Uptake of long-acting reversible contraception after telemedicine delivered abortion during Covid-19

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ABSTRACT
Background: During COVID-19, early medical abortion (EMA) at home in Scotland was largely delivered by telemedicine. Short-acting post-abortion contraception was provided with EMA medications, but long-acting reversible contraception (LARC) (implant, injectable and intrauterine device) required an in-person visit. We wished to assess LARC uptake following telemedicine abortion, and factors associated with method receipt.

Methods: A prospective observational cohort study of patients accessing abortion via NHS Lothian (October 2020 to February 2021). Patients were offered contraception at telemedicine consultation and their choice was recorded in their clinical notes. Those wishing LARC were directed to the service’s rapid-access LARC clinic. We reviewed electronic patient records six weeks post-abortion to determine whether patients received their chosen method.

Results: 944 patients had an abortion; 768 (81.4%) had EMA, 131 (13.9%) had a medical or surgical abortion in hospital. The most popular contraceptive method was the progestogen-only pill (n = 324, 34%). 330 patients (35%) requested LARC but less than half (153/330; 46%) received this. Of patients choosing LARC, those who attended the clinic for a pre-abortion ultrasound, or had an abortion in hospital, were more likely to initiate LARC than those having full telemedicine EMA. Nulliparity, gestation over 7 weeks, and age under-26 years were also positively associated with initiating LARC.

Conclusion: During COVID-19 there was demand for post-abortion LARC but less than half of patients received this by six weeks. Provision was enhanced when in-person clinical interactions took place. Interventions are required to facilitate timely access and initiation of LARC with telemedicine delivered abortion care.

Introduction

Until March 2020, patients in Great Britain wishing to have a medical abortion typically made one in-person visit to a clinic for a consultation and ultrasound scan to assess gestation. Mifepristone, the first drug taken for a medical abortion, was administered in a clinical setting as required by law, with the option to take the second medication, misoprostol, at home if their gestation was under 10 weeks [1].

Due to the COVID-19 pandemic, legislative changes were made in England, Wales, and Scotland allowing use of mifepristone in ‘the home’ [2]. National guidelines were introduced that recommended abortion assessment consultations could be conducted using telemedicine (video or phone calls) and gestational age could be calculated using last menstrual period (LMP), where possible to avoid unnecessary ultrasound scanning [3]. In Scotland, guidelines were introduced that supported the provision of early medical abortion (EMA) at home under 12 weeks’ gestation [2].

Since 1 April 2020, the abortion service in NHS Lothian (Edinburgh and the surrounding areas) delivered from a community Sexual and Reproductive Health Service (Chalmers Centre) commenced a telemedicine EMA service [4]. Only patients who were unsure of their LMP, LMP >12 weeks ago, had significant risk factors for ectopic pregnancy or experienced pain or bleeding were asked to attend for a pre-abortion ultrasound scan [3]. A study evaluating the telemedicine medical abortion model in Edinburgh demonstrated the safety, high effectiveness, and acceptability of this model of care [4].

At the initial telemedicine consultation, patients were offered a contraceptive discussion. Those proceeding to EMA collected a medication pack from the service, or had it delivered to their home. Condoms or short-acting contraception could be included in this pack but for long-acting reversible contraception (LARC) (Implant, intrauterine device and injectable), patients were advised to phone to arrange insertion at a dedicated post-abortion LARC clinic within the service. However, patients who required an in-person ultrasound were able to have an implant fitted at this appointment pre-abortion [4].

National guidelines advise that abortion services should provide patients with their chosen method of contraception immediately or as soon as possible after abortion, including facilitating access to LARC [5–7]. Given that additional clinic visits are known to be a barrier to uptake of LARC, we wished to determine uptake of LARC with the
telemedicine model of care where in-person visits to an abortion service may not take place.

Methods

Evaluation

We conducted a prospective observational study of all patients requesting EMA via telemedicine at Chalmers Centre between 1 October 2020 and 28 February 2021. All patients who contacted the service had data routinely collected on gestation, demographic information, reproductive history, and post-abortion contraceptive choice [4]. We recorded whether each patient required a pre-abortion ultrasound. At 6 weeks post-abortion, we reviewed the regional hospital electronic patient records and the electronic sexual health records to determine the type of abortion that the patients had, and whether they attended a LARC fitting appointment if applicable.

The primary outcome of the study was uptake of LARC following abortion via telemedicine, defined as patients who chose LARC in their initial consultation and went on to receive this method within 6 weeks post-abortion. In a set of secondary analyses we also explored which factors were associated with choosing LARC at initial consultation and which factors were associated with receiving LARC post-abortion.

