

# Comparison of uptake of long-acting reversible contraception after abortion from a hospital or a community sexual and reproductive healthcare setting: an observational study

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## ABSTRACT

**Background** Uptake of the most effective long-acting reversible methods of contraception (LARC) immediately after abortion has been shown to reduce a woman's risk of further abortion. We aimed to compare the uptake of LARC at abortion services from a hospital department of obstetrics and gynaecology and a specialist contraceptive setting of a community sexual and reproductive health (SRH) service within the same city.

**Methods** Retrospective database review of women ( $n=2473$ ) requesting abortion who were assessed at either a community SRH service or a hospital department of obstetrics and gynaecology, in the same UK city over a period of 1 year. The main outcome measures were immediate post-abortion uptake of LARC from each site.

**Results** A higher proportion of women assessed at the SRH service received LARC after abortion [50.2%; 95% confidence interval (CI) 0.47–0.53%] compared to those attending the hospital site (39.2%; 95% CI 0.36–0.42%;  $p<0.0001$ ). Amongst women having an outpatient early medical abortion, LARC uptake at the SRH was twice that of the hospital setting (48.4% vs 23.3%;  $p<0.0001$ ).

**Conclusions** Higher uptake of immediate post-abortion LARC was observed amongst women who were assessed at the specialist contraceptive service in the community SRH setting compared to the hospital setting. Further research is required to determine the reasons for these observations since all abortion services should provide the same high-quality contraceptive service to women undergoing abortion.

## Key message points

- More women had immediate post-abortion long-acting reversible methods of contraception (LARC) if the abortion assessment visit was at the community sexual and reproductive health (SRH) service rather than the hospital department of gynaecology.
- Amongst women having an outpatient early medical abortion, more women had immediate post-abortion LARC if the entire care was received from the SRH service rather than the hospital department of gynaecology.
- All abortion services should have sufficient numbers of staff with contraceptive expertise and trained to provide contraceptive implants for women who choose this method immediately after abortion.

## INTRODUCTION

High-quality contraceptive advice and provision of long-acting reversible methods of contraception (LARC) – namely intrauterine contraception (IUC), the contraceptive implant and injectable – are considered an important part of abortion care.<sup>1–3</sup> There is evidence from a number of countries that women who start IUC (i.e. the intrauterine device and system) or the contraceptive implant immediately post-abortion have a

significantly reduced risk of having another abortion in the subsequent years than do their peers who choose an oral contraceptive pill or a less-effective method.<sup>4–9</sup> The immediate availability of LARC is an important factor, as studies have shown that the ‘extra’ visit required for IUC is a barrier to uptake of the method,<sup>10</sup> and that as many as 50% of women who express a desire for post-abortion IUC fail to attend for this if a further visit is required.<sup>11</sup> In addition, randomised controlled trials (RCTs) of immediate versus delayed insertion of IUC following abortion have shown that women randomised to receive immediate IUC are significantly more likely to receive the method, have higher use of the IUC at 6 months and a reduced risk of another abortion within 1 year.<sup>12–13</sup>

In many parts of the world, including the UK, hospital departments of obstetrics and gynaecology play an important role in providing abortion services. However, there is potential for more abortion care in the UK to be delivered from community settings, including sexual and reproductive health (SRH) services.<sup>14–16</sup> Since clinicians from SRH services possess contraceptive expertise and skills to offer and insert LARC methods, this raises the question of whether higher LARC uptake could be achieved if relatively more abortion care was delivered from SRH services rather than a hospital gynaecology setting, where there may arguably be less focus on contraception.<sup>1</sup>

In September 2012, the single provider of abortion services in Edinburgh, UK (NHS Lothian) moved half the clinics for women requesting abortion from a hospital department of gynaecology (Royal Infirmary of Edinburgh) to a new specialist community SRH service (Chalmers Centre) in Edinburgh city centre (3 miles away). The latter established assessment for abortion, and also early medical abortion (EMA) as an outpatient procedure whereby women receive mifepristone and misoprostol on the premises (a legal requirement) but go home after administration of misoprostol to expel the pregnancy.<sup>16–17</sup>

The aim of this study was to compare immediate post-abortion LARC uptake at the community SRH and the hospital services. We conducted a review of the computerised database of women referred to both settings over the first 12 months of the split-site abortion service being operational to determine the methods of contraception provided post-abortion.

