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The intrauterine device as emergency contraception: how much do young women know?^{☆,☆☆}

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Abstract

Background: Unprotected intercourse is common, especially among teens and young women. Access to intrauterine device (IUD) as emergency contraception (EC) can help interested patients more effectively prevent unintended pregnancy and can also offer ongoing contraception. This study evaluated young women's awareness of IUD as EC and interest in case of need.

Study design: We conducted a secondary analysis of data from young women aged 18–25 years, not desiring pregnancy within 12 months, and receiving contraceptive counseling within a cluster-randomized trial in 40 US Planned Parenthood health centers in 2011–2013 ($n=1500$). Health centers were randomized to receive enhanced training on contraceptive counseling and IUD placement, or to provide standard care. The intervention did not focus specifically on IUD as EC. We assessed awareness of IUD as EC, desire to learn more about EC and most trusted source of information of EC among women in both intervention and control groups completing baseline and 3- or 6-month follow-up questionnaires ($n=1138$).

Results: At follow-up, very few young women overall (7.5%) visiting health centers had heard of IUD as EC. However, if they needed EC, most (68%) reported that they would want to learn about IUDs in addition to EC pills, especially those who would be very unhappy to become pregnant (adjusted odds ratio [aOR], 1.3; 95% confidence interval, 1.0–1.6, $p<.05$). Most (91%) reported a doctor or nurse as their most trusted source of EC information, over Internet (6%) or friends (2%), highlighting providers' essential role.

Conclusion: Most young women at risk of unintended pregnancy are not aware of IUD as EC and look to their providers for trusted information. Contraceptive education should explicitly address IUD as EC.

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Implications: Few young women know that the IUD can be used for EC or about its effectiveness. However, if they needed EC, most reported that they would want to learn about IUDs in addition to EC pills, especially those very unhappy to become pregnant. Contraceptive education should explicitly address IUD as EC.

Keywords

Intrauterine device as emergency contraception; IUD; Emergency contraceptive; Contraceptive; Long-acting reversible contraception; Contraceptive knowledge

1. Background

Unprotected intercourse is common in the United States, as is unintended pregnancy, especially among young women (18–25 years) [1]. Requests for emergency contraception (EC) provide a unique and time-sensitive opportunity to prevent an unwanted pregnancy, as well as to offer ongoing contraception [2]. However, EC remains underutilized, with 23% of sexually experienced teen females reporting ever use [3]. The limited research about EC knowledge among teens and young women suggests that many are poorly informed [4,5]. One study of uninsured teens and young women showed that many were under the false impression that EC had to be taken within 1 day of unprotected sex (44%) and incorrectly identified EC pills (ECPs) as regular birth control (40%), or an abortion pill (40%) [5].

The provider visit is an important time to offer counseling on the full range of contraceptive methods, including the intrauterine device (IUD), which is unfamiliar to many young women [6,7]. For patients to access the IUD, including for EC, a visit with a clinician trained in placement is required, and clinic flow must allow for adequate appointment time. Thus, accessing the IUD as EC is more challenging than oral ECPs with prescription or over-the-counter availability. However, the copper IUD (Cu-IUD) as EC has significantly higher efficacy than ECPs while offering ongoing contraceptive protection [8,9]. In addition, its efficacy remains high in circumstances where ECPs may be less effective, including among obese patients [10], those in the fertile window [2,10] and those with repeat episodes of unprotected intercourse within the five-day window [8].

Nevertheless, provider awareness and provision of IUD as EC remains low, restricting women's access. Among contraceptive providers in a state family planning program where Food and Drug Administration-approved contraceptives were available at no cost to low-income women, most providers (85%) had never recommended the IUD for EC to patients [11]. Similarly, only 16% of obstetrician-gynecologists nationally reported ever providing the IUD for EC [12]. A multispecialty survey showed that knowledge of IUD as EC is far lower among providers who see, but do not focus on, reproductive-aged women; for example, 84% of reproductive health providers had heard of IUD as EC compared to only 32% of pediatricians and 22% of emergency room providers [13]. Clinic-level access to IUD as EC is also limited; a mystery caller study in 9 US cities found that 49% of family planning clinics offered the IUD as EC, while only 14% of obstetrician-gynecologists and 3% of primary care clinics did so [14].