Statistics

Descriptive analysis was used to present categorical data as numbers and percentages of total patients. Chi-square tests of independence were performed to determine associations between categorical groups of data. These tests were performed to look at relationships between characteristics of patients wishing LARC at initial consultation, and the characteristics of those patients who did not wish LARC. They were also performed to identify relationships between the characteristics of patients who chose LARC and received LARC, and those who chose LARC and did not receive LARC. For statistical testing related to age, ages were grouped as: under 21, 21–25, 26–30, 31–35, 36 and over. When related to gestational age, patients were grouped into under 7 weeks gestation and 7 weeks and over gestation. Statistical significance was defined as a \( p \) value of <.05. Statistical analysis was performed using an online calculator [8] and Microsoft Excel 2007.

Approvals

The project was approved by Lothian Abortion Service Quality Improvement Team. As the project is service evaluation using routinely collected clinical data, research ethics committee approval was not required.

Results

Demographics

During the study period 1000 patients used the telemedicine abortion service of which 944 proceeded to have an abortion. Table 1 summarises this cohort’s demographics, abortion method, and whether LARC was chosen at initial consultation.

| Characteristic                  | Number of patients who did not want LARC | Number of patients who wanted LARC | \( p \) value |
|--------------------------------|------------------------------------------|-----------------------------------|--------------|
| Total number of patients       | 614                                      | 330                               |              |
| Smoker                         | 225 (36.6%)                             | 142 (43.0%)                       | .054         |
| Face to Face Appointment       | 236 (38.4%)                             | 162 (49.1%)                       | .002         |
| Nulliparous                    | 225 (36.6%)                             | 101 (30.6%)                       | .628         |
| Previous MTOP                  | 216 (35.2%)                             | 172 (52.1%)                       | .000         |
| Previous STOP                  | 45 (7.3%)                               | 29 (8.8%)                         | .427         |
| Previous live birth            | 287 (46.74%)                            | 185 (56.1%)                       | .006         |
| Age                            |                                          |                                   |              |
| Under 21                       | 11 (1.7%)                               | 3 (1.0%)                          | .413         |
| 16–20                          | 94 (15.3%)                              | 46 (13.9%)                        |              |
| 21–25                          | 160 (26.1%)                             | 111 (33.6%)                       |              |
| 26–30                          | 163 (26.5%)                             | 62 (18.8%)                        |              |
| 31–35                          | 88 (14.3%)                              | 66 (20.0%)                        |              |
| 36–40                          | 67 (10.9%)                              | 31 (9.4%)                         |              |
| 41–45                          | 28 (4.6%)                               | 9 (2.7%)                          |              |
| Over 45                        | 4 (0.7%)                                | 2 (0.6%)                          |              |
| Mean age in years              | 27.5                                    | 27.1                               |              |
| Standard Deviation of age in years | 6.90                                   | 6.90                               |              |
| Gestational age                |                                          |                                   |              |
| 0–6 + 6                        | 410 (66.8%)                             | 222 (67.3%)                       | .742         |
| 7–9 + 6                        | 146 (23.8%)                             | 77 (23.3%)                        |              |
| 10–11 + 6                      | 17 (2.8%)                               | 17 (5.2%)                         |              |
| Over 12 weeks                  | 11 (1.8%)                               | 5 (1.5%)                          |              |
| Method of abortion             |                                          |                                   |              |
| Early medical abortion         | 509 (82.9%)                             | 259 (78.5%)                       | .010         |
| MTOP in hospital under 14 weeks| 50 (8.1%)                               | 41 (12.4%)                        |              |
| MTOP in hospital 14–20 weeks   | 18 (2.9%)                               | 9 (2.7%)                          |              |
| STOP                           | 6 (1.0%)                                | 7 (2.1%)                          |              |
| Not pregnant/miscarried        | 31 (5.0%)                               | 14 (4.2%)                         |              |

Chi square test where significance level \( p \) < .5. Significant results are bold.

STOP: Surgical Termination of Pregnancy; MTOP: Medical Termination of Pregnancy.
These patients were all included in the study as their contraception was offered from the abortion services at Chalmers.

**Contraceptive choice**

Of the 330 patients who chose LARC at initial consultation, a significantly higher proportion, 162 (49.1%) required a pre-abortion ultrasound than those not choosing a LARC method \( (p = .002) \) (Table 1). We found that having a hospital abortion \( (p = .01) \), previous medical abortion \( (p = .000) \) or previous live birth \( (p = .006) \) were characteristics associated with choosing LARC at initial consultation (Table 1).

Overall, 91% of patients (860/944) expressed desire for any form of post-abortion contraception. The most requested contraceptive option was LARC: 330 patients (35.0%) expressed a desire to use a LARC method. This was followed by the progestogen only pill (POP) \( (n = 324, 34\%) \).

