Improving uptake of the copper intrauterine device for emergency contraception by educating pharmacists in the community

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ABSTRACT

Objectives The copper intrauterine device (Cu-IUD) is the most effective method of emergency contraception (EC) and provides ongoing contraception, yet few women choose this option. This study evaluates the impact of an educational initiative involving pharmacists on uptake of Cu-IUDs for EC in an integrated sexual health clinic in the North East of England.

Methods Since November 2010, local pharmacists have received intensive education detailing EC options including Cu-IUDs. At the same time a rapid access referral pathway for fitting of an emergency Cu-IUD was established. The impact of this initiative has been assessed by analysing case notes of women attending a large city centre sexual health service who received an emergency Cu-IUD during September and October 2010 (prior to the initiative) and the same 2 months in 2011 (9 months after the start of the intervention).

Results The number of women fitted with an emergency Cu-IUD increased by almost three-fold from 11 fitted in September and October 2010 to 30 fitted in these 2 months in 2011. One woman was referred from a pharmacist to the service in the first audit period compared with 17 in the second. No pregnancies occurred in the first month after Cu-IUD insertion in these 41 women.

Conclusions Educating pharmacists has increased referral and uptake of Cu-IUD used for EC and this has the potential to reduce unintended pregnancies now and in the future.

Key message points

- Providing educational seminars for local pharmacists, together with developing a rapid referral pathway for fitting of copper intrauterine devices (Cu-IUDs), increases uptake of this method for emergency contraception (EC) by almost three-fold.
- Following this intervention there was an increase in the proportion of women under 20 years of age choosing the Cu-IUD for EC.
- Approximately two-thirds of the women choosing an emergency Cu-IUD were nulliparous in both audit periods.

INTRODUCTION

Emergency contraception (EC), including the copper intrauterine device (Cu-IUD) or hormonal methods such as levonorgestrel (LNG) or ulipristal acetate (UPA), is used to prevent pregnancy after intercourse when no method of contraception is used or when there is potential method failure such as a split condom or forgotten pills. The use of LNG EC in the UK has increased markedly in the last decade since it became available as a 'pharmacy-only preparation' in 2001. All pharmacies in Scotland and many pharmacies in England, Wales and Northern Ireland are currently funded by the National Health Service (NHS) to provide this method free of charge to eligible women requesting EC and this has further increased its use. Provision of LNG 1.5 mg (Levonelle 1500®) in Newcastle upon Tyne pharmacies has increased by 43.8% from 7644 prescriptions in the 2007/2008 financial year to 10 993 in 2010/2011 (data on file, Bayer plc). However, there is no evidence that widespread use of LNG EC reduces unintended pregnancy rates[1] as there has been little change in the abortion rate for England and Wales between 2008 and

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2011 (18.2 per 1000 resident women aged 15–44 years in 2008 compared with 17.5 per 1000 in 2011).[2 3]

In contrast, the Cu-IUD is a safe and effective alternative to hormonal EC. A recent systematic review of 42 studies including eight different types of IUD in 7034 women who presented for EC and were provided with Cu-IUD describes a pregnancy rate of just 0.09%.[4] In addition, a Cu-IUD provides ongoing contraception with immediate effect that is easily reversible, independent of the user, highly effective and lasts a minimum of 5 years. However the last Office for National Statistics opinions survey that interviewed 1093 women aged 16–49 years in 2008/2009 about their contraceptive use stated that fewer than 0.5% of women had been fitted with an emergency Cu-IUD in the year prior to interview compared with 7% who had taken LNG EC.[5] Why hasn't use of the Cu-IUD for EC increased in the same way as LNG EC? Could it be that increased access and availability of LNG EC in local pharmacies prevents women from accessing the most efficacious EC method to avoid pregnancy?