However, studies suggest that women would be interested in using the IUD as EC, were they to have the knowledge and access [15–17]. A study in Utah family planning clinics found that over one-third of women seeking EC would be interested in a contraceptive method that was long term, highly effective and reversible, and 13% would be interested in the IUD as EC [16]. A study in Pittsburgh showed that 15% of women seeking EC or pregnancy testing (12%) were interested in same-day IUD placement [17].

There is a gap in the scientific literature, however, showing nationally whether young women at risk of pregnancy are aware of the IUD as EC and how much they learn in contraceptive counseling. In this analysis of a national trial of young women at clinic visits, we investigated their knowledge and interest in the IUD as EC.

2. Methods

We conducted a post hoc secondary analysis of data from a cluster-randomized trial in 40 Planned Parenthood health centers across the United States in 2011–2013. Health centers were randomly assigned to receive a 4-h evidence-based training intervention ($N=20$) on patient-centered contraceptive counseling skills, long-acting reversible contraception (LARC) and IUD placement, described in full elsewhere [18], or to provide standard care ($N=20$). In brief, the training intervention emphasized patient-centered counseling with shared decision making, LARC-specific ethical issues, integration of same-day LARC access into clinical practice and technical assistance for LARC reimbursement. Importantly, the intervention did not focus specifically on the IUD as EC. Standard care varied but was guided by a shared set of evidence-based contraceptive protocols.

Eligible health centers had 400 or more annual contraceptive patients, <20% IUD and implant use among eligible patients, no current LARC-specific intervention program and no staff shared with another study site. The health centers served young and low-income women from diverse racial/ethnic groups. These 40 study sites were distributed across 15 states covering all four Census Bureau-defined regions, and women were recruited at general reproductive health and abortion visits. All clinicians and staff at intervention sites underwent training (over 250 staff). The study was registered at [ClinicalTrials.gov](https://clinicaltrials.gov/ct2/show/study/NCT01360216) (NCT01360216).

The trial enrolled 1500 women (intervention $n=802$, control $n=698$) who met the following criteria at presentation to a study site: aged 18–25 years, at risk of pregnancy (sexually active within the 3 previous months and not pregnant), receiving contraceptive counseling and not desiring pregnancy within 12 months. Patient clinic visit included contraceptive counseling, in the context of gynecologic or abortion care. Participants completed a baseline survey assessing sociodemographics, prior contraceptive use (coded as any use and most effective method used within 3 months prior to baseline) and awareness of contraceptive methods. Participants were followed for 1 year, completing surveys quarterly by phone or online. This study was approved by both University of California, San Francisco, Committee on Human Research and Allendale Investigational Review Board.

2.1. Measures

We evaluated two primary outcomes for IUD as EC: awareness of the IUD as a form of EC and interest in learning about IUD as EC if needed. Our surveys defined emergency contraceptive pill as “morning after pill or Plan B.” The measure of participant awareness of IUD as an EC method was based on the survey item, “Have you ever heard of using an IUD after unprotected sex for emergency contraception?” (yes/no). Interest in learning about IUD as EC was measured with the item “If you needed emergency contraception, would you want to learn about the IUD in addition to the morning after pill?” (yes/no). Three-month surveys asked about having heard of IUD as a form of EC, desire to learn more about IUD as EC and the participants’ most trusted source of information regarding EC; for those missing the 3-month survey, these questions were administered at 6 months. We also asked participants about the effectiveness of the IUD compared to emergency contraceptive pills (more, less, equal, don’t know), as well as their most trusted sources of information about EC at follow-up (a doctor or nurse, friends, the Internet or other source).