**Receipt of LARC**

Table 3 summarises the cohort who chose LARC at initial consultation, their associated demographics and whether they received their chosen method. 153 out of 330 (46.3%) patients who selected a LARC method, received that method. Nulliparous patients \( (p = .001) \), age under-26 \( (p = .008) \), gestational age of over 7 weeks \( (p = .024) \), having an abortion in hospital \( (p = .007) \) or having a pre-abortion in-

### Table 2. Method of contraception received and whether there was a face-to-face consultation for patients receiving abortion care in NHS Lothian Oct 2020–Feb 2021.

| Method received | Number of Patients (% of 944) | % of patients who received method after initially choosing method | Number of patients who had face-to-face appointment (% of patients who received method) |
|-----------------|-------------------------------|---------------------------------------------------------------|-----------------------------------------------|
| IUD (initially chosen by 100 patients) | 27 (2.9%) | 27% | 15 (53.6%) |
| IUS (initially chosen by 123 patients) | 29 (3.1%) | 23.6% | 15 (51.7%) |
| Implant (initially chosen by 77 patients) | 72 (7.6%) | 94.0% | 49 (68.1%) |
| Injection (DepoProvera/SayanaPress) (initially chosen by 30 patients) | 25 (2.6%) | 83.3% | 15 (60.0%) |
| Wished LARC, did not receive (Data does not report which, if any, other method used) | 177 (18.8%) | 53.6% (of 330 patients initially choosing LARC) | 65 (37.8%) |
| Progestogen only pill | 324 (34.3%) | NB. data unavailable as to whether patients initiated methods of short acting contraception | 124 (38.3%) |
| Barrier Method | 122 (12.9%) | 36 (29.5%) |
| Combined oral contraceptive pill | 53 (5.6%) | 17 (58.6%) |
| Patch/Ring | 29 (3.1%) | 0 (0.0%) |
| Fertility awareness | 1 (0.1%) | 1 (100.0%) |
| Female sterilisation | 1 (0.1%) | 1 (100.0%) |

IUD: Intrauterine Device; IUS: Intrauterine System; LARC: Long-acting reversible contraception.

### Table 3. Demographics of patients who chose LARC at initial consultation and whether this method was received, and associated statistical significance.

| Characteristic | Received LARC | Wanted LARC, did not get LARC | \( p \) value |
|----------------|---------------|-------------------------------|-------------|
| Total number of patients | 153 | 177 | .739 |
| Smoker | 63 (41.2%) | 79 (44.6%) | .000 |
| Face to Face Appointment | 94 (61.4%) | 68 (38.4%) | .001 |
| Nulliparous | 60 (39.2%) | 40 (22.6%) | .033 |
| Previous MTOP | 54 (35.3%) | 83 (46.9%) | .083 |
| Previous STOP | 9 (5.9%) | 20 (11.3%) | .000 |
| Previous live birth | 71 (46.4%) | 115 (65.0%) | .008 |
| Age | | | .008 |
| Under 16 | 3 (2.0%) | 0 (0.0%) | .008 |
| 16–20 | 31 (17.3%) | 15 (8.5%) | .000 |
| 21–25 | 58 (37.9%) | 52 (29.4%) | .001 |
| 26–30 | 25 (16.3%) | 21 (21.5%) | .024 |
| 31–35 | 25 (16.3%) | 41 (23.2%) | .007 |
| 36–40 | 9 (5.9%) | 22 (12.4%) | .007 |
| 41–45 | 2 (1.3%) | 8 (4.5%) | .000 |
| Over 45 | 5 (3.5%) | 2 (1.1%) | .000 |
| Gestational age | | | .024 |
| 0–6.6 | 92 (60.1%) | 130 (73.4%) | .024 |
| 7–9.6 | 39 (25.5%) | 35 (19.8%) | .007 |
| 10–11.6 | 9 (5.9%) | 7 (4.0%) | .007 |
| Over 12 weeks | 5 (3.5%) | 1 (0.6%) | .007 |
| Method of abortion | | | .007 |
| Early medical abortion at home | 111 (72.5%) | 149 (84.1%) | .000 |
| Hospital abortion (including all gestations MTOP and STOP) | 35 (22.9%) | 21 (11.9%) | .000 |
| Not pregnant/miscarried | 7 (4.6%) | 7 (0.6%) | .008 |

Chi square test where significance level \( p < 0.5 \). Significant results are bold.