## METHODS

Both the hospital and SRH services retained the same centralised referral service that allocated appointments to either site on a first available basis.<sup>16</sup> This was an administrative service that interacted with health service staff only (i.e. no telephone contact with patients). Dedicated assessment clinics for women requesting abortion took place on Mondays and Tuesdays at the hospital, and Wednesdays and Thursdays at the SRH site (see online supplementary

Figure S1). The abortion services were operated by the Scottish National Health Service and had the same clinical lead and used the same clinical protocols. At both sites women had routine ultrasound to confirm gestational age. At both services women received advice about contraception at the assessment visit and could receive the same ‘no cost’ contraception immediately following abortion. Both sites provided the same contraceptive information leaflets. Staffing levels and the skill mix of doctors and nurses at both sites were similar, and similar numbers of women were seen at assessment clinics at each site. However, SRH clinicians working in the abortion service were all trained in contraceptive implant insertion, but this was not the case for all gynaecologists and gynaecology nurses in the hospital setting.

Women attending the SRH service who were at  $\leq 9$  weeks’ gestation who fulfilled the criteria for an outpatient EMA (see online supplementary Figure S2) were able to receive all their treatment from the SRH service. For women wishing a surgical abortion or admission for a medical abortion, the staff of the SRH service counselled women about the procedure, took written consent for the procedure, prescribed all medication (including contraception) and arranged a date for hospital admission. In contrast, women assessed at the hospital could have all methods of abortion at the hospital site (see online supplementary Figure S1).

Women choosing oral contraceptive pills, patches, rings or condoms were given a 3-month supply at discharge from both the SRH and hospital sites. Women choosing the progestogen-only injectable or implant received this immediately at surgical abortion or on the day of administration of misoprostol for medical abortion. For women choosing IUC, this was provided immediately at surgical abortion, but for women having a medical abortion, immediate insertion was not possible and so a ‘fast-track’ appointment was made (from both sites) for this to be inserted at the SRH service within 2 weeks of the procedure.<sup>11</sup>

A retrospective review was undertaken of the computerised databases of the abortion services (September 2012 to August 2013). These databases recorded identical information on women including demographics (reproductive history, postcode area of residence), gestation at presentation, outcome of the pregnancy, and method of contraception provided at discharge from the service. The databases were completed prospectively by research nurses and complied with data protection standards for National Health Service databases. The postcode area of residence was used to derive a deprivation category score.<sup>18</sup> Since contraceptive counselling and prescribing was undertaken at the site the woman first attended for assessment, we chose to examine contraceptive uptake at abortion according to assessment site. In addition, we examined contraceptive uptake amongst women

choosing outpatient EMA, since this was the method of abortion that could be delivered entirely from the SRH service and so allowed comparison of the complete package of care between sites. The Quality Improvement Team for SRH approved the project. Ethical committee approval was not required.

## STATISTICS

Statistical analysis was performed on coded data using an Excel database. Excel was used to perform descriptive statistics, and GraphPad InStat™ software (GraphPad Software Inc., La Jolla, CA, USA) used for all other analyses. Comparisons between the SRH and hospital sites were made using Fisher's exact test (for association between two categorical variables). The 95% confidence intervals (CIs) were calculated using the Modified Wald method. Statistical significance was defined as  $p < 0.05$ .

## RESULTS

### Characteristics of women

Over the 12-month period a total of 2473 women were referred for abortion. The demographics of women and their gestation (assessed by ultrasound) attending both services are shown in Table 1. Women were of similar age, similar reproductive history and

came from areas of similar deprivation (Table 1). However, there was a higher proportion of women at  $\leq 9$  weeks' gestation attending the SRH site ( $p = 0.0011$ ) and a higher proportion at 9–13 weeks' gestation attending the hospital site ( $p < 0.0001$ ). The median number of days spent waiting for assessment at the SRH and hospital service was 5 and 6 days, respectively.

A small number of women were not pregnant at presentation (negative pregnancy test at clinic), or had miscarriage or an ectopic diagnosed (Table 1). There was no significant difference between sites in terms of whether women continued or terminated the pregnancy. The majority of women referred proceeded with abortion ( $N = 1115$ ; 89% at hospital and  $N = 1093$ ; 90% at SRH).