Baseline covariates were selected based on association with contraceptive knowledge in prior research [18]. They included age, race/ethnicity (self-identified white, Latina, black or other), insurance type (private, Medicaid/state, none, don’t know), history of pregnancy, currently has primary partner (yes vs. casual/no partner), pregnancy attitudes (very unhappy if became pregnant within 12 months vs. unhappy, happy, or very happy), unprotected intercourse in the last 3 months and practice setting (contraceptive vs. abortion). We also included study arm to examine and account for possible differences in outcomes between patients at intervention vs. control clinics.

2.2. Analyses

Our analysis population comprised participants completing the 3-month survey, or 6-month survey if they had not responded to the 3-month survey and were not missing responses to either of two outcome variables ($n=1138$). We described overall prevalence of two IUD as EC outcomes: whether they had heard of IUD as EC, and if they needed EC, whether they would want to learn about the IUD. We assessed differences in participant knowledge and perceptions of IUD as EC by each baseline covariable using logistic regression with generalized estimating equations (GEE) to account for the clustered study design, reporting robust standard errors. We repeated analyses using multivariable logistic regression with GEE to assess adjusted effects [18]. To examine the effect that attrition might have had on results, we compared the baseline characteristics of the full sample of participants who were included vs. not included in analyses. All analyses were conducted in Stata v14 (StataCorp, College Station, TX, USA). Differences were considered statistically significant at $p<.05$.

3. Results

Of the 1500 trial participants at baseline, 915 completed the items of interest as part of the 3-month survey and an additional 263 completed the items of interest as part of the 6-month survey (those who had not completed the 3-month survey), for a total of 1178. Of these 1178, 40 were missing responses to either of the outcome variables, leaving 1138 in the analyses, producing a 76% completion rate for the IUD as EC outcomes.

Participants had a mean age of 21.5 years (SD 2.2), and most had never been married (94%) (Table 1). While 31% had public health insurance and 26% had private insurance, 38% reported having no health insurance. Most participants reported a current primary sexual partner (82%), having been previously pregnant (57%) and having had unprotected sex in the last 3 months (64%). Within 3 months prior to baseline, 8% had used ECPs and 3% had used an IUD for contraception. Within the 3 months prior to baseline, the most effective contraceptive method participants reported having used was IUD (3%); implant (1%); injection (8%); pill, patch or ring (42%); condom, other barrier method, or EC (27%); or none (20%); only 8% reported any ECP use during this time period. Sociodemographic characteristics did not differ between the intervention and control groups

While most participants at baseline had heard of ECPs (86%) and the IUD (77%), awareness of the IUD as an EC method at follow-up was extremely low, with only 7.5% ($n=85$) having ever heard of using the IUD as EC (Table 2). Of those few who had heard of IUD as EC, less than half, 48%, ($n=41$) correctly reported that IUD is more effective than ECP. Nevertheless, over two-thirds (68%) of participants reported that if they needed EC in the future, they would want to learn about IUD in addition to ECP. The vast majority of participants (91%) reported that a doctor or nurse was their most trusted source of information about EC, with the Internet (6%) or friends (2%) considerably lower as the next most trusted sources (Table 2).

Multivariable analyses identified no factors associated with having heard of the IUD as EC at follow-up, including study arm (Table 3). Among all factors examined, the only one associated with interest in learning about IUD as EC was being very unhappy to become pregnant in the next 12 months (aOR, 1.26; 95% CI, 1.01–1.58; $p=.04$). For both primary outcomes (whether they had heard of IUD as EC, and if they needed EC, whether they would want to learn about the IUD), there were no significant differences by factors that might influence need for EC, including recent unprotected intercourse, current primary sexual partner, age or insurance status.

The analytic population did not differ from those missing the 3- or 6-month assessments in the trial ($n=362$) in terms of age, race, pregnancy intention, study arm or prior 3-month emergency contraceptive use.

4. Discussion

In this 40-site US study of sexually active young women, very few had heard of the IUD as a form of EC or knew of its significantly higher efficacy compared to ECPs, but most would desire to learn about it if they needed EC. The desire to learn about the IUD as EC was especially notable for those who would be very unhappy if they were to become pregnant in the next 12 months, suggesting that enhanced education about immediate and ongoing effectiveness of the IUD could be of great benefit to them. Furthermore, our results emphasized the important role of health care providers as the primary trusted source of information about EC for young women, followed far behind by the Internet or friends.