Towards the end of 2010 we were concerned that women in the North East of England were receiving LNG EC from pharmacists (funded from the North of Tyne Primary Care Trust cluster) without necessarily being aware of the increased efficacy of an emergency Cu-IUD. This survey evaluates the impact of local pharmacist education and establishment of a rapid referral pathway for emergency Cu-IUD insertion on the numbers of women being fitted with an emergency Cu-IUD in a large city centre sexual health clinic.

METHODS

The study was undertaken in a city centre sexual health clinic in North East England, UK that provides all forms of contraception including EC to a population of 277 800 with high levels of social deprivation and teenage pregnancy.[6]

Accredited pharmacists within the North of Tyne area have been offering hormonal EC since 2007 using a patient group directive. Initially this was solely LNG EC until funding was made available by commissioners in 2012 for the use of UPA 30 mg for Days 4 and 5 following unprotected sexual intercourse (UPSI). Accreditation requires completion of an e-learning module and attendance at a 2-hour seminar provided by local contraceptive service leads throughout the year. In total, 307 pharmacists have completed the accreditation process.

From November 2010, the evening seminars for accreditation and updating were altered to emphasise the efficacy of the Cu-IUD when compared to hormonal EC. It was recommended that a Cu-IUD be offered first line even if women present within 72 hours of UPSI. Rapid referral pathways for emergency IUD insertion were introduced and pharmacists were asked to issue LNG 1.5 mg to women who were referred for an emergency Cu-IUD fit, just in case they failed to attend or a Cu-IUD could not be inserted. For those accredited pharmacists who were unable to attend one of these updates following the change in guidance in November 2010, this information was sent to them by e-mail.

A referral form detailing name, address and telephone number and salient clinical details was completed by the pharmacist and either faxed by the pharmacist or taken by the woman to her preferred local contraception and sexual health clinic for immediate assessment and IUD fit if appropriate clinically.

To accommodate the anticipated increase in numbers of women requesting an emergency Cu-IUD, extra medical and nursing staff were trained or re-trained to fit Cu-IUDs. This ensured that there was at least one clinician trained in intrauterine techniques available for each clinic session and an additional fitting clinic was timetabled per week.

To evaluate the impact of this initiative, women who had a Cu-IUD fitted for EC in September and October 2010 (before the intervention began) and in September and October 2011 (9 months after the intervention started) were identified using the information technology system that records and extracts the Sexual and Reproductive Health Activity Dataset (SHRAD), and their case notes were analysed.

RESULTS

Between 1 September 2010 and 31 October 2010, 11 women attending the city centre sexual health clinic had a Cu-IUD fitted for EC. One woman was directed by a pharmacist in this first audit period and she had been given LNG 1.5 mg prior to onward referral. Two women had taken LNG EC in the community prior to their Cu-IUD fit: one had received it from her general practitioner (GP) and the source was not documented for the other woman.

Those having a Cu-IUD fitted for EC purposes increased to 30 women in the second audit period between 1 September 2011 and 31 October 2011 (a 2.73-fold increase). Seventeen women were referred by a community pharmacist and, of these, 14 women received LNG EC prior to referral; one of the 17 women declined LNG EC from the pharmacist as she was concerned it might reduce her fertility.

Table 1 shows the number of women choosing Cu-IUD for EC compared with those choosing Cu-IUD or the LNG-releasing intrauterine system (IUS) for reasons other than EC during the two audit periods. The characteristics of women choosing a Cu-IUD for EC are shown in Table 2. The proportion of women who were aged <20 years increased from 18.2% to 50% between the two audit periods. The proportion of nulliparous women choosing an

Table 1 Increase in the number of copper intrauterine devices fitted for emergency contraception purposes in sexual health clinic between 2010 and 2011

Type of intervention	September/ October 2010 (*n*)	September/ October 2011 (*n*)	Increase [*n* (%)]
Cu-IUDs fitted for EC	11	30	19 (172.7)
Referred by pharmacist	1	17	16 (1600)
Cu-IUDs/IUS fitted for reasons other than EC	67	85	18 (26.9)
Total contraception attendances logged during this period	2254	2649	395 (17.5)

Cu-IUD, copper intrauterine device; EC, emergency contraception; IUS, intrauterine system.

emergency Cu-IUD was 63.6% in the 2010 audit period and 70% in 2011.