STOP: Surgical Termination of Pregnancy; MTOP: Medical Termination of Pregnancy.
Discussion

In this cohort, nine out of ten patients requested post-abortion contraception (including barrier methods), highlighting that demand for post-abortion contraception is high. As reported in our earlier study of telemedicine EMA, the most popular short acting method provided was the POP [4]. In the telemedicine model, short-acting methods such as POP can be immediately accessed in the medication packs. POP does not require BP measurement and so can be initiated without in-person contact for more patients than combined hormonal methods [9,10]. Injectable methods were only requested by a small number of patients in our study, four out of five of these were intramuscular injections (Depo-Provera). Further research is needed regarding self-initiation of subcutaneous progestogen-only injectables following EMA.

Around one third of patients who had a telemedicine EMA wished to have LARC. This demand for LARC post-abortion is similar to previous studies from our service [4,10]. However, this current study showed that less than half of patients received their LARC method. This would suggest that the need for the additional visit for LARC fitting was a barrier to uptake of the method. Of course, this study took place during COVID-19 when access to contraception in general was more limited than usual in the UK and it is also possible that fear of contracting the virus via clinic visits may have played a role [4,11].

Interestingly, there were positive relationships between patients who had a previous medical abortion or live birth and choosing LARC at initial consultation. This suggests that patients who had previously experienced medical abortion or pregnancy to term may have an initially increased drive to obtain long term contraception. However, there was also a relationship between previous medical abortion or live birth and not receiving a chosen LARC method, suggesting that for these specific groups that access to LARC needs to be easier than it currently is.

This current study demonstrated a significant relationship between a pre-abortion in-person appointment (for ultrasound), and receipt of LARC, specifically receipt of the implant as it can be inserted at the time of mifepristone administration and therefore when patients attend for pre-abortion ultrasound. Uptake was much higher for implant than for IUD, and therefore ensuring there are staff trained in implant insertion available to provide this method at initial in-person visit helps to maximise opportunities for implant initiation. It is also possible that the in-person clinic attendance makes patients more comfortable returning to the same service for LARC insertion post-abortion, as previous studies have found [12].

Younger patients (under 26) were more likely to receive LARC after asking for it. It is possible that this may reflect an increased rate of clinical contact, or possibly that greater efforts are made to facilitate access to LARC for this younger population. Similarly, the positive relationship between abortion in hospital and receipt of LARC may reflect increased contact with staff trained to provide LARC.

Even prior to COVID-19, it was suggested that an extra appointment was a barrier to LARC uptake post-abortion [13,14]. Studies have demonstrated that patients who had an immediate IUD insertion, compared to 2–3 weeks post-abortion, were more likely to receive this contraception, continue to use this method and have fewer unintended pregnancies and abortions for 6 months following abortion [15]. In practice, immediate insertion is only possible if an abortion is taking place in a clinical facility. For patients having EMA at home, attendance at a further appointment is inevitably required.

Interventions for overcoming the barrier of additional appointments requires further research. Qualitative data from patients who have both received and missed their LARC insertion post-abortion would be useful to explore reasonable opportunities, possibly pre-abortion as discussed above, for initiating LARC when accessing telemedicine EMA. Previous studies have shown the benefit of text reminders for keeping LARC appointments, an intervention that may compliment a remote telemedicine model [16].

Existing studies that report on contraception uptake in the UK with telemedicine EMA, were conducted when the service was first established and during the highly restricted COVID-19 lockdown [4]. This current study was conducted when telemedicine EMA was a more established service and there was better access to LARC as restrictions due to COVID-19 were eased somewhat. Although this study size was considerable, it was conducted in a single region of Scotland and so findings of contraceptive uptake patterns may not reflect those in other parts of the country or UK. In addition, whilst we cannot exclude the possibility that some patients may have received their chosen LARC method in primary care, this is unlikely as LARC provision in primary care was extremely restricted throughout the pandemic [17].

Recommendations

These findings warrant attention as LARC is the most effective approach for preventing further unwanted pregnancy. This study highlights that barriers to LARC need to be overcome for patients accessing telemedicine EMA and supports the utilisation of essential clinical contacts as opportunities for LARC initiation.

Conclusion

Although the demand for LARC with telemedicine abortion remains high, this study provides some evidence that
Service changes as a result of COVID-19 have impacted the provision of post-abortion LARC. We have shown that when patients are attending face-to-face, that making LARC available will increase uptake. Abortion services in the community and in hospital need to be able to readily provide LARC peri-abortion so that opportunities are not missed.

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Author contributions

STC conceived the idea for the study. JRW and AD further developed the protocol and data extraction tool. AD collected the data and conducted primary analysis. JRW and STC assisted with further data analysis. All authors contributed to the final manuscript.

Disclosure statement

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Data availability statement

Data are not publicly available, reasonable requests will be considered by the authors.

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