The majority of young women enrolled in our study reported awareness of ECPs, in contrast to past reports where this knowledge was less common [4], demonstrating important gains made through initiatives to increase ECP access for women of all ages [19]. However, the low proportion of women in our study reporting having heard of the IUD as EC, less than 10%, highlights the importance of presenting the IUD as the form of EC that also offers ongoing contraceptive protection in patient education. Women needing immediate EC generally have a strong desire to prevent pregnancy [20], and studies show that those using IUD as EC were significantly more likely to be using an IUD or other effective method at 6 months [21], and less likely to have an unintended pregnancy in the next year compared to those who use ECPs [2,13].

Updated guidelines advise that women needing immediate EC should be counseled by pharmacists or frontline staff to see providers trained in IUD placement in order to facilitate the full range of EC options [22,23]. One study found that adolescents and young women who had heard of the IUD from a health care provider were 2.7 times more likely to be interested in this method for contraception [6]. This finding accentuates the need to overcome logistical challenges of rapid access or referral within the appropriate time window after unprotected intercourse.

Actionable steps to improve access to IUD as EC have been demonstrated in various trials. An effort to educate pharmacists and improve rapid access referral increased the uptake of IUD as EC nearly threefold in one study [24]. A pilot study in nine family planning clinics showed that clinics were able to accommodate 77% of patients desiring IUD as EC as same-day placements, while the remaining patients returned for placement within the 5-day window after unprotected intercourse [25]. Salient changes included clinic staff training, updated EC educational materials and counseling scripts offering same-day IUD among EC options. Additional operational changes included schedule templates with walk-in availability, benefit verification early in the visit, expanded staff roles to complete counseling, consent and IUD set up and immediate access (or rapid referral) to clinicians trained in IUD placement [25,26]. Further progress may be achieved through use of online educational materials, clinician proctoring programs, swift conversion of patient no-shows to walk-in appointments, improved patient cycle times and tightened networks to assure timely referral when this service is not immediately available.

Additional IUD as EC options are under evaluation. A promising prospective trial evaluating use of the levonorgestrel (LNG) IUD along with concomitant oral LNG ECP vs. Cu-IUD as EC showed that participants preferentially chose the LNG IUD plus ECPs, neither group had treatment failures, and both had similar 1-year continuation rates [27,28].

With the preference-sensitive nature of contraceptive decisions [29–31], providers should be versed in the range of EC methods and their advantages, while remaining focused on rapport and patient priorities in their counseling. Research shows that establishing rapport and eliciting patient perspective are associated with higher satisfaction and contraceptive continuation [31]. Salient among reported patient preferences is the ability to control when to start and stop a contraceptive method [29,32], with various studies reinforcing the

importance that IUD provision come with the assurance of removal when requested and mention of the option of IUD self-removal [33,34].

Strengths of this study include a real-world clinic environment among patients at risk of unintended pregnancy, within Planned Parenthood health centers, which provide contraceptive information and services for over 2 million patients annually [35]. Our study also had limitations. Our observed lack of association between awareness of IUD as EC and study arm suggests an opportunity to more explicitly address IUD as EC in contraceptive provider training. The study intervention itself did not specifically target this IUD indication. Results may not be generalizable to all settings that provide EC such as pharmacies, primary care clinics or emergency departments, where knowledge, staff training and same-day access to IUD as EC are often lower.

In conclusion, we found that few young women know about IUD as EC or its effectiveness, and that they consider health care providers to be their most trusted source for this information. Contraceptive information from a trusted provider can have significant impact on a patient's decision making and should include all available options, while also remaining focused on patient priorities [36]. A coordinated effort to improve counseling, provider training and same-day access to IUD as EC will be critical to offering women their full range of contraceptive options.