A small number ( $n = 19$ ) of women at advanced gestation ( $> 20$  weeks) were referred to a specialist service for abortion, since this was not available within the region.<sup>19 20</sup>

Differences were observed between sites in terms of the methods of abortion that women had. A significantly higher proportion of women at  $\leq 9$  weeks' gestation, choosing EMA, had this as an outpatient procedure rather than being admitted to hospital for this, if they were assessed at the SRH service, compared to the hospital ( $p = 0.008$ ) (Table 2). In addition, a significantly higher proportion of women at  $\leq 13$  weeks' gestation had a surgical abortion if they attended the hospital rather than the SRH site ( $p < 0.001$ ) (Table 2).

### Uptake of contraception

Women who attended the SRH service requesting an abortion were statistically significantly more likely to receive a LARC method immediately post-abortion (IUC, implant or injectable) than women assessed at the hospital; 40.5% (95% CI 0.37–0.43%) at the SRH and 35.9% (95% CI 0.36–0.42%) at the hospital, respectively ( $p = 0.0124$ ) (Table 3). The increase in LARC use at the SRH site was predominantly due

**Table 1** Characteristics of women attending hospital and sexual and reproductive health settings

Characteristics	Hospital (N=1252)	SRH (N=1221)
Age (years) [median (range)]	25 (14–47)	25 (15–46)
Deprivation score*		
Affluent (1–2)	185 (14.7)	176 (14.4)
Moderate (3–5)	912 (72.8)	887 (72.6)
Deprived (6–7)	155 (12.3)	158 (12.9)
Previous birth	569 (45.4)	535 (43.8)
Previous abortion	444 (35.4)	370 (30.3)
Previous miscarriage	153 (12.2)	133 (10.8)
Previous ectopic	17 (1.3)	21 (1.7)
Gestation (weeks) at presentation		
$\leq 9$	898 (71.7)**	992 (81.2)**
9 <sup>+1</sup> –12 <sup>+6</sup>	221 (17.6)***	119 (9.7)***
13–20	68 (5.4)	43 (3.5)
20 <sup>+1</sup> –23 <sup>+6</sup>	10 (0.7)	9 (0.7)
$\geq 24$	3 (0.2)	0 (0.0)
Miscarriage	45 (3.5)	46 (3.7)
Ectopic	1 (0.07)	6 (0.4)
Not pregnant†	6 (0.4)	6 (0.4)

Figures shown are number (%) except for age, which are median (range). \*Deprivation score is a measure of deprivation that is based upon Scottish postcodes.<sup>14</sup>

Significantly higher proportion of women attending SRH were at  $\leq 9$  weeks' gestation; \*\* $p = 0.0011$ .

Significantly higher proportion of women attending hospital were at 9–13 weeks' gestation; \*\*\* $p < 0.0001$ .

†Negative pregnancy test at clinic.

SRH, sexual and reproductive health.

**Table 2** Method of abortion by site of assessment

Method of abortion and gestation	Hospital (N=1115) [n (%)]	SRH (N=1093) [n (%)]
EMA outpatient ( $\leq 9$ weeks)	601 (54)*	741 (68)*
EMA hospital ( $\leq 9$ weeks)	220 (20)	184 (17)
STOP ( $\leq 13$ weeks)	219 (20)**	121 (11)**
Mid-MTOP ( $\leq 20$ weeks)	75 (6)	47 (4)

Significantly higher proportion of women have EMA as an outpatient from sexual and reproductive health (SRH) site than hospital; \* $p = 0.008$ .

Significantly higher proportion of women have STOP from hospital than SRH site; \*\* $p < 0.001$ .

EMA hospital, medical abortion in hospital; EMA outpatient, medical abortion going home to expel pregnancy after receiving treatment on licensed premises; mid-MTOP, mid-trimester medical abortion; SRH, sexual and reproductive health; STOP, surgical abortion.