IUDs for EC were fitted on the day of the sexual health service assessment if clinically appropriate and if staffing allowed. In 2010, all 11 women had their Cu-IUD for EC fitted that same day. In 2011, the fitting of the Cu-IUD for EC was delayed in 6/30 women for a variety of reasons including treatment of bacterial vaginosis (1 patient), lack of trained staff (2), the patient changing her mind (2) and reason unknown (1).

Table 3 shows the proportion of women fitted with a Cu-IUD for EC who presented outside the time interval licensed for hormonal EC with only 13.3% of women choosing IUD for EC because they were 'too late' for a hormonal method in the 2011 audit period.

In the 2010 audit period one woman requested removal of the device at the clinic in the first 6 months after fitting (Table 4). This was due to intolerable pain on Day 2 post-insertion. Of the remaining 10 women, five (50%) attended for a Cu-IUD check at 3–6 weeks post-fitting, four attended at least once between 7 weeks and 18 months and one woman failed to attend the clinic at any point in the 18 months after fitting. There were two removals between 6 and 12 months after fitting: one at 183 days due to irregular bleeding and one at 308 days (no reason documented). One further removal occurred after 12 months due to heavy menstrual bleeding.

At best this gives a continuation rate of 9/11 (81.1%) at 6 months and 8/11 (72.7%) at 12 months assuming that the women did not have their Cu-IUD removed in another contraceptive service or by their GP.

In the 2011 audit period 2/30 women had their Cu-IUD removed within 6 months at the clinic: one on the same day as insertion due to pain and vomiting and the other at 7 weeks due to unacceptably heavy menstrual periods (Table 5). Thirteen (44.8%) women attended for an Cu-IUD check at 3–6 weeks after fitting and nine women returned to the clinic between 7 weeks and 9 months after fitting and they all wanted to continue using the Cu-IUD as their method of contraception. Seven women failed to attend the clinic at any point in the 8 months after fitting.

Due to the timing of the last audit period there are only 8 months 25 days of follow-up data for these women between 31 October 2011 and 25 July 2012.

Table 2 Characteristics of women fitted with copper intrauterine devices for emergency contraception

Characteristic	September/October 2010 [*n* (%)]	September/October 2011 [*n* (%)]
Age (years)		
<20	2 (18.2)	15 (50.0)
20–29	8 (72.7)	8 (26.7)
30–39	1 (9.1)	4 (13.3)
>39	0 (0)	3 (10.0)
Parity		
Nulliparous	7 (63.6)	21 (70.0)
Parous	4 (36.4)	9 (30.0)
Contraception at time of EC request		
None	7 (63.6)	20 (66.7)
Condom	4 (36.4)	10 (33.3)

EC, emergency contraception.

Table 3 Time interval between earliest episode of unprotected sexual intercourse and insertion of a copper intrauterine device for emergency contraception at sexual health services*

Time interval*	2010 data [*n* (%)]	2011 data [*n* (%)]
<72 hours	3 (27.2)	16 (53.3)
72–120 hours	3 (27.2)	9 (30.0)
>120 hours	2 (18.2)	4 (13.3)
Unknown	3 (27.2)	1 (3.3)
Total	11 (100.0)	30 (100.0)

*Or assessment appointment if fitting delayed due to lack of trained staff or clinical reasons.