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Table 1Participant characteristics at baseline ($n=1138$)

	<i>n</i>	%
Age, mean (SD), years	21.5	(2.2)
Race/ethnicity		
White	571	50.2
Latina	310	27.2
Black	159	14.0
Other	98	8.6
Currently married ($n=1131$)	65	5.8
Educational attainment ($n=1132$)		
Less than high school	68	6.0
Completed high school	737	65.1
Some college	160	14.1
College degree	167	14.8
Health insurance type		
Private	300	26.4
Medicaid/State	348	30.6
None	437	38.4
Don't know	53	4.7
Current primary sexual partner ($n=1124$)	923	82.1
Ever pregnant ($n=1136$)	643	56.6
Any unprotected sex past 3 months ($n=1133$)	726	64.1
Very unhappy if pregnant next 12 months ($n=1134$)	476	42.0
Most effective contraception used, prior 3 months ($n=1133$)		
IUD	33	2.9
Implant	11	1.0
Injection	85	7.5
Pill, patch or ring	477	42.1
Condom, other barrier method, or EC	305	26.9
None	222	19.6
Any use of EC past 3 months ($n=1133$)	93	8.2
Study arm		
Intervention	623	54.7
Control	515	45.3
Practice setting		
Family planning	682	59.9
Abortion	456	40.1

Note: no differences in baseline characteristics by study arm were identified.

Table 2Participant knowledge and perceptions of IUD as EC at baseline and follow-up ($n=1138$)

	<i>n</i>	%
<i>Baseline</i>		
Heard of IUD ($n=1133$)	876	77.3
Heard of ECP ($n=1133$)	973	85.9
<i>Follow-up</i>		
Heard of IUD as EC	85	7.5
If needed EC, would want to learn about IUD	773	67.9
Familiarity with IUD ($n=1135$)		
Not at all	213	18.8
Sort of	464	40.9
Familiar	458	40.4
Most trusted source of information about EC ($n=1134$)		
Doctor or nurse	1035	91.3
Internet	62	5.5
Friends	21	1.9
Other	16	1.4

Note: no differences in the above characteristics were identified by study arm.

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Table 3Predictors of knowledge and attitudes of the IUD as EC at follow-up ($n=1138$)

Baseline characteristics	Heard of IUD for EC			If needed EC, would want to learn about IUD		
	aOR ^a	95% CI ^b	P	aOR ^a	95% CI ^b	P
Age	0.95	(0.84,1.07)	0.42	0.95	(0.89,1.01)	0.12
Race/ethnicity						
White	Ref	-	-	Ref	-	-
Latina	1.22	(0.77–1.92)	0.40	0.97	(0.75–1.26)	0.83
Black	1.41	(0.81–2.46)	0.23	1.34	(0.96–1.87)	0.08
Other	1.55	(0.72–3.35)	0.27	1.30	(0.88–1.93)	0.19
Insurance status						
No insurance	Ref	-	-	Ref	-	-
Medicaid/state	1.17	(0.67–2.06)	0.58	0.81	(0.56–1.18)	0.28
Private	0.74	(0.36–1.52)	0.42	1.05	(0.76–1.46)	0.77
Don't know	0.77	(0.24–2.42)	0.65	1.06	(0.56–2.01)	0.87
Ever pregnant	1.47	(0.70–3.08)	0.31	0.93	(0.61–1.42)	0.74
Used LARC, past 3 months	1.08	(0.35–3.37)	0.90	0.83	(0.39–1.77)	0.63
Unprotected sex, past 3 months	0.97	(0.55–1.71)	0.91	0.94	(0.75–1.18)	0.59
Currently has primary sexual partner	0.92	(0.47–1.81)	0.80	0.98	(0.70–1.37)	0.91
Very unhappy if pregnant, next 12 months	1.31	(0.83–2.06)	0.24	1.26	(1.01–1.58)	0.04
Study arm						
Control	Ref	-	-	Ref	-	-
Intervention	0.97	(0.71–1.32)	0.855	0.93	(0.67–1.30)	0.69
Practice setting						
Family planning	Ref	-	-	Ref	-	-
Abortion site	0.97	(0.63–1.49)	0.895	1.23	(0.82–1.85)	0.32

^aaOR = adjusted odds ratio.^bCI = confidence interval.