**Table 3** Post-abortion contraception provided based upon site where assessed

Contraceptive method	Hospital (N=1115) [n (%)]	SRH (N=1093) [n (%)]
Implant	155 (13.9)*	304 (27.8)*
IUC (surgical abortion)	89 (7.9)	41 (3.7)
Injectable	150 (13.5)	98 (9.0)
CHC	254 (22.8)	293 (26.8)
POP	67 (6.0)	95 (8.6)
Condoms	132 (11.8)	57 (5.2)
Other	2 (0.17)	0
None	222 (19.9)	99 (9.0)
Fast-track IUC (medical abortion)	44 (3.9)	106 (9.6)

Significantly higher uptake of implant ( $*p<0.0001$ ) and LARC (includes fast-track IUC) from SRH than hospital site ( $p<0.0001$ ). CHC, combined hormonal contraception (pill, patch, vaginal ring); fast-track IUC, women having medical abortion who had IUC inserted at a clinic at SRH site; IUC, intrauterine method (inserted at surgical abortion); LARC, long-acting reversible methods of contraception; other, diaphragm or sterilisation; POP, progestogen-only pill; SRH, sexual and reproductive health.

to higher use of the implant (Table 3). Although a greater number of women had IUC inserted at surgical abortion from the hospital setting, the proportion of women having a surgical abortion and IUC inserted did not differ significantly between the sites (41/121, 33.9% IUC at surgical abortion among women initially assessed at SRH vs 89/219, 40.6% IUC at surgical abortion among women initially assessed at the hospital;  $p=0.244$ ).

For women having a medical method of abortion (for whom IUC could not be inserted immediately), a significantly higher proportion of women from SRH were given a 'fast-track' appointment for IUC insertion than women referred from the hospital (164/972, 16.9% vs 109/895, 12.1% at the SRH and hospital site, respectively;  $p=0.0048$ ). In addition, a significantly higher proportion of those women who were fast-tracked for IUC subsequently attended for insertion (Table 3) if their assessment had been at the SRH site; 64.6% (106/164) attended from the SRH site versus 40.3% (44/109) fast-tracked from hospital ( $p<0.0001$ ). If the IUC insertions from 'fast-tracking' post-medical abortion are included with the 'immediate' LARC figures, then LARC uptake post-abortion at SRH and hospital sites rises to 50.2% (95% CI 0.47–0.53) and 39.3% (95% CI 0.36–0.42), respectively ( $p<0.0001$ ).

Comparisons of contraception initiated amongst the group of women choosing outpatient EMA showed that women from SRH had double the uptake of LARC (359/741, 48.4% at SRH vs 140/601, 23.3% at hospital;  $p<0.0001$ ) and four-fold higher uptake of contraceptive implants compared to their hospital counterparts (209/741, 28.2% at SRH vs 38/601, 6.3% at hospital;  $p<0.0001$ ) (Table 4). In addition,

**Table 4** Long-acting reversible contraceptive method uptake among women choosing an early medical abortion as an outpatient ( $\leq 9$  weeks)

LARC method	Hospital (N=601) [n (%)]	SRH (N=741) [n (%)]
Implant	38 (6.3)*	209 (28.2)*
Fast-track IUC	24 (3.9)*	88 (11.8)*
Injectable	78 (12.9)**	62 (8.3)**
Total	140 (23.3)*	359 (48.4)*

Statistically significant higher proportion of women referred from SRH attended for IUC insertion (88/168; 53%) than those referred from the hospital (24/101; 24%;  $p<0.0001$ ).

Statistically significant higher uptake of LARC among women at SRH compared to hospital site;  $*p<0.0001$ .

Statistically significant higher uptake of injectable among women at hospital compared to SRH site;  $**p=0.007$ .

Fast-track IUC, intrauterine contraception inserted after fast-track referral; LARC, long-acting reversible contraceptive method; SRH, sexual and reproductive health.

SRH referred more women having outpatient EMA for a fast-track IUC than the hospital [23% (168/741) versus 17% (101/601);  $p=0.0076$ ]. Furthermore, of this group, a higher proportion of those referred from SRH attended for IUC insertion than those referred from the hospital (88/168, 53% from SRH vs 24/101, 24% from SRH and hospital, respectively;  $p<0.0001$ ).