Table 4 Copper intrauterine device removal and continuation data for 2010 audit period

At follow-up visit	Interval from Cu-IUD fit: Months	Interval from Cu-IUD fit: Days	*n* (%)	Total [*n* (%)]
Cu-IUD removed at follow-up visit	<6	2	1 (9.1)	4 (36.4)
	6–12	183	1 (9.1)	
		308	1 (9.1)	
	>12	397	1 (9.1)	
Cu-IUD still *in situ* when last seen in clinic	<6	21	2 (18.2)	6 (54.5)
		129	1 (9.1)	
	6–12	308	1 (9.1)	
	>12	533	1 (9.1)	
		616	1 (9.1)	
Did not attend for follow-up				1 (9.1)
Total in 2010 audit period				11 (100.0)

Cu-IUD, copper intrauterine device.

Table 5 Copper intrauterine device removal and continuation data for 2011 audit period

At follow-up visit	Interval from Cu-IUD fit		*n* (%)	Total [*n* (%)]
	Months	Days		
Cu-IUD removed at follow-up visit	<6	<1	1 (3.3)	6 (20.0)
		51	1 (3.3)	
	6–9	203	1 (3.3)	
		213	1 (3.3)	
		221	1 (3.3)	
		260	1 (3.3)	
Cu-IUD still *in situ* when last seen in clinic	<1	12–28	8 (26.7)	17 (56.7)
	2–3	29–84	2 (6.7)	
	4–6	85–168	5 (16.7)	
	>6	>168	2 (6.7)	
Did not attend for follow-up				7 (23.3)
Total in 2011 audit period				30 (100.0)

Cu-IUD, copper intrauterine device.

Four women had their Cu-IUD removed between 6 and 9 months after insertion: three due to unacceptable heavy menstrual bleeding and dysmenorrhoea and no reason was documented for one patient. At best this gives a continuation rate of 28/30 (93.3%) after 6 months and 25/30 (83.3%) after 8 months assuming that the women did not have their Cu-IUD removed elsewhere.

For those women who attended the sexual health service after emergency Cu-IUD insertion no pregnancies occurred immediately post-insertion or at any other time in the follow-up period. Unfortunately we do not have any information concerning the eight women who were never seen in the clinic following their Cu-IUD insertion for EC.

DISCUSSION

This audit shows that providing detailed educational seminars about EC to pharmacists in combination with the provision of a rapid referral pathway for Cu-IUD fitting was associated with a near trebling of the uptake of Cu-IUD for EC in a city centre sexual health clinic. Fifty percent of women choosing Cu-IUD for EC in the second audit period were under 20 years old and 70% were nulliparous. Fourteen of the 17 women referred for an emergency Cu-IUD by a pharmacist had received LNG prior to onward referral.

The insertion of an emergency Cu-IUD rather than using LNG EC has the potential to reduce unintended pregnancies for three reasons.

First, the Cu-IUD is a more effective emergency contraceptive than either LNG or UPA. A prospective observational cohort study conducted in China reported no pregnancies occurring prior to, or at first follow-up visit, of 1893 women using the CuT380A IUD for EC within 120 hours of UPSI, making the CuT380A IUD 100% effective in this particular study.[7] In contrast, the meta-analysis performed by Glasier *et al*.[8] comparing use of LNG EC and UPA within the first 72 hours of UPSI described a pregnancy rate of 35 pregnancies in 1617 women (2.2%) for LNG and 22 in 1625 women (1.4%) for UPA. By combining the above pregnancy rate following LNG EC with the knowledge that there were 10 998 prescriptions of LNG EC by pharmacies in Newcastle upon Tyne in the financial year 2010/2011 we can calculate that approximately 242 unplanned pregnancies might have been expected. Although not all women want a Cu-IUD fitted for EC, recent survey information from women attending for EC or pregnancy testing in the USA indicate that 12–13% of those women surveyed would be interested in a Cu-IUD for EC if one were offered to them.[9 10] If just 12% of the 10 998 women requesting EC had been fitted with a Cu-IUD instead of relying on LNG EC alone there would have been 213 unplanned pregnancies: 29 fewer than anticipated with LNG EC alone. This simple example highlights the potential reduction in unplanned pregnancies that may be possible if Cu-IUDs were fitted more frequently for EC. (However, we should point out that in order to meet this increased level of demand the contraceptive services would require the necessary capacity to fit approximately 110 Cu-IUDs for EC per month.)

