care at an early gestational age is notable, given research suggesting US women prefer to seek abortions at earlier gestations [38]. Additionally, abortions prior to 8 weeks gestations are universally considered very safe. Overall mortality rates related to legal abortions are low in the US, with only 0.7 deaths per 100,000 abortions. For patients less than 8 weeks gestation, the rate of death is even lower at 0.3 deaths per 100,000 legal abortions [39].

This study is limited by self-reported data from patients that could not be verified elsewhere. We included only information from patients who received services from family physicians. We did not include information about number of consultations made to Aid Access and whether a portion of those consultations were referred to clinic-based services because of gestational age, concern for ectopic pregnancy, or another reason. We also do not report follow-up data. However, data suggest that women in Northern Ireland who used the European version of the Aid Access platform (Women on Web) for abortion care demonstrated few adverse events [40]. This study also collected limited demographic information that does not allow for comparison of patients across studies [37]. It is also possible that patients who received services from Aid Access may have been legal residents of states other than NJ, NY or WA, but could have borrowed mailing addresses within one of these three states to receive the pills. Crossing state lines out of hostile states to receive care is common, given that in usual times, people travel 100 miles or more to obtain an abortion [41], and the distance is even further if they live in rural areas [34, 42]. Research suggests the COVID-19 pandemic has only exacerbated the distances patients must travel for abortion care, making travel across state borders more likely [43].

Innovations in abortion care come at a time of great turbulence in the US. The COVID-19 pandemic has brought to light the enormous inequalities in accessing health care in the US, which impact health outcomes nationally. The US has the highest maternal mortality rate among developed countries with 26 women dying per 100,000 live births [44]. The death rate is even greater for Black women in the US with 40 deaths per 100,000 live births. Women, and women of color in particular, are bearing the brunt of the social and economic consequences of the pandemic, making them more vulnerable during this time of crisis [45]. As people defer their healthcare and access to contraception, societies with unequal access to care like in the US, are expected to experience more unintended pregnancies, and suffer from additional maternal deaths [46]. Evidence shows the benefits of having access to

comprehensive reproductive health services in modern society. In a study that followed patients seeking abortion care, those who were denied access to abortion and were consequently forced to carry their pregnancies to term, suffered from greater economic hardship, more medical complications, were more likely to be single parents, and more likely to stay in violent relationships [47, 48]. Further, the children born to parents who were denied abortions are more likely to live in poverty and suffer from poor development [49].

As primary care clinicians, family physicians represent the first line of contact for a healthier life for patients, families and communities. Unique aspects of family medicine training make the specialty particularly well-situated to contribute to meeting patient's comprehensive reproductive health needs. First, family medicine residency training focuses on providing integrated, full-person care, using a continuity of care model. The Accreditation Council for Graduate Medical Education requires that family medicine residents have 100 hours or 125 patient encounters in gynecological care, which should include family planning, miscarriage management, contraceptive services and options counseling for unplanned pregnancy [50]. Further, the Society of Teachers of Family Medicine group on Hospital and Procedural Training issued a consensus statement that during residency, every family medicine resident should be exposed and given the opportunity to train to competence for independent provision of first-trimester abortion [51]. Only about 40 of the 471 accredited family medicine residency programs in the US, specifically offer integrated, "opt-out" contraception and abortion training [52]. Thus, unsurprisingly the majority (87%) of family physicians graduate residency indicating they are ill-prepared to offer abortion care [3]. But, the COVID-19 pandemic has ushered in a new age of accessible and comprehensive care through the technology of telemedicine. With new "no test" medication abortion protocols and temporary stay on the in-person requirement of the FDA mifepristone REMS program, family physicians no longer need onerous lab tests or ultrasound imaging, or in-person, clinic-based mifepristone dispensing to provide first-trimester abortion. Family physicians dedicated to providing care that is socially just, comprehensive, continuous, holistic, and person-centered can recognize how adding first-trimester online telehealth medication abortion services to their primary care practices can increase access. To achieve this, family physicians must demand the removal of the FDA mifepristone REMS program. Making first trimester direct-to patient medication abortion provision by telehealth commonplace in primary care will help ensure health and equity in our practices and in the communities we serve.

Declaration of Competing Interest

The authors declare no conflict of interest..

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