## DISCUSSION

The study showed that women assessed at the SRH service had a significantly higher uptake of immediate post-abortion LARC than women attending the hospital gynaecology department, a difference that might be anticipated given the contraceptive expertise of a SRH service with an emphasis on post-abortion contraception. This difference in LARC uptake was particularly evident when comparing women having an outpatient EMA, whose entire care could be delivered from a SRH setting. This was primarily due to higher uptake of the implant at the SRH site. Availability of sufficient numbers of staff to provide the implant is likely to have been an important factor since SRH clinicians were universally trained to insert this, but this was not the case at the hospital. Indeed, concurrent qualitative research that we conducted amongst staff at both sites during the study indicated that even when women had been counselled and prescribed an implant, staff trained to insert the implant were not always available at the hospital setting, particularly for women having an outpatient EMA who remained on clinic premises for a short time only.<sup>21</sup> In addition, the training requirements to insert contraceptive implants and competing hospital commitments were identified by staff as barriers to providing this particular LARC method within the hospital setting.<sup>21</sup>

The reasons for the higher rates of referral for fast-track IUC after medical abortion from the SRH site



and higher attendance rates compared to the hospital remain speculative but may reflect the contraceptive expertise of SRH staff and possibly greater promotion of LARC from the SRH setting. A recent study from Sweden showed that EMA delivered by nurse-midwives was associated with higher uptake of LARC compared to care delivered by hospital gynaecologists.<sup>22</sup> The authors of this study suggested that this might reflect a greater family planning expertise of Swedish midwives compared to gynaecologists, which would support our interpretations of increased immediate LARC uptake when abortion care is delivered by contraceptive specialists.

In contrast, there was lower uptake of the injectable from the SRH site compared to the hospital. Since the injectable is not as effective as either IUC or the implant, it is possible that the SRH service does not promote this method to the same extent as other LARCs. Also, administration of the injectable does not require the skill and training that implant insertion requires, making it easier to provide.

Although there may be concerns that abortion services might place undue pressure on women to choose LARC post-abortion, anonymous surveys of women requesting an abortion at the study settings have shown that the vast majority (over 95%) of women do not feel under pressure to choose a particular method of contraception and value the opportunity to discuss this.<sup>16 23</sup>

Of women having a surgical abortion in our study, over one-third opted to have IUC inserted compared to approximately 1 in 10 women after a medical abortion. The trend for women to have a medical method of abortion rather than a surgical procedure removes the opportunity for them to have immediate insertion of IUC, and necessitates another visit and so may reduce the motivation to have this method.<sup>11</sup>

This is the only study to date that compares contraceptive uptake among women having an abortion in a hospital gynaecology and community SRH setting. The strengths are the size of the cohort, the prospective data collection, and the fact that the study was conducted in the same city, over the same period of time, with the same clinical protocols (including those for contraception) at both sites. Clearly, however, this study was not a RCT and women were not randomised to which site they attended for assessment; rather the centralised referral service allocated the next available appointment depending on the day of the week that women were referred. Although we are not aware of any deliberate allocation of women to a particular site, we cannot exclude the possibility that women with more medical problems were preferentially allocated to one site more frequently than the other and so residual bias between the groups of women is likely. Another limitation of the study design is that whilst quantitative data can demonstrate differences in uptake of contraception, they cannot

explain the reasons for such differences. However, qualitative research into staff working at both sites and of women attending both services supports our *a priori* theory, namely that the contraceptive expertise and resources within a SRH service places greater focus on post-abortion contraception.<sup>21</sup>

Given the evidence that higher uptake of immediate post-abortion LARC is associated with a reduced risk of subsequent abortion,<sup>1 4-9 13</sup> it is clearly important to ensure the same high-quality contraceptive provision to women following abortion in all settings. Our findings do not imply that we shift abortion care from hospital gynaecology to SRH settings. Provision of abortion from hospital settings is important for staff and student training, and the recognition and management of medically challenging cases. Moreover, at a time when there is growing recognition of the need to improve the quality of postpartum contraception from maternity services,<sup>24 25</sup> it seems counterproductive to remove abortion care and post-abortion contraception from a hospital setting. Furthermore, there is evidence that doctors who receive training in abortion as part of their training in obstetrics and gynaecology enhance their skills in counselling, contraception, ultrasound and uterine aspiration, which is to the benefit of women with other gynaecological conditions.<sup>26</sup> Rather, hospital and community SRH services should be working more closely to improve provision of contraception for women following all reproductive events.

This study showed that women who received abortion care from a specialist contraceptive setting of SRH had higher uptake of post-abortion LARC than women assessed over the same timeframe at a hospital gynaecology department in the same city. These findings support the need to ensure that clinical staff working in abortion care across all settings has contraceptive expertise, and this includes having sufficient numbers who are trained to be able to insert the contraceptive implant for women choosing this method.

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