Second, a Cu-IUD becomes immediately effective as a long-term contraceptive method unlike 'quick starting' hormonal contraception following hormonal EC. We know from a meta-analysis of two randomised trials comparing the efficacy of UPA and LNG that no matter which method of hormonal EC was used, women who had further UPSI after using EC (n=171, pregnancy rate 6.4%) were more than four times as likely to get pregnant than those who did not report further intercourse (n=3274, pregnancy rate 1.5%) [odds ratio 4.64; 95% confidence interval (CI) 2.22–8.96; p=0.0002].[11] The emergency Cu-IUD provides effective ongoing contraception that 'bridges the gap' between EC and future contraception.

Finally, the Cu-IUD is an effective method of contraception that if left in place could potentially provide many years of ongoing contraception without the need for any further intervention. Recent data suggest that women initially choosing Cu-IUD or implant for contraception have a significantly lower cumulative pregnancy rate over the next 3 years than women choosing a combined hormonal method: 21 pregnancies in a cohort of 5781 women who initially chose a Cu-IUD or implant compared with 133 in 1527 women who chose a combined hormonal method (hazard ratio 21.8, 95% CI 13.7–34.9).[12]

One explanation for this marked increase in the use of Cu-IUD for EC could be that women attending a sexual health service are better informed about all methods of contraception. There has been a steady rise in patient numbers attending the integrated sexual

health service since it moved into the city centre in April 2009. In September and October 2009 there were 2036 attendances for contraception, rising to 2254 in the same months in 2010 and 2649 in 2011. However, both the increase in Cu-IUD/IUS fits for non-EC reasons (26.9%) and the increase in attendances for contraception between the two audit periods (17.5%) are an order of magnitude lower than the 172.7% increase seen in Cu-IUDs fitted for EC.

Another confounder might be that women are more familiar with the use of Cu-IUD for EC as a result of sexual health service and accident and emergency staff together with GPs being updated about EC efficacy and recommending Cu-IUDs for EC. This might encourage women to attend for an emergency Cu-IUD. However, these data show that most of the increase in uptake in emergency Cu-IUD seen in the second audit period is as a result of more referrals from local pharmacists (from one to 17 women).

The authors acknowledge that the sample sizes are small and that the study would be more robust with a longer audit period of 12 months showing a sustained effect of the intervention but it was felt that the topic was important enough to justify publication of these small numbers.

The use of LNG 1.5 mg prior to onward referral for an emergency Cu-IUD fit was disseminated at the educational seminars. This good practice point from the Faculty of Sexual & Reproductive Healthcare guidance on EC theoretically reduces unintended pregnancy rates for those women who change their mind about having a Cu-IUD fitted or when Cu-IUD cannot be fitted for technical reasons.[13] In the first audit period the only woman referred by a pharmacist received LNG and in the second audit period 88.2% were offered LNG prior to onward referral. It is reassuring that if these women had failed to attend for their emergency Cu-IUD fitting they would have received hormonal EC rather than no form of EC.

This simple intervention involving local pharmacists could be developed elsewhere in the country with similar success rates as long as the contraceptive services are appropriately funded with sufficient trained staff available to fit Cu-IUDs. The rapid referral system using fax or telephone could easily be used by other health care professionals providing hormonal EC such as small primary care practices, school health advisors, walk-in centres and accident and emergency departments.

Competing interests Kathryn Clement has no competing interests. Diana Mansour has received financial support to attend pharmaceutical advisory board meetings, undertake research studies, and speak at educational meetings and conferences and has received travel grants from Astellas, Bayer, Consilient Healthcare, HRA Pharma, Merck, Pfizer and Vifor Pharma.

Ethics approval The study did not require ethics committee approval as the data were obtained by auditing case notes before and after a period of pharmacist education.

Provenance and peer review Not commissioned; externally peer reviewed.

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